

From: Wojtowicz, Emma (NIH/OD) [E] [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=45C6610ACA6E44 A08D497630425E5ECD-WOJTOWICZEM]
Sent: 5/15/2020 11:40:52 AM
Subject: NIH News Briefing for Friday, May 15, 2020
Attachments: NIHNewsBriefingFactiva200515.doc

[Click to access](#) online version optimized for different mobile platforms, audio version, and fully searchable archives of NIH News Briefings.

 The linked image cannot be displayed. The file may have been moved, renamed, or deleted. Verify that the link points to the correct file and location.

DATE: FRIDAY, MAY 15, 2020 7:30 AM EDT

Today's Table of Contents

NIH News

- Trump Mobilizing U.S. Military To Deliver Coronavirus Vaccine.
- Fauci Loses Support From Republicans After Trump Criticism, Poll Shows.
- Without Wearing A Mask, Trump Tours Pennsylvania Mask Distribution Center.
- Put Rand Paul In The Penalty Box.

- France Angered By Suggestion U.S. Would Get First Access To Coronavirus Vaccine By French Pharma Company Sanofi.
- After Wisconsin Court Ruling, Crowds Liberated And Thirsty Descend On Bars. 'We're The Wild West,' Gov. Tony Evers Says.
- NIH Starts Study Testing Combination Of Azithromycin And Hydroxychloroquine For Treatment Of COVID-19.
- Trump's Marks For Handling COVID-19 Outbreak Decline – CBS News Poll.
- Researchers Working On Remdesivir Cocktail.
- Who Needs Science When We Have Trump's Tremendous Instincts?
- Dr. Deborah Birx Wins Praise For Managing The White House's Coronavirus Message And Trump.
- Trump Predicts Coronavirus Vaccine Will Come This Year.
- Public Health School Deans Urge Trump To Triple Coronavirus Testing Or Face Cycles Of Shutdown.
- California Tells Hospitals To Consider Having A Lottery For Sought-After Covid-19 Drug.
- Large Majority Of Americans Say Country Lags In Testing Availability: POLL.
- States Are Letting Stay-At-Home Orders Expire, Regardless Of Virus Metrics.
- Is Anthony Fauci Today's Galileo Galilei, The Champion Of Science?
- Trump's Plan To Limit The Pandemic's Death Toll: Undercount The Numbers.
- Fox News Dumps Coronavirus Coverage For Anti-Obama Conspiracy Theory.
- Tensions Rise As Texas Governor Readies To Lift More Rules.
- Coronavirus Question: Let's Say A Vaccine Proves Safe And Effective. Then What?
- 'Re-Examine All The Evidence': Rand Paul Demands Fauci Reconsider Position On School Closures.
- White House To 'Reconfigure' Coronavirus Task Force With An Emphasis On Reopening The Country.
- Remdesivir Distribution Causes Confusion, Leaves Some Hospitals Empty-Handed.
- Top Health Officials Vanish From National TV Interviews As White House Refocuses Messaging.
- Trump Is Smearing Fauci.
- Trump Admin Shoots The Messenger As Whistleblower Highlights Ongoing Issues.
- Trump Dismisses Fauci's Warning Against Reopening Schools: 'I Totally Disagree'.
- Trump Is Blaming China For Coronavirus Even As He Employs The Same Authoritarian Tactics As Xi Jinping.
- White House Press Secretary Disputes Poll That Show Americans Trust Dr. Fauci Much More Than Trump.
- Column: We Shut Down The Economy To Make Progress Against COVID-19 – And Then Made No Progress.
- Rand Paul Delivers A Magnificent Reality Smack To Anthony Fauci.
- Editorial: Fauci's Caution On Schools Is Sound, No Matter What Non-Physician Trump Says.
- NIH Begins Trial To Determine How Effective Hydroxychloroquine.
- Interferon Emerges As Potential Treatment For COVID-19.
- U.S. Accuses Chinese-Born Researcher At Cleveland Clinic Of Ties To Chinese Spying.
- Talking In Enclosed Space Can Generate Droplets That Linger For Up 14 Minutes, Study Finds.
- Experimental Injection Of 'Good' Bacteria Significantly Cut Bacterial Vaginosis Recurrence Rate.
- NCI Exceptional Responders Initiative Pilot Study Meets Feasibility Goal.
- Researchers Try Combining Remdesivir With A Second Drug To Deliver A "One-Two Punch" To Virus.
- COVID Patients Given Malaria Drug Didn't See Significant Improvements: Studies.
- Part Of Gilead's Coronavirus Drug Donation Allocated To Japan.
- Virginia Receives 2nd Shipment Of New Antiviral Drug.

- US Needs Bipartisan Push For Scientific Research After Coronavirus: Congressional Leaders.
- COVID-19 Is Threat To Our Biomedical Research Enterprise.
- Gilead Should Ditch Remdesivir And Focus On Its Simpler Ancestor.
- Both/And Problem In An Either/Or World.
- Research On TPA Nanoconjugate Aims To Extend Thrombolysis Benefits To More Stroke Patients.

Health & Medical News

- White House Officials Signal Support For COVID-19 Relief For States Despite Opposition From Some GOP Groups.
- As COVID-19 Pandemic Persists, GOP Calls For "Pause" On More Aid.
- About 75% Of US Small Businesses Seek Federal Assistance Amid COVID-19 Pandemic, Survey Shows.
- Prospects For Second Round Of Stimulus Checks Seem "Uncertain."
- Sanders Wants Senate To "Improve" House Dems' \$3T COVID-19 Relief Package.
- Bipartisan Group Of Lawmakers Proposes Compensation Fund For Essential Workers Impacted By COVID-19.
- Pelosi Pushing For Vote On \$3T COVID-19 Relief Bill Despite Objections From Some Dems.
- New York Will No Longer Force Nursing Homes To Accept Recovering COVID-19 Patients.
- Debate Over Reopening US "Increasingly Partisan And Bitter."
- Newsom Says COVID-19 Forcing Sharp State Budget Cuts.
- Cities, Counties In Texas Take Disparate Approaches To Enforcing Pandemic Restrictions.
- Michigan Closes State Capitol "As Protesters Gather" Against Stay-At-Home Order.
- Attorneys "Threaten Coronavirus Lawsuits" Against Florida Nursing Homes.
- Despite Missing Goal, Nebraska's Governor Confident In State Testing Program.
- Connecticut Governor "Moving Ahead" With May 20 Reopening "Despite Concerns."
- Just 4,000 Have Been Tested Under Iowa Program.
- South Dakota Announces Plan To Test "All Long-term Care Facility And Assisted Living Residents" Over Next Month.
- Hawaii's Governor "Inclined" To Maintain Stay-At-Home Order Until June 30.
- Louisiana Senate Approves Legislation To "Shield Businesses From Virus Lawsuits."
- States Begin Partially Opening As Residents Grow Restless, Less Willing To Shelter In Place.
- Some School Districts Ending Their Distance Learning Efforts.
- Scientists Say Testing Sewage Holds Promise For Monitoring Outbreaks Of Diseases Including Coronavirus.
- Analysis: Many "Essential" Workers Will See Pay Cuts As Companies Rescind "Hazard Pay" Policies.
- COVID-19 Accelerating Decline Of Retail Industry.
- Navy Continues To Battle Coronavirus Transmission Aboard Theodore Roosevelt Aircraft Carrier.
- Analysis: Gun Stores In Several States Ignored State-Ordered Closures, Initiated Tens Of Thousands Of Background Checks In April.
- Inspection Reports For Several Connecticut Nursing Homes Found Lapses In Infection Control, Prevention Around Coronavirus.
- Analysis: Studies Suggesting Coronavirus Can Be Spread Through Loud Talking Show Need For Face Masks In Public.
- UT Dallas Researchers Design 3D-Printed Disposable Ventilator Valve.

- Sen. Warren, Rep. Levin Propose Federal Contact Tracing Program.
- Interview: Antibiotic-Resistant Microbes Equally Important Issue During Pandemic.
- Infectious Disease Experts Warn Of Potential Dual-Season For COVID-19, Influenza During Winter.
- Norwegian Cruise Line Expects Entire Fleet To Resume Full Operations In Approximately Six Months.
- Analysis: Anti-Vaccination Advocates Mobilizing To Protest Potential Coronavirus Vaccine.
- DC-Area Metro, Metrobus Riders Required To Wear Face Coverings Effective May 18.
- Nursing Home Industry, Residents Clash Over Industry's Handling Of Pandemic.
- Opinion: Governors Need To Designate Grocery Workers As First Responders.
- WPost: COVID-19 Testing In Nursing Homes And Long-Term Care Facilities Is Essential.
- One-Fourth Of US Restaurants Will Close Due To Stay-At-Home Orders During Pandemic, OpenTable Forecasts.
- Pentagon Examining "Social Distancing Protocols" To Train, Deploy Units Amid Pandemic.
- Some Colleges Push Viral Testing, Alternative Methods To Allow Fall Semester In-Person.
- Columnist: Trump Is "In The Middle Of A Grace Period" With Voters, But That Will Not Last Indefinitely.
- Department Of Labor Issues Coronavirus Guidance To Nursing Homes.
- Trump Signs Executive Order Giving New Authority To US International Development Finance Corporation Amid Pandemic.
- Columnist: US Should Be "Pitied" For Coronavirus Response.
- Analysis: Trump Using Meetings With Governors At White House To Promote US' Economic Reopening.
- Columnist: "Virus Trutherism" Widespread On The Political Right.
- McConnell Walks Back Claim That Obama Administration Left Trump Administration No "Game Plan" For Pandemics.
- Pentagon's DPA Coordinator Reassigned To Navy Position.
- Trump's Press Secretary Flashes Pandemic Playbook To Reporters; Calls Obama Administration's Plan "Insufficient."
- Number Of COVID-19 Cases In Michigan Nears 50,000.
- Woman Sues Portland Nursing Home After Her Mother Died Of Coronavirus At The Facility.
- New York Governor And New York City Mayor Cannot Agree On Number Of Coronavirus Deaths In The City.
- Study Suggests Pediatric Multi-System Inflammatory Syndrome Is Tied To Coronavirus, As Cases Rise In New York.
- Fishing Boat Crews Reportedly Could Cause Coronavirus Outbreak In Cordova, Alaska.
- Hospital Leaders Approve Of Minnesota Governor's Decision To Let Stay-At-Home Order Expire.
- Pennsylvania Governor To Announce More Counties That Can Lift Some Pandemic Restrictions On Friday.
- Most Maryland Residents Will Remain Under Stay-At-Home Orders As State Starts Reopening Friday.
- WSJournal Urges Wisconsin Governor To Create Less Restrictive Stay-At-Home Order With Legislature.
- Oxford Vaccine Study Shows Promise In Monkeys.
- Pompeo: U.S. Condemns China-Linked "Cyber Actors" Trying To Steal COVID Research.
- Researcher Optimistic About Convalescent Plasma Therapy.
- Plasma Therapy Derived From Recovered COVID-19 Patients Appears Safe, Study Suggests.
- Expert Says It Will Take "Bulk Of A Year" Before Researchers Can Determine Factors In COVID-19 Immunity.
- Data Show COVID-19 Cases Are Generally Decreasing In 17 States, Rising In Nine Others.

- Fox News Host Says Bright Testimony Could Be “Potentially Politically Damaging” For Trump.
- Opinion: Pay Attention To Whistleblower, Because What Trump Disparages Is Often Truth.
- CDC Issues Health Advisory For Physicians On Childhood Illness Linked To COVID-19.
- Maine Governor Allows Out-Of-State Visitors To Reserve Rooms In Lodges, Inns Starting June 1.
- North Dakota Has Exceeded 50,000 Coronavirus Tests.
- In Rural America, COVID-19 Breakouts At Prisons Risk Overwhelming Hospitals.
- Governor Baker Says State Public Health Officials Have Expanded COVID-19 Testing Eligibility.
- Bars And Restaurants Remain Closed Under Local Milwaukee County Order.
- Virginia Officials Plan To Stop Counting Antibody Tests As COVID-19 Tests In Reports.
- As Some States Reopen, Other States Continue To Battle Coronavirus.
- New York Governor Adds Provision To State’s Budget To Prevent Some Residents From Suing Nursing Homes Amid Pandemic.
- Some Small Physician Practices Are Struggling During Pandemic, Unable To Get Coronavirus Relief.
- Pandemic Hits Low-Income Americans Especially Hard, Survey Shows.
- Close To Three Million Americans Applied For Unemployment Last Week.
- Coronavirus Pandemic Could Cost Insurance Industry Over \$200 Billion, According To Lloyds Of London.
- Medical Professionals File Lawsuit Against Michigan Governor Over Lockdown Restrictions.
- Transplant Of Brain Cells To A Patient With Parkinson’s Disease Sparks Ethical Questions.
- Reopening Spurs Divide Among State Governors, Legislatures.
- Connecticut Nursing Home Owner Purchases 400K Masks From Makeshift Supplier.
- New Jersey, Delaware Reopen Beaches For Memorial Day With Restrictions.
- Minnesota Malls Begin To Reopen Monday, However, Mall Of America Plans For June 1.
- New York Nursing Home Administrators Reportedly Worried About The State’s COVID-19 Testing Goal.
- During Contact Tracing Efforts, New York City Mayor Leans On Aide That Previously Argued Against Closures.
- Trump, EPA Decide Not To Impose Limits On Water Contaminant Linked To Fetal Damage.
- Wyoming To Relax Restrictions On Bars And Restaurants.
- Democrats Present Legislation Aimed At Protecting Health Data During COVID-19 Pandemic.
- White House List Of Coronavirus Testing Labs Not Useful, Nine States Say.
- Testing Project On Tiny Michigan Island Underway.
- AMA Warns Physicians Against Using Coronavirus Antibody Tests To Inform Healthcare Decisions.
- Virginia Governor Asks Federal Government To Increase Testing At Two Federal Detention Facilities.
- CVS Plans To Open 1,000 Self-Swab Coronavirus Test Locations By Month’s End.
- US Said To Be Making Progress In Coronavirus Testing Numbers.
- Abbott Lab’s ID Now COVID-19 Misses Up To Half Of Cases Found By Another Test, Study Suggests.
- Bill Gates-Funded Program That Provides At-Home Coronavirus Test Kits Put On Hold Until Federal Approval Is Granted.
- Pandemic Reportedly Reveals Vulnerabilities In American Business Model For Hospitals.
- Biogen Blocks Creative Biolabs From Selling Products That Allegedly Used Antibody From Its Experimental Alzheimer’s Drug.
- Opinion: New Hampshire Tobacco 21 Policy Will Reduce Chances Of Lifelong Nicotine Addiction, Protect Developing Brains.

Global Health News

- China's Foreign Ministry Says U.S. Claims Regarding Hacking Of COVID-19 Research Are Slander.
- Health Groups Ask India To Rescind Gilead's Patents For COVID-19 Drug Remdesivir.
- Russia's ChemRar Testing Favipiravir In Second-, Third-phase Testing As Potential COVID-19 Treatment.
- Chinese Automaker Backed By Buffett Fails To Gain US Approval For Their Masks.
- Total Number Of Coronavirus Cases Globally Approaches 4.4M.
- European Governments Hoping Antibody Tests Will Help Inform Strategies To Avoid Second Wave Of Infections.
- European Commission Suspends Delivery Of 10M Chinese Masks Due To Quality Concerns.
- Dental Practices In France Begin Cautiously Re-Opening.
- Italy To Start Testing Campaign Across 2,000 Cities To Understand Extent Of Outbreak.
- France's Coronavirus Death Toll Surpasses Spain's Again.
- Wuhan Starts Massive Testing Campaign Of Roughly 11M People.
- Prime Minister Abe Lifts State Of Emergency Through Most Of Japan.
- UNICEF Chief Warns Lockdowns Could Cause More Harm Than Actual Virus In Low-, Middle-Income Countries.
- Russian Government Criticizes Media Reports Claiming Russia's COVID-19 Deaths Are Underreported.
- Asian Countries, After Stopping Initial Outbreak, See Second Wave Of Cases.
- China Attempted To Dissuade New Zealand From Imposing Strict Coronavirus Restrictions.
- Canada's Prime Minister Says World Has Changed Even If Pandemic Ends Or Vaccine Is Found.
- EU's Foreign Policy Chief Calls For Independent Investigation Into Pandemic's Origins.
- IOC President Will Not "Fuel Any Speculation" That Tokyo Olympics Might Not Be Held Next Year.
- South Africa To Assign Specific Coronavirus Restrictions For Each Of Its Districts.
- Surge In Number Of People In Yemen Dying With COVID-19 Symptoms.
- Increasing Number Of Physicians In Russia Dying From Pandemic.
- UK Government In Talks With Roche To Buy COVID-19 Antibody Tests.

HHS in the News

- Trump Administration Reportedly Mulling Indefinite Border Restrictions Amid COVID-19 Outbreak.
- Gottlieb Suggests Schools Should Attempt In-Person Education This Fall When Possible.
- Opinion: Acceptance Of Pandemic's Effect On Our Lives Could Speed Up Needed Adjustments.
- Mask Manufacturer Executive Testifies About How Government Allegedly Ignored His Previous Warnings Of Insufficient Mask Production.
- White House To Require Some Essential Drugs To Be Manufactured In US, Sources Say.
- Gottlieb Says He Sees Signs That The Coronavirus Epidemic Is Slowing In US.
- Coronavirus Can Cause Strokes In Young People, Physicians Say.
- Online Pharmacy HealthWarehouse Saw Spike In Demand For Hydroxychloroquine In Mid-March.
- Survivors Of COVID-19 Pandemic In Nursing Homes Remain In Isolation.
- Former BARDA Director Says Trump Official Tried To Fast-Track Funding For His Friend's Unproven COVID-19 "Treatment."

- Thousands Volunteer To Be Exposed To Novel Coronavirus In Human Classified Trial Led By 1Day Sooner.
- Former BARDA Head Tells Congress Coronavirus Vaccine Won't Be Ready In 12 To 18 Months.
- Former BARDA Director Says Administration Ignored Warnings Of Supply Shortages.
- White House Press Secretary, Senior Trump Adviser Dismiss Ousted HHS Official's Claims.
- HHS Whistleblower's Attorneys Say Watchdog Finds "Substantial Likelihood Of Wrongdoing."
- FDA Authorizes Human Trials For AIM ImmunoTech's Drug To Treat COVID-19 In Patients With Cancer.
- Opinion: Following Science Is Best Path For Our Leaders To Avoid "Darkest Winter."
- CDC Issues Six Brief Checklists To Guide Businesses, Schools, Others On Reopening.
- Former BARDA Chief Will Start At New Job Next Week, Attorneys Say.
- Texas Paid \$45 Million For COVID-19 Tests.
- Healthcare Personnel Continue To Report Elevated COVID-19 Infection Rates.
- Rural Hospitals Need Access To Telehealth To Battle Coronavirus Pandemic, Experts Say.
- Trump Announces Plan To "Replenish And Modernize" Strategic National Stockpile.
- Former BARDA Chief Warns Trump Administration Still Has No National Plan For Pandemic.
- FDA Examining Data Showing Abbott's COVID-19 Test Delivers Inaccurate Results.
- Trump, Azar Slam Former HHS Official Who Filed Whistleblower Complaint As "Disgruntled."
- Ivanka Trump Says She Wears Mask At White House.
- Taiwan Remains Sidelined From WHO's World Health Assembly Amid Pandemic.
- HHS Awards \$15M For Expanded Use Of Telehealth Amid COVID-19 Pandemic.
- Medical Groups Urge Verma To Provide More COVID-19 Assistance For Medicare ACOs.
- In Reversal, IHS Starting To Hire Traditional Healers.
- HHS, DoD Award \$138M Contract For Expanded Production Of Prefilled Syringes To Be Used For Future COVID-19 Vaccine.

National Front Page News

- Headlines From Today's Front Pages.

Last Laughs

- Late Night Political Humor.

National News

- Trump Retweets Post Questioning Claim He Is A Racist.
- Burr Steps Aside As Chair Of Senate Intelligence Committee Amid FBI Probe.
- Senate Votes To Extend Parts Of FISA.
- WPost Report: Trump "Moving Closer To Reshaping" Postal Service.
- Trump Questions Biden's Mental Fitness.
- Abrams Promoted As Possible Running Mate For Biden.
- Rasmussen: 23% Of Republicans, 28% Of Democrats Would Prefer Different Nominees.
- Trump Touts His "22-0" Record Of Congressional Endorsements.

NIH News

Trump Mobilizing U.S. Military To Deliver Coronavirus Vaccine.

Reuters (5/14, Heavey, Chiacu) reports "President Donald Trump is mobilizing the U.S. military to distribute a novel coronavirus vaccine when one becomes available and will focus first on older Americans." Trump said on Fox Business Network, "You know it's a massive job to give this vaccine. ... Our military is now being mobilized so at the end of the year, we're going to be able to give it to a lot of people very, very rapidly." Trump "said he believes there will be a vaccine by the end of the year and the United States is mobilizing 'our military and other forces' on that assumption." NIAID Director Dr. Anthony Fauci "said the idea that there will be a vaccine available by next fall, when schools and universities resume classes, was 'a bridge too far.'"

Additional Sources. Similarly, CBS News (5/14, Watson, 3.68M) reports "Trump says he would 'rapidly' mobilize the U.S. military to distribute a coronavirus vaccine once it's ready, focusing first on nursing homes and the elderly." Trump stated, "We will have a tremendous force because assuming we get it, then you have to distribute it. ... And unless you're mobilized and ready, you're not going to be able to do it for a long time. So we're starting now."

Also reporting on the story are The Hill (5/14, Deese, 2.98M) and Newsweek (5/14, Fink, 1.53M).

Fauci Loses Support From Republicans After Trump Criticism, Poll Shows.

Forbes (5/14, Brewster, 9.71M) reports "Republicans are increasingly less supportive and trusting of" NIAID Director "Anthony Fauci, a new poll shows, a sign that criticism from GOP lawmakers (including [President] Trump) and right-wing media – who have bristled at Fauci's warnings about reopening too quickly – may be having an effect on public opinion among conservatives." The CBS News poll "found Fauci's unfavorable rating among Republicans has climbed to 31% in May, up from just 12% in April." Trusting the health expert "has also become partisan: 83% of Democrats say they trust Fauci while just 51% of Republicans say they do."

Additional Sources. CNN (5/14, 83.16M) says in an analysis that "Trump's repudiation of Dr. Anthony Fauci has long been probable. Once the trusted doctor warned of the human cost of Trump's push to quickly reopen the country, it became inevitable." On Wednesday, "Trump broke with Fauci...over the infectious disease expert's warnings that getting businesses and schools back open too quickly would lead to unnecessary suffering and death." Trump said, "I was surprised by his answer, actually. ... It's just – to me it's not an acceptable answer, especially when it comes to schools."

In a separate analysis, CNN (5/14, Liptak, 83.16M) says that "in the Cabinet Room Wednesday and in a Fox Business Network interview aired Thursday, President Donald Trump is finally airing publicly the complaints about" Fauci "that officials say he's been airing privately for weeks." The health expert's "critics on Fox and in Congress are adjusting their complaints about him to reflect the type of criticism they know appeals to Trump." However, firing Fauci "would require Trump instructing Fauci's direct boss (Health and Human Services Secretary Alex Azar) to fire him for cause, of which there isn't really one."

The Hill (5/14, Chalfant, 2.98M) reports "Trump said in an interview aired on Fox Business early Thursday that he was criticized by 'everybody,' including Anthony Fauci, for restricting travel to China to slow the spread of the novel coronavirus." Trump said, "I was criticized by everybody, including Dr. Fauci. I put in a wall. We put in a pretty strong wall. Only a small number of people were allowed in and they were all U.S. citizens."

Without Wearing A Mask, Trump Tours Pennsylvania Mask Distribution Center.

Reuters (5/14) reports that “without wearing a face mask himself, President Donald Trump toured a mask distribution center in Pennsylvania on Thursday and announced plans to replenish the U.S. strategic stockpile of medical equipment depleted by the coronavirus outbreak.” Trump “has resisted wearing a mask in public despite his administration’s guidance to Americans to wear them and new White House rules requiring that staff wear them at work.” He “toured the Owens & Minor Inc distribution center, which the White House said has sent millions of N95 masks, surgical gowns and gloves to hospitals and surgery centers across the United States. Company officials wore masks.”

Additional Sources. USA Today (5/14, Subramanian, Jackson, 10.31M) reports “Trump told a group of Pennsylvania factory employees Thursday their Democratic governor, Tom Wolf, should ‘start opening up a little bit,’ continuing to press an end to social distancing restrictions as he eyes reopening the struggling U.S. economy.” Trump said at the distribution center, “We have to get your governor of Pennsylvania to start opening up a little bit. You have areas of Pennsylvania that are barely affected, and they want to keep them closed. You can’t do that.” The piece mentions that HHS Secretary Alex Azar was wearing a face covering during the visit.

CNN (5/14, Liptak, 83.16M) reports “Trump’s quick trip to Allentown highlighted a medical equipment distribution company, where he trumpeted his administration’s record on ramping up testing and improving supply chains for personal protective equipment and ventilators.” The President “laced his speech with complaints about how his response to the virus has been covered in the media and lobbed barbs at former Vice President Joe Biden, who was born in Scranton.”

Forbes (5/14, Perez, 9.71M) reports “Trump announced he was invoking the Defense Production Act to direct the U.S. International Development Finance Corporation (DFC) – an agency he signed into being in 2018 that invests in economic development programs in developing countries – to finance domestic companies.” Trump “lavished praise on healthcare workers, saying ‘They’re running into death just like soldiers run into bullets.’”

The Hill (5/14, Samuels, Hellmann, 2.98M) reports “Trump boasted about the United States’ testing capabilities during remarks at a Pennsylvania medical equipment distribution center, where he announced the country has administered 10 million tests since the outbreak began.” Trump said, “We have the best testing in the world. ... Could be that testing’s, frankly, overrated. Maybe it is overrated.”

Politico (5/14, Ward, 4.29M) reports Trump also said, “When you test, you have a case. When you test, you find something is wrong with people. If we didn’t do any testing, we would have very few cases.” The President “said the news media had refused to report his ‘common sense’ explanation for the country’s high case numbers.”

The Washington Times (5/14, Boyer, 492K) reports Trump “faulted the Obama administration, and Democratic rival Joseph R. Biden, for leaving the U.S. unprepared for the coronavirus crisis.” Meanwhile, “Rick Bright, a [former] top coronavirus vaccine researcher at the National Institutes of Health, testified in Congress Thursday that the administration ignored his warnings earlier this year to prepare for the pandemic.”

NJ News (5/14, Salant, 1.72M) reports on the story, and adds that NIAID Director Dr. Anthony Fauci “said he was worried about states reopening too soon in testimony before the Senate Health Committee on Tuesday.”

Among other news outlets reporting on the story are ABC World News Tonight [□] (5/14, story 2, 1:05, Muir, 7.42M), the CBS Evening News [□] (5/14, story 2, 0:30, O’Donnell, 5.25M), NBC Nightly News [□] (5/14, story 3, 0:15, Holt, 7.88M), the Washington Post (5/14, 14.2M), another piece in The Hill (5/14, Samuels, 2.98M),

[Newsday \(NY\)](#) (5/14, 932K), the [New York Daily News](#) (5/14, Sommerfeldt, 2.52M), and the [Allentown \(PA\) Morning Call](#) (5/14, Olson, Merlin, 555K).

Put Rand Paul In The Penalty Box.

[Washington Post](#) (5/14, 14.2M) columnist Karen Tumulty writes that it is “too bad the Senate, unlike a hockey rink, doesn’t have a penalty box. Because that is where Kentucky Republican Rand Paul would be sitting, rather than in a hearing room lecturing the nation’s leading infectious-disease expert that he isn’t the ‘end-all.’” When NIAID Director Dr. Anthony Fauci “testified this week before the Senate Health, Education, Labor and Pensions Committee, Paul recited data that he claimed [suggest] the government’s response to the...novel coronavirus pandemic has been too cautious.” Tumulty concludes, “Paul, of all people, should know that impetuous decisions can put a lot of others at unnecessary risk.”

France Angered By Suggestion U.S. Would Get First Access To Coronavirus Vaccine By French Pharma Company Sanofi.

The [Washington Post](#) (5/14, McAuley, 14.2M) reports France’s government said “it would be ‘unacceptable’ for French pharmaceutical giant Sanofi to give the United States first access to a potential COVID-19 vaccine.” The comments came in response to statements by CEO Paul Hudson, who said “the U.S. government has the right to the largest preorder because it’s invested in taking the risk.” The piece suggests that “Hudson’s comments and further messaging from Sanofi on Thursday may be part of an effort to prod European governments to invest more in vaccine research.” However, “by Thursday morning, the company appeared to be backpedaling somewhat.” On this point, “Olivier Bogillot, head of Sanofi’s French division, told France’s BFMTV network that the vaccine would be available to Europeans at the same time as Americans if the European Union were as ‘efficient’ a partner.”

Additional Sources. [Reuters](#) (5/14, Brosse, Heavey) reports National Institute of Allergy and Infectious Diseases Director Anthony Fauci “on Tuesday said a vaccine would not likely be available by the autumn but that he was cautiously optimistic there would eventually be one.”

[Forbes](#) (5/14, Beer, 9.71M) reports, “The U.S. expanded a vaccine partnership with the drugmaker in February, and Sanofi has received \$30 million from an office of the U.S. Department of Health and Human Services.”

Similar coverage of the comments by Hudson, the French government’s response, and an apparent walk back of that initial comments is covered by the [Wall Street Journal](#) (5/14, Bisserbe, Roland, Subscription Publication, 7.57M), the [Associated Press](#) (5/14, Corbet), [Reuters](#) (5/14, Andre, Brosse), [Reuters](#) (5/14, Blamont, White), [The Hill](#) (5/14, Coleman, 2.98M), [Forbes](#) (5/14, Beer, 9.71M), [Newsweek](#) (5/14, Czachor, 1.53M), [Endpoints News](#) (5/13, Mast), [FiercePharma](#) (5/14, Sagonowsky), [STAT](#) (5/14, Silverman, 24K), the [Economic Times \(IND\)](#) (5/14, 1.81M), and [Bloomberg Law](#) (5/14, Serafino, Subscription Publication, 4K).

After Wisconsin Court Ruling, Crowds Liberated And Thirsty Descend On Bars. ‘We’re The Wild West,’ Gov. Tony Evers Says.

The [Washington Post](#) (5/14, Flynn, 14.2M) reports, “On Wednesday night in the heart of downtown Platteville, Wis., just hours after the Wisconsin Supreme Court threw out the state’s stay-at-home order,” some bars were “packed wall to wall.” Wisconsin’s “high court sided Wednesday with Republican legislators who sued the Evers

administration in April, finding that the Democratic governor 'cannot rely on emergency powers indefinitely' as the pandemic drags on for months." In an opinion, "Justice Rebecca Bradley cited *Korematsu v. United States*, in which the Supreme Court allowed the internment of Japanese Americans as a way to 'remind the state that urging courts to approve the exercise of extraordinary power during times of emergency may lead to extraordinary abuses of its citizens.'"

Additional Sources. [USA Today](#) (5/14, Jansen, 10.31M) reports that the decision "added fuel Thursday to a widening U.S. debate over how and when to lift restrictions put in place to limit the spread of the coronavirus." However, "health experts such as Dr. Anthony Fauci," maintain the lockdowns have saved lives.

The [Wall Street Journal](#) (5/14, Calfas, Gershman, Subscription Publication, 7.57M) reports that local governments throughout Wisconsin are now trying to implement their own new public health guidelines following the court's decision.

[CNN](#) (5/14, Bradner, 83.16M) and the [Milwaukee Journal Sentinel](#) (5/14, Hauer, 632K) also report.

Wisconsin Governor Predicts Confusion Following State Supreme Court Ruling. [Reuters](#) (5/14, Gorman, Bernstein) reports, "Wisconsin's governor on Thursday predicted confusion among residents and [businesses] after the state supreme court struck down his sweeping stay-at-home order, fueling a growing political divide over how and when to reopen the shattered U.S. economy." The decision, "which found that Governor Tony Evers and state health officials did not have the authority to unilaterally confine residents to their homes or bar them from work, marked the first time such coronavirus restrictions had been overturned in the United States."

[Newsweek](#) (5/14, Jarvis, 1.53M) reports, "President Donald Trump has hailed the Wisconsin Supreme Court decision to overturn coronavirus lockdown measures in the state as a 'win.'"

[U.S. News & World Report](#) (5/14, Smith, 2.4M) also reports.

NIH Starts Study Testing Combination Of Azithromycin And Hydroxychloroquine For Treatment Of COVID-19.

[Reuters](#) (5/14, Erman, Maddipati) reports the NIH announced it started a study to evaluate the combination of azithromycin and hydroxychloroquine for the treatment of COVID-19. The National Institute of Allergy and Infectious Diseases "is sponsoring the trial, which is being conducted by the NIAID-funded AIDS Clinical Trials Group (ACTG)."

Additional Sources. [The Hill](#) (5/14, Hellmann, 2.98M) reports NIAID Director Anthony Fauci said, "We urgently need a safe and effective treatment for COVID-19. Repurposing existing drugs is an attractive option because these medications have undergone extensive testing, allowing them to move quickly into clinical trials and accelerating their potential approval for COVID-19 treatment."

Also reporting are [Bloomberg Law](#) (5/14, Klimasinska, Subscription Publication, 4K) and [Fox News](#) (5/14, Carbone, 27.59M).

Trump's Marks For Handling COVID-19 Outbreak Decline – CBS News Poll.

[CBS News](#) (5/14, Khanna, 3.68M) reports that according to a CBS News poll, "Americans continue to say they trust medical professionals for virus information, but Republicans also rank President Trump about as highly among their trusted sources, even as others give him his lowest marks to date for handling the outbreak." Furthermore, NIAID Director Dr. Anthony Fauci "is trusted by most and viewed favorably by a three-to-one

margin, but he now draws split opinions among Republicans, driven by increasingly negative views from conservatives." Views of "Trump's handling of the outbreak continue to drop from March and are now the lowest he has received."

Additional Source. Newsweek (5/14, Lemon, 1.53M) reports that "the number of Americans saying Trump is doing a 'bad job' handling the pandemic has increased by 10 points since March." Meanwhile, "the number of Americans who trust Trump for information about the outbreak currently stands at 38 percent, while 62 percent of respondents say they do not trust the president about it."

Researchers Working On Remdesivir Cocktail.

On the CBS Evening News ^R (5/14, story 8, 2:05, 5.25M), Norah O'Donnell reported on "a so-called [treatment] 'cocktail' [that] has entered a new phase." CBS' Jon Lapook reported a research team is "combining remdesivir to stop the virus from multiplying with a powerful anti-inflammatory drug, a so-called 'immune modulator' that aims to prevent organ damage by calming down an inflamed immune system. The remdesivir stops the virus from replicating inside the cell, and the immune modulator puts out the fire." CBS quotes National Institute of Allergy and Infectious Diseases Director Anthony Fauci regarding past struggles to find drugs for treating HIV.

Who Needs Science When We Have Trump's Tremendous Instincts?

Washington Post (5/14, 14.2M) columnist Michael Gerson writes that President "Trump's version of populism has always included skepticism of medical consensus." Trump "has a long history of trusting his gut on scientific matters on which he has little knowledge." These tendencies "are now emerging in the midst of a public health crisis. We have a president who is increasingly critical of advice from infectious disease experts, and who seems increasingly skeptical of the reported death total from covid-19." Gerson adds that "Tucker Carlson questions whether" NIAID Director Dr. Anthony Fauci "is 'right about the science' and calls him a 'buffoon.'" Gerson concludes, "It does not prove your conservatism, your populism or your patriotism to needlessly endanger your neighbor."

Dr. Deborah Birx Wins Praise For Managing The White House's Coronavirus Message And Trump.

USA Today (5/14, Hjelmgard, Jackson, 10.31M) reports that "while it's too early to draw conclusions about whether" Dr. Deborah "Birx's influence has been diminished, she remains one of the major public faces of the administration's coronavirus response." The role has "brought her praise – for her command of public health minutia as well as criticism – for appearing, at times, to fail to run sufficient interference on Trump's mixed, erratic and often incorrect messages about the outbreak." Birx "has managed to maintain her composure – and sometimes correct Trump's misinformation – without triggering the wrath of the president or his supporters." Birx's name has even "surfaced as a potential replacement for" HHS Secretary Alex Azar. The piece adds that "Birx is one of two Obama administration-appointed health officials working for Trump. The other is" NIH Director Francis Collins – NIAID Director Anthony Fauci's "boss."

Trump Predicts Coronavirus Vaccine Will Come This Year.

U.S. News & World Report (5/14, Smith-Schoenwalder, 2.4M) says President "Trump on Thursday said that he expects a coronavirus vaccine by the end of 2020, which is a faster timeline than many health officials have

predicted.” The President stated, “I think we’re going to have a vaccine by the end of the year.” Trump “added that distribution of the vaccine ‘will take place almost simultaneously’ because he is mobilizing the military to help with the process.” His “comments come just a couple days after” NIAID Director “Anthony Fauci told Congress that the idea of having therapeutics or a vaccine ready ‘to facilitate the reentry of students into the fall term would be something that would be a bit of a bridge too far.’”

Additional Source. The [Atlanta Journal-Constitution](#) (5/14, Darnell, 895K) reports that during “an interview on FOX Business Network, Trump...said he disagrees with” Fauci, “who told a Senate committee earlier this year it is unlikely a vaccine would be ready in time for the school year.”

Public Health School Deans Urge Trump To Triple Coronavirus Testing Or Face Cycles Of Shutdown.

[Newsweek](#) (5/15, Martin, 1.53M) reports that four public health school deans on Thursday all signed individual statements urging the Trump Administration Thursday to use the Defense Production Act to require businesses to create more tests for the novel coronavirus. Newsweek adds, “Testing capacity for the coronavirus has been called a priority for reopening the country safely, including U.S. schools.” National Institute of Allergy and Infectious Diseases Director Anthony Fauci told a Senate panel on Tuesday that “he wasn’t sure if schools should reopen in the fall.”

California Tells Hospitals To Consider Having A Lottery For Sought-After Covid-19 Drug.

[CNN](#) (5/14, Cohen, Azad, Klein, 83.16M) reports that all 50 states “should have received shipments of the Covid-19 drug remdesivir earlier this week, according to audio obtained by CNN of a call between federal officials and governors.” But there’s “not nearly enough to go around, and on Monday, one state health department directed hospitals to consider holding a lottery for scarce medications.” As part of its guidance, the California Department of Public Health “suggests that ‘random allocation among patients be considered,’ such as ‘using a lottery system to select a certain proportion of patients who become eligible for the drug.’” According to CNN, “It’s been a little over two weeks since top health expert Dr. Anthony Fauci first announced that a large study showed remdesivir worked against Covid-19, calling it the new ‘standard of care’ for patients.”

Large Majority Of Americans Say Country Lags In Testing Availability: POLL.

[ABC News](#) (5/15, Karson, 2.97M) reports strong majorities of Americans “believe the country lacks sufficient testing and are also skeptical about returning to pre-pandemic activities, including sending kids back to school,” according to a new ABC News/Ipsos [poll](#) released on Friday. According to ABC, “nearly three in four Americans believe there are not enough tests available in the United States, compared to only 26% who said there is adequate testing available right now.” The new poll comes as National Institute of Allergy and Infectious Diseases Dr. Anthony Fauci this week “warned lawmakers that reopening schools and businesses too quickly could trigger an outbreak, and possibly stifle the road to economic recovery.”

States Are Letting Stay-At-Home Orders Expire, Regardless Of Virus Metrics.

[Politico](#) (5/15, McCaskill, 4.29M) reports, “Stay-at-home orders or business restrictions are set to expire” in a dozen states across the US, leaving state and local leaders to “grapple with whether to extend expiring stay-at-home orders or assess how much their reopening strategies are fueling new health risks” associated with

COVID-19. Public health experts, including National Institute of Allergy and Infectious Diseases Director Anthony Fauci, "have warned that the virus will continue to spread as more people begin leaving their homes, noting the difficulty of maintaining physical distancing in certain spaces as Americans return to their normal pre-pandemic activities."

Is Anthony Fauci Today's Galileo Galilei, The Champion Of Science?

In an opinion piece for STAT (5/14, 24K), astrophysicist Mario Livio says that as he watches NIAID Director Dr. Anthony Fauci defend "science and scientific integrity...on the news, I think of another 'battler' who ultimately had the last word." Livio compares Fauci to Galileo Galilei, who was "sentenced to confinement by the Roman Inquisition because he was 'vehemently suspected of heresy.'" That supposed heresy "was his support of the Copernican system of planetary movement." Livio concludes, "It took the Catholic Church more than 350 years to admit that Galileo was right. We can't afford to wait that long to find out that Fauci is right."

Trump's Plan To Limit The Pandemic's Death Toll: Undercount The Numbers.

In an opinion piece for Vox (5/14, 2.27M), senior correspondent Matthew Yglesias writes that "experts have a range of ideas to suppress the Covid-19 pandemic, save lives, and avert new waves of economic misery." However, President "Trump seems to be embracing another plan – massaging the numbers to make inconvenient deaths go away." Still, "experts believe the problem with the numbers is the opposite – official statistics understate the Covid-19 death toll." Yglesias adds that on Tuesday, NIAID Director "Anthony Fauci expressed the view of most public health professionals that even with the attempted adjustment for probable cases, the official numbers still underestimate the true death toll." Yglesias concludes that "a strategy focused on juking the stats is overwhelmingly likely to end with more real-world deaths than necessary."

Fox News Dumps Coronavirus Coverage For Anti-Obama Conspiracy Theory.

In an analysis, CNN (5/14, Darcy, 83.16M) says that "if you woke up from a coma on Wednesday afternoon and flipped on Fox News, or checked the network's website, you'd be forgiven if you had no idea the country is currently grappling with a pandemic killing tens-of-thousands of Americans and leaving millions more unemployed." That is because Fox "largely ignored the virus in the afternoon and into its prime time programming." After GOP "senators released a list of Obama officials who sought to unmask the name of an unidentified American caught in intelligence reports, who turned out to be Michael Flynn, Fox News went all in on the story." However, "when Fox News did find time to cover the coronavirus, it was done in part through the lens of criticizing" NIAID Director Dr. Anthony Fauci.

Tensions Rise As Texas Governor Readies To Lift More Rules.

The AP (5/15, Weber, Vertuno) reports that "few states are rebooting quicker than Texas, where stay-at-home orders expired May 1." With coronavirus "cases still rising, including single-day highs of 1,458 new cases and 58 deaths Thursday, Republican Gov. Greg Abbott has defended the pace by emphasizing steadying hospitalization rates and pointing out that Texas' 1,200 deaths are still behind similarly big states, including California and Florida." However, "on the cusp of even more restrictions ending Monday, including gyms cleared to reopen, a political confrontation is growing over attempts by big cities to keep some guardrails." The revamped tensions

come at a time when NIAID Director Dr. Anthony Fauci “warned Congress this week of ‘needless suffering and death’ if the U.S. moves too quickly.”

Coronavirus Question: Let’s Say A Vaccine Proves Safe And Effective. Then What?

In an editorial, [USA Today](#) (5/14, 10.31M) says that if a safe and effective coronavirus vaccine is developed, “the issues surrounding how to distribute vaccines present a number of troubling questions that are not getting nearly the attention they deserve. ... Even within the USA, there’s little evidence of a plan for how vaccines might be distributed in the early days when there are not enough to go around.” USA Today adds, “With scientists saying that one or more vaccines could complete trials as early as this fall, this is looking like one more area for which the nation is not fully prepared.” USA Today notes that there are at least eight vaccines in clinical development, according to National Institute of Allergy and Infectious Diseases Director Anthony Fauci.

‘Re-Examine All The Evidence’: Rand Paul Demands Fauci Reconsider Position On School Closures.

The [Washington Examiner](#) (5/14, Miller, 448K) reports “GOP Kentucky Sen. Rand Paul urged” NIAID Director “Anthony Fauci to reconsider his position that schools should remain closed in the fall to stop the spread of the coronavirus.” Paul tweeted, “Evidence-based scientists around the world argue to open schools. ... Please re-examine all the evidence Dr. Fauci!” The senator’s “post came alongside an article from WIRED magazine with the headline, ‘The Case for Reopening Schools.’”

White House To ‘Reconfigure’ Coronavirus Task Force With An Emphasis On Reopening The Country.

The [Washington Examiner](#) (5/14, Crilly, 448K) says the White House “will add more figures to its coronavirus task force before the end of the week...as it enters the crucial phase of trying to reopen the country safely.” According to a “senior administration official,” the additions would represent a “reconfiguring.” The official said, “There was an initial phase that was more focused on border elements and what are you doing with flights, what are you doing with cruise ships, and how do we do the best to delay its arrival here? The second phase was really more defined by healthcare experts and the strategy to mitigate it and slow the spread. ... And now, I think we are sort of entering a new phase, which is, ‘How do you now safely reopen?’” The piece adds that Trump “has been under pressure from conservatives to reduce the influence of scientists on the panel, including” NIAID Director Dr. Anthony Fauci.

Remdesivir Distribution Causes Confusion, Leaves Some Hospitals Empty-Handed.

[NPR](#) (5/14, Lupkin, 3.12M) reports the federal government has begun distributing remdesivir, which the FDA has authorized for emergency use as a treatment for COVID-19, but some states and hospitals are confused “about why they’ve been left empty-handed.” Gilead Sciences, the manufacturer of the drug, “said it would donate its initial supply of the medicine,” but “the federal government is in charge of coordinating where the treatment is to be shipped.” National Institute of Allergy and Infectious Diseases Director Anthony Fauci “stressed that the study’s result for remdesivir ‘was statistically significant but really modest. And we must remember it was only a modest result showing that the drug made a 31% faster time to recovery.’”

Top Health Officials Vanish From National TV Interviews As White House Refocuses Messaging.

[CNN](#) (5/14, Darcy, 83.16M) reports “the nation’s top physicians have stopped appearing on national television for interviews as the White House exerts increased control over communications during the coronavirus pandemic and refocuses its message toward reopening the economy.” NIAID Director Anthony Fauci “appeared on CNN on May 4 for an interview with Chris Cuomo.” CDC Director Robert Redfield “has not appeared on national television since April 17 when he was interviewed on the ‘Today’ show on NBC News.” FDA Commissioner Stephen Hahn “has not appeared on national television since April 28 when he spoke with Fox News host Maria Bartiromo.” For his part, Surgeon General Jerome Adams “has not appeared on national television since April 17 when he appeared on ‘Fox & Friends.’”

Trump Is Smearing Fauci.

William Saletan writes for [Slate](#) (5/14, 1.58M) that the President “is smearing” NIAID Director Dr. Anthony Fauci. The President “wants businesses and schools to reopen sooner than Fauci thinks is safe. So the president has fabricated a story about Fauci giving bad advice. Trump’s goal is to make the public think that Trump, not Fauci, knows best what to do about the novel coronavirus.” However, “his fabrication shows the opposite: While Fauci tells the truth, Trump tells lies.”

Trump Admin Shoots The Messenger As Whistleblower Highlights Ongoing Issues.

Matt Shuham writes for [Talking Points Memo](#) (5/14, 260K) that even as Dr. Rick Bright criticized the Trump Administration’s COVID-19 response during his testimony, the Administration returned the favor. President Trump said, “With Bright’s attitude...he ‘should no longer be working for our government!’” Meanwhile, HHS “said Bright was ‘using his taxpayer-funded medical leave to work with partisan attorneys who are politicizing the response to COVID-19.’” Indeed, HHS Secretary Alex Azar, “speaking from the White House lawn in the middle of Bright’s testimony, made a similar point. ‘While we’re launching Operation Warp Speed, he’s not showing up for work to be part of that.’” Shuham also mentions NIAID Director Dr. Anthony Fauci.

Trump Dismisses Fauci’s Warning Against Reopening Schools: ‘I Totally Disagree’.

Cristina Cabrera writes for [Talking Points Memo](#) (5/14, 260K) that on Thursday, President Trump “rejected White House COVID-19 task force official Dr. Anthony Fauci’s assertion during a Senate hearing that schools could not be expected to reopen by fall.” Trump said, “Anthony is a good person, very good person. ... I’ve disagreed with him. When I closed the border to China, he disagreed with that, and then ultimately he agreed.” Trump added, “I totally disagree with [Fauci] on schools.”

Trump Is Blaming China For Coronavirus Even As He Employs The Same Authoritarian Tactics As Xi Jinping.

John Haltiwanger writes for [Business Insider](#) (5/14, 3.67M) that President Trump “has essentially blamed China for the devastating scale of the coronavirus pandemic, slamming Beijing over its lack of transparency and warning that the US could ‘cut off’ its relationship with the Asian country.” However, the President “is guilty of many of the same behaviors for which he’s condemned China, experts say,” given that his “response to COVID-

19 has often mirrored the approach of authoritarian leaders like Chinese President Xi Jinping.” While “top public health officials like Dr. Anthony Fauci have said that a robust testing system is key to thwarting the virus, for example, Trump in early May said that too much testing for COVID-19 makes the US ‘look bad.’”

White House Press Secretary Disputes Poll That Show Americans Trust Dr. Fauci Much More Than Trump.

Eliza Reiman writes for [Business Insider](#) (5/14, 3.67M) that on Thursday, “White House press secretary Kayleigh McEnany...disputed recent polling that found Americans trust Dr. Anthony Fauci, the nation’s top infectious disease expert, significantly more than they trust President Donald Trump to provide accurate information about the coronavirus.” McEnany said during an interview, “I believe that the American people have a lot more trust in the president than that poll indicates. ... I believe the American people have great confidence in this president’s leadership.”

Column: We Shut Down The Economy To Make Progress Against COVID-19 – And Then Made No Progress.

[Los Angeles Times](#) (5/14, 4.64M) columnist Michael Hiltzik writes that “many people are getting fed up with the” coronavirus “lockdown, and not only because it throws millions of them out of work.” Hiltzik asserts that “we have made scant progress against the virus, or at least not nearly as much as the richest, most powerful and most technically adept nation on Earth should have made.” He adds that that NIAID Director Dr. Anthony Fauci “warned that states that reopen businesses and allow public gatherings too hastily while the pandemic is still in full cry could ‘trigger an outbreak that you may not be able to control.’” Hiltzik concludes that President “Trump is getting what he seems to want: a nation mired in a chaos that benefits only those with the means to insulate themselves from the crisis. The rest of us can do nothing but gnash our teeth at a shutdown without end, amen.”

Rand Paul Delivers A Magnificent Reality Smack To Anthony Fauci.

In an opinion piece for the [Washington Times](#) (5/14, 492K), Cheryl K. Chumley writes that “in case you missed it: Sen. Rand Paul delivered a much-needed, long overdue, thankfully-finally-here reality check to” NIAID Director Dr. Anthony Fauci, reminding the health expert “in a Senate panel hearing earlier this week that hey now, hey guy, you’re just a guy – and your expertise on viruses shouldn’t be taken as expertise on politics, government, economics, policy or the running of a nation and its peoples.” In other words, Chumley says, “the Fauci influence over all walks of American life should fade.”

Editorial: Fauci’s Caution On Schools Is Sound, No Matter What Non-Physician Trump Says.

In an editorial, the [St. Louis Post-Dispatch](#) (5/14, 685K) says “the latest battle between President Donald Trump and” NIAID Director “Anthony Fauci, like previous ones, boils down to ego-based conjecture versus science and fact.” Fauci “argues it would be reckless to rush children back into classrooms in the fall before doctors have a better grasp of the dangers.” Meanwhile, “Trump, whose training in medicine and epidemiology is exactly zero, says it’s time to get back to class.” The Post-Dispatch says, “In the battle between Fauci’s voice of caution versus Trump’s call for throwing caution to the wind, we’ll stick with the guy who actually knows what he’s talking about.”

NIH Begins Trial To Determine How Effective Hydroxychloroquine.

Newsweek (5/14, Slisco, 1.53M) reports the National Institute of Allergy and Infectious Diseases (NIAID) is sponsoring “a clinical trial testing the effectiveness of combining antimalarial drug hydroxychloroquine with antibiotic azithromycin as a treatment for COVID-19.” The controlled trial “will involve 2,000 U.S. adults who are infected with the coronavirus and have symptoms like shortness of breath, cough and fever.” NIAID Director Dr. Anthony Fauci said in a statement. “Although there is anecdotal evidence that hydroxychloroquine and azithromycin may benefit people with COVID-19, we need solid data from a large randomized, controlled clinical trial to determine whether this experimental treatment is safe and can improve clinical outcomes.”

Interferon Emerges As Potential Treatment For COVID-19.

The Globe and Mail (CAN) (5/12, Semeniuk, 1.04M) reported that two newly reported trials show potential for a class of drugs called interferons as a therapy for COVID-19. Toronto’s University Health Network researcher Eleanor Fish, a “senior author on one of the studies, said that awareness of interferon as a potential COVID-19 treatment has been slow to build and should be prioritized for larger-scale clinical trials.” U.S. National Cancer Institute senior investigator Howard Young, “who has studied the anti-viral properties of interferon, echoed the need for more study.” Young “said an important question to be explored is whether mild versus more-severe cases of COVID-19 produce different responses to the drug.”


U.S. Accuses Chinese-Born Researcher At Cleveland Clinic Of Ties To Chinese Spying.

Reuters (5/14, Hosenball) reports the FBI arrested Chinese-born former Cleveland clinic employee Dr. Qing Wang “on fraud charges related to \$3.6 million in federal grants, the FBI said on Thursday, the latest move in a U.S. crackdown on alleged attempts by China to steal American scientific advances.” Reuters adds, “Prosecutors said Wang accepted grants from the National Institutes of Health without disclosing that he was serving at same time as dean of the College of Life Sciences and Technology at the Huazhong University of Science and Technology.”

Additional Sources. NPR (5/14, Romo, 3.12M) reports, “The FBI claims Qing Wang...lied to receive more than \$3.6 million in grants from the National Institutes of Health while also collecting money for the same research from the Chinese government.”

The Cleveland Plain Dealer (5/14, Eaton, 895K) and the Daily Caller (5/14, Safi, 716K) also report.

Talking In Enclosed Space Can Generate Droplets That Linger For Up 14 Minutes, Study Finds.

ABC World News Tonight  (5/14, story 8, 0:15, Muir, 7.42M) reported new research indicates “when two people talk loudly in an enclosed space with poor air flow, droplets in spit can float in the air for” 8 to 14 minutes with “substantial risk of transmission.”

Additional Source. The New York Times (5/14, Sheikh, 18.61M) reports, “Researchers at the National Institute of Diabetes and Digestive and Kidney Diseases and the University of Pennsylvania, who study the kinetics of biological molecules inside the human body, asked volunteers to repeat the words ‘stay healthy’ several times” and “found that speaking louder could generate larger droplets, as well as greater quantities of them.” The report was published Wednesday in the Proceedings of the National Academy of Sciences.

Experimental Injection Of 'Good' Bacteria Significantly Cut Bacterial Vaginosis Recurrence Rate.

Endpoints News (5/14, Grover) reports that injecting a "good" bacterium can reduce the high recurrent rate of bacterial vaginosis (BV) by a third, a 228-patient, placebo-controlled study suggests. The study "evaluated the effect of a 'good' bacterium product, called Lactin-V, which was packaged by California-based microbiome company Osel." The NIH-funded study was published Wednesday in the New England Journal of Medicine.

NCI Exceptional Responders Initiative Pilot Study Meets Feasibility Goal.

Oncology Nurse Advisor (5/14, Bennett) reports the National Cancer Institute Exceptional Responders Initiative pilot study "successfully analyzed tumor specimens from more than 100 cases, deeming the effort feasible." According to the study's authors, "This study met its main feasibility goal to identify at least 100 analyzable ER [exceptional responder] cases in less than 3 years." The results were recently reported in the Journal of the National Cancer Institute. A corresponding editorial said, "Just the ability to gather such a large number of rare and valuable tumor samples with clinical data is remarkable."

Researchers Try Combining Remdesivir With A Second Drug To Deliver A "One-Two Punch" To Virus.

CBS News (5/14, Lapook, 3.68M) reports Dr. Aneesh Mehta, the lead investigator of an National Institutes of Health (NIH) trial at Emory University that "showed the drug remdesivir reduced average hospitalizations from 15 to 11 days," said he thinks the drug is "going to be one important tool, but we also need to look for other ways to help our patients." For the next phase of the trial, Mehta and colleagues are "combining remdesivir, which stops the virus from multiplying, with a powerful anti-inflammatory drug that aims to prevent organ damage by calming down an inflamed immune system." The NIH "also said researchers are testing another potential coronavirus treatment cocktail: A mix of the malaria drug hydroxychloroquine with an antibiotic used to treat infections like pink eye."

COVID Patients Given Malaria Drug Didn't See Significant Improvements: Studies.

Reuters (5/14, Erman, Maddipatla) reports patients given the anti-malarial drug hydroxychloroquine, which President Trump has touted as a potential COVID-19 treatment, "did not improve significantly over those who did not, according to two new studies published in the medical journal BMJ on Thursday." The National Institutes of Health "said on Thursday it began a study to evaluate the combination of antibiotic azithromycin and hydroxychloroquine, which Trump described as a potential 'game changer' for the pandemic."

Part Of Gilead's Coronavirus Drug Donation Allocated To Japan.

Reuters (5/14, Swift) reports hospitals in Japan have started treating severely ill patients with COVID-19 using Gilead Sciences' experimental COVID-19 drug, according to ministry official Yasuyuki Sahara. Sahara "said in an e-mail on Thursday that the U.S. firm's treatment has been distributed to hospitals in Japan since May 11 and is being used for patients in intensive care or those on ventilators." A National Institutes of Health trial showed remdesivir "cut hospital stays by 31% compared with a placebo treatment, although it did not significantly improve survival."

Additional Source. [Fox News](#) (5/14, Hein, 27.59M) also reports.

Virginia Receives 2nd Shipment Of New Antiviral Drug.

The [Richmond \(VA\) Times-Dispatch](#) (5/14, Martz, 277K) reports, "Virginia has received a second shipment of the new antiviral drug remdesivir to treat critically ill COVID-19 patients, but the supply is enough for only 36 patients." The U.S. FDA "issued an emergency use authorization for remdesivir on May 1, but it is still an 'unapproved product' that may be used for treating adults and children who are hospitalized with severe cases of confirmed or suspected COVID-19." The National Institutes of Health and Gilead Sciences "conducted a clinical trial of remdesivir that resulted in preliminary findings that the drug speeds recovery of COVID-19 patients hospitalized with severe cases of the disease, according to a Health Department summary."

US Needs Bipartisan Push For Scientific Research After Coronavirus: Congressional Leaders.

In an op-ed for [USA Today](#) (5/14, 10.31M), Senate Minority Leader Schumer, Sen. Todd Young (R-IN), Rep. Mike Gallagher (R-WI), and Rep. Ro Khanna (D-CA) write that "America is no longer the preeminent leader in scientific research as we were for the second half of the 20th Century. We must address this vulnerability." The lawmakers argue the Endless Frontiers Act "proposes a renewed national investment in public research and development to strengthen our nation's innovation ecosystem now and into the future." They add "that every dollar invested in the National Institutes of Health leads to \$3 in increased stock market valuation for private companies," and research indicates "that raising public research and development spending by \$100 billion per year on a permanent basis could help generate as much as 4 million new American jobs."

COVID-19 Is Threat To Our Biomedical Research Enterprise.

In an opinion in [The Hill](#) (5/14, 2.98M), contributor Kafui Dzirasa, a National Institutes of Health-funded brain researcher at Duke University, writes, "COVID-19 has placed a unique strain on the U.S. biomedical research enterprise." Dzirasa says, "COVID-19 has rendered individuals over 65 an at-risk: a population that is overrepresented in our nation's pool of scientific investigators," and "behavioral studies over the last three years have also revealed that our nation's young scientists are a high-risk group for mental health challenges." Dzirasa adds, "I am unclear whether the U.S. biomedical research enterprise can sustain this dual blow to both young and older scientists."

Gilead Should Ditch Remdesivir And Focus On Its Simpler Ancestor.

In an opinion in [STAT](#) (5/14, 24K), Victoria C. Yan and Florian L. Muller write that Gilead's antiviral drug remdesivir "has been propelled into the spotlight with the hope that it can stop, or at least curtail, the ravages of SARS-CoV-2, the virus that causes Covid-19." Yan and Muller say, "Data from the open-label SIMPLE trial, sponsored by Gilead, and the randomized controlled Adaptive Covid-19 Treatment Trial, sponsored by the National Institute of Allergy and Infectious Diseases, show that remdesivir may accelerate recovery rates among patients with advanced Covid-19." However, they argue that Gilead should focus instead on pro-drug GS-441524, which "is easier to synthesize than remdesivir, requiring three steps instead of the seven needed for remdesivir."

Both/And Problem In An Either/Or World.

In an editorial in Science Magazine (5/15, 427K), H. Holden Thorp writes that progress on COVID-19 vaccines in China and the U.S. "should make us optimistic that science will solve this problem, but the actions of the governments involved are not equally inspiring." Thorp says that the Trump Administration "can't grasp that it's possible to question the actions of the Chinese government about the early days of the pandemic while embracing collaboration with Chinese science." Thorp adds, "The latest setback is the decision by the U.S. National Institutes of Health (NIH) to terminate the grant 'Understanding the Risk of Bat Coronavirus Emergence' to Peter Daszak of the nonprofit EcoHealth Alliance, who, with NIH approval, shared one in five grant dollars with Shi Zhengli, a top coronavirologist at China's Wuhan Institute of Virology (WIV)."

Research On TPA Nanoconjugate Aims To Extend Thrombolysis Benefits To More Stroke Patients.

Cleveland Clinic Consult QD (5/14) reports the National Institute of Neurological Disorders and Stroke (NINDS) awarded a five-year \$2 million grant to researchers at the Cleveland Clinic to study "a novel stroke therapy that uses tissue plasminogen activator (tPA) conjugated to nanoparticles." The researchers "will assess the ability of a novel dual-action agent combining tPA with antioxidant-loaded nanoparticles to dissolve blood clots and protect the brain from reperfusion injury following stroke."

Health & Medical News

White House Officials Signal Support For COVID-19 Relief For States Despite Opposition From Some GOP Groups.

The Washington Post (5/14, Costa, Stein, Kim, 14.2M) reports officials in the White House "have privately signaled that they are willing to provide tens of billions of dollars in relief to states as part of a bipartisan deal...despite President Trump's reluctance and strong opposition from conservative groups." The Post says while "that position is likely to anger some Republicans who have warned that Democrats want 'blue state bailouts,' many White House officials now believe that providing new funding to states...will be necessary if they want to secure their own priorities, such as tax breaks and liability protections for businesses."

CNBC (5/14, Pramuk, 3.62M) reports Senate Minority Leader Chuck Schumer (D-NY) indicated on Thursday that he is "hopeful Congress can strike a deal on more coronavirus relief, as Republicans spike a \$3 trillion rescue package House Democrats plan to pass Friday." Schumer "told CNBC that he believes a worsening crisis will force Republicans to consider more spending to try to rescue the economy," and "pointed to Wednesday comments from Federal Reserve Chairman Jerome Powell, who said 'additional fiscal support could be costly, but worth it if it helps avoid long-term economic damage and leaves us with a stronger recovery.'"

In contrast, the AP (5/14, Fram) reports Senate Majority Leader Mitch McConnell on Thursday "branded House Democrats' \$3 trillion economic relief bill a 'totally unserious effort' to address the coronavirus pandemic, underscoring the deep election-year gulch over what Congress' next response to the crisis should be." McConnell "said Democrats had produced a 'seasonal catalog of left-wing oddities and called it a coronavirus relief bill.'" According to the AP, "Provisions he singled out for criticism included a rollback of GOP-passed tax

increases on residents of states with high taxes, language making it easier for people to vote by mail and what he called 'the cherry on top' – provisions helping legal marijuana businesses."

As COVID-19 Pandemic Persists, GOP Calls For "Pause" On More Aid.

The AP (5/14, Taylor) reports companies "are going belly up, tens of millions have been laid off and, by some measures, the U.S. seems headed for another Great Depression," however, "Republicans surveying the wreckage aren't ready for another round of coronavirus aid, instead urging a 'pause.'" This is "a position based on a confluence of factors." Surveys indicate "GOP voters think the government is already doing enough. Republicans on Capitol Hill are divided over the best approach. Billions approved by Congress have yet to be spent." In addition, it remains to be seen what the President will "do next, if anything, to juice the economy – his payroll tax cut idea hasn't gained any traction on Capitol Hill." As a result, "GOP leaders see an unfolding crisis that does not yet cry out for further action."

About 75% Of US Small Businesses Seek Federal Assistance Amid COVID-19 Pandemic, Survey Shows.

The Wall Street Journal (5/14, Omeokwe, Subscription Publication, 7.57M) reports a new Census Bureau survey found 75 percent of US small businesses have sought federal assistance to stay afloat during the COVID-19 pandemic. Data show 75 percent of respondents sought Paycheck Protection Program loans, and almost 30 percent said they sought SBA disaster loans.

Prospects For Second Round Of Stimulus Checks Seem "Uncertain."

The Washington Post (5/14, Werner, 14.2M) reports almost "130 million Americans have received direct payments of up to \$1,200 from the U.S. Treasury, a centerpiece of the federal response to the coronavirus pandemic," however, "prospects are uncertain for another round of these stimulus checks." The article says, "President Trump has left the door open to the idea," but the GOP has "declared the House Democratic bill dead on arrival, and some have voiced skepticism about the need for any more individual payments."

Sanders Wants Senate To "Improve" House Dems' \$3T COVID-19 Relief Package.

The Hill (5/14, Jagoda, 2.98M) reports on Thursday, Sen. Bernie Sanders (I-VT) "said that the Senate should 'improve' House Democrats' \$3 trillion coronavirus relief package so that it better addresses families' health care and economic needs." These "comments from Sanders, a prominent progressive lawmaker and former Democratic presidential candidate, come one day before the House plans to vote on the bill, despite a push from the leaders of the Congressional Progressive Caucus to delay the vote."

Bipartisan Group Of Lawmakers Proposes Compensation Fund For Essential Workers Impacted By COVID-19.

USA Today (5/14, Cummings, 10.31M) reports that on Thursday, a group of lawmakers from both parties announced they intend "to introduce a bill that would create a compensation fund for essential workers and their family members who have been struck by the coronavirus." Reps. Carolyn Maloney (D-NY), Jerry Nadler, (D-NY), and Peter King (R-NY), as well as Sen. Tammy Duckworth (D-IL) unveiled "the Pandemic Heroes Compensation Act during a digital news conference. They were joined by union representatives from the

Uniformed Fire Officers Association, Uniformed Firefighters Association, National Rural Letter Carriers Association, and SMART, the International Association of Sheet Metal, Air, Rail and Transportation Workers.”

Pelosi Pushing For Vote On \$3T COVID-19 Relief Bill Despite Objections From Some Dems.

Politico (5/14, Ferris, Caygle, 4.29M) reports House Speaker Nancy Pelosi “is projecting confidence that the House will pass Democrats’ massive coronavirus relief bill Friday, even as she and her leadership team are still working to secure the votes.” Liberals and centrists in Pelosi’s party “are grumbling about the roughly \$3 trillion measure.” Meanwhile, “House Republicans have overwhelmingly said they oppose the bill, and some Democrats are unable to travel to the Capitol to vote amid the pandemic, leaving Pelosi and her whip operation with tight margins to clear the bill.”

CNN (5/14, Foran, Raju, Byrd, 83.16M) reports that this “pushback underscores how House Democratic leaders are being attacked on all sides over the legislation – by congressional Republicans, who have dismissed the legislation as an liberal wish list, as well as within their own ranks by both progressives and moderates.”

New York Will No Longer Force Nursing Homes To Accept Recovering COVID-19 Patients.

The Wall Street Journal (5/14, Mathews, Subscription Publication, 7.57M) reports New York changed its policy of forcing nursing homes to accept patients recovering from COVID-19 so that now patients must test negative for the virus first.

Debate Over Reopening US “Increasingly Partisan And Bitter.”

The New York Times (5/14, Nolan, Bosman, Robertson, 18.61M) reports that for Wisconsin, Michigan, and Pennsylvania, three states “with Democratic governors and Republican legislatures, ending stay-at-home orders mixes health guidance and partisan politics.” The coronavirus response in those states “is becoming a confused and agitated blend of health guidance, protest and partisan politics – leaving residents to fend for themselves.” The governors, “backed by public health experts, have urged caution before reopening,” while Republican legislatures “in the states have pushed in the opposite direction, citing economic necessity and personal freedom.”

The Los Angeles Times (5/14, Etehad, 4.64M) reports the “mounting pressure comes as the number of jobless Americans continues to grow across the nation,” even as the COVID-19 death toll climbs. Meanwhile, governors in other states including Ohio, Rhode Island, and Minnesota have “announced plans to loosen restrictions in the coming days and weeks.”

Newsom Says COVID-19 Forcing Sharp State Budget Cuts.

The Los Angeles Times (5/14, Myers, 4.64M) reports California Gov. Gavin Newsom (D) “asked state lawmakers Thursday to sharply curtail spending on public schools and an array of government services while directly appealing to President Trump and Congress for help to prevent billions of dollars in additional spending cuts.” Newsom said, “The federal government has a moral and ethical and economic obligation to help support the states. ... After all, what is the point of government, if not to protect people, our safety and the wellbeing of citizens?” Without this help, Newsom “said state officials have few options in the face of a projected \$54.3-billion deficit through early next summer.”

The New York Times (5/14, 18.61M) reports the state budget “slashes spending by nine percent overall from the initial proposal the governor made in January.” Newsom wrote to legislators, “Our state is in an unprecedented emergency, facing massive job losses and shortfalls in record time. ... This budget reflects that emergency.” The Times says that “to cushion the blow of a projected 22 percent decline in revenue, the governor proposed drawing down the state’s so-called rainy day reserves of \$16 billion over the next three years.” The proposed \$203.3 billion budget, “if approved by the Legislature, would bring spending back to around 2018 levels. But it would still be well above the levels seen during the Great Recession a decade ago.”

Los Angeles County Mandates Face Coverings Whenever Outside. The Los Angeles Times (5/14, Money, Fry, Sharp, McGreevy, 4.64M) reports Los Angeles County Public Health Director Barbara Ferrer announced Thursday that all residents must cover their faces when outside at all times. Ferrer said, “Masks are, in fact, mandatory across the entire county when you’re outside of your home, not with members of your household and in any kind of contact with other people.” Even when on “a solitary walk or run, Ferrer said ‘you now need to have a face covering with you, because if you came by other people, you were walking by other people, you tried to go into a grocery store, you absolutely have to have that face covering on.’”

Following Arrest, California Gym Owner Again “Defies” Lockdown Order. The AP (5/14, Watson) reports from Oceanside, California that around a dozen weightlifters “wearing face coverings did sets Thursday in front of mirrors at a Southern California gym that was reopened by the owner despite his arrest last weekend for violating local coronavirus health orders that closed gyms.” Owner Lou Uridel has “vowed to keep the doors open at Metroflex Gym in the coastal city of Oceanside, north of San Diego,” but “warned his customers they might be handcuffed and hauled off like he was on Sunday.” Uridel may be the first “business owner arrested in California for violating health orders by reopening, although a growing number are doing that.” Authorities wary of a “public backlash have preferred to use warnings to get local businesses to comply.” Forcing one to “shut its doors and citing the owner is rare, and arrests are considered a last resort.”

Cities, Counties In Texas Take Disparate Approaches To Enforcing Pandemic Restrictions.

ProPublica (5/14, Beauvais, 60K) reports, “As Texas now reopens at” Gov. Greg Abbott’s (R) direction, “under a much looser set of restrictions, a ProPublica-Texas Tribune analysis of complaint data in a dozen cities shows...disparate approaches to enforcement – particularly among businesses – were incredibly common across the state.” Cities and counties “arrived at dramatically different interpretations of Abbott’s emergency orders.” Austin “has issued just two citations, while others like Laredo and Dallas have written hundreds of tickets, in addition to arresting a handful of business owners who defied orders to close.”

Texas Firefighters, Paramedics Tapped For Nursing Home Coronavirus Testing. The Houston Chronicle (5/14, Foxhall, 730K) reports firefighters and paramedics “across Texas have been tapped to help with coronavirus testing in nursing homes, as state and local officials work through how to meet Gov. Greg Abbott’s directive to test more than 200,000 residents and staff.” Fire departments statewide are “being asked to help with facility inspections and on-site testing, as part of a multi-agency effort, according to a Texas Department of State Health Services email shared with Hearst Newspapers, offering detail on the state’s plan.” In letters to fire departments “Wednesday, the state cleared fire personnel to enter the facilities.” Letters to the facilities “said they would be contacted ‘very soon’ by a testing team that could include first responders or the state national guard.” Local officials were “figuring out Thursday exactly how this testing might work, pushing for further clarification from the state about its broad demands.”

Texas Pays \$45 Million For 300,000 Coronavirus Tests. The Austin (TX) American Statesman (5/14, Price, Subscription Publication, 343K) reports the state of Texas “is paying \$45 million for 300,000 oral-swab tests – or \$150 per test, according to a purchase order obtained by the American-Statesman through an open records request.” The April 30 purchase agreement “is with San Diego-based Gothams LLC, and includes the processing of tests at the private lab of Curative, Inc., according to Seth Christensen, spokesman for the Texas Department of Emergency Management, which made the purchase.” Christensen “said at least 75% of the purchase price, which includes the processing of each test, will be eligible for federal reimbursement.” The Curative tests, “designed to be self-administered, won emergency-use approval in April by the U.S. Food and Drug Administration.” In April, officials at the U.S. Centers for Medicare and Medicaid Services “said they would pay \$100 apiece for COVID-19 tests that increase testing capacity and lead to faster results — twice as much as Medicare had announced it would pay in March.”

Michigan Closes State Capitol “As Protesters Gather” Against Stay-At-Home Order.

CNN (5/14, Stracqualursi, 83.16M) reports the Michigan state Capitol “was closed Thursday as demonstrators gathered at the steps of the building to protest Gov. Gretchen Whitmer’s (D) stay-at-home order.” Police spokeswoman Sharon Banner “confirmed to CNN that because neither chamber was in session or holding committee meetings,” the Capitol was closed “per the procedures of the Michigan Capitol Commission.” The protest, organized “by Michigan United for Liberty, drew a crowd of roughly 200 ‘at the high point’ of Thursday’s event, according to Michigan State Police estimates.” Attorney General Dana Nessel warned in a statement that “presence of heavily armed protestors at the Capitol unnecessarily creates a powder keg dynamic that is dangerous to protestors, law enforcement and public servants reporting to work at the Capitol.”

Whitmer Again Criticizes Trump Administration’s Coronavirus Response. The Detroit Free Press (5/14, Spangler, 1.52M) reports Michigan Gov. Gretchen Whitmer (D) on Thursday “again criticized the Trump administration’s handling of the coronavirus pandemic, saying it sent the state a shipment of swabs that can’t be used with some kinds of tests for the virus.” Whitmer said, “We’re missing something as simple as a variety of swabs,” adding “that, without them, she can’t move as quickly as she’d like to expand testing in Michigan.” This is the “key to re-engaging sectors of our economy with confidence,” she added. Her remarks came “during an online chat with former Vice President Joe Biden, the presumptive Democratic nominee to face President Donald Trump in the fall election, and Democratic Govs. Ned Lamont of Connecticut and Phil Murphy of New Jersey.”

Attorneys “Threaten Coronavirus Lawsuits” Against Florida Nursing Homes.

The Orlando (FL) Sentinel (5/14, Santich, 536K) reports law firm “behemoth” Morgan & Morgan plans to sue “two Florida nursing homes over their alleged mishandling of COVID-19 outbreaks, attorneys for the firm said Thursday.” The firm has been retained “by families whose loved ones died after coronavirus infections at the facilities where they had been patients, including three families at Opis Coquina Center in Ormond Beach and an undisclosed number at Suwannee Health and Rehabilitation Center in Live Oak, near the Georgia border, the attorneys said.” According to attorney Alexander Clem, “These family members are just in the last seven to 10 days learning about what happened to mom and dad... that [their death] was due to COVID-19. The folks that allowed this to happen knowingly – they deserve to be held accountable.” However, Kristen Knapp,

communications director for the Florida Health Care Association, representing the nursing home industry, said the attorneys were “positioning themselves to profit from this tragic situation.”

Despite Missing Goal, Nebraska’s Governor Confident In State Testing Program.

The AP (5/14, Schulte) reports Nebraska may not make “its goal of conducting 3,000 coronavirus tests per day by the end of May through the state’s TestNebraska program, but Gov. Pete Ricketts (R) expressed confidence Thursday that testers will reach” that pace “at some point” if residents continue to sign up. His comments came after “state officials reported that the program produced 2,358 results last week – well short of the 3,000 per day that was expected by the end of the month, when the ramp-up period is supposed to end.” Ricketts announced the “\$27 million coronavirus testing contract with Utah-based Nomi Health and three other firms on April 21, along with plans for a five-week ramp-up period to reach the estimated 3,000 tests per day.” The state has opened four “mobile testing sites so far in different cities, with plans to open six and a goal that each will see 500 residents daily.” However, the program has faced criticism “from some Nebraska state lawmakers and problems have been reported in Iowa and Utah, which have similar contracts.”

The Omaha (NE) World-Herald (5/14, Stoddard, 641K) reports Ricketts “said he is watching two key measures: the rate of tests that come back positive for the coronavirus and hospital capacity.” Ricketts “said 277 state employees who have been trained to do contact tracing are now helping local health departments.” Felicia Quintana-Zinn, a deputy division director “at the Nebraska Department of Health and Human Services, said tracers contact people who have tested positive for the coronavirus to find out who they might have exposed to the virus.” In most cases, exposure “occurs if people are less than 6 feet from one another for 10 minutes or more.”

Connecticut Governor “Moving Ahead” With May 20 Reopening “Despite Concerns.”

The AP (5/14, Haigh) reports despite a call on Thursday “by a group Democratic state senators to delay plans to begin phasing out Connecticut’s COVID-19 restrictions next week,” Connecticut Gov. Ned Lamont (D) “said his administration is still moving ahead carefully toward the planned May 20 partial reopening of certain Connecticut businesses.” Lamont “noted that hospitalizations are in the third week of a downward progression and the state is on pace to ‘blow through’ a projected 42,000 tests per week beginning next week, ramping up to more than 100,000 by June.”

Democratic Connecticut State Senators “Implore Governor To Delay Reopening.” The Hill (5/14, Bowden, 2.98M) reports a group of Democratic “state senators in Connecticut have written to Gov. Ned Lamont (D), urging him to delay his plans to begin reopening the state’s economy.” In a letter obtained “by the Hartford Courant, the nine lawmakers noted that the state is still experiencing a rate of new coronavirus infections five times higher than it was recording on the day Lamont issued his executive order closing barber shops and hair salons, along with other nonessential businesses.” The senators also add, “While Connecticut is moving in the right direction in terms of testing capacity, hospitalizations and deaths, the number of new positive tests, while down from the peak, indicates that community transmission of COVID-19 is still occurring in Connecticut at levels far beyond our ability to track, trace and isolate potential contacts.” Connecticut has reported “more than 34,000 cases of coronavirus across the state so far, and just over 3,100 deaths have been recorded.”

Just 4,000 Have Been Tested Under Iowa Program.

The AP (5/14, Foley) reports only 4,000 people have “gotten results through Iowa’s month-old \$26 million coronavirus testing contract, but that will increase rapidly now that the equipment has been validated, Gov. Kim Reynolds said Thursday.” Reynolds “said the State Hygienic Lab has determined that the machines purchased for the TestIowa program are 95% accurate in detecting the virus in samples and 99.7% accurate in determining its absence.” The validation will allow TestIowa “to soon process 3,000 tests per day as originally envisioned, Reynolds said.” She “said it would also allow tests to be processed faster and the state to broaden the criteria of who can qualify for a test.” The announcement came “as Iowa reported 12 more deaths from the virus and an uptick in hospitalizations.” The state reported that “180 of the 318 deaths to date have been residents of long-term care facilities, where three dozen outbreaks have been confirmed.”

South Dakota Announces Plan To Test “All Long-term Care Facility And Assisted Living Residents” Over Next Month.

The Sioux Falls (SD) Argus Leader (5/14, Ferguson, 179K) reports South Dakota public health leaders “on Thursday announced a plan to test all of the state’s long-term care facility residents and staff and other vulnerable populations for the new coronavirus.” The four-week plan, a “collaboration between the state department of health, local healthcare providers and commercial testing labs, will attempt to test all residents and staff across the state’s nursing homes and assisted living centers.” The “mass-testing” event will begin with “testing residents in about 46 nursing homes in areas of substantial COVID-19 spread,” moving next to the “more than 100 other nursing homes across the state.” The remaining two weeks “will focus on assisted living centers.” South Dakota Health Secretary Kim Malsam-Rysdon “estimated that more than 7,400 residents and staff in nursing homes would be tested in the first week and more than 10,000 in the second week. In the third and fourth weeks, she expected about 4,300 staff and residents in assisted living centers would be tested each week.”

The AP (5/14, Groves) reports the state has “acquired more supplies needed for tests, allowing them to hold mass testing events.” Health officials also plan to “conduct random testing among vulnerable people to try to catch infections before they spread.” Malsam-Rysdon “said the state is also planning to hold mass testing events in Native American tribal communities, starting with a mass testing event with the Sisseton-Wahpeton Oyate next week.”

Hawaii’s Governor “Inclined” To Maintain Stay-At-Home Order Until June 30.

The AP (5/14) reports Hawaii Gov. David Ige (D) “said Thursday he’s inclined to extend his “safer-at-home” order through the end of June to slow the spread of the coronavirus.” Ige “said he also plans to maintain the state’s requirement that travelers arriving in the state observe 14 days of quarantine.” Ige “said he would be examining allowing more businesses to reopen, including hair salons, barber shops and restaurants with dine-in service,” and also “said the state would look at guidance from the U.S. Centers for Disease Control and Prevention for information on how to keep employees and customers safe.”

Louisiana Senate Approves Legislation To “Shield Businesses From Virus Lawsuits.”

The AP (5/14, DeStatte) reports restaurants serving takeout and “delivery orders in Louisiana during the coronavirus outbreak and businesses providing protective gear should be largely shielded from lawsuits for

injuries, the state Senate decided Thursday." State senators overwhelmingly supported "the pair of bills from Republican Sens. Sharon Hewitt and Patrick McMath, which are similar to business-backed measures proposed in other states and in Washington amid the pandemic." The state Senate also backed a measure "aimed at shielding government agencies from lawsuits from employees required to work during the coronavirus outbreak, if they follow the guidance for protective measures issued by the state and the U.S. Centers for Disease Control and Prevention."

States Begin Partially Opening As Residents Grow Restless, Less Willing To Shelter In Place.

The [CBS Evening News](#) ^r (5/14, story 6, 2:00, O'Donnell, 5.25M) reported on growing efforts in a number of states to partially or completely repeal stay-at-home orders due to the coronavirus pandemic. In Michigan, armed protestors marched on the state Capitol building in defiance of the state's order, and the Supreme Court of Wisconsin this week invalidated Gov. Tony Evers' (D) stay-at-home order. Further, some small business owners are protesting the stay-at-home orders as fatally detrimental to their businesses' financial interests.

[Bloomberg Business](#) (5/14, Rojanasakul, McCartney, 4.73M) reports most states in the US "have lifted at least some restrictions on the types of businesses that can be open, and distancing in nearly every one is on the decline – particularly on weekends – according to data from Unacast, a location data and analytics firm." The data also suggested that states with more reliable stay-at-home orders and higher adherence rates saw lower spread of coronavirus over the past two months.

Some School Districts Ending Their Distance Learning Efforts.

The [AP](#) (5/14, Amy) reports on the growing number of school districts across the US that have "pulled the plug on distance learning, all citing familiar reasons." School officials say "it's too stressful, the lack of devices and internet access is too much to overcome, and what students get from it just isn't worth the struggle." In Georgia, for instance, many district leaders say the "final weeks of the school year would have been dedicated anyway to preparing for and taking standardized tests that are now canceled."

Scientists Say Testing Sewage Holds Promise For Monitoring Outbreaks Of Diseases Including Coronavirus.

[Reuters](#) (5/14, Kelland) reports scientists say testing sewage for pathogens, including coronavirus, could help countries around the world monitor outbreaks of diseases and respond appropriately. Reuters highlights several efforts around the world to use sewage testing as a public health tool to inform officials about how widespread coronavirus is when deciding whether to ease restrictions. In addition, sewage testing could alleviate the burden of doing widespread testing of individuals, which has proven difficult in many parts of the world.

Analysis: Many "Essential" Workers Will See Pay Cuts As Companies Rescind "Hazard Pay" Policies.

[Bloomberg](#) (5/14, Melin, Steverman, 4.73M) reports many "essential" employees in the US will be facing a pay cut in the coming weeks as the initial push for "hazard pay" around the pandemic begins to fade. Initially, many employees "received bonuses or pay bumps to compensate for the risk that comes with clocking in at supermarkets, hospitals and other crowded workplaces during a pandemic," but companies are beginning to end

these programs. For example, Kroger “is rescinding the” pay “raise it gave to store and warehouse workers” while Target and Amazon “will follow later this month, with other firms charting similar moves.” The planned cutbacks “have rankled unions, employees and customers who are accusing companies of putting profits ahead of worker well-being.” The decisions “also raise questions about how to value the essential workers who are keeping society functioning,” as many employees “put their health and safety on the line in exchange for relatively low wages.”

COVID-19 Accelerating Decline Of Retail Industry.

On its front page, the Wall Street Journal (5/14, A1, Kapner, Nassauer, Subscription Publication, 7.57M) reports the COVID-19 pandemic has accelerated the decline of the retail industry as more people move to online shopping. UBS estimates about 100,000 stores will close in the next five years, over triple the number that closed during the last recession.

Navy Continues To Battle Coronavirus Transmission Aboard Theodore Roosevelt Aircraft Carrier.

The New York Times (5/13, Gibbons-Neff, Schmitt, Cooper, 18.61M) reported the Theodore Roosevelt aircraft carrier “continued its monthslong fight against the novel coronavirus, with at least one sailor aboard the ship testing positive, according to crew members.” The sailor “was quickly whisked off the ship, which is docked in Guam as Navy officials make preparation for the vessel to deploy.” However, the episode “underscores the stubborn challenges facing top Navy officials as a second investigation into the service’s handling of the virus – this one by the Defense Department’s inspector general – got underway this week.” Officials “said they had been aggressively screening and testing as crew members return to the Roosevelt after quarantining in Guam over the past month.”

Analysis: Gun Stores In Several States Ignored State-Ordered Closures, Initiated Tens Of Thousands Of Background Checks In April.

USA Today (5/14, 10.31M) reports on how gun stores in several US states “have defied orders to close their doors as the coronavirus pandemic drives historic demand for firearms, according to background check data maintained by the Federal Bureau of Investigation and interviews with shop owners.” Currently, five states have ordered gun stores closed under stay-at-home orders and directives – Massachusetts, Michigan, New Mexico, New York, and Washington. However, FBI data from April show “that dealers in those [states] still initiated tens of thousands of gun background checks.” Washington alone saw 42,000 background checks initiated for gun purchases in April. Additionally, the National Instant Criminal Background Check System processed 2.9 million checks, making it the highest month on record, dating back to 1998.

Inspection Reports For Several Connecticut Nursing Homes Found Lapses In Infection Control, Prevention Around Coronavirus.

The Connecticut Mirror (5/14, Thomas, Carlesso) reports inspections at several Connecticut nursing homes “found lapses in infection control and prevention and poor practices for the prolonged use of protective gear necessary during the COVID-19 pandemic, according to a half-dozen reports released Wednesday.” The reports, provided by Connecticut’s Department of Public health, “are the first detailed accounts of targeted inspections

ordered by the federal government on March 20 and later expanded by Gov. Ned Lamont (D) to cover all 213 skilled nursing homes, where the novel coronavirus has infected 6,000 and is attributed to more than 1,600 deaths." Additionally, none of the reports "detailed inspections at homes with some of the highest numbers of people dying from COVID-19." Department spokesman Av Harris "said there is a delay in releasing some reports."

Analysis: Studies Suggesting Coronavirus Can Be Spread Through Loud Talking Show Need For Face Masks In Public.

Forbes (5/14, Lee, 9.71M) reports on a new study published in the Proceedings of the National Academy of Sciences which suggests coronavirus could be spread in public through speaking, because the act of speaking can expel fluid droplets that hang in the air for several minutes. A similar study "published in Nature has suggested that on average a fluid droplet from [a] contagious person could contain 7 million viruses per millilitre," and the research team then estimated "that just one minute of loud speaking could generate at least a thousand virus-containing little droplets that may hang in the air for over eight minutes." Further, researchers "explained that their study showed how 'normal speech generates airborne droplets that can remain suspended for tens of minutes or longer and are eminently capable of transmitting disease in confined spaces.'" Therefore, researchers are encouraging face mask adherence in public areas and enclosed spaces to limit the spread of virus-containing droplets.

UT Dallas Researchers Design 3D-Printed Disposable Ventilator Valve.

The Dallas Morning News (5/14, Arnold, 946K) reports researchers at the University of Texas at Dallas "have designed a 3D-printed ventilator valve that helps patients breathe." The ventilator valves "called positive end-expiratory pressure, also known as PEEP," are disposable "to ensure patients' lungs some air and do not collapse when exhaling." The research team "is seeking emergency approval from the U.S. Food and Drug Administration so it can distribute the parts [to] hospitals that need them, the university said in an announcement." The research team at UT Dallas "is one of several university groups across the country working to increase the supply of ventilators and protective equipment."

Sen. Warren, Rep. Levin Propose Federal Contact Tracing Program.

Sen. Elizabeth Warren (D-MA) and Rep. Andy Levin (D-MI) write for NBC News (5/14, 6.14M) that they are introducing a proposal "for a federal contact tracing program" for the next relief package from Congress. While House Democrats have a proposal that "already includes pieces of it, including \$500 million to hire a diverse group of culturally competent contact tracers," Congress needs "to stand up our whole plan for a national contact tracing strategy." Warren and Levin claim the Administration's "slow and dysfunctional response has been a disaster of epic proportion" and that is why "Congress must step in, and that's why we have proposed the Coronavirus Containment Corps."

The Hill (5/14, Budryk, 2.98M) covers the opinion piece from Warren and Levin.

Interview: Antibiotic-Resistant Microbes Equally Important Issue During Pandemic.

NPR (5/14, 3.12M) interviewed Boston University professor Muhammad Zaman, author of "Biography of Resistance: The Epic Battle Between People and Pathogens," on his new book and what exactly antibiotic

resistance means for US public health. In the interview, Zaman speaks on the dual-issue of antibiotic resistant microbes and the coronavirus pandemic, noting that “we know from history that the majority of deaths during the great 1918 flu pandemic were from secondary bacterial pneumonia.” Zaman also advocates for a more global, collaborative approach to addressing the issue both during and after the pandemic.

Infectious Disease Experts Warn Of Potential Dual-Season For COVID-19, Influenza During Winter.

The San Francisco Chronicle (5/14, Allday, 2.67M) reports the greater Bay Area “blunted the impact of its first brush [with] the coronavirus, but infectious disease experts warn there are more outbreaks to come once the region eases shelter-in-place restrictions, and one looming event is of particular concern: the flu season.” Currently, no health experts know “what to expect in the fall and winter, when the coronavirus may commingle with seasonal influenza.” However, public health officials are “bracing for a resurgence of cases” for COVID-19 while also dealing with influenza. For example, infectious disease expert David Relman said, “This was a really good practice run for what may be a worse winter,” adding, “We need to be thinking really carefully now about the strategies we can use to address both things at the same time.”

Norwegian Cruise Line Expects Entire Fleet To Resume Full Operations In Approximately Six Months.

USA Today (5/14, Hines, 10.31M) reports Norwegian Cruise Line “expects its entire fleet will be able to resume full operations in five to six months.” The company “shared the news in its earning report for the first quarter of 2020, which ended on March 31.” CEO Frank Del Rio “said that Norwegian is planning on carrying out a phased relaunch” and “expects it will take up to six months to resume fleet-wide operations across Norwegian Cruise Line Holdings’ 28 ships, which are spread across its three brands: flagship Norwegian Cruise Line, Oceania Cruises and Regent Seven Seas Cruises.”

Analysis: Anti-Vaccination Advocates Mobilizing To Protest Potential Coronavirus Vaccine.

HuffPost (5/14, Robins, 1.67M) reports that as scientists and researchers “urgently work to develop a vaccine against the coronavirus that would save lives and help societies to safely reopen, the anti-vaccine movement has been mobilizing to convince people they shouldn’t take it.” Anti-vaccination protestors – known as “anti-vaxxers” – “have become a prominent presence at [demonstrations] against lockdowns and social distancing, while spreading conspiracies and misinformation to millions on platforms such as Facebook and YouTube.” The article carries an interview with pro-vaccination activist Dr. Peter Hotez, who works to “push back against anti-vax falsehoods and activists.”

DC-Area Metro, Metrobus Riders Required To Wear Face Coverings Effective May 18.

The Washington Post (5/14, George, 14.2M) reports that effective May 18, all DC-area Metro and Metrobus riders “will be required to wear masks or face coverings to help prevent the spread of the novel coronavirus, the agency’s chief safety officer said Thursday.” The requirement “follows rules set by leaders in the District and Maryland.” Previously, the agency “had only recommended that riders wear face coverings.” Metro General manager Paul Wiedefeld “said bus and train operators asked for the requirement, as did customers on recent surveys.”

The Hill (5/14, Budryk, 2.98M) also reports.

Nursing Home Industry, Residents Clash Over Industry's Handling Of Pandemic.

TIME (5/14, 18.47M) reports nursing home residents and staff in the US "have borne a heavy load of the pandemic's burden," with deaths in long-term care facilities now making up "at least one third of coronavirus fatalities in most states." Some residents "are already starting to take legal action, suing nursing homes for neglect, abuse and wrongful death." In response, the nursing home industry "has launched a broad and successful lobbying effort to secure immunity from potential lawsuits over the way facilities are treating patients during the pandemic, a move consumer advocates say raises long-term questions about the oversight of an industry that has racked up standards violations for years."

Opinion: Governors Need To Designate Grocery Workers As First Responders.

UFCW Local 400 President Mark Federici writes in an opinion piece for the Washington Post (5/14, 14.2M) that governors "must designate grocery, pharmacy and food-processing workers as first responders and limit stores to no more than 10 customers per 10,000 square feet, with a maximum of 50 people in any store at the same time." The designation "needs to include guaranteed free, universal testing and treatment for every worker," as well as "masks, gloves and other personal protective equipment," and "free child care, which enables grocery employees to show up for work when schools are closed." Federici writes that first-responder designation "is the only way to provide the protection needed by our essential grocery workers and their customers," and "rather than giving grocery workers lip service by calling them heroes, let's actually do something to protect their health."

WPost: COVID-19 Testing In Nursing Homes And Long-Term Care Facilities Is Essential.

The Washington Post (5/14, 14.2M) editorializes, "Residents and staff of nursing homes and other long-term care facilities account for roughly half of 1 percent of the U.S. population, and more than a third" of COVID-19 deaths. The Post says that "justifies extreme measures by federal officials and states, but so far both have balked. On a call Monday with governors, Vice President Pence strongly recommended testing at nursing homes nationwide...yet federal officials and most governors have stopped short of mandating such tests." The Post says such testing is essential, and "in states where tests are in short supply, they should be prioritized for nursing homes and other elderly care facilities."

One-Fourth Of US Restaurants Will Close Due To Stay-At-Home Orders During Pandemic, OpenTable Forecasts.

Bloomberg (5/14, Ludlow, 4.73M) reports 25 percent of US restaurants "will go out of business due to the coronavirus quarantines that have battered the food-service industry, according to a forecast by OpenTable." The projection "underscores the widespread pain for American restaurants as lockdowns have forced people to cook at home or order takeout rather than eat out." US restaurants "lost more than \$30 billion in sales during March and \$50 billion in April, according to National Restaurant Association estimates." However, data from OpenTable show "that there are growing signs that patrons are willing to dine out again in states like Arizona and Texas where it's allowed, though the numbers are still far below where they were last year."

Pentagon Examining "Social Distancing Protocols" To Train, Deploy Units Amid Pandemic.

USA Today (5/14, Brook, Babich, 10.31M) reports that senior Pentagon officials are exploring “how to train and deploy units for combat while the virus continues to infect and kill.” Officials are balancing “the risk of returning to normal operations” with “losing the skills troops need to operate lethal weaponry safely and to win in combat.” Army Secretary McCarthy told USA Today, “We were in tremendous posture right as COVID hit with our readiness – over half our brigade combat teams in the highest level of readiness. ... If we don’t turn it back on by this summer, we’re going to start to see atrophy with our readiness posture. So we think we’ve got the right capacity to test. We think we have the social distancing protocols in place where we can do this.” The Army “will soon present the plan to Defense Secretary Mark Esper for approval of what would be a major step toward reopening the military.”

Some Colleges Push Viral Testing, Alternative Methods To Allow Fall Semester In-Person.

The Washington Post (5/14, Anderson, Svrluga, 14.2M) reports many colleges and universities are “pushing to bring students back to campus in the fall, pledging an all-out effort to overcome the extraordinary challenges of housing and teaching them during a public health crisis.” The University of California at San Diego has already set up a “self-serve” COVID-19 testing station and the “experiment is one of many data-gathering initiatives advocates say are needed to reopen.” But health experts “fear some schools may be moving too fast to reopen,” specifically because of the complications and challenges around enforcing reasonable social distancing protocols on campus.

Columnist: Trump Is “In The Middle Of A Grace Period” With Voters, But That Will Not Last Indefinitely.

Washington Post (5/14, 14.2M) columnist David Byler writes that “President Trump bungled the coronavirus crisis,” so “it would be reasonable to expect Trump’s poll numbers to drop like a rock after this sort of mismanagement.” However, “his approval rating is stable at around 44 percent – roughly where it was before the virus hit.” Byler says that is “because Trump is likely still in the middle of a grace period: Voters aren’t holding him fully accountable for the damage caused by the virus.” Byler asserts “voters might be willing to give a leader leeway in a crisis, but they won’t extend that credit indefinitely.”

Department Of Labor Issues Coronavirus Guidance To Nursing Homes.

Reuters (5/14, Hals) reports “the U.S. Department of Labor issued its first workplace guidance to nursing homes on Thursday since the COVID-19 pandemic swept the country and ravaged care facilities, saying residents, staff and visitors should keep 6 feet (1.83 meters) apart.” The guidance “from the Occupational Safety and Health Administration (OSHA) also said nursing homes should screen residents and staff for symptoms and should find alternatives to group activities.” OSHA “did not recommend testing of residents or workers by nursing homes, which have been hit by the coronavirus since February.”

Trump Signs Executive Order Giving New Authority To US International Development Finance Corporation Amid Pandemic.

U.S. News & World Report (5/14, Smith-Schoenwalder, 2.4M) says President “Trump on Thursday said he signed an executive order to grant new authority to the U.S. International Development Finance Corporation to finance industries vital to the pandemic response.” Trump said, “This federal agency normally invests in

economic development projects in other countries. ... I said, 'How about investing in our country?'" In a statement, "the White House said...the order will help strengthen the supply chain and provide more financing to 'key industries producing vital goods and services.'"

Columnist: US Should Be “Pitied” For Coronavirus Response.

Washington Post (5/14, 14.2M) columnist Eugene Robinson writes that “only a handful of nations on Earth have arguably done a worse job of handling the coronavirus pandemic than the United States. What has happened to us? How did we become so dysfunctional? When did we become so incompetent?” Robinson says “the phrase ‘American exceptionalism’ has always meant different things to different people – that this nation should be admired, or perhaps that it should be feared. Not until now, at least in my lifetime, has it suggested that the United States should be pitied.”

Analysis: Trump Using Meetings With Governors At White House To Promote US’ Economic Reopening.

In an analysis, Politico (5/14, Kumar, 4.29M) reports “President Donald Trump hasn’t been able to go out, so he’s welcoming governors in.” The recent “visits are strikingly similar: Trump touts the governors as ‘special’ and ‘great’ and they in turn thank him for the ‘enormous help in our darkest hour of need.’ The president cracks a joke or two about the governor getting a negative coronavirus test sitting down next to him. And then they all pose for the cameras.” Politico says the meetings “have served as Trump’s workaround to his inability to hit the road and hold rallies and promote the economic reopening of America, which he believes will be key to his reelection in November.”

Columnist: “Virus Trutherism” Widespread On The Political Right.

New York Times (5/14, 18.61M) columnist Paul Krugman writes that “virus trutherism – insisting that Covid-19 deaths are greatly exaggerated and may reflect a vast medical conspiracy – is already widespread on the right. We can expect to see much more of it in the months ahead.” The “right long ago rejected evidence-based policy in favor of policy-based evidence – denying facts that might get in the way of a predetermined agenda.” However, Krugman says, “the right’s determination to ignore the epidemiologists is politically reckless in a way previous denials of reality weren’t.”

McConnell Walks Back Claim That Obama Administration Left Trump Administration No “Game Plan” For Pandemics.

CNN (5/14, Leblanc, 83.16M) reports “Senate Majority Leader Mitch McConnell conceded Thursday night that he was wrong to claim that the Obama administration had not left behind a plan to deal with a pandemic in the US.” McConnell said during a Fox News interview, “I was wrong. They did leave behind a plan, so I clearly made a mistake in that regard.” McConnell’s “concession comes days after he falsely accused the Obama administration of failing to leave the Trump administration ‘any kind of game plan’ for something like the coronavirus pandemic during a Trump campaign online chat with Lara Trump, the President’s daughter-in-law.”

The Hill (5/14, Carney, 2.98M) reports McConnell said, “As to whether or not the plan was followed and who is the critic and all the rest, I don’t have any observation about that because I don’t know enough about the details of that...to comment on it in any detail.”

Pentagon's DPA Coordinator Reassigned To Navy Position.

Politico (5/14, Seligman, Lippman, 4.29M) reports that Jennifer Santos, "the Pentagon's industrial policy chief who oversees efforts to ramp up production of masks and other equipment" to help fight COVID-19, "was fired from her job this week and will move to a position in the Navy." According to Politico, "Since March, Santos has focused on using the Defense Production Act [DPA] to partner with industry to bolster the nation's supply of critical medical equipment such as ventilators, personal protective gear and testing materials needed to counter the coronavirus pandemic." Politico says Scott Baum, "who is DoD's principal director of industrial policy, will take over Santos' position on an acting basis."

Trump's Press Secretary Flashes Pandemic Playbook To Reporters; Calls Obama Administration's Plan "Insufficient."

The New York Post (5/14, Bowden, 4.57M) reports "President Trump says his administration did have a plan to deal with the coronavirus pandemic – and his press secretary on Thursday flashed a previously unknown playbook called the 'Pandemic Crisis Action Plan' to prove it." The press secretary "held up the binder for reporters before the president and his staff decamped to Allentown, Pennsylvania." Furthermore, press secretary Kayleigh McEnany "held up a copy of the plan the Obama administration left for the incoming Trump team – the 'Playbook for early response to high consequence emerging infectious disease threats and biological incidents' – describing it as 'insufficient.'"

Number Of COVID-19 Cases In Michigan Nears 50,000.

The Detroit News (5/14, Mauger, 825K) reports "the number of confirmed COVID-19 cases in Michigan jumped by 1,191 Thursday to 49,582 as the state reported 'backlogged' lab results and increased testing at correctional facilities." But, Michigan's "new tracking shows that the tally of cases in 26 Michigan counties has been flat in the last seven days. Four of the 26 counties continue to have zero cases." The 1,191 "cases reported Thursday was the highest daily increase statewide since April 24."

Woman Sues Portland Nursing Home After Her Mother Died Of Coronavirus At The Facility.

The AP (5/14) reports "the daughter of a woman who died after contracting the coronavirus at a Portland long-term care facility filed a \$1.8 million lawsuit Thursday claiming elder abuse." The plaintiff, Angela Brown, "says her 75-year-old mother, Judith Jones, contracted coronavirus and died because of Healthcare at Foster Creek's negligence, The Oregonian/OregonLive reported." In her "complaint, Brown listed problems state investigators found at the nursing home, now connected to 29 deaths and 119 cases of COVID-19."

New York Governor And New York City Mayor Cannot Agree On Number Of Coronavirus Deaths In The City.

POLITICO New York (5/14, Durkin) reports "New York City hit a grim milestone this week, recording more than 20,000 coronavirus deaths throughout the five boroughs. Or did it?" According to New York "Gov. Andrew Cuomo's (D) office, the city is still weeks away from that mark, with thousands fewer deaths in its tally – and public health experts say the state's lag is a problem." The constant "feud and routine miscommunication between Cuomo and Mayor Bill de Blasio is among the few things in New York that has not been slowed by the

pandemic.” However, “the fact that the two can’t even agree on how many people have died illustrates the dysfunction between the city and state, even as they try to coordinate a cautious reopening of New York’s economy.”

Study Suggests Pediatric Multi-System Inflammatory Syndrome Is Tied To Coronavirus, As Cases Rise In New York.

Bloomberg (5/13, Gale, 4.73M) reported that “the coronavirus may have triggered a 30-fold jump in cases of a serious but rare pediatric inflammatory disease, according to an Italian study that provides an ominous warning to other pandemic-affected nations about the risk to children.” An “analysis from Bergamo, the epicenter of the Italian Covid-19 outbreak, found 10 cases of a Kawasaki disease-like illness in children, adding to reports of about 90 similar cases from New York and England.” Although “children remain at lower risk than older adults of developing severe complications after being infected with the Covid-19-causing SARS-CoV-2 virus, the research published Thursday in the *Lancet* medical journal shows that their risk isn’t zero.”

The Wall Street Journal (5/14, King, Subscription Publication, 7.57M) reports officials in New York have now identified 110 cases of pediatric multi-system inflammatory syndrome in young adults and children. The syndrome has killed three young people, and it is potentially tied to COVID-19.

Fishing Boat Crews Reportedly Could Cause Coronavirus Outbreak In Cordova, Alaska.

The New York Times (5/14, Baker, 18.61M) reports that “the people of Cordova, Alaska, had weathered the coronavirus pandemic with no cases and the comfort of isolation – a coastal town unreachable by road in a state with some of the fewest infections per capita in the country.” However, “that seclusion has come to an abrupt end. Over the past two weeks, fishing boat crews from Seattle and elsewhere have started arriving by the hundreds, positioning for the start of Alaska’s summer seafood rush.” The town’s “conditions are ideal for propagation of the coronavirus: Most of the imported crews work in the close quarters of fishing boats or sleep in crowded bunkhouses next to processing facilities.”

Hospital Leaders Approve Of Minnesota Governor’s Decision To Let Stay-At-Home Order Expire.

The Minneapolis Star Tribune (5/14, Olson, 1.04M) reports “hospital leaders endorsed Gov. Tim Walz’s (DFL) decision to end the statewide stay-at-home order on Monday, but urged Minnesotans to remain vigilant to reduce the spread of” COVID-19 “that could still overwhelm them and leave them unable to care for some patients at the peak of the pandemic.” The state “appears to have a razor-thin margin of critical hospital supplies – including critical care beds and ventilators – to weather the surge of COVID-19 infections that is expected this summer, according to new state modeling results.” However, “if reality proves worse than predicted, hospital officials said the governor will need to be quick about reinstating restrictions that reduce face-to-face contact and the spread of the virus.”

Pennsylvania Governor To Announce More Counties That Can Lift Some Pandemic Restrictions On Friday.

The AP (5/14, Levy) reports Pennsylvania “Gov. Tom Wolf (D) will announce Friday that more counties can see some of his tightest pandemic restrictions lifted, as counties and lawmakers kept up pressure on him to ease up

on his orders.” During a “news conference Thursday with reporters, Wolf said he will make his decision on Friday morning.” But, “he has not changed his criteria for deciding which counties can emerge from his stay-at-home order and his order for non-life-sustaining businesses to close, he said.”


Most Maryland Residents Will Remain Under Stay-At-Home Orders As State Starts Reopening Friday.

The Washington Times (5/14, Kaplan, 492K) reports “at least half of Maryland residents will still be under stay-at-home orders Friday, when the state begins to reopen its economy after having shut down for nearly two months to stop the spread of the coronavirus.” Some of Maryland’s “most populous jurisdictions – Montgomery, Prince George’s, Howard and Calvert counties, and the city of Baltimore – will extend their stay-at-home orders due to high concentrations of COVID-19 cases.” Maryland “Gov. Larry Hogan (R) announced this week that phase one of his ‘Maryland Strong Roadmap to Recovery’ plan will begin at 5 p.m. Friday.”

WSJournal Urges Wisconsin Governor To Create Less Restrictive Stay-At-Home Order With Legislature.

In an editorial, the Wall Street Journal (5/14, Subscription Publication, 7.57M) urges Wisconsin Gov. Tony Evers (D) to work with the state Legislature to draft a less restrictive stay-at-home order.

Oxford Vaccine Study Shows Promise In Monkeys.

NBC Nightly News  (5/14, story 9, 0:40, Holt, Torres, 7.88M) reported, “Oxford University just released results from a study involving six monkeys,” which “found after four weeks a vaccine-produced antibodies to COVID-19 in all of the monkeys, and prevented them from getting pneumonia when they were exposed to the virus.” According to NBC, “The control group that didn’t get the vaccine got sick, so this is certainly promising.” NBC added that the “vaccine is also currently being tested in more than 1,000 people, and the first results are expected in June.”

Reuters (5/14, Steenhuysen) reports, “After exposure, the vaccine appeared to prevent damage to the lungs and kept the virus from making copies of itself there, but the virus was still actively replicating in the nose.”

Pompeo: U.S. Condemns China-Linked “Cyber Actors” Trying To Steal COVID Research.

Reuters (5/14, Pamuk) reports Secretary of State Pompeo said Thursday that the U.S. has “condemned attempts by China-linked ‘cyber actors and non-traditional collectors affiliated’ to steal US intellectual property and data related to coronavirus research.” In a statement, Pompeo said, “The PRC’s behavior in cyberspace is an extension of its counterproductive actions throughout the COVID-19 pandemic.”

Newsweek (5/14, Stockler, 1.53M) reports Pompeo’s remarks “follow an announcement by the FBI on Wednesday that the bureau is investigating ‘the targeting and compromise’ of organizations conducting research to develop vaccines and other treatments for COVID-19.” The efforts were “attributed to China-affiliated actors.” The U.S. State Department released a statement Thursday “denouncing attempts to infiltrate systems involved in US COVID-19 research that the FBI has attributed to China.”

The Washington Times (5/14, Gertz, 492K) also reports.

Researcher Optimistic About Convalescent Plasma Therapy.

On [NBC Nightly News](#) (5/14, story 10, 2:30, 7.88M), Lester Holt said there is “encouraging news in [a new report](#) on an experimental treatment that appears to have helped some patients recover” from COVID-19. NBC’s Cynthia McFadden: “A first look at a promising new report drawn from a nationwide team of more than 5,000 doctors from over 2,000 hospitals and labs, looking at an experimental therapy called convalescent plasma, transfusing the antibody-rich blood from someone who recovered into a current patient.” Michael Joyner, Professor of Anesthesiology at the Mayo Clinic: “We’re very encouraged that the treatment is safe. That was really the first hurdle for us.” McFadden: “Dr. Joyner says the hard data about the effectiveness of the treatment is yet to come. How soon will they have it?” Joyner: “As fast as we can. Our data mining and analytics team is working on data we have currently.”

Plasma Therapy Derived From Recovered COVID-19 Patients Appears Safe, Study Suggests.

The [Wall Street Journal](#) (5/14, Marcus, Subscription Publication, 7.57M) reports a study analyzing data from thousands of COVID-19 patients, who received blood plasma transfusions from patients that already recovered, suggests the experimental therapy is safe, setting up the potential for future studies and clinical trials.

Expert Says It Will Take “Bulk Of A Year” Before Researchers Can Determine Factors In COVID-19 Immunity.

[McClatchy](#) (5/14, Wilner, 19K) reports that University of Maryland School of Medicine Institute of Human Virology Co-Founder and Director Robert Gallo was disturbed by a finding buried deep inside a study by researchers from Los Alamos published last month that “the mutation of the coronavirus’ outer spikes could help the virus escape the grasp of otherwise neutralizing antibodies and ‘make individuals susceptible to a second infection.” Gallo said that it will likely “take the bulk of a year before” researchers can determine with high confidence whether COVID-19 survivors are naturally protected from a second infection.

Data Show COVID-19 Cases Are Generally Decreasing In 17 States, Rising In Nine Others.

[CNN](#) (5/14, Yan, Karimi, 83.16M) reports, “First, the good news: In 24 states, the number of new coronavirus cases reported each day is generally going down.” In 17 states, the numbers “are holding steady, according to an analysis of data from Johns Hopkins University.” And in nine states, “the numbers of new cases are still rising.”

Fox News Host Says Bright Testimony Could Be “Potentially Politically Damaging” For Trump.

[The Hill](#) (5/14, Concha, 2.98M) reports Fox News’s “Special Report” anchor Bret Baier “said Thursday that former Biomedical Advanced Research and Development Authority head Rick Bright’s testimony about the federal government’s response to the coronavirus pandemic could be ‘potentially politically damaging’ for President Trump.” Baier “also asserted that the public health official was someone who could not be easily discredited.” On Thursday, Bright “testified to the House Energy and Commerce health subcommittee that his warnings about medical supply shortages were allegedly ‘met with indifference’ by his superiors in January before the coronavirus pandemic gripped the country.”

[Fox News](#) (5/14, Halon, 27.59M) reports Bright’s testimony “will have ‘lingering implications’ for the Trump administration, Special Report’ anchor Bret Baier told ‘Bill Hemmer Reports.’” Baier said: “I think he laid out a

pretty compelling case of where he was in his job and I think that is potentially damaging for the Trump administration, as he is saying they didn't warn people and they weren't prepared, they could have done more as far as training and preparation as far as January and February."

[Axios](#) (5/14, Rummier, 521K) also reports.

Opinion: Pay Attention To Whistleblower, Because What Trump Disparages Is Often Truth.

In an opinion piece for the [Los Angeles Times](#) (5/14, 4.64M), Editorial Writer Scott Martelle writes, "President Trump reverted to form on Thursday when reporters asked him about congressional testimony by Dr. Richard Bright, who says the White House removed him from his position leading the federal Biomedical Advanced Research and Development Authority because he, in essence, stood up to Trump's political machinery in defense of science." Martelle writes, "Trump told reporters: 'To me, he's nothing more than a really disgruntled, unhappy person.'" Martelle argues, "Trump's splenetic reaction is all the encouragement we need to pay close attention to what Bright told Congress, because what the president disparages often is the truth."

CDC Issues Health Advisory For Physicians On Childhood Illness Linked To COVID-19.

[CNN](#) (5/14, Fox, 83.16M) reports the CDC "issued a health [advisory](#) to thousands of doctors across the country Thursday, advising them to be on the lookout for a troubling new syndrome that may be associated with Covid-19 infection." The syndrome, "called multisystem inflammatory syndrome in children (MIS-C), has been seen in children across Europe and in at least 18 states, plus Washington, DC."

The [AP](#) (5/14, Tanner) reports the agency's case definition "includes current or recent COVID-19 infection or exposure to the virus, a fever of at least 100.4 for at least 24 hours, severe illness requiring hospitalization, inflammatory markers in blood tests, and evidence of problems affecting at least two organs that could include the heart, kidneys, lungs, skin or other nervous system." The condition "has been reported in at least 110 New York children and in several kids in other states," and "a few children have died."

Among other media outlets providing coverage are: the [CBS Evening News](#) ^F (5/14, story 4, 2:00, O'Donnell, 5.25M), [NBC Nightly News](#) ^F (5/14, lead story, 2:25, 7.88M), [Reuters](#) (5/14, Steenhuisen, Chander), [Forbes](#) (5/14, Perez, 9.71M), the [San Francisco Chronicle](#) (5/14, Serrano, 2.67M), [The Hill](#) (5/14, Moreno, 2.98M), and the [New York Post](#) (5/14, Lapin, 4.57M)

Maine Governor Allows Out-Of-State Visitors To Reserve Rooms In Lodges, Inns Starting June 1.

The [AP](#) (5/14) reports, "Maine lodge operators and innkeepers can begin accepting reservations starting June 1 for Maine residents and out-of-state residents who comply with the state's 14-day quarantine requirement, officials said Thursday." The change "represents a loosening of restrictions that originally forbade out-of-state residents from reserving a room with an arrival date before July 1." Commissioner Heather Johnson of the Department of Economic and Community Development said, "We will continue to work closely with the tourism industry to make progress as we head into the summer."

North Dakota Has Exceeded 50,000 Coronavirus Tests.

The [AP](#) (5/14) reports, "North Dakota has gone over 50,000 in the number of tests for the coronavirus and topped 1,700 for the number of people confirmed to have the disease, health officials said Thursday." Health

“officials said 67 people tested positive in the last day, including 57 in Cass County, the state’s most populous county that has seen marked COVID-19 increases in the last several days.” The report “showed no new statewide deaths, leaving the total at 40, and one new hospitalization, increasing that number to 38. More than 1,000 people have recovered from the disease.”

In Rural America, COVID-19 Breakouts At Prisons Risk Overwhelming Hospitals.

Kaiser Health News (5/14, Dawson) reports that “across rural America, prisons and jails sit in places like Toole County,” Montana “that have minimal intensive care unit beds and ventilators and few additional medical resources” and “many hospitals there were strained before the pandemic.” For Toole County, so far, “the dreaded coronavirus hasn’t yet crept into the site of one of the community’s largest employers, the Crossroads Correctional Center prison.” The center “holds almost 15% of the county’s total population with a 712-bed facility for both federal and state inmates.”

Governor Baker Says State Public Health Officials Have Expanded COVID-19 Testing Eligibility.

The Boston Globe (5/14, 972K) reports, “Speaking during his daily briefing,” Massachusetts Gov. Charlie “Baker said CVS is opening 10 new drive-up” COVID-19 “testing sites at store locations in Charlton, Worcester, Raynham, Northampton, Bridgewater, Carver, West Springfield, Danvers, Westport and Wellesley.” Governor Baker noted that “residents who meet testing criteria can schedule appointments starting Friday at CVS.com.” According to Baker, “state public health officials” have “expanded criteria for testing eligibility to symptomatic people and their close contacts.”

Bars And Restaurants Remain Closed Under Local Milwaukee County Order.

The Milwaukee Journal Sentinel (5/14, 632K) reports, “Bars and restaurants are still closed, and gatherings of more than nine people are still prohibited, under a local order from 18 municipalities in suburban Milwaukee County and their 10 public health officials.” The local “order, which was released shortly before 1 a.m. Thursday, came after the Wisconsin Supreme Court struck down the statewide stay-at-home order.” Some “local officials say the order was ‘effective immediately,’ and will remain in effect until 11:59 p.m. on Thursday, May 21.”

Virginia Officials Plan To Stop Counting Antibody Tests As COVID-19 Tests In Reports.

The Washington Post (5/14, Schneider, 14.2M) reports, “Virginia officials said Thursday they will no longer include the results of antibody tests in their daily counts of who has been tested for the novel coronavirus, a practice that had been criticized as exaggerating the state’s efforts to control the virus’s spread.” The state’s department of health “said the change does not significantly alter the statistical trends that led Gov. Ralph Northam (D) to move toward easing restrictions for most of the state, beginning Friday.” The department has found that “antibody tests had amounted to less than 9 percent of the state’s overall screening for the coronavirus” and “removing them from the total slightly increases the percentage of positive tests among the overall number of tests given, to 15 percent from 14 percent.”

As Some States Reopen, Other States Continue To Battle Coronavirus.

The [AP](#) (5/14, Kunzelman) reports, "From a hospital on the edge of the Navajo Nation to the suburbs of the nation's capital, front-line medical workers in coronavirus hot spots are struggling to keep up with a crushing load of patients while lockdown restrictions are lifting in many other parts of the U.S." Some "Governors are starting to slowly reopen some segments of their local economies, pointing to evidence that the number of COVID-19 deaths and new hospitalizations are peaking or starting to recede in their states." Many "state and local officials see modest signs of progress in the pandemic fight," but "coronavirus outbreaks are testing public health networks in pockets of the U.S."

New York Governor Adds Provision To State's Budget To Prevent Some Residents From Suing Nursing Homes Amid Pandemic.

[The Hill](#) (5/14, Bowden, 2.98M) reports, "Aides to New York Gov. Andrew Cuomo (D) added a provision to the state's newly approved budget that prevents residents from suing nursing homes over some allegations of negligence related to the coronavirus outbreak." The "provision, which some lawmakers contended they did not know was in the final bill until after it passed, prevents basic legal action against long-term care homes over issues such as staffing shortages or insufficient equipment," the New York Times reported.

Some Small Physician Practices Are Struggling During Pandemic, Unable To Get Coronavirus Relief.

The [Washington Post](#) (5/14, Weiner, 14.2M) reports, "Many small doctors' practices...are struggling to survive as many patients shelter at home and put off consultations for all but the most urgent issues." And, "although they're still ministering to patients amid a health crisis," some have "been unable to get loans under the Paycheck Protection Act, passed as part of the coronavirus relief package in late March." A survey conducted "by a Richmond-based advocacy group for primary care doctors, called the Larry A. Green Center, found that half the doctors who sought such loans were unsuccessful."

Pandemic Hits Low-Income Americans Especially Hard, Survey Shows.

[Bloomberg](#) (5/14, Tanzi, 4.73M) reports, "The economic pain of the coronavirus pandemic is falling especially hard on lower-income Americans, a new Federal Reserve survey showed, with almost 40% of those making less than \$40,000 a year reporting a job loss in March." The annual report "on the economic wellbeing of U.S. households released Thursday, which mainly focuses on conditions at the end of 2019, was supplemented with a survey conducted in early April as the pandemic caused millions to lose their jobs as businesses shuttered across the nation." The Fed Chairman Jerome Powell has previously "highlighted the heavy burden being born by Americans with the most meager resources to ride out the lockdown."

Close To Three Million Americans Applied For Unemployment Last Week.

On its front page, the [Wall Street Journal](#) (5/14, A1, Chaney, Guilford, Subscription Publication, 7.57M) reports that nearly three million Americans applied for unemployment benefits last week. The announcement reflects the implications of the coronavirus on the US economy.

The [New York Times](#) (5/14, A1, Cohen, Hsu, 18.61M) reports on its front page that "the weekly count of new claims has been declining since late March, but that hopeful flicker barely stands out in an otherwise grim and

chaotic economic landscape.” The Times adds that “in places where the fitful reopening has started, workers called back to their jobs often face reduced hours and paychecks as well as a heightened risk of infection.”

According to the [Washington Post](#) (5/14, Romm, 14.2M), “The flood of new claims could further inflame tensions between President Trump and public-health officials over how quickly to try to restart parts of the economy, with Trump on Thursday alleging without evidence that some Democrats are trying to slow the process to hurt him politically.” The Post adds that “many Democrats have said the White House is trying to rush states to reopen without an adequate plan to curtail the further spread of the coronavirus.”

Among other news outlets reporting on the story are [ABC World News Tonight](#)^r (5/14, story 4, 2:10, Muir, 7.42M), the [CBS Evening News](#)^r (5/14, story 5, 2:30, O'Donnell, 5.25M), [NBC Nightly News](#)^r (5/14, story 5, 2:40, Holt, 7.88M), [Bloomberg](#) (5/14, Dmitrieva, 4.73M) and the [AP](#) (5/14, Rugaber).

Coronavirus Pandemic Could Cost Insurance Industry Over \$200 Billion, According To Lloyds Of London.

The [AP](#) (5/14) reports, “The pandemic will cost the insurance industry over \$200 billion, according to Lloyds of London, who estimated that its own payouts are now on a par with the Sept. 11, 2001 attacks or the combined impact of hurricanes Harvey, Maria and Irma in 2017.” In general, “losses could widen if lockdowns continue into the next quarter, which would push the overall cost to the insurance industry to \$203 billion. Unlike the storms, for example, the pandemic’s impact is global, systemic and long term.” A study by Lloyds also “assumed social distancing and lockdown measures through 2020, as well as the forecasts for the drop in gross domestic product globally.”

Medical Professionals File Lawsuit Against Michigan Governor Over Lockdown Restrictions.

The [Washington Times](#) (5/14, Varney, 492K) reports, “Medical professionals and a patient in Michigan have filed a lawsuit against Democratic Gov. Gretchen Whitmer as the battles grow between her and those favoring some relaxation of the economic shutdown she has imposed in response to the coronavirus crisis.” The suit also “names Michigan’s Attorney General Dana Nessel and Robert Gordon, the state’s Department of Health and Human Services director as defendants.” Michigan’s “population of 9.9 million” has “reported 48,391 confirmed cases of COVID-19, according to the state’s Department of Health and Human Services.”

Transplant Of Brain Cells To A Patient With Parkinson’s Disease Sparks Ethical Questions.

[STAT](#) (5/14, Begley, 24K) reports, “A secretive experiment revealed this week, in which neurosurgeons transplanted brain cells into a patient with Parkinson’s disease, made medical history.” The transplant was “the first time such ‘reprogrammed’ cells, produced from stem cells that had been created in the lab from the man’s own skin cells, had been used to try to treat the degenerative brain disease.” However, “it was also a bioethics iceberg, with some issues in plain sight and many more lurking.”

Reopening Spurs Divide Among State Governors, Legislatures.

The [New York Times](#) (5/14, 18.61M) reports that the Democratic governors in Wisconsin, Michigan and Pennsylvania, “backed by public health experts, have urged caution before reopening,” but the states’

Republican legislatures “have been pushing in the opposite direction, arguing that the extended restrictions are threatening their personal freedom to go back to work and move around as they wish.”

Connecticut Nursing Home Owner Purchases 400K Masks From Makeshift Supplier.

The Wall Street Journal (5/14, Wirz, Hufford, Subscription Publication, 7.57M) reports that nursing homes are struggling to find masks and other important medical supplies. In one instance, a Connecticut nursing home owner purchased 400,000 masks from a Chinese makeshift supplier, without a prior relationship with the supplier.

New Jersey, Delaware Reopen Beaches For Memorial Day With Restrictions.

The Inquirer (PA) (5/14, McDaniel, Rosenberg, Orso, McCarthy, 347K) reports, “New Jersey beaches can reopen in time for Memorial Day – with social distancing measures in place, Gov. Phil Murphy said Thursday.” The order “offered one of the first rays of light to a region worried about a shut-in summer due to the coronavirus pandemic, but drew mixed reviews from the local officials who Murphy said will be responsible for limiting beach capacity and ensuring compliance with social distancing.” Delaware also “said its beaches would reopen with restrictions before the holiday weekend, though the state police will continue stopping drivers with out-of-state license plates to enforce restrictions on travel into the state.”

Forbes (5/14, Perez, 9.71M), Bloomberg (5/14, Young, 4.73M) and the AP (5/14) also report.

Minnesota Malls Begin To Reopen Monday, However, Mall Of America Plans For June 1.

The Minneapolis Star Tribune (5/14, Kumar, 1.04M) reports, “While Gov. Tim Walz has given the green light to Minnesota retailers to reopen as soon as Monday, it will take days or weeks before some of them get back up and running as they call back furloughed employees and establish new safety protocols.” Some malls, like the Galleria, will open Monday, while “other shopping malls in the region were in discussions with their owners and tenants this morning to discuss the timing of reopening plans and increased safety measures.” One mall, the Mall of America, “is among those that will take its time” as “the megamall” noted on “Thursday that it will reopen for shopping on June 1.”

New York Nursing Home Administrators Reportedly Worried About The State’s COVID-19 Testing Goal.

The AP (5/14, Peltz, Mustian) reports, “As calls grow nationwide for mandatory coronavirus testing in nursing homes, New York facilities are sounding alarms about the state’s ambitious new demand to test roughly 185,000 workers twice a week.” Some “administrators worry there won’t be enough kits for an estimated 370,000 tests a week on workers at nursing homes and other adult care facilities, nearly double the total of tests done statewide now on people in all walks of life.” Homes have also “questioned who will cover an expense estimated around \$100 to \$150 per test, though the state suggested Thursday the homes could send workers to free state testing sites.”

During Contact Tracing Efforts, New York City Mayor Leans On Aide That Previously Argued Against Closures.

The New York Times (5/14, Rashbaum, Goodman, Mays, Goldstein, 18.61M) reports, “The head of New York City’s public hospitals pushed to keep the city open in early March,” and “now Mayor de Blasio has put him in

charge of contact tracing, deepening a rift with the Health Department." According to the Times, Dr. Mitchell Katz, who leads the city's public hospitals, wrote in an email in March to the mayor's aides that "there was 'no proof that closures will help stop the spread.'" Now, the mayor is relying on Dr. Katz and Health Department officials to navigate contact tracing.

Trump, EPA Decide Not To Impose Limits On Water Contaminant Linked To Fetal Damage.

The New York Times (5/14, Friedman, 18.61M) reports, "The Trump administration will not impose any limits on perchlorate, a toxic chemical compound that contaminates water and has been linked to fetal and infant brain damage, according to two Environmental Protection Agency staff members familiar with the decision." The decision was made "by Andrew Wheeler, the administrator of the E.P.A.," and "appears to defy a court order that required the agency to establish a safe drinking-water standard for the chemical by the end of June." Perchlorate "-- which is used in rocket fuel, among other applications -- has been under study for more than a decade, but because contamination is widespread, regulations have been difficult."

The Washington Post (5/14, Dennis, Eilperin, 14.2M) reports, "Under President Barack Obama, the EPA had announced in 2011 that it planned to set the first enforceable limits on perchlorate because of its potential health impacts." However, "both the Defense Department and military manufacturers have long resisted any restrictions on the chemical, which is also used in fireworks, munitions and other ignition devices."

The AP (5/14, Knickmeyer) reports "the Environmental Protection Agency proposal to drop any federal regulation of" perchlorate "would translate to lower IQs and other problems for an unknown number of American babies, pediatrician and public health groups say."

Wyoming To Relax Restrictions On Bars And Restaurants.

Newsweek (5/14, Roos, 1.53M) reports, "Wyoming, the state that has reported the fewest number of COVID-19 deaths so far, will be reopening its bars, restaurants, gyms and more on Friday with social distancing guidelines in place." The state's governor, Mark Gordon, "announced the state's next phase of reopening during a news conference Wednesday." Gordon said, "It's important to remember that, even as we ease restrictions, the virus is not gone." He added, "It is still here, it is still invisible and it is still capable of wreaking havoc. And it's going to be with us for some time in Wyoming, just like the rest of the country."

Democrats Present Legislation Aimed At Protecting Health Data During COVID-19 Pandemic.

The Hill (5/14, Rodrigo, 2.98M) reports, "Democrats in both chambers introduced legislation Thursday aimed at protecting the privacy and security of health data during the coronavirus pandemic." The legislation, the Public Health Emergency Privacy Act, "would place strict limits on what and by who data collected for public health purposes can be used, implement data minimization procedures for that info and require opt-in consent for any efforts." The act "comes as health agencies and tech companies are developing contact tracing and monitoring tools to contain the pandemic."

White House List Of Coronavirus Testing Labs Not Useful, Nine States Say.

NPR (5/14, Greenfieldboyce, 3.12M) reports nine state health departments, in response to a query from NPR, say that the list of labs provided by the White House that could potentially test for coronavirus did not actually

help their states achieve more testing. Also, “six states said that the lists hadn’t even been seen or reviewed – at least as far as the responding official knew.” In fact, “Alabama is the only state where officials told NPR that the list had been reviewed and that it had resulted in increased testing.”

Testing Project On Tiny Michigan Island Underway.

The [Detroit Free Press](#) (5/14, 1.52M) reports Grosse Ile, Michigan, a tiny island in the Detroit River, is taking part in a COVID-19 testing project, data from which will be used by researchers about “how the virus spread – or didn’t spread – among residents whose only connections to the rest of the state are two bridges, one of which is out of commission until December.”

AMA Warns Physicians Against Using Coronavirus Antibody Tests To Inform Healthcare Decisions.

[Modern Healthcare](#) (5/14, Subscription Publication, 214K) reports “the American Medical Association is warning doctors against using [antibody] tests designed to identify people already exposed to the coronavirus to make healthcare decisions for individual patients.”

Virginia Governor Asks Federal Government To Increase Testing At Two Federal Detention Facilities.

The [Richmond \(VA\) Times-Dispatch](#) (5/14, Times-Dispatch, 277K) reports Virginia “Gov. Ralph Northam on Thursday asked that the federal government perform more screening and testing for COVID-19 at the Farmville and Caroline County detention centers.”

CVS Plans To Open 1,000 Self-Swab Coronavirus Test Locations By Month’s End.

[Forbes](#) (5/14, Japsen, 9.71M) reports “CVS Health is escalating its cross-country effort to expand testing for the Coronavirus strain COVID-19 with plans to open 1,000 locations by the end of the month.”

US Said To Be Making Progress In Coronavirus Testing Numbers.

[Vox](#) (5/14, 2.27M) says that “after an April that some experts described as ‘wasted,’ it looks like America is finally making some real progress on coronavirus testing in May.” Over the last few “weeks, the United States has seen significant improvements not just with the raw number of Covid-19 tests but also with other metrics experts use to gauge the scope of the US’s coronavirus outbreak and its testing capacity.” Specifically, “during the week of May 5, the US averaged nearly 300,000 new coronavirus tests a day, according to the Covid Tracking Project,” nearly double the approximately “150,000 daily tests performed in early April, although it still falls short of the number of new tests a day experts say is needed to fully control the outbreak.”

Abbott Lab’s ID Now COVID-19 Misses Up To Half Of Cases Found By Another Test, Study Suggests.

[Modern Healthcare](#) (5/14, Subscription Publication, 214K) reports “a study has found that Abbott Lab’s ID Now COVID-19 test missed as many as half of the cases found to be positive by another test.” Investigators “found that while initially the ID Now COVID-19 assay performed well, as the viral load decreased, the Abbott test produced more false negatives.” The findings were published in [Bioxiv](#).

The [Portland \(ME\) Press Herald](#) (5/14, 244K) also reports.

Bill Gates-Funded Program That Provides At-Home Coronavirus Test Kits Put On Hold Until Federal Approval Is Granted.

[CBS News](#) (5/13, 3.68M) reports that “Bill Gates is funding a new program to provide at-home coronavirus testing kits to residents in the Seattle area. The initiative aims to help researchers better understand how COVID-19 spreads through communities.” However, “after an initial rollout that Gates said was testing about 300 people a day, the program has been put on ‘pause’ while it awaits federal approval.”

Pandemic Reportedly Reveals Vulnerabilities In American Business Model For Hospitals.

The [New York Times](#) (5/15, Kliff, 18.61M) reports that “the American health care system for years has provided many hospitals with a clear playbook for turning a profit: Provide surgeries, scans and other well-reimbursed services to privately insured patients, whose plans pay higher prices than public programs like Medicare and Medicaid.” The coronavirus pandemic “has shown the vulnerabilities of this business model, with procedures canceled, tests postponed and millions of newly unemployed Americans expected to lose the health coverage they received at work.” The disruption to medical facilities’ “operations may ultimately leave Americans with less access to medical care, according to financial analysts, health economists and policy experts.”

Biogen Blocks Creative Biolabs From Selling Products That Allegedly Used Antibody From Its Experimental Alzheimer’s Drug.

[Bloomberg Law](#) (5/14, Decker, Subscription Publication, 4K) reports New York-based Creative Biolabs has agreed to stop selling products that are allegedly “knock-offs of antibodies used in Biogen’s experimental Alzheimer’s drug...according to a court filing.” Creative Biolabs has also agreed “to halt infringing patents Biogen controls, no longer use Biogen’s trademarks to promote products, and destroy any inventory that did so, under the terms of the consent decree posted with the federal court in Boston.” According to Bloomberg, “Biogen has said it plans to seek U.S. Food and Drug Administration approval for a drug using the antibody aducanumab for treatment of early Alzheimer’s.”

Opinion: New Hampshire Tobacco 21 Policy Will Reduce Chances Of Lifelong Nicotine Addiction, Protect Developing Brains.

In the [New Hampshire Union Leader](#) (5/15, 109K), Dr. Seth Emont, who manages the Tobacco Cessation Program at Cheshire Medical Center, writes that there are “a number of reasons” that a New Hampshire Tobacco 21 policy is “a good idea.” Emont argues that such a policy “will help reduce the chances of lifelong nicotine addiction.” and help to “protect developing brains.”

Global Health News

China’s Foreign Ministry Says U.S. Claims Regarding Hacking Of COVID-19 Research Are Slander.

Reuters reports China's foreign ministry has called U.S. claims that hackers linked to the country are "breaking into U.S. COVID-19 research" slanderous. Spokesman Zhao Lijian said "any action online to sabotage efforts against the disease should be condemned."

Health Groups Ask India To Rescind Gilead's Patents For COVID-19 Drug Remdesivir.

Reuters (5/14, Siddiqui) reports, "Two health advocacy groups have written to the Indian government asking it to rescind patents given to Gilead Sciences for the drug remdesivir so it can be distributed more fairly to coronavirus patients around the world, particularly in poorer nations." The health groups argue Gilead's recent licensing and distribution pacts for remdesivir "mean cheaper forms of the drug may not become available in nations seen as non-profitable to the five drugmakers." K. Gopakumar, senior legal researcher at Third World Network, said, "The licenses divide the global market into two and profitable markets are retained with Gilead and less profitable markets are given to the five generic companies."

Russia's ChemRar Testing Favipiravir In Second-, Third-phase Testing As Potential COVID-19 Treatment.

Reuters (5/14, Marrow, Stolyarov, Golubkova) reports Russian company ChemRar, which is conducting trials of a potential COVID-19 treatment, "said on Thursday it was testing it on infected patients in what it called second- and third-phase clinical trials based on World Health Organisation (WHO) criteria." Reuters adds, "The drug, favipiravir, which was first developed in Japan under the name Avigan, secured 150 million roubles (\$2 million) in funding from the Russian Direct Investment Fund."

Chinese Automaker Backed By Buffett Fails To Gain US Approval For Their Masks.

Bloomberg (5/14, 4.73M) reports, "China's BYD Co., the carmaker backed by Warren Buffett's Berkshire Hathaway Inc., was denied a U.S. regulatory certification it needs to sell respirator masks to the state of California." The agency, the National Institute for Occupational Safety and Health, did not "approve BYD's masks for a number of factors, according to an emailed statement that doesn't disclose details for confidentiality reasons." BYD was notified "on May 4 that a contractor's assessment of two BYD factories in China found them to be not acceptable."

Total Number Of Coronavirus Cases Globally Approaches 4.4M.

The Wall Street Journal (5/14, Hua, Calfas, Subscription Publication, 7.57M) reports the number of coronavirus cases worldwide, according to data compiled by Johns Hopkins University, approached nearly 4.4 million, with nearly 300,000 deaths. Of the total number of cases, close to one third is in the US.

Forbes (5/14, Porterfield, 9.71M) also reports.

European Governments Hoping Antibody Tests Will Help Inform Strategies To Avoid Second Wave Of Infections.

Reuters (5/14, Miller) reports many governments in Europe "are scrambling to buy antibody tests to find out how many of their citizens were infected" with coronavirus, "in the hope that will help them craft strategies to avoid a second wave of COVID-19 cases." However, "exactly how – or even if – the information will be of use remains unclear, raising the risk that public funds and government time are being wasted."

European Commission Suspends Delivery Of 10M Chinese Masks Due To Quality Concerns.

The [AP](#) (5/14) reports “the European Commission said Thursday it has suspended the delivery of 10 million Chinese masks to member states and Britain after two countries complained about the poor quality of the batches they received.”

Dental Practices In France Begin Cautiously Re-Opening.

The [AP](#) (5/14) reports dental practices in France “are cautiously reopening and accepting appointments after the French government eased restrictions on some businesses, services and public activity.”

Italy To Start Testing Campaign Across 2,000 Cities To Understand Extent Of Outbreak.

[Reuters](#) (5/14, Amante) reports “Italy will start testing a representative sample of 150,000 people in 2,000 cities next week to understand the extent of its COVID-19 epidemic, the head of the government’s scientific committee told parliament on Thursday.”

France’s Coronavirus Death Toll Surpasses Spain’s Again.

[Reuters](#) (5/14) reports “France’s cumulative coronavirus death toll edged over Spain’s again as France reported on Thursday the number of people who died of COVID-19 in the past 24 hours increased by 351 or 1.3% to 27,425.”

Wuhan Starts Massive Testing Campaign Of Roughly 11M People.

[Reuters](#) (5/14, Goh) reports “residents in Wuhan braved pouring rain in queues of more than an hour to take part in a government-led exercise to test the city’s 11 million people for the novel coronavirus, a scale health experts describe as unprecedented.”

The [New York Times](#) (5/14, Wee, Wang, 18.61M) reports that “the testing drive, which is likely to require the mobilization of thousands of medical and other workers, shows the ruling Communist Party’s resolve to prevent a second wave of infections as it tries to restart China’s economy.” However, “such comprehensive testing poses challenges,” and it remains unclear “how Wuhan will procure enough testing kits and process all the samples, and whether such a broad, systematic approach is the best use of resources when the city’s infections are low.”

Prime Minister Abe Lifts State Of Emergency Through Most Of Japan.

The [Wall Street Journal](#) (5/14, Landers, Subscription Publication, 7.57M) reports Japanese Prime Minister Shinzo Abe lifted a state of emergency in most of the country outside of Tokyo and attributed voluntary restrictions for a sharp decrease in the number of new coronavirus infections.

UNICEF Chief Warns Lockdowns Could Cause More Harm Than Actual Virus In Low-, Middle-Income Countries.

[The Hill](#) (5/14, Klar, 2.98M) reports “the chief of health at the United Nations International Children’s Emergency Fund (UNICEF) is warning that lockdowns meant to mitigate the spread of the coronavirus could cause more harm than the virus itself in ‘low- and middle-income countries.’”

The [Washington Post](#) (5/14, Sly, 14.2M) also reports.

Russian Government Criticizes Media Reports Claiming Russia's COVID-19 Deaths Are Underreported.

The Hill (5/14, Concha, 2.98M) reports "Russian Foreign Ministry spokeswoman Maria Zakharova is criticizing news outlets for printing 'disinformation' after The New York Times and Financial Times reported that the country's COVID-19 death toll could be considerably higher than what the Kremlin is reporting."

The AP (5/14) also reports.

Asian Countries, After Stopping Initial Outbreak, See Second Wave Of Cases.

Bloomberg (5/14, 4.73M) reports that "after containing their outbreaks through measures from strict lockdowns to rapid testing regimes...Asian economies that have seen some of the most success quelling the coronavirus – Hong Kong, South Korea and China – are now facing resurgences that underscore how it may be nearly impossible to eradicate it."

China Attempted To Dissuade New Zealand From Imposing Strict Coronavirus Restrictions.

Newsweek (5/14, 1.53M) reports "China tried to dissuade the New Zealand government from imposing its tough restrictions to mitigate the coronavirus, believing them to be an 'overreaction,' New Zealand Minister of Foreign Affairs Winston Peters has said."

Canada's Prime Minister Says World Has Changed Even If Pandemic Ends Or Vaccine Is Found.

Reuters (5/14) reports "Canadians should accept the world will change even if a vaccine is found and the coronavirus pandemic ends, Canadian Prime Minister Justin Trudeau said on Thursday, urging people to adjust to a new normal that will require modified behaviour."

EU's Foreign Policy Chief Calls For Independent Investigation Into Pandemic's Origins.

Reuters (5/14) reports "the European Union's foreign policy chief [Josep Borrell] called on China on Thursday to contribute significantly to the fight against the coronavirus pandemic and said there should be an independent scientific investigation into the origins of the pandemic."

IOC President Will Not "Fuel Any Speculation" That Tokyo Olympics Might Not Be Held Next Year.

USA Today (5/14, Schad, 10.31M) reports "International Olympic Committee president Thomas Bach said Thursday that he would not 'fuel any speculation' that the Tokyo Olympics might not be held in 2021."

IOC Sets Aside \$800M For Loans Related To Postponing Tokyo Olympics. The AP (5/14) reports "the IOC set aside \$800 million on Thursday for loans and payments arising from the pandemic that forced the 2020 Tokyo Olympics to be postponed." It remains "unclear how big the total postponement bill will be with Olympic organizers and public authorities in Japan facing extra costs estimated to run into billions of dollars."

South Africa To Assign Specific Coronavirus Restrictions For Each Of Its Districts.

Reuters (5/14) reports "South Africa will assign levels of lockdown restrictions for each of the country's roughly 50 districts, depending on the number of active coronavirus infections there, Health Minister Zweli Mkhize said on Thursday."

Surge In Number Of People In Yemen Dying With COVID-19 Symptoms.

The Washington Post (5/14, Raghavan, 14.2M) reports "the number of people dying with covid-19 symptoms has dramatically spiked in war-riven Yemen, triggering fears that coronavirus infections are considerably higher than official figures, the Save the Children charity said Thursday."

Increasing Number Of Physicians In Russia Dying From Pandemic.

The New York Times (5/14, Troianovski, 18.61M) reports an increasing number of physicians in Russia on the front lines of the pandemic are dying, a situation made worse by a general lack of access by healthcare professionals to personal protective gear.

UK Government In Talks With Roche To Buy COVID-19 Antibody Tests.

Reuters (5/14, Faulconbridge, Holton) reports that following its approval by Public Health England, the UK government "is in talks with Swiss drugmaker Roche Holding AG to buy an accurate COVID-19 antibody test, following the lead of the European Union and United States, which had already given preliminary approval to the tests."

Reuters (5/13, Faulconbridge, Holton) and CNN (5/14, Ramsay, Isaac, 83.16M) provide additional coverage of the original approval.

HHS in the News

Trump Administration Reportedly Mulling Indefinite Border Restrictions Amid COVID-19 Outbreak.

The Hill (5/14, Wise, 2.98M) says, "The Trump administration is reportedly working to unveil a new order that would indefinitely extend border restrictions amid the coronavirus outbreak, according to a report in The New York Times." This "move, which is reportedly currently being reviewed by several government agencies, would keep legal points of entry shuttered and restrict nonessential travel through Mexico and Canada until the director of the Centers for Disease Prevention and Control (CDC) concluded that the coronavirus no longer posed a threat to public health, the Times reported citing officials and a draft of the public health order." Officials from the CDC "would continue to assess the threats posed by the virus every 30 days and the new plan would give Robert Redfield, director of the CDC, authority over when the U.S. borders are safe to reopen."

The Daily Caller (5/14, Hopkins, 716K) and National Review (5/14, Evans, 731K) also cover the story.

Gottlieb Suggests Schools Should Attempt In-Person Education This Fall When Possible.

CNBC (5/14, Stankiewicz, 3.62M) reports former FDA Commissioner Scott Gottlieb on CNBC's "Squawk Box" said that US schools should be willing to attempt in-person education this fall if the coronavirus pandemic "isn't rampant." Gottlieb said, "I do think we're going to have to contend with Covid going into the fall, but it might not be in September," adding, "It might occur later into the fall, and we should at least make an attempt to open the

schools if this isn't spreading widely." However, he "stressed that decisions on welcoming students back to classrooms will have to be made locally, depending on the scale of Covid-19 outbreaks in states and communities."

[The Hill](#) (5/14, Klar, 2.98M) also reports.

Opinion: Acceptance Of Pandemic's Effect On Our Lives Could Speed Up Needed Adjustments.

Former CDC Director Tom Frieden writes in the [Washington Post](#) (5/14, 14.2M) that the concept of the "five stages of grief" simplifies "a complex process" of "core truths: People tend to accept harsh realities gradually and with difficulty." However, "recognition of the pandemic's impact, and widespread embrace of the final stage, acceptance, could speed our collective path to new, post-pandemic normal." While the pandemic "has upended lives around the world" and the world is collectively "acknowledging, and grieving, these losses and the life rituals...disrupted by the pandemic," the sooner "people come to terms with the reality of the pandemic, the quicker we can prepare for lasting changes to the ways we can work, learn, relax, govern ourselves and even treat one another."

Mask Manufacturer Executive Testifies About How Government Allegedly Ignored His Previous Warnings Of Insufficient Mask Production.

[CNN](#) (5/14, Kelly, Watts, Gloria, 83.16M) reports "an executive for a US mask producer bemoaned, in heated and emotional testimony Thursday to Congress, how his warnings of insufficient domestic medical mask production had been ignored by the federal government for years until the coronavirus pandemic." While "speaking before the House Energy and Commerce Committee, Mike Bowen, the vice president of the Texas-based medical supply company Prestige Ameritech, said the US dependence on foreign masks has been a national security issue for years." According to CNN, "Bowen described conversations over the past 13 years in which he had offered manufacturing deals to the" CDC "that included 'mak(ing) sure that the Department of Defense and the Veterans Administration always has masks,' adding that 'I couldn't get anybody interested in it.'"

White House To Require Some Essential Drugs To Be Manufactured In US, Sources Say.

[The Hill](#) (5/14, Moreno, 2.98M) reports "the White House is preparing to require that some essential drugs be made in the U.S. as the Trump administration tries to limit dependency on China for medical supplies, sources told CNBC." Earlier in the year, White House trade advisor Peter Navarro "proposed a similar executive order." Navarro's order "would streamline regulatory approvals for 'American-made' drugs and impose similar Food and Drug Administration (FDA) restrictions on U.S. production facilities as those abroad." The order "will also encourage government agencies to only buy American-made medical products." Still, "it is unclear if the executive order the unnamed sources referred to is the same as Navarro's."

[Bloomberg](#) (5/14, Stein, Capaccio, 4.73M) also reports on the story.

Gottlieb Says He Sees Signs That The Coronavirus Epidemic Is Slowing In US.

[Intelligencer \(NY\)](#) (5/14, Raymond, 1.1M) reports that "as states across the country begin to reopen their economies, the United States is 'seeing signs of a slowing epidemic,' former FDA commissioner Scott Gottlieb told a House subcommittee Wednesday." The piece says "Gottlieb told lawmakers that even as testing for the

coronavirus is becoming more available, the rate of positive tests is going down. 'There are hopeful signs,' he said."

Coronavirus Can Cause Strokes In Young People, Physicians Say.

The [New York Times](#) (5/14, Rabin, 18.61M) reports coronavirus infection can cause strokes in young people, something which is very rare. The Times highlights the case of Ravi Sharma, a healthy 27-year-old EMT who had a stroke after becoming infected with coronavirus, and says physicians around the US have reported similar cases.

Senators Ask CDC To Examine Risk Of Strokes In Younger, Middle-Aged Patients With COVID-19. [The Hill](#) (5/14, Budryk, 2.98M) reports "Sens. Amy Klobuchar (D-Minn.) and Marco Rubio (R-Fla.) are asking the Centers for Disease Control and Prevention (CDC) to assess the risk of strokes in younger and middle-aged coronavirus patients." The senators wrote to CDC Director Dr. Robert Redfield, "We believe it is critical that the CDC evaluate the prevalence of stroke in COVID-19 patients, including the potential link to stroke from the development of blood clots caused by the virus."

Online Pharmacy HealthWarehouse Saw Spike In Demand For Hydroxychloroquine In Mid-March.

[NPR](#) (5/14, Horn, 3.12M) reports that, "in mid-March, when the unproven idea of giving coronavirus patients anti-malarial drugs emerged on social media and on Fox News, the online pharmacy HealthWarehouse said orders for hydroxychloroquine started to spike." The FDA "has since put out a warning against using it for COVID-19."

Survivors Of COVID-19 Pandemic In Nursing Homes Remain In Isolation.

[ABC News](#) (5/15, Mosk, Freger, Romero, Pecorin, 2.97M) reports on "one of the unexpected consequences of COVID-19 in nursing homes: the extended isolation of those who have survived." The majority, "if not all of the 15,000 nursing facilities around the country have prohibited outside visitors since early March – federal regulators announced measures directing nursing homes to 'significantly restrict visitors and nonessential personnel' on March 13." Still, "even with nursing home residents largely cordoned off, the virus has moved effortlessly through many facilities, most likely carried by staff members who were infected but asymptomatic." On Thursday, CMS Administrator Seema Verma said in an interview, "We want to make sure that whatever we do, that we are putting the health and safety of the nursing home residents at the top. ... That's the most important priority. So we're starting to have those discussions about how we can make sure that nursing homes are safe and that visitors can come back in a safe way."

Former BARDA Director Says Trump Official Tried To Fast-Track Funding For His Friend's Unproven COVID-19 "Treatment."

[ProPublica](#) (5/14, Song, 60K) reports former Biomedical Advanced Research and Development Authority Director "Rick Bright says that his Trump-appointed boss tried to fast-track funding for a friend's coronavirus treatment, and that he was reassigned for insisting that funding be reserved for 'safe and scientifically vetted solutions.'" A copy of his scheduled testimony, released Wednesday, "spoke generally of how officials at the Department of Health and Human Services...dismissed his early warnings to act quickly against the virus."

Thousands Volunteer To Be Exposed To Novel Coronavirus In Human Classified Trial Led By 1Day Sooner.

Fox News (5/14, Hein, 27.59M) reports, "More than 20,000 people have signed up to voluntarily be exposed to the novel coronavirus in a yet-to-be formulated 'human classified trial,' which is "being led by a group called 1Day Sooner." According to Fox News, "Human challenge trials for coronavirus have the support of 35 members of the House of Representatives who wrote to the Food and Drug Administration and the Department of Health and Human Services arguing that they should be allowed."

Former BARDA Head Tells Congress Coronavirus Vaccine Won't Be Ready In 12 To 18 Months.

CNBC (5/14, Feuer, 3.62M) reports that a coronavirus vaccine "won't be ready for distribution in 12 to 18 months as White House officials have assured the public, ousted federal vaccine scientist Dr. Rick Bright told Congress Thursday." Bright told members of the House Energy and Commerce Subcommittee on Health, "A lot of optimism is swirling around a 12-to-18 month timeframe if everything goes perfectly. We've never seen everything go perfectly."

CQ Roll Call (5/14, Kopp, 154K) reports Bright, "who oversaw vaccine development in his BARDA role, warned that the distribution of an eventual vaccine could be delayed by the same supply chain issues that led to mass shortages of personal protective equipment." Bright said: "If you can imagine a scenario, this fall or this winter or early next spring, when a vaccine becomes available ... there's no one company that can produce enough for the country or for the world. There are going to be limited supplies."

Among other media outlets providing coverage are: U.S. News & World Report (5/14, Hagen, 2.4M), The Hill (5/14, Budryk, 2.98M), the Washington Examiner (5/14, Morrison, 448K), and the Financial Times (5/14, Stacey, Subscription Publication, 1.34M).

Former BARDA Director Says Administration Ignored Warnings Of Supply Shortages.

The New York Times (5/14, Stolberg, 18.61M) reports the whistleblower "who was ousted as the head of a federal medical research agency charged on Thursday that top Trump administration officials failed to heed his early warnings to stock up on masks and other supplies to combat the coronavirus, and that Americans died as a result." Dr. Rick Bright, "who was removed in April as the director of the Department of Health and Human Services's Biomedical Advanced Research and Development Authority, told a House subcommittee: 'Lives were endangered, and I believe lives were lost.'"

The Hill (5/14, Weixel, 2.98M) reports Bright "told House lawmakers on the Energy and Commerce Health Subcommittee that he began to get alerts from manufacturers that the supply chain for masks and other personal protective equipment was 'diminishing rapidly' as early as January." He "said he warned his superiors about severe shortages of N95 respirators needed for front-line health care workers."

CBS' 60 Minutes (5/14, Zubrow, 11.55M) and Axios (5/14, Fernandez, 521K) also report.

White House Press Secretary, Senior Trump Adviser Dismiss Ousted HHS Official's Claims.

Fox News (5/14, Nelson, 27.59M) reports White House Press Secretary Kayleigh McEnany on Thursday "reacted to ousted Trump administration scientist Rick Bright's claim that the president was 'dismissive' of a warning about

the severity of the coronavirus outbreak.” Bright, “the former HHS official who filed a whistleblower complaint claiming he was removed from his post for disagreeing with the Trump administration’s response to coronavirus, said Thursday that officials at the Department of Health and Human Services were ‘dismissive’ of his warning about the contagion and said that if the government doesn’t follow his guidance ‘2020 will be the darkest winter in modern history.’” McEnany told America’s Newsroom: “It sounds like Mr. Bright hasn’t really been paying that much attention at all.”

The [Daily Caller](#) (5/14, Davis, 716K) reports Trump adviser Peter Navarro also “tore into Dr. Rick Bright during a Fox News appearance Thursday after Bright testified on Capitol Hill.” Navarro said: “I find it highly ironic that you’ve got Bright up there on Capitol Hill issuing these dire warnings on the very day President Trump is going to the beautiful Lehigh Valley to announce a tougher, smarter, more resilient strategic national stockpile.”

Among other media outlets reporting are: [Fox News](#) (5/14, Kaplan, 27.59M), the [Washington Examiner](#) (5/14, Soellner, 448K), the [Washington Examiner](#) (5/14, Colton, 448K), in a separate article, and the [Daily Caller](#) (5/14, Caruso, 716K).

HHS Whistleblower’s Attorneys Say Watchdog Finds “Substantial Likelihood Of Wrongdoing.”

[CNBC](#) (5/14, Mangan, 3.62M) reports that a government watchdog “has found a ‘substantial likelihood of wrongdoing’ in the removal of a vaccine specialist from leading a federal agency handling coronavirus response, his lawyers disclosed Thursday.” The preliminary finding “from the Office of the Special Counsel, which is investigating Rick Bright’s whistleblower complaint, was disclosed just before Bright began testifying before a House panel.”

FDA Authorizes Human Trials For AIM ImmunoTech’s Drug To Treat COVID-19 In Patients With Cancer.

The [Ocala \(FL\) Star-Banner](#) (5/14, Medina, 81K) reports the U.S. FDA “recently authorized human trials for a drug made by a Marion County-based” AIM ImmunoTech’s drug Ampligen “to possibly treat COVID-19 patients who have cancer.” The trial “will be conducted by Roswell Park Comprehensive Cancer Center in Buffalo, New York.”

Opinion: Following Science Is Best Path For Our Leaders To Avoid “Darkest Winter.”

In an article for [Forbes](#) (5/14, 9.71M), contributor Seth Cohen writes that Dr. Richard Bright, “the former director of the nation’s Biomedical Advanced Research and Development Authority painted a perilous picture of the trajectory of the coronavirus pandemic – unless leadership of the country undertakes a much more science-focused approach. Yet what is most unsettling about Bright’s testimony before the House Committee on Energy and Commerce is his belief that, absent a course correction by the nation’s leaders, America may face its ‘darkest winter in modern history’ later this year.” Cohen argues, “Following science, not fomenting doubt and fear, is the best path for our leaders to follow if we are to avoid, in Dr. Bright’s words, our nation’s darkest winter. Here’s hoping they see the light before its too late.”

CDC Issues Six Brief Checklists To Guide Businesses, Schools, Others On Reopening.

The [Washington Post](#) (5/14, A1, Bernstein, Wan, Dawsey, Weiner, 14.2M) reports, "With hundreds of millions of people still seeking advice on resuming their lives safely, the Centers for Disease Control and Prevention issued a scant six pages of recommendations Thursday to guide schools, businesses, day-care facilities and others into the next phase of the coronavirus pandemic." The six "checklists – which also address restaurants, mass transit and camps – come days, and in some cases weeks, after many states have begun to lift restrictions on their own." The advice "is less detailed than draft recommendations the agency sent to the White House for review last month."

The [AP](#) (5/14, Stobbe, Dearen) reports the CDC "posted six one-page 'decision tool' documents that use traffic signs and other graphics to tell organizations what they should consider before reopening." The agency "drafted the reopening guidance more than a month ago and it was initially shelved by the administration, the AP reported last week." The CDC "also had prepared even more extensive guidance – about 57 pages of it – that has not been posted."

[CBS News](#) (5/15, 3.68M) reports "the published memo on child care facilities completely removes from the draft guidance a warning to, 'be ready to close if there are increased cases.'" According to CBS, "CDC Director Robert Redfield said that the draft guidance had been 'shared prematurely' and 'had not been vetted through the interagency review process.'"

Among other media outlets providing coverage are: the [CBS Evening News](#) ^[F] (5/14, story 3, 0:25, O'Donnell, 5.25M), [NBC Nightly News](#) ^[F] (5/14, story 4, 0:25, Holt, 7.88M), [ABC World News Tonight](#) ^[F] (5/14, story 3, 2:20, Muir, 7.42M), the [New York Times](#) (5/15, Bogel-Burroughs, 18.61M), [Bloomberg](#) (5/14, Jacobs, Court, Sink, 4.73M), [ABC News](#) (5/14, Flaherty, Gittleson, Cathey, 2.97M), [Reuters](#) (5/14, Steenhuisen), [CNN](#) (5/14, Fox, 83.16M), [NPR](#) (5/14, Hagemann, 3.12M), [The Hill](#) (5/14, Sullivan, 2.98M), [Politico](#) (5/14, Roubein, 4.29M), and [Axios](#) (5/14, Rummler, 521K).

Former BARDA Chief Will Start At New Job Next Week, Attorneys Say.

[CNN](#) (5/14, Collins, Tapper, 83.16M) reports Dr. Rick Bright, who filed a whistleblower complaint after being removed from his role as the leader of the Biomedical Advanced Research and Development Authority (BARDA), "will start his new job in a role inside the federal government's coronavirus response next week, his attorneys said Thursday." A Department of Health and Human Services source "told CNN that Bright has been offered the job of second-in-command of the Accelerating Covid-19 Therapeutic Interventions and Vaccines partnership." Bright's lawyers "said in a Thursday evening news release that he plans to report to that job next week now that it has been identified."

Texas Paid \$45 Million For COVID-19 Tests.

The [Austin \(TX\) American Statesman](#) (5/13, Price, Subscription Publication, 343K) reported, "In a glimpse into the cost of coronavirus testing, the state of Texas is paying \$45 million for 300,000 oral-swab tests – or \$150 per test, according to a purchase order obtained by the American-Statesman through an open records request." The cost "for healthcare providers and laboratories to test patients for COVID-19, according to the Medicare bulletin, was \$35.92 for the tests developed by the U.S. Centers for Disease Control and Prevention and \$51.33 for all other commercial tests." The piece said "officials at the U.S. Centers for Medicare and Medicaid Services" said "that they would pay \$100 for COVID-19 tests that increase testing capacity and lead to faster results" in April.

Healthcare Personnel Continue To Report Elevated COVID-19 Infection Rates.

The [Chicago Tribune](#) (5/14, Bowen, 2.65M) reports, "Nationally, the Centers for Disease Control and Prevention reported about 9,000 cases of COVID-19 among health care personnel, a wide designation that includes pharmacists, laboratory workers, security guards and clerical staff." Of this group, "90% were not hospitalized, and 27 people died." However, these data are likely underestimates, "according to a CDC spokeswoman."

Rural Hospitals Need Access To Telehealth To Battle Coronavirus Pandemic, Experts Say.

[Healthcare IT News](#) (5/14, Jercich, 2K) reports that rural hospital leaders said during a webinar Thursday that "COVID-19 has magnified the need for access to telehealth – and that it's a mistake to rely on one-size, fits-all solutions for virtual care." In a report that was made available "by the Bipartisan Policy Center in advance of the webinar noted that the steps taken to make services more accessible amid the coronavirus pandemic could be made permanent in order to improve rural healthcare access." One part of the report highlighted government support, and said, "In March 2020, as coronavirus evolved into a pandemic, Congress voted to temporarily waive telehealth requirements for Medicare providers, allowing the Centers for Medicare and Medicaid Services, or CMS, to reimburse clinicians for telehealth visits with patients at home in an area with a designated emergency."

Trump Announces Plan To "Replenish And Modernize" Strategic National Stockpile.

The [Washington Post](#) (5/14, Goldstein, 14.2M) reports "President Trump announced Thursday a plan to reconfigure the government's chronically undersupplied stockpile of emergency gear to help combat the coronavirus pandemic, accelerating manufacturing and broadening the array of supplies it houses." Trump "said his administration is launching what he termed a 'groundbreaking initiative' to 'replenish and modernize' the government's stores of masks, ventilators and other essential pandemic-fighting medical equipment to create a 90-day reserve." While staying "with his 'America first' mantra, Trump and his aides said the manufacturing would be carried out by U.S. companies, diminishing the reliance on foreign factories that have been the stockpile's major sources."

The [Wall Street Journal](#) (5/14, Ballhaus, Levy, Subscription Publication, 7.57M) reports that when the novel coronavirus first started to spread within the US, the Strategic National Stockpile only had one to three weeks of the majority of equipment and did not include many supplies that have been critical while battling the current pandemic.

The [AP](#) (5/14, Colvin, Superville) reports Trump said while visiting a medical equipment distributor in Pennsylvania, "Wouldn't that be nice? ... My goal is to produce everything America needs for ourselves and then export to the world, including medicines." The President "had complained about supply chains in a television interview that aired before he left Washington for the trip to Owens and Minor Inc. in Allentown."

[Reuters](#) (5/14, Alper) reports "the Trump administration is seeking to add 300 million N95 masks, the respiratory protective devices that are key to protecting medical workers fighting the deadly coronavirus, to the U.S. stockpile by the fall, a senior administration official said on Thursday." While "speaking to reporters during a telephone briefing, the official said the administration hopes ultimately to replenish its strategic national stockpile, which had only 13 million N95s at the beginning of the outbreak, to 1 billion in total."

CBS News (5/14, Watson, 3.68M) reports Trump “blames the Obama administration for the shortfall” of the stockpile. Trump said, “Under the previous administration the stockpile was depleted and never fully refilled. ... My administration is taking action to modernize the stockpiles during this crisis.”

Politico (5/14, Lim, 4.29M) reports one senior Administration official said, “Of all the items that a Covid patient in a hospital consumed during a length of stay, we only carried 28 percent of those. ... We did not carry a lot of critical care drugs, we did not carry testing supplies. These were never in the Strategic National Stockpile. They will be in the Strategic National Stockpile going forward.” Retooling the stockpile “toward pandemic needs could be an important step if a second wave of infections emerges this fall, as many public health experts predict.”

Among other news outlets reporting on the story are a video in the Washington Post (5/14, 14.2M), Bloomberg (5/14, Parker, Sink, Fabian, 4.73M), CNBC (5/14, Macias, 3.62M), Fox News (5/14, O’Reilly, 27.59M), Fox Business (5/14, Manfredi, 1.73M), the Washington Examiner (5/14, Crilly, 448K), the Washington Times (5/14, Boyer, 492K), Newsweek (5/14, Crisp, 1.53M), CQ Roll Call (5/14, Marquette, 154K), Modern Healthcare (5/14, Brady, Subscription Publication, 214K), and the Daily Caller (5/14, Datoc, 716K).

Former BARDA Chief Warns Trump Administration Still Has No National Plan For Pandemic.

The Wall Street Journal (5/14, Armour, Grimaldi, Subscription Publication, 7.57M) reports that Dr. Rick Bright, who was removed as head of the Biomedical Advanced Research and Development Authority (BARDA) and subsequently filed a whistleblower complaint, told a House committee on Thursday that the Trump Administration still has no broad national strategy to address the coronavirus pandemic.

The AP (5/14, Alonso) reports that, “despite White House claims, the U.S. still lacks a comprehensive battle plan against the coronavirus in critical areas including masks, testing, treatments and vaccines,” Bright “told the House Energy and Commerce Committee.” Bright told lawmakers: “There are critical steps that we need to do to prepare ... we do not still have enough personal protective equipment to manage our health care workers ... we still do not have the supply chains ramped up for the drugs and vaccines, and we still don’t have plans in place for how we distribute those drugs and vaccines. We still do not have a comprehensive testing strategy.”

Reuters (5/14, Wolfe) reports Bright “said he was ousted from BARDA because he resisted efforts to push the drugs hydroxychloroquine and the related chloroquine as cures for COVID-19, the respiratory illness caused by the coronavirus.” HHS spokeswoman Caitlin Oakley “has disputed Bright’s account, saying in a statement on Tuesday that he was transferred to a job where he was entrusted to spend around \$1 billion to develop diagnostic testing.”

Among other media outlets providing coverage are: the CBS Evening News ^[F] (5/14, lead story, 3:35, O’Donnell, 5.25M), NBC Nightly News ^[F] (5/14, story 2, 3:15, Holt, 7.88M), ABC World News Tonight ^[F] (5/14, lead story, 6:00, Muir, 7.42M), the Washington Post (5/14, Davis, Abutaleb, Sonmez, Wagner, 14.2M), NBC News (5/14, Gregorian, 6.14M), Fox News (5/14, Blitzer, 27.59M), USA Today (5/14, Cummings, 10.31M), the Boston Globe (5/14, Goodwin, 972K), The Hill (5/14, Weixel, 2.98M), Newsweek (5/14, Stockler, 1.53M), Politico (5/14, Owerhohle, 4.29M), HuffPost (5/14, Boboltz, 1.67M), CQ Roll Call (5/14, McKinless, 154K), Vox (5/14, Peters, 2.27M), the Washington Times (5/14, Muñoz, 492K), National Review (5/14, McArdle, 731K), and Modern Healthcare (5/14, Cohrs, Subscription Publication, 214K).

FDA Examining Data Showing Abbott’s COVID-19 Test Delivers Inaccurate Results.

Bloomberg (5/15, Sutherland, Armstrong, 4.73M) reports an Abbott Laboratories COVID-19 test has “potential accuracy issues, the U.S. Food and Drug Administration warned, citing a number of studies that have raised doubts about the product’s ability to quickly diagnose patients.” The FDA issued a “public alert Thursday evening, saying that it had become aware of several scientific studies that had raised questions about the device, a printer-sized machine called ID Now that can take a sample from a nasal swab and diagnose a coronavirus infection.” The agency said “that it was particularly concerned about false-negative results, in which an infected person is told by the test that they don’t have the disease.” The FDA “said that the Abbott test, which has been used at the White House, can still be used to diagnose positive results, often within minutes.” But it “warned that a negative result might need to be confirmed with a different test to be certain the person doesn’t have the virus.”

Axios (5/14, Rumler, 521K) reports the tests are widely used, and that the US has “deployed over 235,000 tests to public health laboratories in every state across the U.S., Assistant Secretary of Health Adm. Brett Giroir said on Monday.”

The AP (5/14, Perrone) reports the FDA “said late Thursday it is investigating preliminary data suggesting Abbott Laboratories’ 15-minute test can miss COVID-19 cases, falsely clearing patients of infection.” The warning came “one day after researchers at New York University reported results suggesting Abbott’s test can miss up to half the infections caught by a rival test made by Cepheid.” The FDA “said in a statement it is reviewing the data with Abbott and working on a letter to health care providers about potential accuracy issues.” The agency “said physicians may need to confirm the results of a negative Abbott test if patients have signs and symptoms of the virus,” and regulators said they are “requiring Abbott to conduct follow-up studies on the test’s accuracy.” FDA Diagnostics Director Dr. Tim Stenzel said, “This test can still be used and can correctly identify many positive cases in minutes.”

NBC News (5/15, Dunn, 6.14M) reports Stenzel said in a statement, “We are still evaluating the information about inaccurate results and are in direct communications with Abbott about this important issue. We will continue to study the data available and are working with the company to create additional mechanisms for studying the test.” The FDA has received “15 adverse event reports about Abbott’s test.”

NPR (5/14, Neel, Hagemann, 3.12M) reports that its investigation found “as many as 15 to 20 out of every 100 tests may produce falsely negative results.” A subsequent study “released this week indicated that the test could be missing as many as 48% of infections.” The followup FDA studies “will include at minimum 150 people who have previously tested positive for coronavirus, and take place in clinical settings, the FDA release said.”

CNBC (5/14, Rodriguez, 3.62M) reports Abbott’s share price “dropped following the FDA alert, and it is down more than 3% in after-hours trading.” Abbott Labs “refuted the NYU study’s claims that its rapid coronavirus diagnostic test could be missing nearly half of positive cases.” In a statement Thursday, Abbott said, “While we understand no test is perfect, test outcomes depend on a number of factors including patient selection, specimen type, collection, handling, storage, transport and conformity to the way the test was designed to be run. ID NOW is intended to be used near the patient with a direct swab test method.”

Forbes (5/15, Japsen, 9.71M) reports because the number of adverse event reports “is so far small when compared to the nearly 1.8 million tests Abbott has shipped in the U.S., the FDA said it is reviewing the reports.” The FDA indicated Abbott’s “ID NOW test is still an important diagnostic tool to detect Covid-19.” For its part, Abbott said the ID NOW test “is helping to reduce the risk of infection in society by detecting more positive results than would otherwise be found.”

Among outlets also reporting are the [Financial Times](#) (5/14, Stacey, Subscription Publication, 1.34M) and [Reuters](#) (5/15, O'Donnell).

Trump, Azar Slam Former HHS Official Who Filed Whistleblower Complaint As “Disgruntled.”

[Fox News](#) (5/14, O'Reilly, 27.59M) reports President Trump on Thursday “defended the use of the anti-malaria drug hydroxychloroquine to treat the novel coronavirus and slammed the demoted government scientist who filed a whistleblower complaint claiming he was removed from his post for disagreeing with the Trump administration’s response to the contagion.” Making his comments “before boarding Air Force One for a trip to Pennsylvania, Trump said that there was a ‘tremendous response’ to hydroxychloroquine and called Rick Bright – the former director of the Biomedical Advanced Research and Development Authority – a ‘disgruntled person.’”

[CNBC](#) (5/14, Breuninger, 3.62M) reports Trump tweeted Thursday morning: “I don’t know the so-called Whistleblower Rick Bright, never met him or even heard of him. But to me he is a disgruntled employee, not liked or respected by people I spoke to and who, with his attitude, should no longer be working for our government!”

[The Hill](#) (5/14, Chalfant, 2.98M) reports HHS Secretary Alex Azar “is sharply rebuking remarks from ousted federal vaccine official Rick Bright about the coronavirus response, saying his allegations ‘do not hold water.’” Azar stated, “Everything he is complaining about was achieved. Everything he talked about was done.” The article says he “sought to counter comments Bright made the same day before House lawmakers, warning of the ‘darkest winter in modern history’ without a national plan to fight the pandemic.”

Among other media outlets providing coverage are: the [Washington Post](#) (5/14, 14.2M), with a video of the President’s comments, the [Washington Post](#) (5/14, 14.2M), with a video of Azar’s comments, [Bloomberg](#) (5/14, Edney, Sink, 4.73M), [Fox News](#) (5/14, Halon, 27.59M), [Fox News](#) (5/14, 27.59M), with a video of Azar’s comments, [Fox News](#) (5/14, Garcia, 27.59M), in a separate article, [Axios](#) (5/14, Fernandez, 521K), the [Washington Examiner](#) (5/14, Miller, 448K), the [Daily Caller](#) (5/14, Kruta, 716K), and [STAT](#) (5/14, Florko, 24K).

Ivanka Trump Says She Wears Mask At White House.

[USA Today](#) (5/14, Jackson, Subramanian, 10.31M) reports “Ivanka Trump, daughter and senior adviser to President Donald Trump, says she wears a mask at the White House, and that’s one reason the president doesn’t have to.” Ms. Trump said, “There are different procedures as it relates to interacting with the president.” According to USA Today, “The president ‘is tested on a daily basis – all those who come into contact with him are tested on a daily basis,’ she said in an interview. ‘No one is in close proximity to him that isn’t wearing a mask.’” Ms. Trump added, “I always wear a mask when I am with the president, and everyone is instructed to do so as well.”

[Newsweek](#) (5/14, Zhao, 1.53M) reports the President “failed to wear a mask during a visit to a Pennsylvania medical equipment distribution center on Thursday. His decision not to wear a mask was particularly noticeable as other government officials that accompanied him during the trip, including Health and Human Services Secretary Alex Azar and Rear Adm. John Polowczyk, were seen wearing masks in photos.”

Taiwan Remains Sidelined From WHO’s World Health Assembly Amid Pandemic.

The [Washington Post](#) (5/15, Aspinwall, Rauhala, 14.2M) reports that “with just 440 covid-19 cases and seven deaths, Taiwan looks to have conquered the coronavirus.” However, “one symbol of recognition remains elusive:

an invitation for Taiwan to observe next week's World Health Assembly." The Post says that "despite a growing pro-Taiwan coalition backing their inclusion, health officials in this self-ruled democracy remain sidelined from the World Health Organization's decision-making body at the urging of China's government, which claims sovereignty over Taiwan and has sought to sever its international contacts." The piece mentions "an April telephone call between Taiwan health minister Chen Shih-chung and" HHS Secretary Alex Azar.

HHS Awards \$15M For Expanded Use Of Telehealth Amid COVID-19 Pandemic.

mHealth Intelligence (5/14, Wicklund) reports HHS "is dispensing \$15 million in funding to almost 160 healthcare providers across the country to help them expand telehealth services to meet demands caused by the Coronavirus pandemic." The funds, from the CARES Act, are "being issued through the Health Resources and Services Administration (HRSA) and" are "earmarked to 'train students, physicians, nurses, physician assistants, allied health and other high-demand professionals in telehealth' and expand connected health platforms to replace or complement in-person care." HHS Secretary Alex Azar said, "This new funding from Congress will enable more heroic health professionals on the front lines of the COVID-19 pandemic to use telehealth for a broad range of care."

Medical Groups Urge Verma To Provide More COVID-19 Assistance For Medicare ACOs.

Bloomberg Law (5/14, Pugh, Subscription Publication, 4K) reports a coalition of medical groups, including the AMA and the Medical Group Management Association, is "asking the Trump Administration to provide additional pandemic-related support for" Medicare ACOs. On April 30, CMS issued an interim final rule aimed at helping ACOs during the pandemic, but the coalition of medical groups wrote a letter to CMS Administrator Seema Verma asking for more help for ACOs.

FierceHealthcare (5/14, King, 146K) reports the "groups say accountable care organizations (ACOs) need until Oct. 31 to decide whether to leave the Medicare Shared Savings Program (MSSP) due to the COVID-19 pandemic." At present, "ACOs have until June 1 to decide whether to terminate their contract with MSSP," however, "providers have been worried they could soon see an exodus of ACOs leaving the program to avoid losses, especially if the June 1 deadline holds." The article says "pushing back the timeline will 'give ACOs more time' to understand a series of new rules to mitigate the impact of the COVID-19 pandemic, according to a letter from nine groups sent to the Centers for Medicare & Medicaid Services."

In Reversal, IHS Starting To Hire Traditional Healers.

Kaiser Health News (5/14, Akridge) reports that certain "plants have been used as medicines for generations by the Assiniboine and Gros Ventre tribes who live" on the Fort Peck and Fort Belknap reservations, respectively. Echinacea "is used to help boost the immune system. Valerian produces a strong sedative that can address nervousness, tension and stress. Licorice root acts as an antihistamine, which treats allergy symptoms." The article says the Indian Health Service is "starting to embrace" the use of such traditional treatments. The piece adds, "The Fort Belknap IHS hospital is seeking job applicants for two traditional practitioner positions, offering up to \$68,000 a year." Although IHS "has filled similar positions across the Navajo Nation in the past 15 years, these would be the first IHS positions of their kind in Montana." The article says this "move is surprising because the federal government would essentially be paying for medicine men, or women, to help treat IHS patients, despite punishing and maligning such expertise for generations."

HHS, DoD Award \$138M Contract For Expanded Production Of Prefilled Syringes To Be Used For Future COVID-19 Vaccine.

Homeland Preparedness News (5/14, Kovaleski) reports HHS and the Department of Defense “awarded a \$138 million contract to Apiject Systems America for Project Jumpstart and RAPID USA, two programs designed to expand U.S. production of medical-grade injection devices.” This “contract will create a U.S.-based supply chain for prefilled syringes by using Blow-Fill-Seal (BFS) aseptic plastics manufacturing technology, suitable for combatting COVID-19 when a vaccine becomes available. By upgrading existing domestic BFS facilities with installations of filling-line and technical improvements, the project will enable the manufacture of more than 100 million prefilled syringes for distribution across the United States by year-end 2020.”

National Front Page News

Headlines From Today’s Front Pages.

Wall Street Journal:

Nearly Three Million Sought Jobless Benefits Last Week

Coronavirus Finishes The Retail Reckoning That Amazon Started

Why Big Investors Aren’t Betting It All On A Coronavirus Cure

New York Sent Recovering Coronavirus Patients To Nursing Homes: “It Was A Fatal Error”

Is That A Rooster On My Customer-Support Call? Yes, Blame Coronavirus.

New York Times:

‘Rolling Shock’ As Job Losses Mount Even With Reopenings

He Saw ‘No Proof’ Closures Would Curb Virus. Now He Has De Blasio’s Trust.

As Coronavirus Overruns Russia, Doctors Are Dying On The Front Lines

India’s ‘Maximum City’ Engulfed By Coronavirus

Changing Subject Amid A Pandemic, Trump Turns To An Old Ploy: Blame Obama

Trump White House Changes Its Story On Michael Flynn

Meat Plant Closures Mean Pigs Are Gassed Or Shot Instead

Washington Post:

How Flynn Case Became A Trump 2020 Keystone

A Dying Man, A Desperate Search

CDC Offers Scant Guidelines For Reopening Safely

Pandemic Is Latest Blow To Sportswriting Profession

Burr Withdraws As Chairman Amid Stock Sale Investigation

In Poor Nations, Hunger May Be The Bigger Killer

Financial Times:

Macron Summons Sanofi Chief For Claim US Has “Right To” First Covid-19 Jab

Banking: The Great Return To The Office

US Jobless Claims Rise To 36M Since Start Of Lockdowns

Washington Times:

Chinese Deception Fuels Fears Of Ethnic Biological Weapons 'Experiments'

Trump Blames Biden, Obama For Depleted National Stockpile Of Medical Supplies

From Phishing Scams To Fake Tests: Feds Struggle To Knock Down Coronavirus Fraud

MLB, NBA To Return? Youth Sports Could Be First

Coronavirus Crackdowns Around The World Make US Rules Look Lenient

From Asymptomatic To Lethal: Coronavirus Discrepancies Puzzle Scientists

Story Lineup From Last Night's Network News:

ABC: HHS Whistleblower; Trump-PA Visit; CDC-New Guidelines; Unemployment; FBI-Sen. Burr; Georgia-Ahmaud Arbery Case; Florida-Wildfires; Coronavirus-Transmission; US Army Band Performs Over Video.

CBS: HHS Whistleblower; Trump-PA Visit; CDC-New Guidelines; Pediatric Multi-System Inflammatory Syndrome; Unemployment; Stay-At-Home Fatigue; FBI-Sen. Burr; Coronavirus-Potential Treatment; Georgia-Ahmaud Arbery Case; Coronavirus-USS Theodore Roosevelt; Milwaukee-Twins Graduate 1st & 2nd in Class; Pennsylvania-5-Year-Old Helps Mom Teach Remotely.

NBC: Pediatric Multi-System Inflammatory Syndrome; HHS Whistleblower; Trump-PA Visit; CDC-New Guidelines; Unemployment; Coronavirus-NBC Contributor Ill; Coronavirus-Airlines; FBI-Sen. Burr; Coronavirus-Vaccine; Coronavirus-Potential Treatment; Georgia-Ahmaud Arbery Case; Florida-Severe Weather; Nightly News Kids Edition.

Network TV At A Glance:

HHS Whistleblower – 12 minutes, 50 seconds

Coronavirus – 8 minutes, 30 seconds

Unemployment – 7 minutes, 20 seconds

FBI-Sen. Burr – 4 minutes, 20 seconds

Georgia-Ahmaud Arbery Case – 4 minutes, 0 seconds

CDC-New Guidelines – 3 minutes, 10 seconds

Trump-PA Visit – 1 minute, 50 seconds

Story Lineup From This Morning's Radio News Broadcasts:

ABC: FDA-Abbott Coronavirus Test; Stay-At-Home Fatigue; Reopening Economy; House-Relief Bill; VA Homes-COVID-19 Deaths Investigation.

CBS: HHS Whistleblower; Trump-PA Visit; FBI-Sen. Burr; Unemployment; JC Penny-Bankruptcy; Wall Street.

FOX: House-Relief Bill; CDC-New Guidelines; Sen. Kelly Loeffler-Docs to DOJ.

NPR: HHS Whistleblower; FDA-Abbott Coronavirus Test; Trump-PA Visit; Wall Street.

Last Laughs

Late Night Political Humor.

Trevor Noah: "Do you remember that story about the senator in North Carolina who dumped his stocks after getting a government briefing that coronavirus was gonna wreck America? Well, now the FBI is getting involved. ... That's right, like a suspicious spouse, the FBI has decided they want to look through this senator's phone."

Trevor Noah: "And to me, maybe the worst part about this scandal is that Senator Richard Burr was telling everyone, telling everyone in America, that things were going to be okay while he and his family were quietly saving [themselves]. It would be like if Noah built the ark but didn't tell anyone why he was doing it."

Jimmy Kimmel: "Dr. Rick Bright harshly criticized the White House response to COVID-19. ... He warned us the window is closing to address the pandemic. Unless that window is a drive-through window at KFC, there's no way Trump's going to bother."

Jimmy Kimmel: "The President called that decision to reopen Wisconsin a big win and headed to Allentown, Pennsylvania. ... He went to a factory where they manufacture masks, and did the President wear a mask to the factory where they manufacture masks? Of course not. Everyone else did. He did not. But there's a good reason why he won't wear a mask. Wearing a mask is an act of respect, and consideration for others."

Stephen Colbert: "Today, [Dr. Rick] Bright testified before Congress. But even before the hearing began, Trump went on the offensive, tweeting, 'I don't know the so-called whistleblower Rick Bright, never met him or even heard of him, but to me he is a disgruntled employee, not liked or respected by people I spoke to and who, with his attitude, should no longer be working for our government!' That's quite a preamble! (As Trump) 'Before I assassinate this guy's character, let me first say, I have no idea what I'm talking about.'"

Jimmy Fallon: "Today, vaccine expert Dr. Rick Bright said without better planning, 2020 could be the darkest winter in modern history. It's not a good sign when our experts sound like the night's watch on 'Game of Thrones.' Winter is coming."

Seth Meyers: "Former Vice President Joe Biden appeared on Snapchat's daily political show yesterday, although I'm not sure Snapchat is a good way to prove you haven't disappeared."

Seth Meyers: "The FBI has seized the cell phone of Republican Senator Richard Burr as part of an investigation into whether he used information from a coronavirus intelligence briefing to sell stocks. It's also incriminating that right after the meeting, he signed up for Netflix and Hulu."

Seth Meyers: "In a new interview, President Trump claimed that his critics would like to keep the country closed during the coronavirus pandemic to damage him politically. I mean, if anyone wants to damage you, they don't have to keep the country closed. They just have to keep your mic open."

National News

Trump Retweets Post Questioning Claim He Is A Racist.

President Trump retweeted a [post](#) from a Twitter user named Maggie VandenBerghe, which said, "I was told Trump was RACIST but let me get some EVIDENCE to debate Trump supporters! What happens next? MAGA! @realDonaldTrump" The post includes video of VandenBerghe interviewing an African American man who says he was told Trump is a racist but when he did some research, he found that he likes him. Trump wrote in his [tweet](#), "Thanks. You are very cool!"

Burr Steps Aside As Chair Of Senate Intelligence Committee Amid FBI Probe.

The [AP](#) (5/14, Tucker) reports that Sen. Richard Burr (R-NC) has "temporarily stepped aside as chairman of the Senate Intelligence Committee" after the FBI "served a search warrant for his cellphone as part of an investigation into a well-timed sale of stocks tied to the coronavirus pandemic." Senate Majority Leader McConnell "announced the move, saying he and Burr had agreed that it was in the committee's best interests." Burr told reporters he thought it was "the right thing to do. ... This is a distraction to the hard work of the committee and the members, and I think that the security of the country is too important to have a distraction."

Pierre Thomas said on [ABC World News Tonight](#) (5/14, story 5, 2:00, Muir, 7.42M) that the FBI "wants to know if Burr used intelligence information about the coronavirus for financial gain by selling stocks just before the market cratered." Burr sold "up to \$1.7 million in travel and hotel investments just a day after a closed-door briefing on the impact of the virus."

The [New York Times](#) (5/14, Benner, Fandos, 18.61M) says the seizure of Burr's cellphone "and an accompanying search for his electronic storage accounts, confirmed by an investigator briefed on the case, represented a significant escalation of the inquiry by the Justice Department and the Securities and Exchange Commission. They suggest that Mr. Burr, a Republican and one of the most influential members of Congress, may be in serious legal jeopardy." The Times says "the sensitivity surrounding the decision to obtain a search warrant on a sitting senator," indicates "the move was approved at the highest levels of the department, a senior Justice Department official said, meaning that" Attorney General Barr "signed off on it." Pete Williams said on [NBC Nightly News](#) (5/14, story 8, 1:00, Holt, 7.88M) that the investigation "is clearly in a new phase." A search warrant "would require a judge's finding that there is probable cause to think the phone could contain evidence of a crime." The [CBS Evening News](#) (5/14, story 7, 1:20, O'Donnell, 5.25M) provided similar coverage.

The [Washington Post](#) (5/14, Shepherd, 14.2M) reports that "if McConnell chooses to go by seniority," Sen. James Risch (R-ID) "would be next in line to chair the committee, but he already leads the Senate Foreign Relations Committee." The Post adds that after Risch is Sen. Marco Rubio (R-FL), "a national security hawk who had been widely expected to take over the committee once Burr retires." [The Hill](#) (5/14, Bolton, 2.98M) describes Rubio as "a likely successor" to Burr, and says the move would be "a major promotion for a lawmaker who contemplated leaving Congress only a few years ago."

Tillis: "Sen. Burr Does Owe All Of Us An Explanation." [WBT-AM](#) Charlotte, NC (5/14, 4K) reports that in an interview with the station, Sen. Thom Tillis (R-NC), who faces a tight reelection race this year, "remarked that Richard Burr owes everyone an explanation." Tillis said, "Sen. Burr does owe all of us an explanation and this is clear evidence that an investigation is underway. We need to see where the investigation leads."

Loeffler Does Not Answer Questions About FBI Investigation. The [Atlanta Journal-Constitution](#) (5/14, Mitchell, 895K) reports Loeffler "would not say Thursday whether she has been contacted by the FBI in

connection with an investigation into stock trading during the pandemic,” while her spokeswoman “told The Atlanta Journal-Constitution that the senator has not been served any search warrants.”

Feinstein’s Office Says She Was Questioned About Husband’s Stock Trades. The San Francisco Chronicle (5/14, 2.67M) reports the office of Sen. Dianne Feinstein (D-CA) said the senator “was questioned by federal law enforcement agents about stock trades her husband made after the coronavirus hit” the US. Feinstein “also provided documents to federal agents to show she was not involved in the transactions by her husband, investment banker Richard Blum, her spokesman, said.”

Senate Votes To Extend Parts Of FISA.

Reuters (5/14, Zengerle) reports that the Senate voted 80-16 Thursday to approve a 2 1/2-year extension “of parts of the Foreign Intelligence Surveillance Act (FISA)...two months after the divisive provisions allowing government data collection expired.” The measure must be approved by the House “before it can be sent to the White House for President Donald Trump to veto or sign into law” after the Senate “amended the measure approved by the Democratic-led House in March to improve legal protections for those subject to surveillance.” Politico (5/14, Matishak, 4.29M) says the measure’s “chances for swift final approval” in the House “remain cloudy.”

WPost Report: Trump “Moving Closer To Reshaping” Postal Service.

The Washington Post (5/14, Bogage, Dawsey, 14.2M) reports that “weeks before a Republican donor and top White House ally becomes postmaster general, the U.S. Postal Service has quietly begun a review of its package delivery contracts and lost its second-highest executive, leaving its board of governors without any officials who predate President Trump.” According to the Post, “The moves, confirmed by six people with knowledge of the Postal Service’s inner workings but not authorized to speak publicly, underscore how Trump is moving closer to reshaping an independent agency he has dubbed ‘a joke.’” The Post also reports that the Postal Service “in recent weeks has sought bids from consulting firms to reassess what the agency charges companies such as Amazon, UPS and FedEx to deliver products on their behalf.”

Trump Questions Biden’s Mental Fitness.

Salena Zito writes in the Washington Examiner (5/14, 448K) that in comments to the Examiner before his event in Pennsylvania Thursday, President Trump “took aim at Joe Biden’s mental faculties, at one point claiming” the former Vice President “has absolutely no idea what’s happening.” Reacting to word that Biden had named Rep. Alexandria Ocasio-Cortez (D-NY) “co-chairwoman of a climate change panel,” Trump said, “If you asked him who he named, he wouldn’t even know it. ... Joe has absolutely no idea what’s happening.” Zito adds that Trump used several issues “to take jabs at Biden’s mental fitness.”

Abrams Promoted As Possible Running Mate For Biden.

In a 6,000-word Washington Post Magazine (5/14, 14.2M) profile of Stacey Abrams, Kevin Powell writes, “I’ve witnessed this level of affection for very few political leaders in the Democratic circles I’ve been in since the 1980s.” Powell says Abrams is “on political pundits’ shortlists of potential running mates for Joe Biden,” and has “a unique space in American politics,” though “a relatively thin political résumé.” Powell adds that she “is the first

black woman in U.S. history to have won the gubernatorial nomination of either major party,” and “garnered more votes than any Democrat who has run statewide in Georgia.”

Prominent Black Women Offer Suggestions For Biden To Earn Support. LaTosha Brown of Black Voters Matter, author Tiffany Cross, Brittany Packnett Cunningham, Alicia Garza of Black Lives Matter Global Network, television personality Sunny Hostin, podcaster Angela Rye, and comedian Amanda Seales write in the [Washington Post](#) (5/14, 14.2M) that Biden's “only path to victory is through black women and the voters we know how to energize.” They add, “You owe us, you need us and you must not take our votes for granted.” They call on Biden to choose “a black woman as vice president.” They also urge him to pledge the necessary resources to win a Democratic majority in the US Senate with the help of “Black voters in Wisconsin, Florida, Michigan, Pennsylvania, North Carolina and Georgia.”

Rasmussen: 23% Of Republicans, 28% Of Democrats Would Prefer Different Nominees.

[Rasmussen Reports](#) (5/14, 5K) says on its website, “Republicans overwhelmingly expect President Trump to be their nominee this fall, but nearly one-in-four GOP voters would prefer someone else. The latest Rasmussen Reports national telephone and online survey finds that 23% of Likely Republican Voters think their party should find someone other than Trump to be their presidential nominee. Seventy percent (70%) disagree. Only seven percent (7%) are undecided. ... By comparison, 28% of Likely Democratic Voters say their party should find someone other than Joe Biden to be their 2020 presidential nominee. Fifty-four percent (54%) disagree, while another 18% are not sure.”

Trump Touts His “22-0” Record Of Congressional Endorsements.

President Trump [tweeted](#) Thursday morning that he is “22-0” in endorsing congressional candidates this season after races this week in California and Wisconsin. Trump wrote, “22-0 in my endorsements of Congressional Candidates this season. California & Wisconsin won big on Tuesday. Thank you to all of those very brilliant Voters. You will not be disappointed!”

Copyright 2020 by Bulletin Intelligence LLC Reproduction or redistribution without permission prohibited. Content is drawn from thousands of newspapers, national magazines, national and local television programs, radio broadcasts, social-media platforms and additional forms of open-source data. Sources for Bulletin Intelligence audience-size estimates include Scarborough, GfK MRI, comScore, Nielsen, and the Audit Bureau of Circulation. Data from and access to third party social media platforms, including but not limited to Facebook, Twitter, Instagram and others, is subject to the respective platform's terms of use. Services that include Factiva content are governed by Factiva's [terms of use](#). Services including embedded Tweets are also subject to [Twitter for Website's information and privacy policies](#). The NIH News Briefing is published five days a week by Bulletin Intelligence, which creates custom briefings for government and corporate leaders. We can be found on the Web at [BulletinIntelligence.com](#), or called at (703) 483-6100.



PRODUCED BY BULLETIN INTELLIGENCE NIH.BULLETININTELLIGENCE.COM

TO: THE DIRECTOR AND SENIOR STAFF

DATE: FRIDAY, MAY 15, 2020 7:30 AM EDT

TODAY'S EDITION

NIH News

Trump Mobilizing U.S. Military To Deliver Coronavirus Vaccine...5

Fauci Loses Support From Republicans After Trump Criticism, Poll Shows.....5

Without Wearing A Mask, Trump Tours Pennsylvania Mask Distribution Center.....5

Put Rand Paul In The Penalty Box.....6

France Angered By Suggestion U.S. Would Get First Access To Coronavirus Vaccine By French Pharma Company Sanofi.6

After Wisconsin Court Ruling, Crowds Liberated And Thirsty Descend On Bars. 'We're The Wild West,' Gov. Tony Evers Says.7

NIH Starts Study Testing Combination Of Azithromycin And Hydroxychloroquine For Treatment Of COVID-19.....7

Trump's Marks For Handling COVID-19 Outbreak Decline – CBS News Poll.....7

Researchers Working On Remdesivir Cocktail.....8

Who Needs Science When We Have Trump's Tremendous Instincts?.....8

Dr. Deborah Birx Wins Praise For Managing The White House's Coronavirus Message And Trump.....8

Trump Predicts Coronavirus Vaccine Will Come This Year.....8

Public Health School Deans Urge Trump To Triple Coronavirus Testing Or Face Cycles Of Shutdown.....8

California Tells Hospitals To Consider Having A Lottery For Sought-After Covid-19 Drug.....8

Large Majority Of Americans Say Country Lags In Testing Availability. POLL.....8

States Are Letting Stay-At-Home Orders Expire, Regardless Of Virus Metrics.....9

Is Anthony Fauci Today's Galileo Galilei, The Champion Of Science?9

Trump's Plan To Limit The Pandemic's Death Toll: Undercount The Numbers.9

Fox News Dumps Coronavirus Coverage For Anti-Obama Conspiracy Theory.9

Tensions Rise As Texas Governor Readies To Lift More Rules.9

Coronavirus Question: Let's Say A Vaccine Proves Safe And Effective. Then What?.....9

'Re-Examine All The Evidence': Rand Paul Demands Fauci Reconsider Position On School Closures.10

White House To 'Reconfigure' Coronavirus Task Force With An Emphasis On Reopening The Country.....10

Remdesivir Distribution Causes Confusion, Leaves Some Hospitals Empty-Handed.....10

Top Health Officials Vanish From National TV Interviews As White House Refocuses Messaging.....10

Trump Is Smearing Fauci.....10

Trump Admin Shoots The Messenger As Whistleblower Highlights Ongoing Issues.10

Trump Dismisses Fauci's Warning Against Reopening Schools: 'I Totally Disagree'10

Trump Is Blaming China For Coronavirus Even As He Employs The Same Authoritarian Tactics As Xi Jinping.11

White House Press Secretary Disputes Poll That Show Americans Trust Dr. Fauci Much More Than Trump.11

Column: We Shut Down The Economy To Make Progress Against COVID-19 – And Then Made No Progress.11

Rand Paul Delivers A Magnificent Reality Smack To Anthony Fauci.....11

Editorial: Fauci's Caution On Schools Is Sound, No Matter What Non-Physician Trump Says.11

NIH Begins Trial To Determine How Effective Hydroxychloroquine.....11

Interferon Emerges As Potential Treatment For COVID-19.....11

U.S. Accuses Chinese-Born Researcher At Cleveland Clinic Of Ties To Chinese Spying.....12

Talking In Enclosed Space Can Generate Droplets That Linger For Up 14 Minutes, Study Finds.....12

Experimental Injection Of 'Good' Bacteria Significantly Cut Bacterial Vaginosis Recurrence Rate.....12

NCI Exceptional Responders Initiative Pilot Study Meets Feasibility Goal.12

Researchers Try Combining Remdesivir With A Second Drug To Deliver A "One-Two Punch" To Virus.....12

COVID Patients Given Malaria Drug Didn't See Significant Improvements: Studies.....12

Part Of Gilead's Coronavirus Drug Donation Allocated To Japan.....12

Virginia Receives 2nd Shipment Of New Antiviral Drug.....13

US Needs Bipartisan Push For Scientific Research After Coronavirus: Congressional Leaders.....13

COVID-19 Is Threat To Our Biomedical Research Enterprise... 13	Analysis: Gun Stores In Several States Ignored State-Ordered Closures, Initiated Tens Of Thousands Of Background Checks In April..... 19
Gilead Should Ditch Remdesivir And Focus On Its Simpler Ancestor..... 13	Inspection Reports For Several Connecticut Nursing Homes Found Lapses In Infection Control, Prevention Around Coronavirus..... 19
Both/And Problem In An Either/Or World..... 13	Analysis: Studies Suggesting Coronavirus Can Be Spread Through Loud Talking Show Need For Face Masks In Public..... 19
Research On TPANanoconjugate Aims To Extend Thrombolysis Benefits To More Stroke Patients..... 13	UT Dallas Researchers Design 3D-Printed Disposable Ventilator Valve..... 20
Health & Medical News	Sen. Warren, Rep. Levin Propose Federal Contact Tracing Program..... 20
White House Officials Signal Support For COVID-19 Relief For States Despite Opposition From Some GOP Groups..... 14	Interview: Antibiotic-Resistant Microbes Equally Important Issue During Pandemic..... 20
As COVID-19 Pandemic Persists, GOP Calls For "Pause" On More Aid..... 14	Infectious Disease Experts Warn Of Potential Dual-Season For COVID-19, Influenza During Winter..... 20
About 75% Of US Small Businesses Seek Federal Assistance Amid COVID-19 Pandemic, Survey Shows..... 14	Norwegian Cruise Line Expects Entire Fleet To Resume Full Operations In Approximately Six Months..... 20
Prospects For Second Round Of Stimulus Checks Seem "Uncertain."..... 14	Analysis: Anti-Vaccination Advocates Mobilizing To Protest Potential Coronavirus Vaccine..... 20
Sanders Wants Senate To "Improve" House Dems' \$3T COVID-19 Relief Package..... 14	DC-Area Metro, Metrobus Riders Required To Wear Face Coverings Effective May 18..... 20
Bipartisan Group Of Lawmakers Proposes Compensation Fund For Essential Workers Impacted By COVID-19..... 14	Nursing Home Industry, Residents Clash Over Industry's Handling Of Pandemic..... 21
Pelosi Pushing For Vote On \$3T COVID-19 Relief Bill Despite Objections From Some Dems..... 15	Opinion: Governors Need To Designate Grocery Workers As First Responders..... 21
New York Will No Longer Force Nursing Homes To Accept Recovering COVID-19 Patients..... 15	WPost: COVID-19 Testing In Nursing Homes And Long-Term Care Facilities Is Essential..... 21
Debate Over Reopening US "Increasingly Partisan And Bitter." 15	One-Fourth Of US Restaurants Will Close Due To Stay-At-Home Orders During Pandemic, Open Table Forecasts..... 21
Newsom Says COVID-19 Forcing Sharp State Budget Cuts..... 15	Pentagon Examining "Social Distancing Protocols" To Train, Deploy Units Amid Pandemic..... 21
Cities, Counties In Texas Take Disparate Approaches To Enforcing Pandemic Restrictions..... 16	Some Colleges Push Viral Testing, Alternative Methods To Allow Fall Semester In-Person..... 21
Michigan Closes State Capitol "As Protesters Gather" Against Stay-At-Home Order..... 16	Columnist: Trump Is "In The Middle Of A Grace Period" With Voters, But That Will Not Last Indefinitely..... 22
Attorneys "Threaten Coronavirus Lawsuits" Against Florida Nursing Homes..... 16	Department Of Labor Issues Coronavirus Guidance To Nursing Homes..... 22
Despite Missing Goal, Nebraska's Governor Confident In State Testing Program..... 17	Trump Signs Executive Order Giving New Authority To US International Development Finance Corporation Amid Pandemic..... 22
Connecticut Governor "Moving Ahead" With May 20 Reopening "Despite Concerns."..... 17	Columnist: US Should Be "Pitied" For Coronavirus Response..... 22
Just 4,000 Have Been Tested Under Iowa Program..... 17	Analysis: Trump Using Meetings With Governors At White House To Promote US' Economic Reopening..... 22
South Dakota Announces Plan To Test "All Long-term Care Facility And Assisted Living Residents" Over Next Month. 17	Columnist: "Virus T rutherism" Widespread On The Political Right..... 22
Hawaii's Governor "Inclined" To Maintain Stay-At-Home Order Until June 30..... 18	McConnell Walks Back Claim That Obama Administration Left Trump Administration No "Game Plan" For Pandemics..... 22
Louisiana Senate Approves Legislation To "Shield Businesses From Virus Lawsuits."..... 18	Pentagon's DPA Coordinator Reassigned To Navy Position..... 23
States Begin Partially Opening As Residents Grow Restless, Less Willing To Shelter In Place..... 18	Trump's Press Secretary Flashes Pandemic Playbook To Reporters; Calls Obama Administration's Plan "Insufficient."..... 23
Some School Districts Ending Their Distance Learning Efforts.. 18	Number Of COVID-19 Cases In Michigan Nears 50,000..... 23
Scientists Say Testing Sewage Holds Promise For Monitoring Outbreaks Of Diseases Including Coronavirus..... 18	
Analysis: Many "Essential" Workers Will See Pay Cuts As Companies Rescind "Hazard Pay" Policies..... 18	
COVID-19 Accelerating Decline Of Retail Industry..... 19	
Navy Continues To Battle Coronavirus Transmission Aboard Theodore Roosevelt Aircraft Carrier..... 19	

Woman Sues Portland Nursing Home After Her Mother Died Of Coronavirus At The Facility.	23	Coronavirus Pandemic Could Cost Insurance Industry Over \$200 Billion, According To Lloyds Of London.....	27
New York Governor And New York City Mayor Cannot Agree On Number Of Coronavirus Deaths In The City.	23	Medical Professionals File Lawsuit Against Michigan Governor Over Lockdown Restrictions.	27
Study Suggests Pediatric Multi-System Inflammatory Syndrome Is Tied To Coronavirus, As Cases Rise In New York.	23	Transplant Of Brain Cells To A Patient With Parkinson's Disease Sparks Ethical Questions.	28
Fishing Boat Crews Reportedly Could Cause Coronavirus Outbreak In Cordova, Alaska.....	23	Reopening Spurs Divide Among State Governors, Legislatures.	28
Hospital Leaders Approve Of Minnesota Governor's Decision To Let Stay-At-Home Order Expire.	24	Connecticut Nursing Home Owner Purchases 400K Masks From Makeshift Supplier.	28
Pennsylvania Governor To Announce More Counties That Can Lift Some Pandemic Restrictions On Friday.	24	New Jersey, Delaware Reopen Beaches For Memorial Day With Restrictions.....	28
Most Maryland Residents Will Remain Under Stay-At-Home Orders As State Starts Reopening Friday.	24	Minnesota Malls Begin To Reopen Monday, However, Mall Of America Plans For June 1.....	28
WSJ Journal Urges Wisconsin Governor To Create Less Restrictive Stay-At-Home Order With Legislature.....	24	New York Nursing Home Administrators Reportedly Worried About The State's COVID-19 Testing Goal.....	28
Oxford Vaccine Study Shows Promise In Monkeys.....	24	During Contact Tracing Efforts, New York City Mayor Leans On Aide That Previously Argued Against Closures.....	28
Pompeo: U.S. Condemns China-Linked "Cyber Actors" Trying To Steal COVID Research.....	24	Trump, EPA Decide Not To Impose Limits On Water Contaminant Linked To Fetal Damage.....	28
Researcher Optimistic About Convalescent Plasma Therapy.	24	Wyoming To Relax Restrictions On Bars And Restaurants.....	29
Plasma Therapy Derived From Recovered COVID-19 Patients Appears Safe, Study Suggests.....	25	Democrats Present Legislation Aimed At Protecting Health Data During COVID-19 Pandemic.....	29
Expert Says It Will Take "Bulk Of A Year" Before Researchers Can Determine Factors In COVID-19 Immunity.	25	White House List Of Coronavirus Testing Labs Not Useful, Nine States Say.....	29
Data Show COVID-19 Cases Are Generally Decreasing In 17 States, Rising In Nine Others.....	25	Testing Project On Tiny Michigan Island Underway.....	29
Fox News Host Says Bright Testimony Could Be "Potentially Politically Damaging" For Trump.....	25	AMA Warns Physicians Against Using Coronavirus Antibody Tests To Inform Healthcare Decisions.	29
Opinion: Pay Attention To Whistleblower, Because What Trump Disparages Is Often Truth.	25	Virginia Governor Asks Federal Government To Increase Testing At Two Federal Detention Facilities.....	29
CDC Issues Health Advisory For Physicians On Childhood Illness Linked To COVID-19.....	25	CVS Plans To Open 1,000 Self-Swab Coronavirus Test Locations By Month's End.....	29
Maine Governor Allows Out-Of-State Visitors To Reserve Rooms In Lodges, Inns Starting June 1.....	26	US Said To Be Making Progress In Coronavirus Testing Numbers.....	29
North Dakota Has Exceeded 50,000 Coronavirus Tests.....	26	Abbott Lab's ID Now COVID-19 Misses Up To Half Of Cases Found By Another Test, Study Suggests.....	30
In Rural America, COVID-19 Breakouts At Prisons Risk Overwhelming Hospitals.....	26	Bill Gates-Funded Program That Provides At-Home Coronavirus Test Kits Put On Hold Until Federal Approval Is Granted.....	30
Governor Baker Says State Public Health Officials Have Expanded COVID-19 Testing Eligibility.	26	Pandemic Reportedly Reveals Vulnerabilities In American Business Model For Hospitals.....	30
Bars And Restaurants Remain Closed Under Local Milwaukee County Order.....	26	Biogen Blocks Creative Biolabs From Selling Products That Allegedly Used Antibody From Its Experimental Alzheimer's Drug.....	30
Virginia Officials Plan To Stop Counting Antibody Tests As COVID-19 Tests In Reports.....	26	Opinion: New Hampshire Tobacco Policy Will Reduce Chances Of Lifelong Nicotine Addiction, Protect Developing Brains.....	30
As Some States Reopen, Other States Continue To Battle Coronavirus.....	26		
New York Governor Adds Provision To State's Budget To Prevent Some Residents From Suing Nursing Homes Amid Pandemic.....	27	Global Health News	
Some Small Physician Practices Are Struggling During Pandemic, Unable To Get Coronavirus Relief.....	27	China's Foreign Ministry Says U.S. Claims Regarding Hacking Of COVID-19 Research Are Slander.....	30
Pandemic Hits Low-Income Americans Especially Hard, Survey Shows.....	27	Health Groups Ask India To Rescind Gilead's Patents For COVID-19 Drug Remdesivir.....	30
Close To Three Million Americans Applied For Unemployment Last Week.....	27	Russia's ChemRar Testing Favipiravir In Second-, Third-phase Testing As Potential COVID-19 Treatment.....	30

Chinese Automaker Backed By Buffett Fails To Gain US Approval For Their Masks	31
Total Number Of Coronavirus Cases Globally Approaches 4.4M	31
European Governments Hoping Antibody Tests Will Help Inform Strategies To Avoid Second Wave Of Infections.....	31
European Commission Suspends Delivery Of 10M Chinese Masks Due To Quality Concerns.....	31
Dental Practices In France Begin Cautiously Re-Opening.	31
Italy To Start Testing Campaign Across 2,000 Cities To Understand Extent Of Outbreak.	31
France's Coronavirus Death Toll Surpasses Spain's Again.	31
Wuhan Starts Massive Testing Campaign Of Roughly 11M People.....	31
Prime Minister Abe Lifts State Of Emergency Through Most Of Japan.....	31
UNICEF Chief Warns Lockdowns Could Cause More Harm Than Actual Virus In Low-, Middle-Income Countries.....	31
Russian Government Criticizes Media Reports Claiming Russia's COVID-19 Deaths Are Underreported.....	31
Asian Countries, After Stopping Initial Outbreak, See Second Wave Of Cases.....	32
China Attempted To Dissuade New Zealand From Imposing Strict Coronavirus Restrictions.....	32
Canada's Prime Minister Says World Has Changed Even If Pandemic Ends Or Vaccine Is Found.....	32
EU's Foreign Policy Chief Calls For Independent Investigation Into Pandemic's Origins.....	32
IOC President Will Not "Fuel Any Speculation" That Tokyo Olympics Might Not Be Held Next Year.....	32
South Africa To Assign Specific Coronavirus Restrictions For Each Of Its Districts.....	32
Surge In Number Of People In Yemen Dying With COVID-19 Symptoms.....	32
Increasing Number Of Physicians In Russia Dying From Pandemic.....	32
UK Government In Talks With Roche To Buy COVID-19 Antibody Tests.	32
HHS in the News	
Trump Administration Reportedly Mulling Indefinite Border Restrictions Amid COVID-19 Outbreak	32
Gottlieb Suggests Schools Should Attempt In-Person Education This Fall When Possible	33
Opinion: Acceptance Of Pandemic's Effect On Our Lives Could Speed Up Needed Adjustments.	33
Mask Manufacturer Executive Testifies About How Government Allegedly Ignored His Previous Warnings Of Insufficient Mask Production.....	33
White House To Require Some Essential Drugs To Be Manufactured In US, Sources Say.....	33
Gottlieb Says He Sees Signs That The Coronavirus Epidemic Is Slowing In US.....	33
Coronavirus Can Cause Strokes In Young People, Physicians Say.	33

Online Pharmacy Health Warehouse Saw Spike In Demand For Hydroxychloroquine In Mid-March.....	34
Survivors Of COVID-19 Pandemic In Nursing Homes Remain In Isolation.....	34
Former BARDA Director Says Trump Official Tried To Fast-Track Funding For His Friend's Unproven COVID-19 "Treatment."	34
Thousands Volunteer To Be Exposed To Novel Coronavirus In Human Classified Trial Led By 1 Day Sooner.....	34
Former BARDA Head Tells Congress Coronavirus Vaccine Won't Be Ready In 12 To 18 Months.....	34
Former BARDA Director Says Administration Ignored Warnings Of Supply Shortages.....	34
White House Press Secretary, Senior Trump Adviser Dismiss Ousted HHS Official's Claims.....	35
HHS Whistleblower's Attorneys Say Watchdog Finds "Substantial Likelihood Of Wrongdoing."	35
FDA Authorizes Human Trials For AIM ImmunoTech's Drug To Treat COVID-19 In Patients With Cancer.	35
Opinion: Following Science Is Best Path For Our Leaders To Avoid "Darkest Winter."	35
CDC Issues Six Brief Checklists To Guide Businesses, Schools, Others On Reopening.....	35
Former BARDA Chief Will Start At New Job Next Week, Attorneys Say.....	36
Texas Paid \$45 Million For COVID-19 Tests.....	36
Healthcare Personnel Continue To Report Elevated COVID-19 Infection Rates.....	36
Rural Hospitals Need Access To Telehealth To Battle Coronavirus Pandemic, Experts Say.....	36
Trump Announces Plan To "Replenish And Modernize" Strategic National Stockpile.	36
Former BARDA Chief Warns Trump Administration Still Has No National Plan For Pandemic	37
FDA Examining Data Showing Abbott's COVID-19 Test Delivers Inaccurate Results.....	37
Trump, Azar Slam Former HHS Official Who Filed Whistleblower Complaint As "Disgruntled."	38
Ivanka Trump Says She Wears Mask At White House.....	38
Taiwan Remains Sidelined From WHO's World Health Assembly Amid Pandemic.	39
HHS Awards \$15M For Expanded Use Of Telehealth Amid COVID-19 Pandemic	39
Medical Groups Urge Verma To Provide More COVID-19 Assistance For Medicare ACOs.	39
In Reversal, IHS Starting To Hire Traditional Healers.	39
HHS, DoD Award \$138M Contract For Expanded Production Of Prefilled Syringes To Be Used For Future COVID-19 Vaccine.....	39

National Front Page News

Headlines From Today's Front Pages.....	40
---	----

Last Laughs

Late Night Political Humor.....	40
---------------------------------	----

National News

Trump Retweets Post Questioning Claim He Is A Racist.....	41
Burr Steps Aside As Chair Of Senate Intelligence Committee Amid FBI Probe.....	41
Senate Votes To Extend Parts Of FISA.....	42
WPost Report: Trump "Moving Closer To Reshaping" Postal Service.....	42

Trump Questions Biden's Mental Fitness.....	42
Abrams Promoted As Possible Running Mate For Biden.	42
Rasmussen: 23% Of Republicans, 28% Of Democrats Would Prefer Different Nominees.....	43
Trump Touts His "22-0" Record Of Congressional Endorsements.....	43

NIH NEWS

Trump Mobilizing U.S. Military To Deliver Coronavirus Vaccine.

Reuters (5/14, Heavey, Chiacu) reports "President Donald Trump is mobilizing the U.S. military to distribute a novel coronavirus vaccine when one becomes available and will focus first on older Americans." Trump said on Fox Business Network, "You know it's a massive job to give this vaccine. ... Our military is now being mobilized so at the end of the year, we're going to be able to give it to a lot of people very, very rapidly." Trump "said he believes there will be a vaccine by the end of the year and the United States is mobilizing 'our military and other forces' on that assumption." NIAID Director Dr. Anthony Fauci "said the idea that there will be a vaccine available by next fall, when schools and universities resume classes, was 'a bridge too far.'"

Additional Sources. Similarly, CBS News (5/14, Watson, 3.68M) reports "Trump says he would 'rapidly mobilize the U.S. military to distribute a coronavirus vaccine once it's ready, focusing first on nursing homes and the elderly.' Trump stated, "We will have a tremendous force because assuming we get it, then you have to distribute it. ... And unless you're mobilized and ready, you're not going to be able to do it for a long time. So we're starting now."

Also reporting on the story are The Hill (5/14, Deese, 2.98M) and Newsweek (5/14, Fink, 1.53M).

Fauci Loses Support From Republicans After Trump Criticism, Poll Shows.

Forbes (5/14, Brewster, 9.71M) reports "Republicans are increasingly less supportive and trusting of" NIAID Director "Anthony Fauci, a new poll shows, a sign that criticism from GOP lawmakers (including [President] Trump) and right-wing media – who have bristled at Fauci's warnings about reopening too quickly – may be having an effect on public opinion among conservatives." The CBS News poll "found Fauci's unfavorable rating among Republicans has climbed to 31% in May, up from just 12% in April." Trusting the health expert "has also become partisan: 83% of Democrats say they trust Fauci while just 51% of Republicans say they do."

Additional Sources. CNN (5/14, 83.16M) says in an analysis that "Trump's repudiation of Dr. Anthony Fauci has long been probable. Once the trusted doctor warned of the human cost of Trump's push to quickly reopen the country, it became inevitable." On Wednesday, "Trump broke with Fauci...over the infectious disease expert's warnings that getting businesses and schools back open too quickly would lead to unnecessary suffering and death." Trump said, "I was surprised by his answer, actually. ... It's just – to me it's not an acceptable answer, especially when it comes to schools."

In a separate analysis, CNN (5/14, Liptak, 83.16M) says that "in the Cabinet Room Wednesday and in a Fox Business Network interview aired Thursday, President Donald Trump is finally airing publicly the complaints about" Fauci "that officials say he's been airing privately for weeks." The health expert's "critics on Fox and in Congress are adjusting their complaints about him to reflect the type of criticism they know appeals to Trump." However, firing Fauci "would require Trump instructing Fauci's direct boss (Health and Human Services Secretary Alex Azar) to fire him for cause, of which there isn't really one."

The Hill (5/14, Chalfant, 2.98M) reports "Trump said in an interview aired on Fox Business early Thursday that he was criticized by 'everybody,' including Anthony Fauci, for restricting travel to China to slow the spread of the novel coronavirus." Trump said, "I was criticized by everybody, including Dr. Fauci. I put in a wall. We put in a pretty strong wall. Only a small number of people were allowed in and they were all U.S. citizens."

Without Wearing A Mask, Trump Tours Pennsylvania Mask Distribution Center.

Reuters (5/14) reports that "without wearing a face mask himself, President Donald Trump toured a mask distribution center in Pennsylvania on Thursday and announced plans to replenish the U.S. strategic stockpile of medical equipment depleted by the coronavirus outbreak." Trump "has resisted wearing a mask in public despite his administration's guidance to Americans to wear them and new White House rules requiring that staff wear them at work." He "toured the Owens & Minor Inc distribution center, which the White House said has sent millions of N95 masks, surgical gowns and gloves to hospitals and surgery centers across the United States. Company officials wore masks."

Additional Sources. USA Today (5/14, Subramanian, Jackson, 10.31M) reports “Trump told a group of Pennsylvania factory employees Thursday their Democratic governor, Tom Wolf, should ‘start opening up a little bit,’ continuing to press an end to social distancing restrictions as he eyes reopening the struggling U.S. economy.” Trump said at the distribution center, “We have to get your governor of Pennsylvania to start opening up a little bit. You have areas of Pennsylvania that are barely affected, and they want to keep them closed. You can’t do that.” The piece mentions that HHS Secretary Alex Azar was wearing a face covering during the visit.

CNN (5/14, Liptak, 83.16M) reports “Trump’s quick trip to Allentown highlighted a medical equipment distribution company, where he trumpeted his administration’s record on ramping up testing and improving supply chains for personal protective equipment and ventilators.” The President “laced his speech with complaints about how his response to the virus has been covered in the media and lobbed barbs at former Vice President Joe Biden, who was born in Scranton.”

Forbes (5/14, Perez, 9.71M) reports “Trump announced he was invoking the Defense Production Act to direct the U.S. International Development Finance Corporation (DFC) – an agency he signed into being in 2018 that invests in economic development programs in developing countries – to finance domestic companies.” Trump “lavished praise on healthcare workers, saying ‘They’re running into death just like soldiers run into bullets.’”

The Hill (5/14, Samuels, Hellmann, 2.98M) reports “Trump boasted about the United States’ testing capabilities during remarks at a Pennsylvania medical equipment distribution center, where he announced the country has administered 10 million tests since the outbreak began.” Trump said, “We have the best testing in the world. ... Could be that testing’s, frankly, overrated. Maybe it is overrated.”

Politico (5/14, Ward, 4.29M) reports Trump also said, “When you test, you have a case. When you test, you find something is wrong with people. If we didn’t do any testing, we would have very few cases.” The President “said the news media had refused to report his ‘common sense’ explanation for the country’s high case numbers.”

The Washington Times (5/14, Boyer, 492K) reports Trump “faulted the Obama administration, and Democratic rival Joseph R. Biden, for leaving the U.S. unprepared for the coronavirus crisis.” Meanwhile, “Rick Bright, a [former] top coronavirus vaccine researcher at the National Institutes of Health, testified in Congress Thursday that the administration ignored his warnings earlier this year to prepare for the pandemic.”

NJ News (5/14, Salant, 1.72M) reports on the story, and adds that NIAID Director Dr. Anthony Fauci “said he was worried about states reopening too soon in testimony before the Senate Health Committee on Tuesday.”

Among other news outlets reporting on the story are ABC World News Tonight (5/14, story 2, 1:05, Muir, 7.42M), the CBS Evening News (5/14, story 2, 0:30, O’Donnell, 5.25M), NBC Nightly News (5/14, story 3, 0:15, Holt, 7.88M), the Washington Post (5/14, 14.2M), another piece in The Hill (5/14, Samuels, 2.98M), Newsday (NY) (5/14, 932K), the New York Daily News (5/14, Sommerfeldt, 2.52M), and the Allentown (PA) Morning Call (5/14, Olson, Merlin, 555K).

Put Rand Paul In The Penalty Box. Washington Post (5/14, 14.2M) columnist Karen Tumulty writes that it is “too bad the Senate, unlike a hockey rink, doesn’t have a penalty box. Because that is where Kentucky Republican Rand Paul would be sitting, rather than in a hearing room lecturing the nation’s leading infectious-disease expert that he isn’t the ‘end-all.’” When NIAID Director Dr. Anthony Fauci “testified this week before the Senate Health, Education, Labor and Pensions Committee, Paul recited data that he claimed [suggest] the government’s response to the...novel coronavirus pandemic has been too cautious.” Tumulty concludes, “Paul, of all people, should know that impetuous decisions can put a lot of others at unnecessary risk.”

France Angered By Suggestion U.S. Would Get First Access To Coronavirus Vaccine By French Pharma Company Sanofi. The Washington Post (5/14, McAuley, 14.2M) reports France’s government said “it would be ‘unacceptable’ for French pharmaceutical giant Sanofi to give the United States first access to a potential COVID-19 vaccine.” The comments came in response to statements by CEO Paul Hudson, who said “the U.S. government has the right to the largest preorder because it’s invested in taking the risk.” The piece suggests that “Hudson’s comments and further messaging from Sanofi on Thursday may be part of an effort to prod European governments to invest more in vaccine research.” However, “by Thursday morning, the company appeared to be backpedaling somewhat.” On this point, “Olivier Bogillot, head of Sanofi’s French division, told France’s BFMTV network that the vaccine would be available to Europeans at the same time as Americans if the European Union were as ‘efficient’ a partner.”

Additional Sources. Reuters (5/14, Brosse, Heavey) reports National Institute of Allergy and Infectious Diseases Director Anthony Fauci “on Tuesday said a vaccine would not likely be available by the autumn but that he was cautiously optimistic there would eventually be one.”

Forbes (5/14, Beer, 9.71M) reports, “The U.S. expanded a vaccine partnership with the drugmaker in February, and Sanofi has received \$30 million from an office of the U.S. Department of Health and Human Services.”

Similar coverage of the comments by Hudson, the French government's response, and an apparent walk back of that initial comments is covered by the Wall Street Journal (5/14, Bisserbe, Roland, Subscription Publication, 7.57M), the Associated Press (5/14, Corbet), Reuters (5/14, Andre, Brosse), Reuters (5/14, Blamont, White), The Hill (5/14, Coleman, 2.98M), Forbes (5/14, Beer, 9.71M), Newsweek (5/14, Czachor, 1.53M), Endpoints News (5/13, Mast), FiercePharma (5/14, Sagonowsky), STAT (5/14, Silverman, 24K), the Economic Times (IND) (5/14, 1.81M), and Bloomberg Law (5/14, Serafino, Subscription Publication, 4K).

After Wisconsin Court Ruling, Crowds Liberated And Thirsty Descend On Bars. 'We're The Wild West,' Gov. Tony Evers Says.

The Washington Post (5/14, Flynn, 14.2M) reports, "On Wednesday night in the heart of downtown Platteville, Wis., just hours after the Wisconsin Supreme Court threw out the state's stay-at-home order," some bars were "packed wall to wall." Wisconsin's "high court sided Wednesday with Republican legislators who sued the Evers administration in April, finding that the Democratic governor 'cannot rely on emergency powers indefinitely' as the pandemic drags on for months." In an opinion, "Justice Rebecca Bradley cited *Korematsu v. United States*, in which the Supreme Court allowed the internment of Japanese Americans as a way to 'remind the state that urging courts to approve the exercise of extraordinary power during times of emergency may lead to extraordinary abuses of its citizens.'"

Additional Sources. USA Today (5/14, Jansen, 10.31M) reports that the decision "added fuel Thursday to a widening U.S. debate over how and when to lift restrictions put in place to limit the spread of the coronavirus." However, "health experts such as Dr. Anthony Fauci," maintain the lockdowns have saved lives.

The Wall Street Journal (5/14, Calfas, Gershman, Subscription Publication, 7.57M) reports that local governments throughout Wisconsin are now trying to implement their own new public health guidelines following the court's decision.

CNN (5/14, Bradner, 83.16M) and the Milwaukee Journal Sentinel (5/14, Hauer, 632K) also report.

Wisconsin Governor Predicts Confusion Following State Supreme Court Ruling. Reuters (5/14, Gorman, Bernstein) reports, "Wisconsin's governor on Thursday predicted confusion among residents and [businesses] after the state supreme court struck down his sweeping stay-at-home order, fueling a growing political divide over how and when to reopen the shattered U.S. economy." The decision, "which found that Governor Tony Evers and state health officials did not have the authority to unilaterally confine

residents to their homes or bar them from work, marked the first time such coronavirus restrictions had been overturned in the United States."

Newsweek (5/14, Jarvis, 1.53M) reports, "President Donald Trump has hailed the Wisconsin Supreme Court decision to overturn coronavirus lockdown measures in the state as a 'win.'"

U.S. News & World Report (5/14, Smith, 2.4M) also reports.

NIH Starts Study Testing Combination Of Azithromycin And Hydroxychloroquine For Treatment Of COVID-19.

Reuters (5/14, Erman, Maddipatla) reports the NIH announced it started a study to evaluate the combination of azithromycin and hydroxychloroquine for the treatment of COVID-19. The National Institute of Allergy and Infectious Diseases "is sponsoring the trial, which is being conducted by the NIAID-funded AIDS Clinical Trials Group (ACTG)."

Additional Sources. The Hill (5/14, Hellmann, 2.98M) reports NIAID Director Anthony Fauci said, "We urgently need a safe and effective treatment for COVID-19. Repurposing existing drugs is an attractive option because these medications have undergone extensive testing, allowing them to move quickly into clinical trials and accelerating their potential approval for COVID-19 treatment."

Also reporting are Bloomberg Law (5/14, Klimasinska, Subscription Publication, 4K) and Fox News (5/14, Carbone, 27.59M).

Trump's Marks For Handling COVID-19 Outbreak Decline – CBS News Poll.

CBS News (5/14, Khanna, 3.68M) reports that according to a CBS News poll, "Americans continue to say they trust medical professionals for virus information, but Republicans also rank President Trump about as highly among their trusted sources, even as others give him his lowest marks to date for handling the outbreak." Furthermore, NIAID Director Dr. Anthony Fauci "is trusted by most and viewed favorably by a three-to-one margin, but he now draws split opinions among Republicans, driven by increasingly negative views from conservatives." Views of "Trump's handling of the outbreak continue to drop from March and are now the lowest he has received."

Additional Source. Newsweek (5/14, Lemon, 1.53M) reports that "the number of Americans saying Trump is doing a 'bad job' handling the pandemic has increased by 10 points since March." Meanwhile, "the number of Americans who trust Trump for information about the outbreak currently stands at 38 percent, while 62 percent of respondents say they do not trust the president about it."

Researchers Working On Remdesivir Cocktail.

On the [CBS Evening News](#) (5/14, story 8, 2:05, 5.25M), Norah O'Donnell reported on "a so-called [treatment] 'cocktail' [that] has entered a new phase." CBS' Jon Lapook reported a research team is "combining remdesivir to stop the virus from multiplying with a powerful anti-inflammatory drug, a so-called 'immune modulator' that aims to prevent organ damage by calming down an inflamed immune system. The remdesivir stops the virus from replicating inside the cell, and the immune modulator puts out the fire." CBS quotes National Institute of Allergy and Infectious Diseases Director Anthony Fauci regarding past struggles to find drugs for treating HIV.

Who Needs Science When We Have Trump's Tremendous Instincts?

[Washington Post](#) (5/14, 14.2M) columnist Michael Gerson writes that President "Trump's version of populism has always included skepticism of medical consensus." Trump "has a long history of trusting his gut on scientific matters on which he has little knowledge." These tendencies "are now emerging in the midst of a public health crisis. We have a president who is increasingly critical of advice from infectious disease experts, and who seems increasingly skeptical of the reported death total from covid-19." Gerson adds that "Tucker Carlson questions whether" NIAID Director Dr. Anthony Fauci "is 'right about the science' and calls him a 'buffoon.'" Gerson concludes, "It does not prove your conservatism, your populism or your patriotism to needlessly endanger your neighbor."

Dr. Deborah Birx Wins Praise For Managing The White House's Coronavirus Message And Trump.

[USA Today](#) (5/14, Hjelmgaard, Jackson, 10.31M) reports that "while it's too early to draw conclusions about whether" Dr. Deborah "Birx's influence has been diminished, she remains one of the major public faces of the administration's coronavirus response." The role has "brought her praise – for her command of public health minutia as well as criticism – for appearing, at times, to fail to run sufficient interference on Trump's mixed, erratic and often incorrect messages about the outbreak." Birx "has managed to maintain her composure – and sometimes correct Trump's misinformation – without triggering the wrath of the president or his supporters." Birx's name has even "surfaced as a potential replacement for" HHS Secretary Alex Azar. The piece adds that "Birx is one of two Obama administration-appointed health officials working for Trump. The other is" NIH Director Francis Collins – NIAID Director Anthony Fauci's "boss."

Trump Predicts Coronavirus Vaccine Will Come This Year. [U.S. News & World Report](#) (5/14, Smith-Schoenwalder, 2.4M) says President "Trump on

Thursday said that he expects a coronavirus vaccine by the end of 2020, which is a faster timeline than many health officials have predicted." The President stated, "I think we're going to have a vaccine by the end of the year." Trump "added that distribution of the vaccine 'will take place almost simultaneously' because he is mobilizing the military to help with the process." His "comments come just a couple days after" NIAID Director "Anthony Fauci told Congress that the idea of having therapeutics or a vaccine ready 'to facilitate the reentry of students into the fall term would be something that would be a bit of a bridge too far.'"

Additional Source. The [Atlanta Journal-Constitution](#) (5/14, Darnell, 895K) reports that during "an interview on FOX Business Network, Trump...said he disagrees with" Fauci, "who told a Senate committee earlier this year it is unlikely a vaccine would be ready in time for the school year."

Public Health School Deans Urge Trump To Triple Coronavirus Testing Or Face Cycles Of Shutdown.

[Newsweek](#) (5/15, Martin, 1.53M) reports that four public health school deans on Thursday all signed individual statements urging the Trump Administration Thursday to use the Defense Production Act to require businesses to create more tests for the novel coronavirus. Newsweek adds, "Testing capacity for the coronavirus has been called a priority for reopening the country safely, including U.S. schools." National Institute of Allergy and Infectious Diseases Director Anthony Fauci told a Senate panel on Tuesday that "he wasn't sure if schools should reopen in the fall."

California Tells Hospitals To Consider Having A Lottery For Sought-After Covid-19 Drug.

[CNN](#) (5/14, Cohen, Azad, Klein, 83.16M) reports that all 50 states "should have received shipments of the Covid-19 drug remdesivir earlier this week, according to audio obtained by CNN of a call between federal officials and governors." But there's "not nearly enough to go around, and on Monday, one state health department directed hospitals to consider holding a lottery for scarce medications." As part of its guidance, the California Department of Public Health "suggests that 'random allocation among patients be considered,' such as 'using a lottery system to select a certain proportion of patients who become eligible for the drug.'" According to CNN, "It's been a little over two weeks since top health expert Dr. Anthony Fauci first announced that a large study showed remdesivir worked against Covid-19, calling it the new 'standard of care' for patients."

Large Majority Of Americans Say Country Lags In Testing Availability: POLL. [ABC News](#) (5/15, Karson, 2.97M) reports strong majorities of Americans

"believe the country lacks sufficient testing and are also skeptical about returning to pre-pandemic activities, including sending kids back to school," according to a new ABC News/Ipsos poll released on Friday. According to ABC, "nearly three in four Americans believe there are not enough tests available in the United States, compared to only 26% who said there is adequate testing available right now." The new poll comes as National Institute of Allergy and Infectious Diseases Dr. Anthony Fauci this week "warned lawmakers that reopening schools and businesses too quickly could trigger an outbreak, and possibly stifle the road to economic recovery."

States Are Letting Stay-At-Home Orders Expire, Regardless Of Virus Metrics. Politico (5/15, McCaskill, 4.29M) reports, "Stay-at-home orders or business restrictions are set to expire" in a dozen states across the US, leaving state and local leaders to "grapple with whether to extend expiring stay-at-home orders or assess how much their reopening strategies are fueling new health risks" associated with COVID-19. Public health experts, including National Institute of Allergy and Infectious Diseases Director Anthony Fauci, "have warned that the virus will continue to spread as more people begin leaving their homes, noting the difficulty of maintaining physical distancing in certain spaces as Americans return to their normal pre-pandemic activities."

Is Anthony Fauci Today's Galileo Galilei, The Champion Of Science? In an opinion piece for STAT (5/14, 24K), astrophysicist Mario Livio says that as he watches NIAID Director Dr. Anthony Fauci defend "science and scientific integrity...on the news, I think of another 'battler' who ultimately had the last word." Livio compares Fauci to Galileo Galilei, who was "sentenced to confinement by the Roman Inquisition because he was 'vehemently suspected of heresy.'" That supposed heresy "was his support of the Copernican system of planetary movement." Livio concludes, "It took the Catholic Church more than 350 years to admit that Galileo was right. We can't afford to wait that long to find out that Fauci is right."

Trump's Plan To Limit The Pandemic's Death Toll: Undercount The Numbers. In an opinion piece for Vox (5/14, 2.27M), senior correspondent Matthew Yglesias writes that "experts have a range of ideas to suppress the Covid-19 pandemic, save lives, and avert new waves of economic misery." However, President "Trump seems to be embracing another plan – massaging the numbers to make inconvenient deaths go away." Still, "experts believe the problem with the numbers is the opposite – official statistics understate the Covid-19 death toll."

Yglesias adds that on Tuesday, NIAID Director "Anthony Fauci expressed the view of most public health professionals that even with the attempted adjustment for probable cases, the official numbers still underestimate the true death toll." Yglesias concludes that "a strategy focused on juking the stats is overwhelmingly likely to end with more real-world deaths than necessary."

Fox News Dumps Coronavirus Coverage For Anti-Obama Conspiracy Theory. In an analysis, CNN (5/14, Darcy, 83.16M) says that "if you woke up from a coma on Wednesday afternoon and flipped on Fox News, or checked the network's website, you'd be forgiven if you had no idea the country is currently grappling with a pandemic killing tens-of-thousands of Americans and leaving millions more unemployed." That is because Fox "largely ignored the virus in the afternoon and into its prime time programming." After GOP "senators released a list of Obama officials who sought to unmask the name of an unidentified American caught in intelligence reports, who turned out to be Michael Flynn, Fox News went all in on the story." However, "when Fox News did find time to cover the coronavirus, it was done in part through the lens of criticizing" NIAID Director Dr. Anthony Fauci.

Tensions Rise As Texas Governor Readies To Lift More Rules. The AP (5/15, Weber, Vertuno) reports that "few states are rebooting quicker than Texas, where stay-at-home orders expired May 1." With coronavirus "cases still rising, including single-day highs of 1,458 new cases and 58 deaths Thursday, Republican Gov. Greg Abbott has defended the pace by emphasizing steady hospitalization rates and pointing out that Texas' 1,200 deaths are still behind similarly big states, including California and Florida." However, "on the cusp of even more restrictions ending Monday, including gyms cleared to reopen, a political confrontation is growing over attempts by big cities to keep some guardrails." The revamped tensions come at a time when NIAID Director Dr. Anthony Fauci "warned Congress this week of 'needless suffering and death' if the U.S. moves too quickly."

Coronavirus Question: Let's Say A Vaccine Proves Safe And Effective. Then What? In an editorial, USA Today (5/14, 10.31M) says that if a safe and effective coronavirus vaccine is developed, "the issues surrounding how to distribute vaccines present a number of troubling questions that are not getting nearly the attention they deserve. ... Even within the USA, there's little evidence of a plan for how vaccines might be distributed in the early days when there are not enough to go around." USA Today adds, "With scientists saying that one or more vaccines could

complete trials as early as this fall, this is looking like one more area for which the nation is not fully prepared." USA Today notes that there are at least eight vaccines in clinical development, according to National Institute of Allergy and Infectious Diseases Director Anthony Fauci.

'Re-Examine All The Evidence': Rand Paul Demands Fauci Reconsider Position On School Closures. The Washington Examiner (5/14, Miller, 448K) reports "GOP Kentucky Sen. Rand Paul urged" NIAID Director "Anthony Fauci to reconsider his position that schools should remain closed in the fall to stop the spread of the coronavirus." Paul tweeted, "Evidence-based scientists around the world argue to open schools. ... Please re-examine all the evidence Dr. Fauci!" The senator's "post came alongside an article from WIRED magazine with the headline, 'The Case for Reopening Schools.'"

White House To 'Reconfigure' Coronavirus Task Force With An Emphasis On Reopening The Country. The Washington Examiner (5/14, Crilly, 448K) says the White House "will add more figures to its coronavirus task force before the end of the week...as it enters the crucial phase of trying to reopen the country safely." According to a "senior administration official," the additions would represent a "reconfiguring." The official said, "There was an initial phase that was more focused on border elements and what are you doing with flights, what are you doing with cruise ships, and how do we do the best to delay its arrival here? The second phase was really more defined by healthcare experts and the strategy to mitigate it and slow the spread. ... And now, I think we are sort of entering a new phase, which is, 'How do you now safely reopen?'" The piece adds that Trump "has been under pressure from conservatives to reduce the influence of scientists on the panel, including" NIAID Director Dr. Anthony Fauci.

Remdesivir Distribution Causes Confusion, Leaves Some Hospitals Empty-Handed. NPR (5/14, Lupkin, 3.12M) reports the federal government has begun distributing remdesivir, which the FDA has authorized for emergency use as a treatment for COVID-19, but some states and hospitals are confused "about why they've been left empty-handed." Gilead Sciences, the manufacturer of the drug, "said it would donate its initial supply of the medicine," but "the federal government is in charge of coordinating where the treatment is to be shipped." National Institute of Allergy and Infectious Diseases Director Anthony Fauci "stressed that the study's result for remdesivir 'was statistically significant but really modest. And we must remember it was only a modest result showing that the drug made a 31% faster time to recovery.'"

Top Health Officials Vanish From National TV Interviews As White House Refocuses Messaging. CNN (5/14, Darcy, 83.16M) reports "the nation's top physicians have stopped appearing on national television for interviews as the White House exerts increased control over communications during the coronavirus pandemic and refocuses its message toward reopening the economy." NIAID Director Anthony Fauci "appeared on CNN on May 4 for an interview with Chris Cuomo." CDC Director Robert Redfield "has not appeared on national television since April 17 when he was interviewed on the 'Today' show on NBC News." FDA Commissioner Stephen Hahn "has not appeared on national television since April 28 when he spoke with Fox News host Maria Bartiromo." For his part, Surgeon General Jerome Adams "has not appeared on national television since April 17 when he appeared on 'Fox & Friends.'"

Trump Is Smearing Fauci. William Saletan writes for Slate (5/14, 1.58M) that the President "is smearing" NIAID Director Dr. Anthony Fauci. The President "wants businesses and schools to reopen sooner than Fauci thinks is safe. So the president has fabricated a story about Fauci giving bad advice. Trump's goal is to make the public think that Trump, not Fauci, knows best what to do about the novel coronavirus." However, "his fabrication shows the opposite: While Fauci tells the truth, Trump tells lies."

Trump Admin Shoots The Messenger As Whistleblower Highlights Ongoing Issues. Matt Shuham writes for Talking Points Memo (5/14, 260K) that even as Dr. Rick Bright criticized the Trump Administration's COVID-19 response during his testimony, the Administration returned the favor. President Trump said, "With Bright's attitude...he 'should no longer be working for our government!'" Meanwhile, HHS "said Bright was 'using his taxpayer-funded medical leave to work with partisan attorneys who are politicizing the response to COVID-19.'" Indeed, HHS Secretary Alex Azar, "speaking from the White House lawn in the middle of Bright's testimony, made a similar point. 'While we're launching Operation Warp Speed, he's not showing up for work to be part of that.'" Shuham also mentions NIAID Director Dr. Anthony Fauci.

Trump Dismisses Fauci's Warning Against Reopening Schools: 'I Totally Disagree'. Cristina Cabrera writes for Talking Points Memo (5/14, 260K) that on Thursday, President Trump "rejected White House COVID-19 task force official Dr. Anthony Fauci's assertion during a Senate hearing that schools could not be expected to reopen by fall." Trump said, "Anthony is a good person, very good person. ... I've disagreed with him. When I closed the border

to China, he disagreed with that, and then ultimately he agreed." Trump added, "I totally disagree with [Fauci] on schools."

Trump Is Blaming China For Coronavirus Even As He Employs The Same Authoritarian Tactics As Xi Jinping.

John Haltiwanger writes for Business Insider (5/14, 3.67M) that President Trump "has essentially blamed China for the devastating scale of the coronavirus pandemic, slamming Beijing over its lack of transparency and warning that the US could 'cut off' its relationship with the Asian country." However, the President "is guilty of many of the same behaviors for which he's condemned China, experts say," given that his "response to COVID-19 has often mirrored the approach of authoritarian leaders like Chinese President Xi Jinping." While "top public health officials like Dr. Anthony Fauci have said that a robust testing system is key to thwarting the virus, for example, Trump in early May said that too much testing for COVID-19 makes the US 'look bad.'"

White House Press Secretary Disputes Poll That Show Americans Trust Dr. Fauci Much More Than Trump.

Eliza Relman writes for Business Insider (5/14, 3.67M) that on Thursday, "White House press secretary Kayleigh McEnany...disputed recent polling that found Americans trust Dr. Anthony Fauci, the nation's top infectious disease expert, significantly more than they trust President Donald Trump to provide accurate information about the coronavirus." McEnany said during an interview, "I believe that the American people have a lot more trust in the president than that poll indicates. ... I believe the American people have great confidence in this president's leadership."

Column: We Shut Down The Economy To Make Progress Against COVID-19 – And Then Made No Progress.

Los Angeles Times (5/14, 4.64M) columnist Michael Hiltzik writes that "many people are getting fed up with the" coronavirus "lockdown, and not only because it throws millions of them out of work." Hiltzik asserts that "we have made scant progress against the virus, or at least not nearly as much as the richest, most powerful and most technically adept nation on Earth should have made." He adds that that NIAID Director Dr. Anthony Fauci "warned that states that reopen businesses and allow public gatherings too hastily while the pandemic is still in full cry could 'trigger an outbreak that you may not be able to control.'" Hiltzik concludes that President "Trump is getting what he seems to want: a nation mired in a chaos that benefits only those with the means to insulate themselves from the crisis. The rest of us can do nothing but gnash our teeth at a shutdown without end, amen."

Rand Paul Delivers A Magnificent Reality Smack To Anthony Fauci.

In an opinion piece for the Washington Times (5/14, 492K), Cheryl K. Chumley writes that "in case you missed it: Sen. Rand Paul delivered a much-needed, long overdue, thankfully-finally-here reality check to" NIAID Director Dr. Anthony Fauci, reminding the health expert "in a Senate panel hearing earlier this week that hey now, hey guy, you're just a guy – and your expertise on viruses shouldn't be taken as expertise on politics, government, economics, policy or the running of a nation and its peoples." In other words, Chumley says, "the Fauci influence over all walks of American life should fade."

Editorial: Fauci's Caution On Schools Is Sound, No Matter What Non-Physician Trump Says.

In an editorial, the St. Louis Post-Dispatch (5/14, 685K) says "the latest battle between President Donald Trump and" NIAID Director "Anthony Fauci, like previous ones, boils down to ego-based conjecture versus science and fact." Fauci "argues it would be reckless to rush children back into classrooms in the fall before doctors have a better grasp of the dangers." Meanwhile, "Trump, whose training in medicine and epidemiology is exactly zero, says it's time to get back to class." The Post-Dispatch says, "In the battle between Fauci's voice of caution versus Trump's call for throwing caution to the wind, we'll stick with the guy who actually knows what he's talking about."

NIH Begins Trial To Determine How Effective Hydroxychloroquine.

Newsweek (5/14, Slisco, 1.53M) reports the National Institute of Allergy and Infectious Diseases (NIAID) is sponsoring "a clinical trial testing the effectiveness of combining antimalarial drug hydroxychloroquine with antibiotic azithromycin as a treatment for COVID-19." The controlled trial "will involve 2,000 U.S. adults who are infected with the coronavirus and have symptoms like shortness of breath, cough and fever." NIAID Director Dr. Anthony Fauci said in a statement. "Although there is anecdotal evidence that hydroxychloroquine and azithromycin may benefit people with COVID-19, we need solid data from a large randomized, controlled clinical trial to determine whether this experimental treatment is safe and can improve clinical outcomes."

Interferon Emerges As Potential Treatment For COVID-19.

The Globe and Mail (CAN) (5/12, Semeniuk, 1.04M) reported that two newly reported trials show potential for a class of drugs called interferons as a therapy for COVID-19. Toronto's University Health Network researcher Eleanor Fish, a "senior author on one of the studies, said that awareness of interferon as a potential COVID-19 treatment has been slow to build and should be prioritized for larger-

scale clinical trials." U.S. National Cancer Institute senior investigator Howard Young, "who has studied the anti-viral properties of interferon, echoed the need for more study." Young "said an important question to be explored is whether mild versus more-severe cases of COVID-19 produce different responses to the drug."

U.S. Accuses Chinese-Born Researcher At Cleveland Clinic Of Ties To Chinese Spying.

Reuters (5/14, Hosenball) reports the FBI arrested Chinese-born former Cleveland clinic employee Dr. Qing Wang "on fraud charges related to \$3.6 million in federal grants, the FBI said on Thursday, the latest move in a U.S. crackdown on alleged attempts by China to steal American scientific advances." Reuters adds, "Prosecutors said Wang accepted grants from the National Institutes of Health without disclosing that he was serving at same time as dean of the College of Life Sciences and Technology at the Huazhong University of Science and Technology."

Additional Sources. NPR (5/14, Romo, 3.12M) reports, "The FBI claims Qing Wang...lied to receive more than \$3.6 million in grants from the National Institutes of Health while also collecting money for the same research from the Chinese government."

The Cleveland Plain Dealer (5/14, Eaton, 895K) and the Daily Caller (5/14, Safi, 716K) also report.

Talking In Enclosed Space Can Generate Droplets That Linger For Up 14 Minutes, Study Finds.

ABC World News Tonight (5/14, story 8, 0:15, Muir, 7.42M) reported new research indicates "when two people talk loudly in an enclosed space with poor air flow, droplets in spit can float in the air for" 8 to 14 minutes with "substantial risk of transmission."

Additional Source. The New York Times (5/14, Sheikh, 18.61M) reports, "Researchers at the National Institute of Diabetes and Digestive and Kidney Diseases and the University of Pennsylvania, who study the kinetics of biological molecules inside the human body, asked volunteers to repeat the words 'stay healthy' several times" and "found that speaking louder could generate larger droplets, as well as greater quantities of them." The report was published Wednesday in the Proceedings of the National Academy of Sciences.

Experimental Injection Of 'Good' Bacteria Significantly Cut Bacterial Vaginosis Recurrence Rate.

Endpoints News (5/14, Grover) reports that injecting a "good" bacterium can reduce the high recurrent rate of bacterial vaginosis (BV) by a third, a 228-patient, placebo-controlled study suggests. The study "evaluated the effect of a 'good' bacterium product, called

Lactin-V, which was packaged by California-based microbiome company Osel." The NIH-funded study was published Wednesday in the New England Journal of Medicine.

NCI Exceptional Responders Initiative Pilot Study Meets Feasibility Goal.

Oncology Nurse Advisor (5/14, Bennett) reports the National Cancer Institute Exceptional Responders Initiative pilot study "successfully analyzed tumor specimens from more than 100 cases, deeming the effort feasible." According to the study's authors, "This study met its main feasibility goal to identify at least 100 analyzable ER [exceptional responder] cases in less than 3 years." The results were recently reported in the Journal of the National Cancer Institute. A corresponding editorial said, "Just the ability to gather such a large number of rare and valuable tumor samples with clinical data is remarkable."

Researchers Try Combining Remdesivir With A Second Drug To Deliver A "One-Two Punch" To Virus.

CBS News (5/14, Lapook, 3.68M) reports Dr. Aneesh Mehta, the lead investigator of an National Institutes of Health (NIH) trial at Emory University that "showed the drug remdesivir reduced average hospitalizations from 15 to 11 days," said he thinks the drug is "going to be one important tool, but we also need to look for other ways to help our patients." For the next phase of the trial, Mehta and colleagues are "combining remdesivir, which stops the virus from multiplying, with a powerful anti-inflammatory drug that aims to prevent organ damage by calming down an inflamed immune system." The NIH "also said researchers are testing another potential coronavirus treatment cocktail: A mix of the malaria drug hydroxychloroquine with an antibiotic used to treat infections like pink eye."

COVID Patients Given Malaria Drug Didn't See Significant Improvements: Studies.

Reuters (5/14, Erman, Maddipatla) reports patients given the anti-malarial drug hydroxychloroquine, which President Trump has touted as a potential COVID-19 treatment, "did not improve significantly over those who did not, according to two new studies published in the medical journal BMJ on Thursday." The National Institutes of Health "said on Thursday it began a study to evaluate the combination of antibiotic azithromycin and hydroxychloroquine, which Trump described as a potential 'game changer' for the pandemic."

Part Of Gilead's Coronavirus Drug Donation Allocated To Japan.

Reuters (5/14, Swift) reports hospitals in Japan have started treating severely ill patients with COVID-19 using Gilead Sciences' experimental COVID-19 drug, according to ministry official Yasuyuki Sahara.

Sahara “said in an e-mail on Thursday that the U.S. firm’s treatment has been distributed to hospitals in Japan since May 11 and is being used for patients in intensive care or those on ventilators.” A National Institutes of Health trial showed remdesivir “cut hospital stays by 31% compared with a placebo treatment, although it did not significantly improve survival.”

Additional Source. Fox News (5/14, Hein, 27.59M) also reports.

Virginia Receives 2nd Shipment Of New Antiviral Drug. The Richmond (VA) Times-Dispatch (5/14, Martz, 277K) reports, “Virginia has received a second shipment of the new antiviral drug remdesivir to treat critically ill COVID-19 patients, but the supply is enough for only 36 patients.” The U.S. FDA “issued an emergency use authorization for remdesivir on May 1, but it is still an ‘unapproved product’ that may be used for treating adults and children who are hospitalized with severe cases of confirmed or suspected COVID-19.” The National Institutes of Health and Gilead Sciences “conducted a clinical trial of remdesivir that resulted in preliminary findings that the drug speeds recovery of COVID-19 patients hospitalized with severe cases of the disease, according to a Health Department summary.”

US Needs Bipartisan Push For Scientific Research After Coronavirus: Congressional Leaders. In an op-ed for USA Today (5/14, 10.31M), Senate Minority Leader Schumer, Sen. Todd Young (R-IN), Rep. Mike Gallagher (R-WI), and Rep. Ro Khanna (D-CA) write that “America is no longer the preeminent leader in scientific research as we were for the second half of the 20th Century. We must address this vulnerability.” The lawmakers argue the Endless Frontiers Act “proposes a renewed national investment in public research and development to strengthen our nation’s innovation ecosystem now and into the future.” They add “that every dollar invested in the National Institutes of Health leads to \$3 in increased stock market valuation for private companies,” and research indicates “that raising public research and development spending by \$100 billion per year on a permanent basis could help generate as much as 4 million new American jobs.”

COVID-19 Is Threat To Our Biomedical Research Enterprise. In an opinion in The Hill (5/14, 2.98M), contributor Kafui Dzirasa, a National Institutes of Health-funded brain researcher at Duke University, writes, “COVID-19 has placed a unique strain on the U.S. biomedical research enterprise.” Dzirasa says, “COVID-19 has rendered individuals over 65 an at-risk: a population that is overrepresented in our nation’s pool of scientific

investigators,” and “behavioral studies over the last three years have also revealed that our nation’s young scientists are a high-risk group for mental health challenges.” Dzirasa adds, “I am unclear whether the U.S. biomedical research enterprise can sustain this dual blow to both young and older scientists.”

Gilead Should Ditch Remdesivir And Focus On Its Simpler Ancestor. In an opinion in STAT (5/14, 24K), Victoria C. Yan and Florian L. Muller write that Gilead’s antiviral drug remdesivir “has been propelled into the spotlight with the hope that it can stop, or at least curtail, the ravages of SARS-CoV-2, the virus that causes Covid-19.” Yan and Muller say, “Data from the open-label SIMPLE trial, sponsored by Gilead, and the randomized controlled Adaptive Covid-19 Treatment Trial, sponsored by the National Institute of Allergy and Infectious Diseases, show that remdesivir may accelerate recovery rates among patients with advanced Covid-19.” However, they argue that Gilead should focus instead on pro-drug GS-441524, which “is easier to synthesize than remdesivir, requiring three steps instead of the seven needed for remdesivir.”

Both/And Problem In An Either/Or World. In an editorial in Science Magazine (5/15, 427K), H. Holden Thorp writes that progress on COVID-19 vaccines in China and the U.S. “should make us optimistic that science will solve this problem, but the actions of the governments involved are not equally inspiring.” Thorp says that the Trump Administration “can’t grasp that it’s possible to question the actions of the Chinese government about the early days of the pandemic while embracing collaboration with Chinese science.” Thorp adds, “The latest setback is the decision by the U.S. National Institutes of Health (NIH) to terminate the grant ‘Understanding the Risk of Bat Coronavirus Emergence’ to Peter Daszak of the nonprofit EcoHealth Alliance, who, with NIH approval, shared one in five grant dollars with Shi Zhengli, a top coronavirologist at China’s Wuhan Institute of Virology (WIV).”

Research On TPA Nanoconjugate Aims To Extend Thrombolysis Benefits To More Stroke Patients. Cleveland Clinic Consult QD (5/14) reports the National Institute of Neurological Disorders and Stroke (NINDS) awarded a five-year \$2 million grant to researchers at the Cleveland Clinic to study “a novel stroke therapy that uses tissue plasminogen activator (tPA) conjugated to nanoparticles.” The researchers “will assess the ability of a novel dual-action agent combining tPA with antioxidant-loaded nanoparticles to dissolve blood clots and protect the brain from reperfusion injury following stroke.”

HEALTH & MEDICAL NEWS

White House Officials Signal Support For COVID-19 Relief For States Despite Opposition From Some GOP Groups.

The Washington Post (5/14, Costa, Stein, Kim, 14.2M) reports officials in the White House "have privately signaled that they are willing to provide tens of billions of dollars in relief to states as part of a bipartisan deal...despite President Trump's reluctance and strong opposition from conservative groups." The Post says while "that position is likely to anger some Republicans who have warned that Democrats want 'blue state bailouts,' many White House officials now believe that providing new funding to states...will be necessary if they want to secure their own priorities, such as tax breaks and liability protections for businesses."

CNBC (5/14, Pramuk, 3.62M) reports Senate Minority Leader Chuck Schumer (D-NY) indicated on Thursday that he is "hopeful Congress can strike a deal on more coronavirus relief, as Republicans spike a \$3 trillion rescue package House Democrats plan to pass Friday." Schumer "told CNBC that he believes a worsening crisis will force Republicans to consider more spending to try to rescue the economy," and "pointed to Wednesday comments from Federal Reserve Chairman Jerome Powell, who said 'additional fiscal support could be costly, but worth it if it helps avoid long-term economic damage and leaves us with a stronger recovery.'"

In contrast, the AP (5/14, Fram) reports Senate Majority Leader Mitch McConnell on Thursday "branded House Democrats' \$3 trillion economic relief bill a 'totally unserious effort' to address the coronavirus pandemic, underscoring the deep election-year gulch over what Congress' next response to the crisis should be." McConnell "said Democrats had produced a 'seasonal catalog of left-wing oddities and called it a coronavirus relief bill.'" According to the AP, "Provisions he singled out for criticism included a rollback of GOP-passed tax increases on residents of states with high taxes, language making it easier for people to vote by mail and what he called 'the cherry on top' – provisions helping legal marijuana businesses."

As COVID-19 Pandemic Persists, GOP Calls For "Pause" On More Aid.

The AP (5/14, Taylor) reports companies "are going belly up, tens of millions have been laid off and, by some measures, the U.S. seems headed for another Great Depression," however, "Republicans surveying the wreckage aren't ready for another round of coronavirus aid, instead urging a 'pause.'" This is "a position based on a confluence of factors." Surveys indicate "GOP voters think the government is already doing enough."

Republicans on Capitol Hill are divided over the best approach. Billions approved by Congress have yet to be spent." In addition, it remains to be seen what the President will "do next, if anything, to juice the economy – his payroll tax cut idea hasn't gained any traction on Capitol Hill." As a result, "GOP leaders see an unfolding crisis that does not yet cry out for further action."

About 75% Of US Small Businesses Seek Federal Assistance Amid COVID-19 Pandemic, Survey Shows.

The Wall Street Journal (5/14, Omeokwe, Subscription Publication, 7.57M) reports a new Census Bureau survey found 75 percent of US small businesses have sought federal assistance to stay afloat during the COVID-19 pandemic. Data show 75 percent of respondents sought Paycheck Protection Program loans, and almost 30 percent said they sought SBA disaster loans.

Prospects For Second Round Of Stimulus Checks Seem "Uncertain."

The Washington Post (5/14, Werner, 14.2M) reports almost "130 million Americans have received direct payments of up to \$1,200 from the U.S. Treasury, a centerpiece of the federal response to the coronavirus pandemic," however, "prospects are uncertain for another round of these stimulus checks." The article says, "President Trump has left the door open to the idea," but the GOP has "declared the House Democratic bill dead on arrival, and some have voiced skepticism about the need for any more individual payments."

Sanders Wants Senate To "Improve" House Dems' \$3T COVID-19 Relief Package.

The Hill (5/14, Jagoda, 2.98M) reports on Thursday, Sen. Bernie Sanders (I-VT) "said that the Senate should 'improve' House Democrats' \$3 trillion coronavirus relief package so that it better addresses families' health care and economic needs." These "comments from Sanders, a prominent progressive lawmaker and former Democratic presidential candidate, come one day before the House plans to vote on the bill, despite a push from the leaders of the Congressional Progressive Caucus to delay the vote."

Bipartisan Group Of Lawmakers Proposes Compensation Fund For Essential Workers Impacted By COVID-19.

USA Today (5/14, Cummings, 10.31M) reports that on Thursday, a group of lawmakers from both parties announced they intend "to introduce a bill that would create a compensation fund for essential workers and their family members who have been struck by the coronavirus." Reps. Carolyn Maloney (D-NY), Jerry Nadler, (D-NY), and Peter King (R-NY), as well as Sen. Tammy Duckworth (D-IL) unveiled "the Pandemic Heroes

Compensation Act during a digital news conference. They were joined by union representatives from the Uniformed Fire Officers Association, Uniformed Firefighters Association, National Rural Letter Carriers Association, and SMART, the International Association of Sheet Metal, Air, Rail and Transportation Workers.”

Pelosi Pushing For Vote On \$3T COVID-19 Relief Bill Despite Objections From Some Dems.

Politico (5/14, Ferris, Caygle, 4.29M) reports House Speaker Nancy Pelosi “is projecting confidence that the House will pass Democrats’ massive coronavirus relief bill Friday, even as she and her leadership team are still working to secure the votes.” Liberals and centrists in Pelosi’s party “are grumbling about the roughly \$3 trillion measure.” Meanwhile, “House Republicans have overwhelmingly said they oppose the bill, and some Democrats are unable to travel to the Capitol to vote amid the pandemic, leaving Pelosi and her whip operation with tight margins to clear the bill.”

CNN (5/14, Foran, Raju, Byrd, 83.16M) reports that this “pushback underscores how House Democratic leaders are being attacked on all sides over the legislation – by congressional Republicans, who have dismissed the legislation as an liberal wish list, as well as within their own ranks by both progressives and moderates.”

New York Will No Longer Force Nursing Homes To Accept Recovering COVID-19 Patients.

The Wall Street Journal (5/14, Mathews, Subscription Publication, 7.57M) reports New York changed its policy of forcing nursing homes to accept patients recovering from COVID-19 so that now patients must test negative for the virus first.

Debate Over Reopening US “Increasingly Partisan And Bitter.”

The New York Times (5/14, Nolan, Bosman, Robertson, 18.61M) reports that for Wisconsin, Michigan, and Pennsylvania, three states “with Democratic governors and Republican legislatures, ending stay-at-home orders mixes health guidance and partisan politics.” The coronavirus response in those states “is becoming a confused and agitated blend of health guidance, protest and partisan politics – leaving residents to fend for themselves.” The governors, “backed by public health experts, have urged caution before reopening,” while Republican legislatures “in the states have pushed in the opposite direction, citing economic necessity and personal freedom.”

The Los Angeles Times (5/14, Etehad, 4.64M) reports the “mounting pressure comes as the number of jobless Americans continues to grow across the nation,” even as the COVID-19 death toll climbs. Meanwhile, governors in other

states including Ohio, Rhode Island, and Minnesota have “announced plans to loosen restrictions in the coming days and weeks.”

Newsom Says COVID-19 Forcing Sharp State Budget Cuts.

The Los Angeles Times (5/14, Myers, 4.64M) reports California Gov. Gavin Newsom (D) “asked state lawmakers Thursday to sharply curtail spending on public schools and an array of government services while directly appealing to President Trump and Congress for help to prevent billions of dollars in additional spending cuts.” Newsom said, “The federal government has a moral and ethical and economic obligation to help support the states. ... After all, what is the point of government, if not to protect people, our safety and the wellbeing of citizens?” Without this help, Newsom “said state officials have few options in the face of a projected \$54.3-billion deficit through early next summer.”

The New York Times (5/14, 18.61M) reports the state budget “slashes spending by nine percent overall from the initial proposal the governor made in January.” Newsom wrote to legislators, “Our state is in an unprecedented emergency, facing massive job losses and shortfalls in record time. ... This budget reflects that emergency.” The Times says that “to cushion the blow of a projected 22 percent decline in revenue, the governor proposed drawing down the state’s so-called rainy day reserves of \$16 billion over the next three years.” The proposed \$203.3 billion budget, “if approved by the Legislature, would bring spending back to around 2018 levels. But it would still be well above the levels seen during the Great Recession a decade ago.”

Los Angeles County Mandates Face Coverings Whenever Outside.

The Los Angeles Times (5/14, Money, Fry, Sharp, McGreevy, 4.64M) reports Los Angeles County Public Health Director Barbara Ferrer announced Thursday that all residents must cover their faces when outside at all times. Ferrer said, “Masks are, in fact, mandatory across the entire county when you’re outside of your home, not with members of your household and in any kind of contact with other people.” Even when on “a solitary walk or run, Ferrer said ‘you now need to have a face covering with you, because if you came by other people, you were walking by other people, you tried to go into a grocery store, you absolutely have to have that face covering on.’”

Following Arrest, California Gym Owner Again “Defies” Lockdown Order.

The AP (5/14, Watson) reports from Oceanside, California that around a dozen weightlifters “wearing face coverings did sets Thursday in front of mirrors at a Southern California gym that was reopened by the owner despite his arrest last weekend for violating local coronavirus health orders that closed gyms.” Owner Lou Uridel has “vowed to keep the doors open at Metroflex Gym in the

coastal city of Oceanside, north of San Diego,” but “warned his customers they might be handcuffed and hauled off like he was on Sunday.” Uridel may be the first “business owner arrested in California for violating health orders by reopening, although a growing number are doing that.” Authorities wary of a “public backlash have preferred to use warnings to get local businesses to comply.” Forcing one to “shut its doors and citing the owner is rare, and arrests are considered a last resort.”

Cities, Counties In Texas Take Disparate Approaches To Enforcing Pandemic Restrictions.

ProPublica (5/14, Beauvais, 60K) reports, “As Texas now reopens at” Gov. Greg Abbott’s (R) direction, “under a much looser set of restrictions, a ProPublica-Texas Tribune analysis of complaint data in a dozen cities shows...disparate approaches to enforcement – particularly among businesses – were incredibly common across the state.” Cities and counties “arrived at dramatically different interpretations of Abbott’s emergency orders.” Austin “has issued just two citations, while others like Laredo and Dallas have written hundreds of tickets, in addition to arresting a handful of business owners who defied orders to close.”

Texas Firefighters, Paramedics Tapped For Nursing Home Coronavirus Testing. The *Houston Chronicle* (5/14, Foxhall, 730K) reports firefighters and paramedics “across Texas have been tapped to help with coronavirus testing in nursing homes, as state and local officials work through how to meet Gov. Greg Abbott’s directive to test more than 200,000 residents and staff.” Fire departments statewide are “being asked to help with facility inspections and on-site testing, as part of a multi-agency effort, according to a Texas Department of State Health Services email shared with Hearst Newspapers, offering detail on the state’s plan.” In letters to fire departments “Wednesday, the state cleared fire personnel to enter the facilities.” Letters to the facilities “said they would be contacted ‘very soon’ by a testing team that could include first responders or the state national guard.” Local officials were “figuring out Thursday exactly how this testing might work, pushing for further clarification from the state about its broad demands.”

Texas Pays \$45 Million For 300,000 Coronavirus Tests. The *Austin (TX) American Statesman* (5/14, Price, Subscription Publication, 343K) reports the state of Texas “is paying \$45 million for 300,000 oral-swab tests – or \$150 per test, according to a purchase order obtained by the American-Statesman through an open records request.” The April 30 purchase agreement “is with San Diego-based Gothams LLC, and includes the processing of tests at the private lab of Curative, Inc., according to Seth Christensen, spokesman for the Texas Department of Emergency Management, which made the purchase.” Christensen “said

at least 75% of the purchase price, which includes the processing of each test, will be eligible for federal reimbursement.” The Curative tests, “designed to be self-administered, won emergency-use approval in April by the U.S. Food and Drug Administration.” In April, officials at the U.S. Centers for Medicare and Medicaid Services “said they would pay \$100 apiece for COVID-19 tests that increase testing capacity and lead to faster results — twice as much as Medicare had announced it would pay in March.”

Michigan Closes State Capitol “As Protesters Gather” Against Stay-At-Home Order.

CNN (5/14, Stracqualursi, 83.16M) reports the Michigan state Capitol “was closed Thursday as demonstrators gathered at the steps of the building to protest Gov. Gretchen Whitmer’s (D) stay-at-home order.” Police spokeswoman Shanon Banner “confirmed to CNN that because neither chamber was in session or holding committee meetings,” the Capitol was closed “per the procedures of the Michigan Capitol Commission.” The protest, organized “by Michigan United for Liberty, drew a crowd of roughly 200 ‘at the high point’ of Thursday’s event, according to Michigan State Police estimates.” Attorney General Dana Nessel warned in a statement that “presence of heavily armed protestors at the Capitol unnecessarily creates a powder keg dynamic that is dangerous to protestors, law enforcement and public servants reporting to work at the Capitol.”

Whitmer Again Criticizes Trump Administration’s Coronavirus Response. The *Detroit Free Press* (5/14, Spangler, 1.52M) reports Michigan Gov. Gretchen Whitmer (D) on Thursday “again criticized the Trump administration’s handling of the coronavirus pandemic, saying it sent the state a shipment of swabs that can’t be used with some kinds of tests for the virus.” Whitmer said, “We’re missing something as simple as a variety of swabs,” adding “that, without them, she can’t move as quickly as she’d like to expand testing in Michigan.” This is the “key to re-engaging sectors of our economy with confidence,” she added. Her remarks came “during an online chat with former Vice President Joe Biden, the presumptive Democratic nominee to face President Donald Trump in the fall election, and Democratic Govs. Ned Lamont of Connecticut and Phil Murphy of New Jersey.”

Attorneys “Threaten Coronavirus Lawsuits” Against Florida Nursing Homes.

The *Orlando (FL) Sentinel* (5/14, Santich, 536K) reports law firm “behemoth” Morgan & Morgan plans to sue “two Florida nursing homes over their alleged mishandling of COVID-19 outbreaks, attorneys for the firm said Thursday.” The firm has been retained “by families whose loved ones died after coronavirus infections at the facilities where they had been patients, including three families at Opis Coquina Center in Ormond

Beach and an undisclosed number at Suwannee Health and Rehabilitation Center in Live Oak, near the Georgia border, the attorneys said." According to attorney Alexander Clem, "These family members are just in the last seven to 10 days learning about what happened to mom and dad... that [their death] was due to COVID-19. The folks that allowed this to happen knowingly – they deserve to be held accountable." However, Kristen Knapp, communications director for the Florida Health Care Association, representing the nursing home industry, said the attorneys were "positioning themselves to profit from this tragic situation."

Despite Missing Goal, Nebraska's Governor Confident In State Testing Program. The AP (5/14, Schulte) reports Nebraska may not make "its goal of conducting 3,000 coronavirus tests per day by the end of May through the state's TestNebraska program, but Gov. Pete Ricketts (R) expressed confidence Thursday that testers will reach" that pace "at some point" if residents continue to sign up. His comments came after "state officials reported that the program produced 2,358 results last week – well short of the 3,000 per day that was expected by the end of the month, when the ramp-up period is supposed to end." Ricketts announced the "\$27 million coronavirus testing contract with Utah-based Nomi Health and three other firms on April 21, along with plans for a five-week ramp-up period to reach the estimated 3,000 tests per day." The state has opened four "mobile testing sites so far in different cities, with plans to open six and a goal that each will see 500 residents daily." However, the program has faced criticism "from some Nebraska state lawmakers and problems have been reported in Iowa and Utah, which have similar contracts."

The Omaha (NE) World-Herald (5/14, Stoddard, 641K) reports Ricketts "said he is watching two key measures: the rate of tests that come back positive for the coronavirus and hospital capacity." Ricketts "said 277 state employees who have been trained to do contact tracing are now helping local health departments." Felicia Quintana-Zinn, a deputy division director "at the Nebraska Department of Health and Human Services, said tracers contact people who have tested positive for the coronavirus to find out who they might have exposed to the virus." In most cases, exposure "occurs if people are less than 6 feet from one another for 10 minutes or more."

Connecticut Governor "Moving Ahead" With May 20 Reopening "Despite Concerns." The AP (5/14, Haigh) reports despite a call on Thursday "by a group of Democratic state senators to delay plans to begin phasing out Connecticut's COVID-19 restrictions next week," Connecticut Gov. Ned Lamont (D) "said his administration is still moving ahead carefully toward the planned May 20 partial reopening

of certain Connecticut businesses." Lamont "noted that hospitalizations are in the third week of a downward progression and the state is on pace to 'blow through' a projected 42,000 tests per week beginning next week, ramping up to more than 100,000 by June."

Democratic Connecticut State Senators "Implore Governor To Delay Reopening." The Hill (5/14, Bowden, 2.98M) reports a group of Democratic "state senators in Connecticut have written to Gov. Ned Lamont (D), urging him to delay his plans to begin reopening the state's economy." In a letter obtained "by the Hartford Courant, the nine lawmakers noted that the state is still experiencing a rate of new coronavirus infections five times higher than it was recording on the day Lamont issued his executive order closing barber shops and hair salons, along with other nonessential businesses." The senators also add, "While Connecticut is moving in the right direction in terms of testing capacity, hospitalizations and deaths, the number of new positive tests, while down from the peak, indicates that community transmission of COVID-19 is still occurring in Connecticut at levels far beyond our ability to track, trace and isolate potential contacts." Connecticut has reported "more than 34,000 cases of coronavirus across the state so far, and just over 3,100 deaths have been recorded."

Just 4,000 Have Been Tested Under Iowa Program. The AP (5/14, Foley) reports only 4,000 people have "gotten results through Iowa's month-old \$26 million coronavirus testing contract, but that will increase rapidly now that the equipment has been validated, Gov. Kim Reynolds said Thursday." Reynolds "said the State Hygienic Lab has determined that the machines purchased for the TestIowa program are 95% accurate in detecting the virus in samples and 99.7% accurate in determining its absence." The validation will allow TestIowa "to soon process 3,000 tests per day as originally envisioned, Reynolds said." She "said it would also allow tests to be processed faster and the state to broaden the criteria of who can qualify for a test." The announcement came "as Iowa reported 12 more deaths from the virus and an uptick in hospitalizations." The state reported that "180 of the 318 deaths to date have been residents of long-term care facilities, where three dozen outbreaks have been confirmed."

South Dakota Announces Plan To Test "All Long-term Care Facility And Assisted Living Residents" Over Next Month. The Sioux Falls (SD) Argus Leader (5/14, Ferguson, 179K) reports South Dakota public health leaders "on Thursday announced a plan to test all of the state's long-term care facility residents and staff and other vulnerable populations for the new coronavirus." The four-week plan, a "collaboration between the state

department of health, local healthcare providers and commercial testing labs, will attempt to test all residents and staff across the state's nursing homes and assisted living centers." The "mass-testing" event will begin with "testing residents in about 46 nursing homes in areas of substantial COVID-19 spread," moving next to the "more than 100 other nursing homes across the state." The remaining two weeks "will focus on assisted living centers." South Dakota Health Secretary Kim Malsam-Rysdon "estimated that more than 7,400 residents and staff in nursing homes would be tested in the first week and more than 10,000 in the second week. In the third and fourth weeks, she expected about 4,300 staff and residents in assisted living centers would be tested each week."

The AP (5/14, Groves) reports the state has "acquired more supplies needed for tests, allowing them to hold mass testing events." Health officials also plan to "conduct random testing among vulnerable people to try to catch infections before they spread." Malsam-Rysdon "said the state is also planning to hold mass testing events in Native American tribal communities, starting with a mass testing event with the Sisseton-Wahpeton Oyate next week."

Hawaii's Governor "Inclined" To Maintain Stay-At-Home Order Until June 30. The AP (5/14) reports Hawaii Gov. David Ige (D) "said Thursday he's inclined to extend his "safer-at-home" order through the end of June to slow the spread of the coronavirus." Ige "said he also plans to maintain the state's requirement that travelers arriving in the state observe 14 days of quarantine." Ige "said he would be examining allowing more businesses to reopen, including hair salons, barber shops and restaurants with dine-in service," and also "said the state would look at guidance from the U.S. Centers for Disease Control and Prevention for information on how to keep employees and customers safe."

Louisiana Senate Approves Legislation To "Shield Businesses From Virus Lawsuits." The AP (5/14, DeSlatte) reports restaurants serving takeout and "delivery orders in Louisiana during the coronavirus outbreak and businesses providing protective gear should be largely shielded from lawsuits for injuries, the state Senate decided Thursday." State senators overwhelmingly supported "the pair of bills from Republican Sens. Sharon Hewitt and Patrick McMath, which are similar to business-backed measures proposed in other states and in Washington amid the pandemic." The state Senate also backed a measure "aimed at shielding government agencies from lawsuits from employees required to work during the coronavirus outbreak, if they follow the guidance for protective measures issued by the state and the U.S. Centers for Disease Control and Prevention."

States Begin Partially Opening As Residents Grow Restless, Less Willing To Shelter In Place. The CBS Evening News (5/14, story 6, 2:00, O'Donnell, 5.25M) reported on growing efforts in a number of states to partially or completely repeal stay-at-home orders due to the coronavirus pandemic. In Michigan, armed protestors marched on the state Capitol building in defiance of the state's order, and the Supreme Court of Wisconsin this week invalidated Gov. Tony Evers' (D) stay-at-home order. Further, some small business owners are protesting the stay-at-home orders as fatally detrimental to their businesses' financial interests.

Bloomberg Business (5/14, Rojanasakul, McCartney, 4.73M) reports most states in the US "have lifted at least some restrictions on the types of businesses that can be open, and distancing in nearly every one is on the decline – particularly on weekends – according to data from Unacast, a location data and analytics firm." The data also suggested that states with more reliable stay-at-home orders and higher adherence rates saw lower spread of coronavirus over the past two months.

Some School Districts Ending Their Distance Learning Efforts. The AP (5/14, Amy) reports on the growing number of school districts across the US that have "pulled the plug on distance learning, all citing familiar reasons." School officials say "it's too stressful, the lack of devices and internet access is too much to overcome, and what students get from it just isn't worth the struggle." In Georgia, for instance, many district leaders say the "final weeks of the school year would have been dedicated anyway to preparing for and taking standardized tests that are now canceled."

Scientists Say Testing Sewage Holds Promise For Monitoring Outbreaks Of Diseases Including Coronavirus. Reuters (5/14, Kelland) reports scientists say testing sewage for pathogens, including coronavirus, could help countries around the world monitor outbreaks of diseases and respond appropriately. Reuters highlights several efforts around the world to use sewage testing as a public health tool to inform officials about how widespread coronavirus is when deciding whether to ease restrictions. In addition, sewage testing could alleviate the burden of doing widespread testing of individuals, which has proven difficult in many parts of the world.

Analysis: Many "Essential" Workers Will See Pay Cuts As Companies Rescind "Hazard Pay" Policies. Bloomberg (5/14, Melin, Steverman, 4.73M) reports many "essential" employees in the US will be facing a

pay cut in the coming weeks as the initial push for “hazard pay” around the pandemic begins to fade. Initially, many employees “received bonuses or pay bumps to compensate for the risk that comes with clocking in at supermarkets, hospitals and other crowded workplaces during a pandemic,” but companies are beginning to end these programs. For example, Kroger “is rescinding the” pay “raise it gave to store and warehouse workers” while Target and Amazon “will follow later this month, with other firms charting similar moves.” The planned cutbacks “have rankled unions, employees and customers who are accusing companies of putting profits ahead of worker well-being.” The decisions “also raise questions about how to value the essential workers who are keeping society functioning,” as many employees “put their health and safety on the line in exchange for relatively low wages.”

COVID-19 Accelerating Decline Of Retail Industry. On its front page, the Wall Street Journal (5/14, A1, Kapner, Nassauer, Subscription Publication, 7.57M) reports the COVID-19 pandemic has accelerated the decline of the retail industry as more people move to online shopping. UBS estimates about 100,000 stores will close in the next five years, over triple the number that closed during the last recession.

Navy Continues To Battle Coronavirus Transmission Aboard Theodore Roosevelt Aircraft Carrier. The New York Times (5/13, Gibbons-Neff, Schmitt, Cooper, 18.61M) reported the Theodore Roosevelt aircraft carrier “continued its monthslong fight against the novel coronavirus, with at least one sailor aboard the ship testing positive, according to crew members.” The sailor “was quickly whisked off the ship, which is docked in Guam as Navy officials make preparation for the vessel to deploy.” However, the episode “underscores the stubborn challenges facing top Navy officials as a second investigation into the service’s handling of the virus – this one by the Defense Department’s inspector general – got underway this week.” Officials “said they had been aggressively screening and testing as crew members return to the Roosevelt after quarantining in Guam over the past month.”

Analysis: Gun Stores In Several States Ignored State-Ordered Closures, Initiated Tens Of Thousands Of Background Checks In April. USA Today (5/14, 10.31M) reports on how gun stores in several US states “have defied orders to close their doors as the coronavirus pandemic drives historic demand for firearms, according to background check data maintained by the Federal Bureau of Investigation and interviews with shop owners.” Currently, five states have ordered gun stores

closed under stay-at-home orders and directives – Massachusetts, Michigan, New Mexico, New York, and Washington. However, FBI data from April show “that dealers in those [states] still initiated tens of thousands of gun background checks.” Washington alone saw 42,000 background checks initiated for gun purchases in April. Additionally, the National Instant Criminal Background Check System processed 2.9 million checks, making it the highest month on record, dating back to 1998.

Inspection Reports For Several Connecticut Nursing Homes Found Lapses In Infection Control, Prevention Around Coronavirus. The Connecticut Mirror (5/14, Thomas, Carlesso) reports inspections at several Connecticut nursing homes “found lapses in infection control and prevention and poor practices for the prolonged use of protective gear necessary during the COVID-19 pandemic, according to a half-dozen reports released Wednesday.” The reports, provided by Connecticut’s Department of Public Health, “are the first detailed accounts of targeted inspections ordered by the federal government on March 20 and later expanded by Gov. Ned Lamont (D) to cover all 213 skilled nursing homes, where the novel coronavirus has infected 6,000 and is attributed to more than 1,600 deaths.” Additionally, none of the reports “detailed inspections at homes with some of the highest numbers of people dying from COVID-19.” Department spokesman Av Harris “said there is a delay in releasing some reports.”

Analysis: Studies Suggesting Coronavirus Can Be Spread Through Loud Talking Show Need For Face Masks In Public. Forbes (5/14, Lee, 9.71M) reports on a new study published in the Proceedings of the National Academy of Sciences which suggests coronavirus could be spread in public through speaking, because the act of speaking can expel fluid droplets that hang in the air for several minutes. A similar study “published in Nature has suggested that on average a fluid droplet from [a] contagious person could contain 7 million viruses per millilitre,” and the research team then estimated “that just one minute of loud speaking could generate at least a thousand virus-containing little droplets that may hang in the air for over eight minutes.” Further, researchers “explained that their study showed how ‘normal speech generates airborne droplets that can remain suspended for tens of minutes or longer and are eminently capable of transmitting disease in confined spaces.’” Therefore, researchers are encouraging face mask adherence in public areas and enclosed spaces to limit the spread of virus-containing droplets.

UT Dallas Researchers Design 3D-Printed Disposable Ventilator Valve. The Dallas Morning News (5/14, Arnold, 946K) reports researchers at the University of Texas at Dallas “have designed a 3D-printed ventilator valve that helps patients breathe.” The ventilator valves “called positive end-expiratory pressure, also known as PEEP,” are disposable “to ensure patients’ lungs some air and do not collapse when exhaling.” The research team “is seeking emergency approval from the U.S. Food and Drug Administration so it can distribute the parts [to] hospitals that need them, the university said in an announcement.” The research team at UT Dallas “is one of several university groups across the country working to increase the supply of ventilators and protective equipment.”

Sen. Warren, Rep. Levin Propose Federal Contact Tracing Program. Sen. Elizabeth Warren (D-MA) and Rep. Andy Levin (D-MI) write for NBC News (5/14, 6.14M) that they are introducing a proposal “for a federal contact tracing program” for the next relief package from Congress. While House Democrats have a proposal that “already includes pieces of it, including \$500 million to hire a diverse group of culturally competent contact tracers,” Congress needs “to stand up our whole plan for a national contact tracing strategy.” Warren and Levin claim the Administration’s “slow and dysfunctional response has been a disaster of epic proportion” and that is why “Congress must step in, and that’s why we have proposed the Coronavirus Containment Corps.”

The Hill (5/14, Budryk, 2.98M) covers the opinion piece from Warren and Levin.

Interview: Antibiotic-Resistant Microbes Equally Important Issue During Pandemic. NPR (5/14, 3.12M) interviewed Boston University professor Muhammad Zaman, author of “Biography of Resistance: The Epic Battle Between People and Pathogens,” on his new book and what exactly antibiotic resistance means for US public health. In the interview, Zaman speaks on the dual-issue of antibiotic resistant microbes and the coronavirus pandemic, noting that “we know from history that the majority of deaths during the great 1918 flu pandemic were from secondary bacterial pneumonia.” Zaman also advocates for a more global, collaborative approach to addressing the issue both during and after the pandemic.

Infectious Disease Experts Warn Of Potential Dual-Season For COVID-19, Influenza During Winter. The San Francisco Chronicle (5/14, Allday, 2.67M) reports the greater Bay Area “blunted the impact of its first brush [with] the coronavirus, but infectious disease experts warn there are more outbreaks to come once the region

eases shelter-in-place restrictions, and one looming event is of particular concern: the flu season.” Currently, no health experts know “what to expect in the fall and winter, when the coronavirus may commingle with seasonal influenza.” However, public health officials are “bracing for a resurgence of cases” for COVID-19 while also dealing with influenza. For example, infectious disease expert David Relman said, “This was a really good practice run for what may be a worse winter,” adding, “We need to be thinking really carefully now about the strategies we can use to address both things at the same time.”

Norwegian Cruise Line Expects Entire Fleet To Resume Full Operations In Approximately Six Months. USA Today (5/14, Hines, 10.31M) reports Norwegian Cruise Line “expects its entire fleet will be able to resume full operations in five to six months.” The company “shared the news in its earning report for the first quarter of 2020, which ended on March 31.” CEO Frank Del Rio “said that Norwegian is planning on carrying out a phased relaunch” and “expects it will take up to six months to resume fleet-wide operations across Norwegian Cruise Line Holdings’ 28 ships, which are spread across its three brands: flagship Norwegian Cruise Line, Oceania Cruises and Regent Seven Seas Cruises.”

Analysis: Anti-Vaccination Advocates Mobilizing To Protest Potential Coronavirus Vaccine. HuffPost (5/14, Robins, 1.67M) reports that as scientists and researchers “urgently work to develop a vaccine against the coronavirus that would save lives and help societies to safely reopen, the anti-vaccine movement has been mobilizing to convince people they shouldn’t take it.” Anti-vaccination protestors – known as “anti-vaxxers” – “have become a prominent presence at [demonstrations] against lockdowns and social distancing, while spreading conspiracies and misinformation to millions on platforms such as Facebook and YouTube.” The article carries an interview with pro-vaccination activist Dr. Peter Hotez, who works to “push back against anti-vax falsehoods and activists.”

DC-Area Metro, Metrobus Riders Required To Wear Face Coverings Effective May 18. The Washington Post (5/14, George, 14.2M) reports that effective May 18, all DC-area Metro and Metrobus riders “will be required to wear masks or face coverings to help prevent the spread of the novel coronavirus, the agency’s chief safety officer said Thursday.” The requirement “follows rules set by leaders in the District and Maryland.” Previously, the agency “had only recommended that riders wear face coverings.” Metro General manager Paul Wiedefeld “said bus and train

operators asked for the requirement, as did customers on recent surveys.”

The Hill (5/14, Budryk, 2.98M) also reports.

Nursing Home Industry, Residents Clash Over Industry’s Handling Of Pandemic. TIME (5/14, 18.47M) reports nursing home residents and staff in the US “have borne a heavy load of the pandemic’s burden,” with deaths in long-term care facilities now making up “at least one third of coronavirus fatalities in most states.” Some residents “are already starting to take legal action, suing nursing homes for neglect, abuse and wrongful death.” In response, the nursing home industry “has launched a broad and successful lobbying effort to secure immunity from potential lawsuits over the way facilities are treating patients during the pandemic, a move consumer advocates say raises long-term questions about the oversight of an industry that has racked up standards violations for years.”

Opinion: Governors Need To Designate Grocery Workers As First Responders. UFCW Local 400 President Mark Federici writes in an opinion piece for the Washington Post (5/14, 14.2M) that governors “must designate grocery, pharmacy and food-processing workers as first responders and limit stores to no more than 10 customers per 10,000 square feet, with a maximum of 50 people in any store at the same time.” The designation “needs to include guaranteed free, universal testing and treatment for every worker,” as well as “masks, gloves and other personal protective equipment,” and “free child care, which enables grocery employees to show up for work when schools are closed.” Federici writes that first-responder designation “is the only way to provide the protection needed by our essential grocery workers and their customers,” and “rather than giving grocery workers lip service by calling them heroes, let’s actually do something to protect their health.”

WPost: COVID-19 Testing In Nursing Homes And Long-Term Care Facilities Is Essential. The Washington Post (5/14, 14.2M) editorializes, “Residents and staff of nursing homes and other long-term care facilities account for roughly half of 1 percent of the U.S. population, and more than a third” of COVID-19 deaths. The Post says that “justifies extreme measures by federal officials and states, but so far both have balked. On a call Monday with governors, Vice President Pence strongly recommended testing at nursing homes nationwide...yet federal officials and most governors have stopped short of mandating such tests.” The Post says such testing is essential, and “in states where tests are in short supply, they should be prioritized for nursing homes and other elderly care facilities.”

One-Fourth Of US Restaurants Will Close Due To Stay-At-Home Orders During Pandemic, OpenTable Forecasts. Bloomberg (5/14, Ludlow, 4.73M) reports 25 percent of US restaurants “will go out of business due to the coronavirus quarantines that have battered the food-service industry, according to a forecast by OpenTable.” The projection “underscores the widespread pain for American restaurants as lockdowns have forced people to cook at home or order takeout rather than eat out.” US restaurants “lost more than \$30 billion in sales during March and \$50 billion in April, according to National Restaurant Association estimates.” However, data from OpenTable show “that there are growing signs that patrons are willing to dine out again in states like Arizona and Texas where it’s allowed, though the numbers are still far below where they were last year.”

Pentagon Examining “Social Distancing Protocols” To Train, Deploy Units Amid Pandemic. USA Today (5/14, Brook, Babich, 10.31M) reports that senior Pentagon officials are exploring “how to train and deploy units for combat while the virus continues to infect and kill.” Officials are balancing “the risk of returning to normal operations” with “losing the skills troops need to operate lethal weaponry safely and to win in combat.” Army Secretary McCarthy told USA Today, “We were in tremendous posture right as COVID hit with our readiness – over half our brigade combat teams in the highest level of readiness. ... If we don’t turn it back on by this summer, we’re going to start to see atrophy with our readiness posture. So we think we’ve got the right capacity to test. We think we have the social distancing protocols in place where we can do this.” The Army “will soon present the plan to Defense Secretary Mark Esper for approval of what would be a major step toward reopening the military.”

Some Colleges Push Viral Testing, Alternative Methods To Allow Fall Semester In-Person. The Washington Post (5/14, Anderson, Svrluga, 14.2M) reports many colleges and universities are “pushing to bring students back to campus in the fall, pledging an all-out effort to overcome the extraordinary challenges of housing and teaching them during a public health crisis.” The University of California at San Diego has already set up a “self-serve” COVID-19 testing station and the “experiment is one of many data-gathering initiatives advocates say are needed to reopen.” But health experts “fear some schools may be moving too fast to reopen,” specifically because of the complications and challenges around enforcing reasonable social distancing protocols on campus.

Columnist: Trump Is “In The Middle Of A Grace Period” With Voters, But That Will Not Last Indefinitely.

Washington Post (5/14, 14.2M) columnist David Byler writes that “President Trump bungled the coronavirus crisis,” so “it would be reasonable to expect Trump’s poll numbers to drop like a rock after this sort of mismanagement.” However, “his approval rating is stable at around 44 percent – roughly where it was before the virus hit.” Byler says that is “because Trump is likely still in the middle of a grace period: Voters aren’t holding him fully accountable for the damage caused by the virus.” Byler asserts “voters might be willing to give a leader leeway in a crisis, but they won’t extend that credit indefinitely.”

Department Of Labor Issues Coronavirus Guidance To Nursing Homes.

Reuters (5/14, Hals) reports “the U.S. Department of Labor issued its first workplace guidance to nursing homes on Thursday since the COVID-19 pandemic swept the country and ravaged care facilities, saying residents, staff and visitors should keep 6 feet (1.83 meters) apart.” The guidance “from the Occupational Safety and Health Administration (OSHA) also said nursing homes should screen residents and staff for symptoms and should find alternatives to group activities.” OSHA “did not recommend testing of residents or workers by nursing homes, which have been hit by the coronavirus since February.”

Trump Signs Executive Order Giving New Authority To US International Development Finance Corporation Amid Pandemic.

U.S. News & World Report (5/14, Smith-Schoenwalder, 2.4M) says President “Trump on Thursday said he signed an executive order to grant new authority to the U.S. International Development Finance Corporation to finance industries vital to the pandemic response.” Trump said, “This federal agency normally invests in economic development projects in other countries. ... I said, ‘How about investing in our country?’” In a statement, “the White House said...the order will help strengthen the supply chain and provide more financing to ‘key industries producing vital goods and services.’”

Columnist: US Should Be “Pitied” For Coronavirus Response.

Washington Post (5/14, 14.2M) columnist Eugene Robinson writes that “only a handful of nations on Earth have arguably done a worse job of handling the coronavirus pandemic than the United States. What has happened to us? How did we become so dysfunctional? When did we become so incompetent?” Robinson says “the phrase ‘American exceptionalism’ has always meant different things to different people – that this nation should be admired, or perhaps that it should be feared.

Not until now, at least in my lifetime, has it suggested that the United States should be pitied.”

Analysis: Trump Using Meetings With Governors At White House To Promote US’ Economic Reopening.

In an analysis, Politico (5/14, Kumar, 4.29M) reports “President Donald Trump hasn’t been able to go out, so he’s welcoming governors in.” The recent “visits are strikingly similar: Trump touts the governors as ‘special’ and ‘great’ and they in turn thank him for the ‘enormous help in our darkest hour of need.’ The president cracks a joke or two about the governor getting a negative coronavirus test sitting down next to him. And then they all pose for the cameras.” Politico says the meetings “have served as Trump’s workaround to his inability to hit the road and hold rallies and promote the economic reopening of America, which he believes will be key to his reelection in November.”

Columnist: “Virus Trutherism” Widespread On The Political Right.

New York Times (5/14, 18.61M) columnist Paul Krugman writes that “virus trutherism – insisting that Covid-19 deaths are greatly exaggerated and may reflect a vast medical conspiracy – is already widespread on the right. We can expect to see much more of it in the months ahead.” The “right long ago rejected evidence-based policy in favor of policy-based evidence – denying facts that might get in the way of a predetermined agenda.” However, Krugman says, “the right’s determination to ignore the epidemiologists is politically reckless in a way previous denials of reality weren’t.”

McConnell Walks Back Claim That Obama Administration Left Trump Administration No “Game Plan” For Pandemics.

CNN (5/14, Leblanc, 83.16M) reports “Senate Majority Leader Mitch McConnell conceded Thursday night that he was wrong to claim that the Obama administration had not left behind a plan to deal with a pandemic in the US.” McConnell said during a Fox News interview, “I was wrong. They did leave behind a plan, so I clearly made a mistake in that regard.” McConnell’s “concession comes days after he falsely accused the Obama administration of failing to leave the Trump administration ‘any kind of game plan’ for something like the coronavirus pandemic during a Trump campaign online chat with Lara Trump, the President’s daughter-in-law.”

The Hill (5/14, Carney, 2.98M) reports McConnell said, “As to whether or not the plan was followed and who is the critic and all the rest, I don’t have any observation about that because I don’t know enough about the details of that...to comment on it in any detail.”

Pentagon's DPA Coordinator Reassigned To Navy Position.

Politico (5/14, Seligman, Lippman, 4.29M) reports that Jennifer Santos, "the Pentagon's industrial policy chief who oversees efforts to ramp up production of masks and other equipment" to help fight COVID-19, "was fired from her job this week and will move to a position in the Navy." According to Politico, "Since March, Santos has focused on using the Defense Production Act [DPA] to partner with industry to bolster the nation's supply of critical medical equipment such as ventilators, personal protective gear and testing materials needed to counter the coronavirus pandemic." Politico says Scott Baum, "who is DoD's principal director of industrial policy, will take over Santos' position on an acting basis."

Trump's Press Secretary Flashes Pandemic Playbook To Reporters; Calls Obama Administration's Plan "Insufficient."

The New York Post (5/14, Bowden, 4.57M) reports "President Trump says his administration did have a plan to deal with the coronavirus pandemic – and his press secretary on Thursday flashed a previously unknown playbook called the 'Pandemic Crisis Action Plan' to prove it." The press secretary "held up the binder for reporters before the president and his staff decamped to Allentown, Pennsylvania." Furthermore, press secretary Kayleigh McEnany "held up a copy of the plan the Obama administration left for the incoming Trump team – the 'Playbook for early response to high consequence emerging infectious disease threats and biological incidents' – describing it as 'insufficient.'"

Number Of COVID-19 Cases In Michigan Nears 50,000.

The Detroit News (5/14, Mauger, 825K) reports "the number of confirmed COVID-19 cases in Michigan jumped by 1,191 Thursday to 49,582 as the state reported 'backlogged' lab results and increased testing at correctional facilities." But, Michigan's "new tracking shows that the tally of cases in 26 Michigan counties has been flat in the last seven days. Four of the 26 counties continue to have zero cases." The 1,191 "cases reported Thursday was the highest daily increase statewide since April 24."

Woman Sues Portland Nursing Home After Her Mother Died Of Coronavirus At The Facility.

The AP (5/14) reports "the daughter of a woman who died after contracting the coronavirus at a Portland long-term care facility filed a \$1.8 million lawsuit Thursday claiming elder abuse." The plaintiff, Angela Brown, "says her 75-year-old mother, Judith Jones, contracted coronavirus and died because of Healthcare at Foster Creek's negligence, The Oregonian/OregonLive reported." In her "complaint, Brown

listed problems state investigators found at the nursing home, now connected to 29 deaths and 119 cases of COVID-19."

New York Governor And New York City Mayor Cannot Agree On Number Of Coronavirus Deaths In The City.

POLITICO New York (5/14, Durkin) reports "New York City hit a grim milestone this week, recording more than 20,000 coronavirus deaths throughout the five boroughs. Or did it?" According to New York "Gov. Andrew Cuomo's (D) office, the city is still weeks away from that mark, with thousands fewer deaths in its tally – and public health experts say the state's lag is a problem." The constant "feud and routine miscommunication between Cuomo and Mayor Bill de Blasio is among the few things in New York that has not been slowed by the pandemic." However, "the fact that the two can't even agree on how many people have died illustrates the dysfunction between the city and state, even as they try to coordinate a cautious reopening of New York's economy."

Study Suggests Pediatric Multi-System Inflammatory Syndrome Is Tied To Coronavirus, As Cases Rise In New York.

Bloomberg (5/13, Gale, 4.73M) reported that "the coronavirus may have triggered a 30-fold jump in cases of a serious but rare pediatric inflammatory disease, according to an Italian study that provides an ominous warning to other pandemic-affected nations about the risk to children." An "analysis from Bergamo, the epicenter of the Italian Covid-19 outbreak, found 10 cases of a Kawasaki disease-like illness in children, adding to reports of about 90 similar cases from New York and England." Although "children remain at lower risk than older adults of developing severe complications after being infected with the Covid-19-causing SARS-CoV-2 virus, the research published Thursday in the Lancet medical journal shows that their risk isn't zero."

The Wall Street Journal (5/14, King, Subscription Publication, 7.57M) reports officials in New York have now identified 110 cases of pediatric multi-system inflammatory syndrome in young adults and children. The syndrome has killed three young people, and it is potentially tied to COVID-19.

Fishing Boat Crews Reportedly Could Cause Coronavirus Outbreak In Cordova, Alaska.

The New York Times (5/14, Baker, 18.61M) reports that "the people of Cordova, Alaska, had weathered the coronavirus pandemic with no cases and the comfort of isolation – a coastal town unreachable by road in a state with some of the fewest infections per capita in the country." However, "that seclusion has come to an abrupt end. Over the past two weeks, fishing boat crews from Seattle and elsewhere have

started arriving by the hundreds, positioning for the start of Alaska's summer seafood rush." The town's "conditions are ideal for propagation of the coronavirus: Most of the imported crews work in the close quarters of fishing boats or sleep in crowded bunkhouses next to processing facilities."

Hospital Leaders Approve Of Minnesota Governor's Decision To Let Stay-At-Home Order Expire. The Minneapolis Star Tribune (5/14, Olson, 1.04M) reports "hospital leaders endorsed Gov. Tim Walz's (DFL) decision to end the statewide stay-at-home order on Monday, but urged Minnesotans to remain vigilant to reduce the spread of" COVID-19 "that could still overwhelm them and leave them unable to care for some patients at the peak of the pandemic." The state "appears to have a razor-thin margin of critical hospital supplies – including critical care beds and ventilators – to weather the surge of COVID-19 infections that is expected this summer, according to new state modeling results." However, "if reality proves worse than predicted, hospital officials said the governor will need to be quick about reinstating restrictions that reduce face-to-face contact and the spread of the virus."

Pennsylvania Governor To Announce More Counties That Can Lift Some Pandemic Restrictions On Friday. The AP (5/14, Lewy) reports Pennsylvania "Gov. Tom Wolf (D) will announce Friday that more counties can see some of his tightest pandemic restrictions lifted, as counties and lawmakers kept up pressure on him to ease up on his orders." During a "news conference Thursday with reporters, Wolf said he will make his decision on Friday morning." But, "he has not changed his criteria for deciding which counties can emerge from his stay-at-home order and his order for non-life-sustaining businesses to close, he said."

Most Maryland Residents Will Remain Under Stay-At-Home Orders As State Starts Reopening Friday. The Washington Times (5/14, Kaplan, 492K) reports "at least half of Maryland residents will still be under stay-at-home orders Friday, when the state begins to reopen its economy after having shut down for nearly two months to stop the spread of the coronavirus." Some of Maryland's "most populous jurisdictions – Montgomery, Prince George's, Howard and Calvert counties, and the city of Baltimore – will extend their stay-at-home orders due to high concentrations of COVID-19 cases." Maryland "Gov. Larry Hogan (R) announced this week that phase one of his 'Maryland Strong Roadmap to Recovery' plan will begin at 5 p.m. Friday."

WSJournal Urges Wisconsin Governor To Create Less Restrictive Stay-At-Home Order With Legislature. In an editorial, the Wall Street Journal (5/14, Subscription Publication, 7.57M) urges Wisconsin Gov. Tony Evers (D) to work with the state Legislature to draft a less restrictive stay-at-home order.

Oxford Vaccine Study Shows Promise In Monkeys. NBC Nightly News (5/14, story 9, 0:40, Holt, Torres, 7.88M) reported, "Oxford University just released results from a study involving six monkeys," which "found after four weeks a vaccine-produced antibodies to COVID-19 in all of the monkeys, and prevented them from getting pneumonia when they were exposed to the virus." According to NBC, "The control group that didn't get the vaccine got sick, so this is certainly promising." NBC added that the "vaccine is also currently being tested in more than 1,000 people, and the first results are expected in June."

Reuters (5/14, Steenhuisen) reports, "After exposure, the vaccine appeared to prevent damage to the lungs and kept the virus from making copies of itself there, but the virus was still actively replicating in the nose."

Pompeo: U.S. Condemns China-Linked "Cyber Actors" Trying To Steal COVID Research. Reuters (5/14, Pamuk) reports Secretary of State Pompeo said Thursday that the U.S. has "condemned attempts by China-linked 'cyber actors and non-traditional collectors affiliated' to steal US intellectual property and data related to coronavirus research." In a statement, Pompeo said, "The PRC's behavior in cyberspace is an extension of its counterproductive actions throughout the COVID-19 pandemic."

Newsweek (5/14, Stockler, 1.53M) reports Pompeo's remarks "follow an announcement by the FBI on Wednesday that the bureau is investigating 'the targeting and compromise' of organizations conducting research to develop vaccines and other treatments for COVID-19." The efforts were "attributed to China-affiliated actors." The U.S. State Department released a statement Thursday "denouncing attempts to infiltrate systems involved in US COVID-19 research that the FBI has attributed to China."

The Washington Times (5/14, Gertz, 492K) also reports.

Researcher Optimistic About Convalescent Plasma Therapy. On NBC Nightly News (5/14, story 10, 2:30, 7.88M), Lester Holt said there is "encouraging news in a new report on an experimental treatment that appears to have helped some patients recover" from COVID-19. NBC's Cynthia McFadden: "A first look at a promising new report drawn from a nationwide team of more than 5,000 doctors

from over 2,000 hospitals and labs, looking at an experimental therapy called convalescent plasma, transfusing the antibody-rich blood from someone who recovered into a current patient." Michael Joyner, Professor of Anesthesiology at the Mayo Clinic: "We're very encouraged that the treatment is safe. That was really the first hurdle for us." McFadden: "Dr. Joyner says the hard data about the effectiveness of the treatment is yet to come. How soon will they have it?" Joyner: "As fast as we can. Our data mining and analytics team is working on data we have currently."

Plasma Therapy Derived From Recovered COVID-19 Patients Appears Safe, Study Suggests. The Wall Street Journal (5/14, Marcus, Subscription Publication, 7.57M) reports a study analyzing data from thousands of COVID-19 patients, who received blood plasma transfusions from patients that already recovered, suggests the experimental therapy is safe, setting up the potential for future studies and clinical trials.

Expert Says It Will Take "Bulk Of A Year" Before Researchers Can Determine Factors In COVID-19 Immunity. McClatchy (5/14, Wilner, 19K) reports that University of Maryland School of Medicine Institute of Human Virology Co-Founder and Director Robert Gallo was disturbed by a finding buried deep inside a study by researchers from Los Alamos published last month that "the mutation of the coronavirus' outer spikes could help the virus escape the grasp of otherwise neutralizing antibodies and 'make individuals susceptible to a second infection.'" Gallo said that it will likely "take the bulk of a year before" researchers can determine with high confidence whether COVID-19 survivors are naturally protected from a second infection.

Data Show COVID-19 Cases Are Generally Decreasing In 17 States, Rising In Nine Others. CNN (5/14, Yan, Karimi, 83.16M) reports, "First, the good news: In 24 states, the number of new coronavirus cases reported each day is generally going down." In 17 states, the numbers "are holding steady, according to an analysis of data from Johns Hopkins University." And in nine states, "the numbers of new cases are still rising."

Fox News Host Says Bright Testimony Could Be "Potentially Politically Damaging" For Trump. The Hill (5/14, Concha, 2.98M) reports Fox News's "Special Report" anchor Bret Baier "said Thursday that former Biomedical Advanced Research and Development Authority head Rick Bright's testimony about the federal government's response to the coronavirus pandemic could be 'potentially politically damaging' for President Trump." Baier "also

asserted that the public health official was someone who could not be easily discredited." On Thursday, Bright "testified to the House Energy and Commerce health subcommittee that his warnings about medical supply shortages were allegedly 'met with indifference' by his superiors in January before the coronavirus pandemic gripped the country."

Fox News (5/14, Halon, 27.59M) reports Bright's testimony "will have 'lingering implications' for the Trump administration, Special Report" anchor Bret Baier told 'Bill Hemmer Reports.'" Baier said: "I think he laid out a pretty compelling case of where he was in his job and I think that is potentially damaging for the Trump administration, as he is saying they didn't warn people and they weren't prepared, they could have done more as far as training and preparation as far as January and February."

Axios (5/14, Rummler, 521K) also reports.

Opinion: Pay Attention To Whistleblower, Because What Trump Disparages Is Often Truth. In an opinion piece for the Los Angeles Times (5/14, 4.64M), Editorial Writer Scott Martelle writes, "President Trump reverted to form on Thursday when reporters asked him about congressional testimony by Dr. Richard Bright, who says the White House removed him from his position leading the federal Biomedical Advanced Research and Development Authority because he, in essence, stood up to Trump's political machinery in defense of science." Martelle writes, "Trump told reporters: 'To me, he's nothing more than a really disgruntled, unhappy person.'" Martelle argues, "Trump's splenetic reaction is all the encouragement we need to pay close attention to what Bright told Congress, because what the president disparages often is the truth."

CDC Issues Health Advisory For Physicians On Childhood Illness Linked To COVID-19. CNN (5/14, Fox, 83.16M) reports the CDC "issued a health advisory to thousands of doctors across the country Thursday, advising them to be on the lookout for a troubling new syndrome that may be associated with Covid-19 infection." The syndrome, "called multisystem inflammatory syndrome in children (MIS-C), has been seen in children across Europe and in at least 18 states, plus Washington, DC."

The AP (5/14, Tanner) reports the agency's case definition "includes current or recent COVID-19 infection or exposure to the virus, a fever of at least 100.4 for at least 24 hours, severe illness requiring hospitalization, inflammatory markers in blood tests, and evidence of problems affecting at least two organs that could include the heart, kidneys, lungs, skin or other nervous system." The condition "has been reported in at least 110 New York children and in several kids in other states," and "a few children have died."

Among other media outlets providing coverage are: the CBS Evening News (5/14, story 4, 2:00, O'Donnell, 5.25M), NBC Nightly News (5/14, lead story, 2:25, 7.88M), Reuters (5/14, Steenhuisen, Chander), Forbes (5/14, Perez, 9.71M), the San Francisco Chronicle (5/14, Serrano, 2.67M), The Hill (5/14, Moreno, 2.98M), and the New York Post (5/14, Lapin, 4.57M)

Maine Governor Allows Out-Of-State Visitors To Reserve Rooms In Lodges, Inns Starting June 1.

The AP (5/14) reports, "Maine lodge operators and innkeepers can begin accepting reservations starting June 1 for Maine residents and out-of-state residents who comply with the state's 14-day quarantine requirement, officials said Thursday." The change "represents a loosening of restrictions that originally forbade out-of-state residents from reserving a room with an arrival date before July 1." Commissioner Heather Johnson of the Department of Economic and Community Development said, "We will continue to work closely with the tourism industry to make progress as we head into the summer."

North Dakota Has Exceeded 50,000 Coronavirus Tests.

The AP (5/14) reports, "North Dakota has gone over 50,000 in the number of tests for the coronavirus and topped 1,700 for the number of people confirmed to have the disease, health officials said Thursday." Health "officials said 67 people tested positive in the last day, including 57 in Cass County, the state's most populous county that has seen marked COVID-19 increases in the last several days." The report "showed no new statewide deaths, leaving the total at 40, and one new hospitalization, increasing that number to 38. More than 1,000 people have recovered from the disease."

In Rural America, COVID-19 Breakouts At Prisons Risk Overwhelming Hospitals.

Kaiser Health News (5/14, Dawson) reports that "across rural America, prisons and jails sit in places like Toole County," Montana "that have minimal intensive care unit beds and ventilators and few additional medical resources" and "many hospitals there were strained before the pandemic." For Toole County, so far, "the dreaded coronavirus hasn't yet crept into the site of one of the community's largest employers, the Crossroads Correctional Center prison." The center "holds almost 15% of the county's total population with a 712-bed facility for both federal and state inmates."

Governor Baker Says State Public Health Officials Have Expanded COVID-19 Testing Eligibility.

The Boston Globe (5/14, 972K) reports, "Speaking during his daily briefing," Massachusetts Gov.

Charlie "Baker said CVS is opening 10 new drive-up" COVID-19 "testing sites at store locations in Charlton, Worcester, Raynham, Northampton, Bridgewater, Carver, West Springfield, Danvers, Westport and Wellesley." Governor Baker noted that "residents who meet testing criteria can schedule appointments starting Friday at CVS.com." According to Baker, "state public health officials" have "expanded criteria for testing eligibility to symptomatic people and their close contacts."

Bars And Restaurants Remain Closed Under Local Milwaukee County Order.

The Milwaukee Journal Sentinel (5/14, 632K) reports, "Bars and restaurants are still closed, and gatherings of more than nine people are still prohibited, under a local order from 18 municipalities in suburban Milwaukee County and their 10 public health officials." The local "order, which was released shortly before 1 a.m. Thursday, came after the Wisconsin Supreme Court struck down the statewide stay-at-home order." Some "local officials say the order was 'effective immediately,' and will remain in effect until 11:59 p.m. on Thursday, May 21."

Virginia Officials Plan To Stop Counting Antibody Tests As COVID-19 Tests In Reports.

The Washington Post (5/14, Schneider, 14.2M) reports, "Virginia officials said Thursday they will no longer include the results of antibody tests in their daily counts of who has been tested for the novel coronavirus, a practice that had been criticized as exaggerating the state's efforts to control the virus's spread." The state's department of health "said the change does not significantly alter the statistical trends that led Gov. Ralph Northam (D) to move toward easing restrictions for most of the state, beginning Friday." The department has found that "antibody tests had amounted to less than 9 percent of the state's overall screening for the coronavirus" and "removing them from the total slightly increases the percentage of positive tests among the overall number of tests given, to 15 percent from 14 percent."

As Some States Reopen, Other States Continue To Battle Coronavirus.

The AP (5/14, Kunzelman) reports, "From a hospital on the edge of the Navajo Nation to the suburbs of the nation's capital, front-line medical workers in coronavirus hot spots are struggling to keep up with a crushing load of patients while lockdown restrictions are lifting in many other parts of the U.S." Some "Governors are starting to slowly reopen some segments of their local economies, pointing to evidence that the number of COVID-19 deaths and new hospitalizations are peaking or starting to recede in their states." Many "state and local officials see modest signs of progress in the pandemic fight,"

but “coronavirus outbreaks are testing public health networks in pockets of the U.S.”

New York Governor Adds Provision To State’s Budget To Prevent Some Residents From Suing Nursing Homes Amid Pandemic. The Hill (5/14, Bowden, 2.98M) reports, “Aides to New York Gov. Andrew Cuomo (D) added a provision to the state’s newly approved budget that prevents residents from suing nursing homes over some allegations of negligence related to the coronavirus outbreak.” The “provision, which some lawmakers contended they did not know was in the final bill until after it passed, prevents basic legal action against long-term care homes over issues such as staffing shortages or insufficient equipment,” the New York Times reported.

Some Small Physician Practices Are Struggling During Pandemic, Unable To Get Coronavirus Relief. The Washington Post (5/14, Weiner, 14.2M) reports, “Many small doctors’ practices...are struggling to survive as many patients shelter at home and put off consultations for all but the most urgent issues.” And, “although they’re still ministering to patients amid a health crisis,” some have “been unable to get loans under the Paycheck Protection Act, passed as part of the coronavirus relief package in late March.” A survey conducted “by a Richmond-based advocacy group for primary care doctors, called the Larry A. Green Center, found that half the doctors who sought such loans were unsuccessful.”

Pandemic Hits Low-Income Americans Especially Hard, Survey Shows. Bloomberg (5/14, Tanzi, 4.73M) reports, “The economic pain of the coronavirus pandemic is falling especially hard on lower-income Americans, a new Federal Reserve survey showed, with almost 40% of those making less than \$40,000 a year reporting a job loss in March.” The annual report “on the economic wellbeing of U.S. households released Thursday, which mainly focuses on conditions at the end of 2019, was supplemented with a survey conducted in early April as the pandemic caused millions to lose their jobs as businesses shuttered across the nation.” The Fed Chairman Jerome Powell has previously “highlighted the heavy burden being born by Americans with the most meager resources to ride out the lockdown.”

Close To Three Million Americans Applied For Unemployment Last Week. On its front page, the Wall Street Journal (5/14, A1, Chaney, Guilford, Subscription Publication, 7.57M) reports that nearly three million Americans applied for unemployment benefits last week. The

announcement reflects the implications of the coronavirus on the US economy.

The New York Times (5/14, A1, Cohen, Hsu, 18.61M) reports on its front page that “the weekly count of new claims has been declining since late March, but that hopeful flicker barely stands out in an otherwise grim and chaotic economic landscape.” The Times adds that “in places where the fitful reopening has started, workers called back to their jobs often face reduced hours and paychecks as well as a heightened risk of infection.”

According to the Washington Post (5/14, Romm, 14.2M), “The flood of new claims could further inflame tensions between President Trump and public-health officials over how quickly to try to restart parts of the economy, with Trump on Thursday alleging without evidence that some Democrats are trying to slow the process to hurt him politically.” The Post adds that “many Democrats have said the White House is trying to rush states to reopen without an adequate plan to curtail the further spread of the coronavirus.”

Among other news outlets reporting on the story are ABC World News Tonight (5/14, story 4, 2:10, Muir, 7.42M), the CBS Evening News (5/14, story 5, 2:30, O’Donnell, 5.25M), NBC Nightly News (5/14, story 5, 2:40, Holt, 7.88M), Bloomberg (5/14, Dmitrieva, 4.73M) and the AP (5/14, Rugaber).

Coronavirus Pandemic Could Cost Insurance Industry Over \$200 Billion, According To Lloyds Of London. The AP (5/14) reports, “The pandemic will cost the insurance industry over \$200 billion, according to Lloyds of London, who estimated that its own payouts are now on a par with the Sept. 11, 2001 attacks or the combined impact of hurricanes Harvey, Maria and Irma in 2017.” In general, “losses could widen if lockdowns continue into the next quarter, which would push the overall cost to the insurance industry to \$203 billion. Unlike the storms, for example, the pandemic’s impact is global, systemic and long term.” A study by Lloyds also “assumed social distancing and lockdown measures through 2020, as well as the forecasts for the drop in gross domestic product globally.”

Medical Professionals File Lawsuit Against Michigan Governor Over Lockdown Restrictions. The Washington Times (5/14, Varney, 492K) reports, “Medical professionals and a patient in Michigan have filed a lawsuit against Democratic Gov. Gretchen Whitmer as the battles grow between her and those favoring some relaxation of the economic shutdown she has imposed in response to the coronavirus crisis.” The suit also “names Michigan’s Attorney General Dana Nessel and Robert Gordon, the state’s Department of Health and Human

Services director as defendants." Michigan's "population of 9.9 million" has "reported 48,391 confirmed cases of COVID-19, according to the state's Department of Health and Human Services."

Transplant Of Brain Cells To A Patient With Parkinson's Disease Sparks Ethical Questions.

STAT (5/14, Begley, 24K) reports, "A secretive experiment revealed this week, in which neurosurgeons transplanted brain cells into a patient with Parkinson's disease, made medical history." The transplant was "the first time such 'reprogrammed' cells, produced from stem cells that had been created in the lab from the man's own skin cells, had been used to try to treat the degenerative brain disease." However, "it was also a bioethics iceberg, with some issues in plain sight and many more lurking."

Reopening Spurs Divide Among State Governors, Legislatures.

The New York Times (5/14, 18.61M) reports that the Democratic governors in Wisconsin, Michigan and Pennsylvania, "backed by public health experts, have urged caution before reopening," but the states' Republican legislatures "have been pushing in the opposite direction, arguing that the extended restrictions are threatening their personal freedom to go back to work and move around as they wish."

Connecticut Nursing Home Owner Purchases 400K Masks From Makeshift Supplier.

The Wall Street Journal (5/14, Wirz, Hufford, Subscription Publication, 7.57M) reports that nursing homes are struggling to find masks and other important medical supplies. In one instance, a Connecticut nursing home owner purchased 400,000 masks from a Chinese makeshift supplier, without a prior relationship with the supplier.

New Jersey, Delaware Reopen Beaches For Memorial Day With Restrictions.

The Inquirer (PA) (5/14, McDaniel, Rosenberg, Orso, McCarthy, 347K) reports, "New Jersey beaches can reopen in time for Memorial Day – with social distancing measures in place, Gov. Phil Murphy said Thursday." The order "offered one of the first rays of light to a region worried about a shut-in summer due to the coronavirus pandemic, but drew mixed reviews from the local officials who Murphy said will be responsible for limiting beach capacity and ensuring compliance with social distancing." Delaware also "said its beaches would reopen with restrictions before the holiday weekend, though the state police will continue stopping drivers with out-of-state license plates to enforce restrictions on travel into the state."

Forbes (5/14, Perez, 9.71M), Bloomberg (5/14, Young, 4.73M) and the AP (5/14) also report.

Minnesota Malls Begin To Reopen Monday, However, Mall Of America Plans For June 1.

The Minneapolis Star Tribune (5/14, Kumar, 1.04M) reports, "While Gov. Tim Walz has given the green light to Minnesota retailers to reopen as soon as Monday, it will take days or weeks before some of them get back up and running as they call back furloughed employees and establish new safety protocols." Some malls, like the Galleria, will open Monday, while "other shopping malls in the region were in discussions with their owners and tenants this morning to discuss the timing of reopening plans and increased safety measures." One mall, the Mall of America, "is among those that will take its time" as "the megamall" noted on "Thursday that it will reopen for shopping on June 1."

New York Nursing Home Administrators Reportedly Worried About The State's COVID-19 Testing Goal.

The AP (5/14, Peltz, Mustian) reports, "As calls grow nationwide for mandatory coronavirus testing in nursing homes, New York facilities are sounding alarms about the state's ambitious new demand to test roughly 185,000 workers twice a week." Some "administrators worry there won't be enough kits for an estimated 370,000 tests a week on workers at nursing homes and other adult care facilities, nearly double the total of tests done statewide now on people in all walks of life." Homes have also "questioned who will cover an expense estimated around \$100 to \$150 per test, though the state suggested Thursday the homes could send workers to free state testing sites."

During Contact Tracing Efforts, New York City Mayor Leans On Aide That Previously Argued Against Closures.

The New York Times (5/14, Rashbaum, Goodman, Mays, Goldstein, 18.61M) reports, "The head of New York City's public hospitals pushed to keep the city open in early March," and "now Mayor de Blasio has put him in charge of contact tracing, deepening a rift with the Health Department." According to the Times, Dr. Mitchell Katz, who leads the city's public hospitals, wrote in an email in March to the mayor's aides that "there was 'no proof that closures will help stop the spread.'" Now, the mayor is relying on Dr. Katz and Health Department officials to navigate contact tracing.

Trump, EPA Decide Not To Impose Limits On Water Contaminant Linked To Fetal Damage.

The New York Times (5/14, Friedman, 18.61M) reports, "The Trump administration will not impose any limits on perchlorate, a toxic chemical compound that contaminates water and has been linked to fetal and infant brain damage, according to two Environmental Protection Agency staff members familiar with the decision." The decision was made

“by Andrew Wheeler, the administrator of the E.P.A.,” and “appears to defy a court order that required the agency to establish a safe drinking-water standard for the chemical by the end of June.” Perchlorate “– which is used in rocket fuel, among other applications – has been under study for more than a decade, but because contamination is widespread, regulations have been difficult.”

The [Washington Post](#) (5/14, Dennis, Eilperin, 14.2M) reports, “Under President Barack Obama, the EPA had announced in 2011 that it planned to set the first enforceable limits on perchlorate because of its potential health impacts.” However, “both the Defense Department and military manufacturers have long resisted any restrictions on the chemical, which is also used in fireworks, munitions and other ignition devices.”

The [AP](#) (5/14, Knickmeyer) reports “the Environmental Protection Agency proposal to drop any federal regulation of” perchlorate “would translate to lower IQs and other problems for an unknown number of American babies, pediatrician and public health groups say.”

Wyoming To Relax Restrictions On Bars And Restaurants.

[Newsweek](#) (5/14, Roos, 1.53M) reports, “Wyoming, the state that has reported the fewest number of COVID-19 deaths so far, will be reopening its bars, restaurants, gyms and more on Friday with social distancing guidelines in place.” The state’s governor, Mark Gordon, “announced the state’s next phase of reopening during a news conference Wednesday.” Gordon said, “It’s important to remember that, even as we ease restrictions, the virus is not gone.” He added, “It is still here, it is still invisible and it is still capable of wreaking havoc. And it’s going to be with us for some time in Wyoming, just like the rest of the country.”

Democrats Present Legislation Aimed At Protecting Health Data During COVID-19 Pandemic.

[The Hill](#) (5/14, Rodrigo, 2.98M) reports, “Democrats in both chambers introduced legislation Thursday aimed at protecting the privacy and security of health data during the coronavirus pandemic.” The legislation, the Public Health Emergency Privacy Act, “would place strict limits on what and by who data collected for public health purposes can be used, implement data minimization procedures for that info and require opt-in consent for any efforts.” The act “comes as health agencies and tech companies are developing contact tracing and monitoring tools to contain the pandemic.”

White House List Of Coronavirus Testing Labs Not Useful, Nine States Say. [NPR](#) (5/14, Greenfieldboyce, 3.12M) reports nine state health departments, in response to a query from NPR, say that the

list of labs provided by the White House that could potentially test for coronavirus did not actually help their states achieve more testing. Also, “six states said that the lists hadn’t even been seen or reviewed – at least as far as the responding official knew.” In fact, “Alabama is the only state where officials told NPR that the list had been reviewed and that it had resulted in increased testing.”

Testing Project On Tiny Michigan Island Underway.

The [Detroit Free Press](#) (5/14, 1.52M) reports Grosse Ile, Michigan, a tiny island in the Detroit River, is taking part in a COVID-19 testing project, data from which will be used by researchers about “how the virus spread – or didn’t spread – among residents whose only connections to the rest of the state are two bridges, one of which is out of commission until December.”

AMA Warns Physicians Against Using Coronavirus Antibody Tests To Inform Healthcare Decisions.

[Modern Healthcare](#) (5/14, Subscription Publication, 214K) reports “the American Medical Association is warning doctors against using [antibody] tests designed to identify people already exposed to the coronavirus to make healthcare decisions for individual patients.”

Virginia Governor Asks Federal Government To Increase Testing At Two Federal Detention Facilities.

The [Richmond \(VA\) Times-Dispatch](#) (5/14, Times-Dispatch, 277K) reports Virginia “Gov. Ralph Northam on Thursday asked that the federal government perform more screening and testing for COVID-19 at the Farmville and Caroline County detention centers.”

CVS Plans To Open 1,000 Self-Swab Coronavirus Test Locations By Month’s End.

[Forbes](#) (5/14, Japsen, 9.71M) reports “CVS Health is escalating its cross-country effort to expand testing for the Coronavirus strain COVID-19 with plans to open 1,000 locations by the end of the month.”

US Said To Be Making Progress In Coronavirus Testing Numbers.

[Vox](#) (5/14, 2.27M) says that “after an April that some experts described as ‘wasted,’ it looks like America is finally making some real progress on coronavirus testing in May.” Over the last few “weeks, the United States has seen significant improvements not just with the raw number of Covid-19 tests but also with other metrics experts use to gauge the scope of the US’s coronavirus outbreak and its testing capacity.” Specifically, “during the week of May 5, the US averaged nearly 300,000 new coronavirus tests a day, according to the Covid Tracking Project,” nearly double

the approximately “150,000 daily tests performed in early April, although it still falls short of the number of new tests a day experts say is needed to fully control the outbreak.”

Abbott Lab’s ID Now COVID-19 Misses Up To Half Of Cases Found By Another Test, Study Suggests. Modern Healthcare (5/14, Subscription Publication, 214K) reports “a study has found that Abbott Lab’s ID Now COVID-19 test missed as many as half of the cases found to be positive by another test.” Investigators “found that while initially the ID Now COVID-19 assay performed well, as the viral load decreased, the Abbott test produced more false negatives.” The findings were published in Bioxriv.

The Portland (ME) Press Herald (5/14, 244K) also reports.

Bill Gates-Funded Program That Provides At-Home Coronavirus Test Kits Put On Hold Until Federal Approval Is Granted. CBS News (5/13, 3.68M) reports that “Bill Gates is funding a new program to provide at-home coronavirus testing kits to residents in the Seattle area. The initiative aims to help researchers better understand how COVID-19 spreads through communities.” However, “after an initial rollout that Gates said was testing about 300 people a day, the program has been put on ‘pause’ while it awaits federal approval.”

Pandemic Reportedly Reveals Vulnerabilities In American Business Model For Hospitals. The New York Times (5/15, Kliff, 18.61M) reports that “the American health care system for years has provided many hospitals with a clear playbook for turning a profit: Provide surgeries, scans and other well-reimbursed services to privately insured patients, whose plans pay higher prices than public programs like Medicare and Medicaid.” The coronavirus pandemic “has shown the vulnerabilities of this business model, with procedures canceled, tests postponed and millions of newly unemployed Americans expected to lose the health coverage they received at work.” The disruption to medical facilities’ “operations may ultimately leave Americans with less access to medical care, according to financial analysts, health economists and policy experts.”

Biogen Blocks Creative Biolabs From Selling Products That Allegedly Used Antibody From Its Experimental Alzheimer’s Drug. Bloomberg Law (5/14, Decker, Subscription Publication, 4K) reports New York-based Creative Biolabs has agreed to stop selling products that are allegedly “knock-offs of antibodies used in Biogen’s experimental Alzheimer’s drug...according to a court filing.” Creative Biolabs has also agreed “to halt infringing

patents Biogen controls, no longer use Biogen’s trademarks to promote products, and destroy any inventory that did so, under the terms of the consent decree posted with the federal court in Boston.” According to Bloomberg, “Biogen has said it plans to seek U.S. Food and Drug Administration approval for a drug using the antibody aducanumab for treatment of early Alzheimer’s.”

Opinion: New Hampshire Tobacco 21 Policy Will Reduce Chances Of Lifelong Nicotine Addiction, Protect Developing Brains. In the New Hampshire Union Leader (5/15, 109K), Dr. Seth Emont, who manages the Tobacco Cessation Program at Cheshire Medical Center, writes that there are “a number of reasons” that a New Hampshire Tobacco 21 policy is “a good idea.” Emont argues that such a policy “will help reduce the chances of lifelong nicotine addiction.” and help to “protect developing brains.”

GLOBAL HEALTH NEWS

China’s Foreign Ministry Says U.S. Claims Regarding Hacking Of COVID-19 Research Are Slander. Reuters reports China’s foreign ministry has called U.S. claims that hackers linked to the country are “breaking into U.S. COVID-19 research” slanderous. Spokesman Zhao Lijian said “any action online to sabotage efforts against the disease should be condemned.”

Health Groups Ask India To Rescind Gilead’s Patents For COVID-19 Drug Remdesivir. Reuters (5/14, Siddiqui) reports, “Two health advocacy groups have written to the Indian government asking it to rescind patents given to Gilead Sciences for the drug remdesivir so it can be distributed more fairly to coronavirus patients around the world, particularly in poorer nations.” The health groups argue Gilead’s recent licensing and distribution pacts for remdesivir “mean cheaper forms of the drug may not become available in nations seen as non-profitable to the five drugmakers.” K. Gopakumar, senior legal researcher at Third World Network, said, “The licenses divide the global market into two and profitable markets are retained with Gilead and less profitable markets are given to the five generic companies.”

Russia’s ChemRar Testing Favipiravir In Second-, Third-phase Testing As Potential COVID-19 Treatment. Reuters (5/14, Marrow, Stolyarov, Golubkova) reports Russian company ChemRar, which is conducting trials of a potential COVID-19 treatment, “said on Thursday it was testing it on infected patients in what it called second- and third-phase clinical trials based on

World Health Organisation (WHO) criteria." Reuters adds, "The drug, favipiravir, which was first developed in Japan under the name Avigan, secured 150 million roubles (\$2 million) in funding from the Russian Direct Investment Fund."

Chinese Automaker Backed By Buffett Fails To Gain US Approval For Their Masks. Bloomberg (5/14, 4.73M) reports, "China's BYD Co., the carmaker backed by Warren Buffett's Berkshire Hathaway Inc., was denied a U.S. regulatory certification it needs to sell respirator masks to the state of California." The agency, the National Institute for Occupational Safety and Health, did not "approve BYD's masks for a number of factors, according to an emailed statement that doesn't disclose details for confidentiality reasons." BYD was notified "on May 4 that a contractor's assessment of two BYD factories in China found them to be not acceptable."

Total Number Of Coronavirus Cases Globally Approaches 4.4M. The Wall Street Journal (5/14, Hua, Calfas, Subscription Publication, 7.57M) reports the number of coronavirus cases worldwide, according to data compiled by Johns Hopkins University, approached nearly 4.4 million, with nearly 300,000 deaths. Of the total number of cases, close to one third is in the US.

Forbes (5/14, Porterfield, 9.71M) also reports.

European Governments Hoping Antibody Tests Will Help Inform Strategies To Avoid Second Wave Of Infections. Reuters (5/14, Miller) reports many governments in Europe "are scrambling to buy antibody tests to find out how many of their citizens were infected" with coronavirus, "in the hope that will help them craft strategies to avoid a second wave of COVID-19 cases." However, "exactly how – or even if – the information will be of use remains unclear, raising the risk that public funds and government time are being wasted."

European Commission Suspends Delivery Of 10M Chinese Masks Due To Quality Concerns.

The AP (5/14) reports "the European Commission said Thursday it has suspended the delivery of 10 million Chinese masks to member states and Britain after two countries complained about the poor quality of the batches they received."

Dental Practices In France Begin Cautiously Re-Opening. The AP (5/14) reports dental practices in France "are cautiously reopening and accepting appointments after the French government eased restrictions on some businesses, services and public activity."

Italy To Start Testing Campaign Across 2,000 Cities To Understand Extent Of Outbreak.

Reuters (5/14, Amante) reports "Italy will start testing a representative sample of 150,000 people in 2,000 cities next week to understand the extent of its COVID-19 epidemic, the head of the government's scientific committee told parliament on Thursday."

France's Coronavirus Death Toll Surpasses Spain's Again.

Reuters (5/14) reports "France's cumulative coronavirus death toll edged over Spain's again as France reported on Thursday the number of people who died of COVID-19 in the past 24 hours increased by 351 or 1.3% to 27,425."

Wuhan Starts Massive Testing Campaign Of Roughly 11M People.

Reuters (5/14, Goh) reports "residents in Wuhan braved pouring rain in queues of more than an hour to take part in a government-led exercise to test the city's 11 million people for the novel coronavirus, a scale health experts describe as unprecedented."

The New York Times (5/14, Wee, Wang, 18.61M) reports that "the testing drive, which is likely to require the mobilization of thousands of medical and other workers, shows the ruling Communist Party's resolve to prevent a second wave of infections as it tries to restart China's economy." However, "such comprehensive testing poses challenges," and it remains unclear "how Wuhan will procure enough testing kits and process all the samples, and whether such a broad, systematic approach is the best use of resources when the city's infections are low."

Prime Minister Abe Lifts State Of Emergency Through Most Of Japan.

The Wall Street Journal (5/14, Landers, Subscription Publication, 7.57M) reports Japanese Prime Minister Shinzo Abe lifted a state of emergency in most of the country outside of Tokyo and attributed voluntary restrictions for a sharp decrease in the number of new coronavirus infections.

UNICEF Chief Warns Lockdowns Could Cause More Harm Than Actual Virus In Low-, Middle-Income Countries.

The Hill (5/14, Klar, 2.98M) reports "the chief of health at the United Nations International Children's Emergency Fund (UNICEF) is warning that lockdowns meant to mitigate the spread of the coronavirus could cause more harm than the virus itself in 'low- and middle-income countries.'"

The Washington Post (5/14, Sly, 14.2M) also reports.

Russian Government Criticizes Media Reports Claiming Russia's COVID-19 Deaths Are

Underreported. The Hill (5/14, Concha, 2.98M) reports “Russian Foreign Ministry spokeswoman Maria Zakharova is criticizing news outlets for printing ‘disinformation’ after The New York Times and Financial Times reported that the country’s COVID-19 death toll could be considerably higher than what the Kremlin is reporting.”

The AP (5/14) also reports.

Asian Countries, After Stopping Initial Outbreak, See Second Wave Of Cases.

Bloomberg (5/14, 4.73M) reports that “after containing their outbreaks through measures from strict lockdowns to rapid testing regimes...Asian economies that have seen some of the most success quelling the coronavirus – Hong Kong, South Korea and China – are now facing resurgences that underscore how it may be nearly impossible to eradicate it.”

China Attempted To Dissuade New Zealand From Imposing Strict Coronavirus Restrictions.

Newsweek (5/14, 1.53M) reports “China tried to dissuade the New Zealand government from imposing its tough restrictions to mitigate the coronavirus, believing them to be an ‘overreaction,’ New Zealand Minister of Foreign Affairs Winston Peters has said.”

Canada’s Prime Minister Says World Has Changed Even If Pandemic Ends Or Vaccine Is Found.

Reuters (5/14) reports “Canadians should accept the world will change even if a vaccine is found and the coronavirus pandemic ends, Canadian Prime Minister Justin Trudeau said on Thursday, urging people to adjust to a new normal that will require modified behaviour.”

EU’s Foreign Policy Chief Calls For Independent Investigation Into Pandemic’s Origins.

Reuters (5/14) reports “the European Union’s foreign policy chief [Josep Borrell] called on China on Thursday to contribute significantly to the fight against the coronavirus pandemic and said there should be an independent scientific investigation into the origins of the pandemic.”

IOC President Will Not “Fuel Any Speculation” That Tokyo Olympics Might Not Be Held Next Year.

USA Today (5/14, Schad, 10.31M) reports “International Olympic Committee president Thomas Bach said Thursday that he would not ‘fuel any speculation’ that the Tokyo Olympics might not be held in 2021.”

IOC Sets Aside \$800M For Loans Related To Postponing Tokyo Olympics. The AP (5/14) reports “the IOC set aside \$800 million on Thursday for loans and

payments arising from the pandemic that forced the 2020 Tokyo Olympics to be postponed.” It remains “unclear how big the total postponement bill will be with Olympic organizers and public authorities in Japan facing extra costs estimated to run into billions of dollars.”

South Africa To Assign Specific Coronavirus Restrictions For Each Of Its Districts.

Reuters (5/14) reports “South Africa will assign levels of lockdown restrictions for each of the country’s roughly 50 districts, depending on the number of active coronavirus infections there, Health Minister Zweli Mkhize said on Thursday.”

Surge In Number Of People In Yemen Dying With COVID-19 Symptoms.

The Washington Post (5/14, Raghavan, 14.2M) reports “the number of people dying with covid-19 symptoms has dramatically spiked in war-riven Yemen, triggering fears that coronavirus infections are considerably higher than official figures, the Save the Children charity said Thursday.”

Increasing Number Of Physicians In Russia Dying From Pandemic.

The New York Times (5/14, Troianovski, 18.61M) reports an increasing number of physicians in Russia on the front lines of the pandemic are dying, a situation made worse by a general lack of access by healthcare professionals to personal protective gear.

UK Government In Talks With Roche To Buy COVID-19 Antibody Tests.

Reuters (5/14, Faulconbridge, Holton) reports that following its approval by Public Health England, the UK government “is in talks with Swiss drugmaker Roche Holding AG to buy an accurate COVID-19 antibody test, following the lead of the European Union and United States, which had already given preliminary approval to the tests.”

Reuters (5/13, Faulconbridge, Holton) and CNN (5/14, Ramsay, Isaac, 83.16M) provide additional coverage of the original approval.

HHS IN THE NEWS

Trump Administration Reportedly Mulling Indefinite Border Restrictions Amid COVID-19

Outbreak. The Hill (5/14, Wise, 2.98M) says, “The Trump administration is reportedly working to unveil a new order that would indefinitely extend border restrictions amid the coronavirus outbreak, according to a report in The New York Times.” This “move, which is reportedly currently being reviewed by several government agencies, would keep legal points of entry shuttered and restrict nonessential travel through Mexico and Canada until the director of the Centers

for Disease Prevention and Control (CDC) concluded that the coronavirus no longer posed a threat to public health, the Times reported citing officials and a draft of the public health order." Officials from the CDC "would continue to assess the threats posed by the virus every 30 days and the new plan would give Robert Redfield, director of the CDC, authority over when the U.S. borders are safe to reopen."

The Daily Caller (5/14, Hopkins, 716K) and National Review (5/14, Evans, 731K) also cover the story.

Gottlieb Suggests Schools Should Attempt In-Person Education This Fall When Possible.

CNBC (5/14, Stankiewicz, 3.62M) reports former FDA Commissioner Scott Gottlieb on CNBC's "Squawk Box" said that US schools should be willing to attempt in-person education this fall if the coronavirus pandemic "isn't rampant." Gottlieb said, "I do think we're going to have to contend with Covid going into the fall, but it might not be in September," adding, "It might occur later into the fall, and we should at least make an attempt to open the schools if this isn't spreading widely." However, he "stressed that decisions on welcoming students back to classrooms will have to be made locally, depending on the scale of Covid-19 outbreaks in states and communities."

The Hill (5/14, Klar, 2.98M) also reports.

Opinion: Acceptance Of Pandemic's Effect On Our Lives Could Speed Up Needed Adjustments.

Former CDC Director Tom Frieden writes in the Washington Post (5/14, 14.2M) that the concept of the "five stages of grief" simplifies "a complex process" of "core truths: People tend to accept harsh realities gradually and with difficulty." However, "recognition of the pandemic's impact, and widespread embrace of the final stage, acceptance, could speed our collective path to new, post-pandemic normal." While the pandemic "has upended lives around the world" and the world is collectively "acknowledging, and grieving, these losses and the life rituals...disrupted by the pandemic," the sooner "people come to terms with the reality of the pandemic, the quicker we can prepare for lasting changes to the ways we can work, learn, relax, govern ourselves and even treat one another."

Mask Manufacturer Executive Testifies About How Government Allegedly Ignored His Previous Warnings Of Insufficient Mask Production.

CNN (5/14, Kelly, Watts, Gloria, 83.16M) reports "an executive for a US mask producer bemoaned, in heated and emotional testimony Thursday to Congress, how his warnings of insufficient domestic medical mask production had been ignored by the federal government for years until the coronavirus pandemic." While "speaking before the

House Energy and Commerce Committee, Mike Bowen, the vice president of the Texas-based medical supply company Prestige Ameritech, said the US dependence on foreign masks has been a national security issue for years." According to CNN, "Bowen described conversations over the past 13 years in which he had offered manufacturing deals to the" CDC "that included 'mak(ing) sure that the Department of Defense and the Veterans Administration always has masks,' adding that 'I couldn't get anybody interested in it.'"

White House To Require Some Essential Drugs To Be Manufactured In US, Sources Say.

The Hill (5/14, Moreno, 2.98M) reports "the White House is preparing to require that some essential drugs be made in the U.S. as the Trump administration tries to limit dependency on China for medical supplies, sources told CNBC." Earlier in the year, White House trade advisor Peter Navarro "proposed a similar executive order." Navarro's order "would streamline regulatory approvals for 'American-made' drugs and impose similar Food and Drug Administration (FDA) restrictions on U.S. production facilities as those abroad." The order "will also encourage government agencies to only buy American-made medical products." Still, "it is unclear if the executive order the unnamed sources referred to is the same as Navarro's."

Bloomberg (5/14, Stein, Capaccio, 4.73M) also reports on the story.

Gottlieb Says He Sees Signs That The Coronavirus Epidemic Is Slowing In US.

Intelligencer (NY) (5/14, Raymond, 1.1M) reports that "as states across the country begin to reopen their economies, the United States is 'seeing signs of a slowing epidemic,' former FDA commissioner Scott Gottlieb told a House subcommittee Wednesday." The piece says "Gottlieb told lawmakers that even as testing for the coronavirus is becoming more available, the rate of positive tests is going down. 'There are hopeful signs,' he said."

Coronavirus Can Cause Strokes In Young People, Physicians Say.

The New York Times (5/14, Rabin, 18.61M) reports coronavirus infection can cause strokes in young people, something which is very rare. The Times highlights the case of Ravi Sharma, a healthy 27-year-old EMT who had a stroke after becoming infected with coronavirus, and says physicians around the US have reported similar cases.

Senators Ask CDC To Examine Risk Of Strokes In Younger, Middle-Aged Patients With COVID-19.

The Hill (5/14, Budryk, 2.98M) reports "Sens. Amy Klobuchar (D-Minn.) and Marco Rubio (R-Fla.) are asking the Centers for Disease Control and Prevention (CDC) to assess the risk of

strokes in younger and middle-aged coronavirus patients.” The senators wrote to CDC Director Dr. Robert Redfield, “We believe it is critical that the CDC evaluate the prevalence of stroke in COVID-19 patients, including the potential link to stroke from the development of blood clots caused by the virus.”

Online Pharmacy HealthWarehouse Saw Spike In Demand For Hydroxychloroquine In Mid-March. NPR (5/14, Horn, 3.12M) reports that, “in mid-March, when the unproven idea of giving coronavirus patients anti-malarial drugs emerged on social media and on Fox News, the online pharmacy HealthWarehouse said orders for hydroxychloroquine started to spike.” The FDA “has since put out a warning against using it for COVID-19.”

Survivors Of COVID-19 Pandemic In Nursing Homes Remain In Isolation. ABC News (5/15, Mosk, Freger, Romero, Pecorin, 2.97M) reports on “one of the unexpected consequences of COVID-19 in nursing homes: the extended isolation of those who have survived.” The majority, “if not all of the 15,000 nursing facilities around the country have prohibited outside visitors since early March – federal regulators announced measures directing nursing homes to ‘significantly restrict visitors and nonessential personnel’ on March 13.” Still, “even with nursing home residents largely cordoned off, the virus has moved effortlessly through many facilities, most likely carried by staff members who were infected but asymptomatic.” On Thursday, CMS Administrator Seema Verma said in an interview, “We want to make sure that whatever we do, that we are putting the health and safety of the nursing home residents at the top. ... That’s the most important priority. So we’re starting to have those discussions about how we can make sure that nursing homes are safe and that visitors can come back in a safe way.”

Former BARDA Director Says Trump Official Tried To Fast-Track Funding For His Friend’s Unproven COVID-19 “Treatment.” ProPublica (5/14, Song, 60K) reports former Biomedical Advanced Research and Development Authority Director “Rick Bright says that his Trump-appointed boss tried to fast-track funding for a friend’s coronavirus treatment, and that he was reassigned for insisting that funding be reserved for ‘safe and scientifically vetted solutions.’” A copy of his scheduled testimony, released Wednesday, “spoke generally of how officials at the Department of Health and Human Services...dismissed his early warnings to act quickly against the virus.”

Thousands Volunteer To Be Exposed To Novel Coronavirus In Human Classified Trial Led By 1Day Sooner. Fox News (5/14, Hein, 27.59M) reports, “More than 20,000 people have signed up to voluntarily be exposed to the novel coronavirus in a yet-to-be formulated ‘human classified trial,’ which is “being led by a group called 1Day Sooner.” According to Fox News, “Human challenge trials for coronavirus have the support of 35 members of the House of Representatives who wrote to the Food and Drug Administration and the Department of Health and Human Services arguing that they should be allowed.”

Former BARDA Head Tells Congress Coronavirus Vaccine Won’t Be Ready In 12 To 18 Months. CNBC (5/14, Feuer, 3.62M) reports that a coronavirus vaccine “won’t be ready for distribution in 12 to 18 months as White House officials have assured the public, ousted federal vaccine scientist Dr. Rick Bright told Congress Thursday.” Bright told members of the House Energy and Commerce Subcommittee on Health, “A lot of optimism is swirling around a 12-to-18 month timeframe if everything goes perfectly. We’ve never seen everything go perfectly.”

CQ Roll Call (5/14, Kopp, 154K) reports Bright, “who oversaw vaccine development in his BARDA role, warned that the distribution of an eventual vaccine could be delayed by the same supply chain issues that led to mass shortages of personal protective equipment.” Bright said: “If you can imagine a scenario, this fall or this winter or early next spring, when a vaccine becomes available ... there’s no one company that can produce enough for the country or for the world. There are going to be limited supplies.”

Among other media outlets providing coverage are: U.S. News & World Report (5/14, Hagen, 2.4M), The Hill (5/14, Budryk, 2.98M), the Washington Examiner (5/14, Morrison, 448K), and the Financial Times (5/14, Stacey, Subscription Publication, 1.34M).

Former BARDA Director Says Administration Ignored Warnings Of Supply Shortages. The New York Times (5/14, Stolberg, 18.61M) reports the whistleblower “who was ousted as the head of a federal medical research agency charged on Thursday that top Trump administration officials failed to heed his early warnings to stock up on masks and other supplies to combat the coronavirus, and that Americans died as a result.” Dr. Rick Bright, “who was removed in April as the director of the Department of Health and Human Services’s Biomedical Advanced Research and Development Authority, told a House subcommittee: ‘Lives were endangered, and I believe lives were lost.’”

The Hill (5/14, Weixel, 2.98M) reports Bright “told House lawmakers on the Energy and Commerce Health

Subcommittee that he began to get alerts from manufacturers that the supply chain for masks and other personal protective equipment was 'diminishing rapidly' as early as January." He "said he warned his superiors about severe shortages of N95 respirators needed for front-line health care workers."

CBS' 60 Minutes (5/14, Zubrow, 11.55M) and Axios (5/14, Fernandez, 521K) also report.

White House Press Secretary, Senior Trump Adviser Dismiss Ousted HHS Official's Claims.

Fox News (5/14, Nelson, 27.59M) reports White House Press Secretary Kayleigh McEnany on Thursday "reacted to ousted Trump administration scientist Rick Bright's claim that the president was 'dismissive' of a warning about the severity of the coronavirus outbreak." Bright, "the former HHS official who filed a whistleblower complaint claiming he was removed from his post for disagreeing with the Trump administration's response to coronavirus, said Thursday that officials at the Department of Health and Human Services were 'dismissive' of his warning about the contagion and said that if the government doesn't follow his guidance '2020 will be the darkest winter in modern history.'" McEnany told America's Newsroom: "It sounds like Mr. Bright hasn't really been paying that much attention at all."

The Daily Caller (5/14, Davis, 716K) reports Trump adviser Peter Navarro also "tore into Dr. Rick Bright during a Fox News appearance Thursday after Bright testified on Capitol Hill." Navarro said: "I find it highly ironic that you've got Bright up there on Capitol Hill issuing these dire warnings on the very day President Trump is going to the beautiful Lehigh Valley to announce a tougher, smarter, more resilient strategic national stockpile."

Among other media outlets reporting are: Fox News (5/14, Kaplan, 27.59M), the Washington Examiner (5/14, Soellner, 448K), the Washington Examiner (5/14, Colton, 448K), in a separate article, and the Daily Caller (5/14, Caruso, 716K).

HHS Whistleblower's Attorneys Say Watchdog Finds "Substantial Likelihood Of Wrongdoing."

CNBC (5/14, Mangan, 3.62M) reports that a government watchdog "has found a 'substantial likelihood of wrongdoing' in the removal of a vaccine specialist from leading a federal agency handling coronavirus response, his lawyers disclosed Thursday." The preliminary finding "from the Office of the Special Counsel, which is investigating Rick Bright's whistleblower complaint, was disclosed just before Bright began testifying before a House panel."

FDA Authorizes Human Trials For AIM ImmunoTech's Drug To Treat COVID-19 In Patients With Cancer.

The Ocala (FL) Star-Banner

(5/14, Medina, 81K) reports the U.S. FDA "recently authorized human trials for a drug made by a Marion County-based" AIM ImmunoTech's drug Ampligen "to possibly treat COVID-19 patients who have cancer." The trial "will be conducted by Roswell Park Comprehensive Cancer Center in Buffalo, New York."

Opinion: Following Science Is Best Path For Our Leaders To Avoid "Darkest Winter."

In an article for Forbes (5/14, 9.71M), contributor Seth Cohen writes that Dr. Richard Bright, "the former director of the nation's Biomedical Advanced Research and Development Authority painted a perilous picture of the trajectory of the coronavirus pandemic – unless leadership of the country undertakes a much more science-focused approach. Yet what is most unsettling about Bright's testimony before the House Committee on Energy and Commerce is his belief that, absent a course correction by the nation's leaders, America may face it's 'darkest winter in modern history' later this year." Cohen argues, "Following science, not fomenting doubt and fear, is the best path for our leaders to follow if we are to avoid, in Dr. Bright's words, our nation's darkest winter. Here's hoping they see the light before its too late."

CDC Issues Six Brief Checklists To Guide Businesses, Schools, Others On Reopening.

The Washington Post (5/14, A1, Bernstein, Wan, Dawsey, Weiner, 14.2M) reports, "With hundreds of millions of people still seeking advice on resuming their lives safely, the Centers for Disease Control and Prevention issued a scant six pages of recommendations Thursday to guide schools, businesses, day-care facilities and others into the next phase of the coronavirus pandemic." The six "checklists – which also address restaurants, mass transit and camps – come days, and in some cases weeks, after many states have begun to lift restrictions on their own." The advice "is less detailed than draft recommendations the agency sent to the White House for review last month."

The AP (5/14, Stobbe, Dearen) reports the CDC "posted six one-page 'decision tool' documents that use traffic signs and other graphics to tell organizations what they should consider before reopening." The agency "drafted the reopening guidance more than a month ago and it was initially shelved by the administration, the AP reported last week." The CDC "also had prepared even more extensive guidance – about 57 pages of it – that has not been posted."

CBS News (5/15, 3.68M) reports "the published memo on child care facilities completely removes from the draft guidance a warning to, 'be ready to close if there are increased cases.'" According to CBS, "CDC Director Robert Redfield said that the draft guidance had been 'shared

prematurely' and 'had not been vetted through the interagency review process."

Among other media outlets providing coverage are: the CBS Evening News (5/14, story 3, 0:25, O'Donnell, 5.25M), NBC Nightly News (5/14, story 4, 0:25, Holt, 7.88M), ABC World News Tonight (5/14, story 3, 2:20, Muir, 7.42M), the New York Times (5/15, Bogel-Burroughs, 18.61M), Bloomberg (5/14, Jacobs, Court, Sink, 4.73M), ABC News (5/14, Flaherty, Gittleson, Cathey, 2.97M), Reuters (5/14, Steenhuisen), CNN (5/14, Fox, 83.16M), NPR (5/14, Hagemann, 3.12M), The Hill (5/14, Sullivan, 2.98M), Politico (5/14, Roubein, 4.29M), and Axios (5/14, Rummler, 521K).

Former BARDA Chief Will Start At New Job Next Week, Attorneys Say.

CNN (5/14, Collins, Tapper, 83.16M) reports Dr. Rick Bright, who filed a whistleblower complaint after being removed from his role as the leader of the Biomedical Advanced Research and Development Authority (BARDA), "will start his new job in a role inside the federal government's coronavirus response next week, his attorneys said Thursday." A Department of Health and Human Services source "told CNN that Bright has been offered the job of second-in-command of the Accelerating Covid-19 Therapeutic Interventions and Vaccines partnership." Bright's lawyers "said in a Thursday evening news release that he plans to report to that job next week now that it has been identified."

Texas Paid \$45 Million For COVID-19 Tests. The Austin (TX) American Statesman (5/13, Price, Subscription Publication, 343K) reported, "In a glimpse into the cost of coronavirus testing, the state of Texas is paying \$45 million for 300,000 oral-swab tests – or \$150 per test, according to a purchase order obtained by the American-Statesman through an open records request." The cost "for healthcare providers and laboratories to test patients for COVID-19, according to the Medicare bulletin, was \$35.92 for the tests developed by the U.S. Centers for Disease Control and Prevention and \$51.33 for all other commercial tests." The piece said "officials at the U.S. Centers for Medicare and Medicaid Services" said "that they would pay \$100 for COVID-19 tests that increase testing capacity and lead to faster results" in April.

Healthcare Personnel Continue To Report Elevated COVID-19 Infection Rates.

The Chicago Tribune (5/14, Bowen, 2.65M) reports, "Nationally, the Centers for Disease Control and Prevention reported about 9,000 cases of COVID-19 among health care personnel, a wide designation that includes pharmacists, laboratory workers, security guards and clerical staff." Of this group, "90% were not hospitalized, and 27 people died." However,

these data are likely underestimates, "according to a CDC spokeswoman."

Rural Hospitals Need Access To Telehealth To Battle Coronavirus Pandemic, Experts Say.

Healthcare IT News (5/14, Jercich, 2K) reports that rural hospital leaders said during a webinar Thursday that "COVID-19 has magnified the need for access to telehealth – and that it's a mistake to rely on one-size, fits-all solutions for virtual care." In a report that was made available "by the Bipartisan Policy Center in advance of the webinar noted that the steps taken to make services more accessible amid the coronavirus pandemic could be made permanent in order to improve rural healthcare access." One part of the report highlighted government support, and said, "In March 2020, as coronavirus evolved into a pandemic, Congress voted to temporarily waive telehealth requirements for Medicare providers, allowing the Centers for Medicare and Medicaid Services, or CMS, to reimburse clinicians for telehealth visits with patients at home in an area with a designated emergency."

Trump Announces Plan To "Replenish And Modernize" Strategic National Stockpile.

The Washington Post (5/14, Goldstein, 14.2M) reports "President Trump announced Thursday a plan to reconfigure the government's chronically undersupplied stockpile of emergency gear to help combat the coronavirus pandemic, accelerating manufacturing and broadening the array of supplies it houses." Trump "said his administration is launching what he termed a 'groundbreaking initiative' to 'replenish and modernize' the government's stores of masks, ventilators and other essential pandemic-fighting medical equipment to create a 90-day reserve." While staying "with his 'America first' mantra, Trump and his aides said the manufacturing would be carried out by U.S. companies, diminishing the reliance on foreign factories that have been the stockpile's major sources."

The Wall Street Journal (5/14, Ballhaus, Lew, Subscription Publication, 7.57M) reports that when the novel coronavirus first started to spread within the US, the Strategic National Stockpile only had one to three weeks of the majority of equipment and did not include many supplies that have been critical while battling the current pandemic.

The AP (5/14, Colvin, Superville) reports Trump said while visiting a medical equipment distributor in Pennsylvania, "Wouldn't that be nice? ... My goal is to produce everything America needs for ourselves and then export to the world, including medicines." The President "had complained about supply chains in a television interview that aired before he left Washington for the trip to Owens and Minor Inc. in Allentown."

Reuters (5/14, Alper) reports “the Trump administration is seeking to add 300 million N95 masks, the respiratory protective devices that are key to protecting medical workers fighting the deadly coronavirus, to the U.S. stockpile by the fall, a senior administration official said on Thursday.” While “speaking to reporters during a telephone briefing, the official said the administration hopes ultimately to replenish its strategic national stockpile, which had only 13 million N95s at the beginning of the outbreak, to 1 billion in total.”

CBS News (5/14, Watson, 3.68M) reports Trump “blames the Obama administration for the shortfall” of the stockpile. Trump said, “Under the previous administration the stockpile was depleted and never fully refilled. ... My administration is taking action to modernize the stockpiles during this crisis.”

Politico (5/14, Lim, 4.29M) reports one senior Administration official said, “Of all the items that a Covid patient in a hospital consumed during a length of stay, we only carried 28 percent of those. ... We did not carry a lot of critical care drugs, we did not carry testing supplies. These were never in the Strategic National Stockpile. They will be in the Strategic National Stockpile going forward.” Retooling the stockpile “toward pandemic needs could be an important step if a second wave of infections emerges this fall, as many public health experts predict.”

Among other news outlets reporting on the story are a video in the Washington Post (5/14, 14.2M), Bloomberg (5/14, Parker, Sink, Fabian, 4.73M), CNBC (5/14, Macias, 3.62M), Fox News (5/14, O'Reilly, 27.59M), Fox Business (5/14, Manfredi, 1.73M), the Washington Examiner (5/14, Crilly, 448K), the Washington Times (5/14, Boyer, 492K), Newsweek (5/14, Crisp, 1.53M), CQ Roll Call (5/14, Marquette, 154K), Modern Healthcare (5/14, Brady, Subscription Publication, 214K), and the Daily Caller (5/14, Datoc, 716K).

Former BARDA Chief Warns Trump Administration Still Has No National Plan For Pandemic. The Wall Street Journal (5/14, Armour, Grimaldi, Subscription Publication, 7.57M) reports that Dr. Rick Bright, who was removed as head of the Biomedical Advanced Research and Development Authority (BARDA) and subsequently filed a whistleblower complaint, told a House committee on Thursday that the Trump Administration still has no broad national strategy to address the coronavirus pandemic.

The AP (5/14, Alonso) reports that, “despite White House claims, the U.S. still lacks a comprehensive battle plan against the coronavirus in critical areas including masks, testing, treatments and vaccines,” Bright “told the House Energy and Commerce Committee.” Bright told lawmakers: “There are critical steps that we need to do to prepare ... we

do not still have enough personal protective equipment to manage our health care workers ... we still do not have the supply chains ramped up for the drugs and vaccines, and we still don't have plans in place for how we distribute those drugs and vaccines. We still do not have a comprehensive testing strategy.”

Reuters (5/14, Wolfe) reports Bright “said he was ousted from BARDA because he resisted efforts to push the drugs hydroxychloroquine and the related chloroquine as cures for COVID-19, the respiratory illness caused by the coronavirus.” HHS spokeswoman Caitlin Oakley “has disputed Bright's account, saying in a statement on Tuesday that he was transferred to a job where he was entrusted to spend around \$1 billion to develop diagnostic testing.”

Among other media outlets providing coverage are: the CBS Evening News (5/14, lead story, 3:35, O'Donnell, 5.25M), NBC Nightly News (5/14, story 2, 3:15, Holt, 7.88M), ABC World News Tonight (5/14, lead story, 6:00, Muir, 7.42M), the Washington Post (5/14, Davis, Abutaleb, Sonmez, Wagner, 14.2M), NBC News (5/14, Gregorian, 6.14M), Fox News (5/14, Blitzer, 27.59M), USA Today (5/14, Cummings, 10.31M), the Boston Globe (5/14, Goodwin, 972K), The Hill (5/14, Weixel, 2.98M), Newsweek (5/14, Stockler, 1.53M), Politico (5/14, Oweremohle, 4.29M), HuffPost (5/14, Boboltz, 1.67M), CQ Roll Call (5/14, McKinless, 154K), Vox (5/14, Peters, 2.27M), the Washington Times (5/14, Muñoz, 492K), National Review (5/14, McArdle, 731K), and Modern Healthcare (5/14, Cohrs, Subscription Publication, 214K).

FDA Examining Data Showing Abbott's COVID-19 Test Delivers Inaccurate Results. Bloomberg (5/15, Sutherland, Armstrong, 4.73M) reports an Abbott Laboratories COVID-19 test has “potential accuracy issues, the U.S. Food and Drug Administration warned, citing a number of studies that have raised doubts about the product's ability to quickly diagnose patients.” The FDA issued a “public alert Thursday evening, saying that it had become aware of several scientific studies that had raised questions about the device, a printer-sized machine called ID Now that can take a sample from a nasal swab and diagnose a coronavirus infection.” The agency said “that it was particularly concerned about false-negative results, in which an infected person is told by the test that they don't have the disease.” The FDA “said that the Abbott test, which has been used at the White House, can still be used to diagnose positive results, often within minutes.” But it “warned that a negative result might need to be confirmed with a different test to be certain the person doesn't have the virus.”

Axios (5/14, Rummeler, 521K) reports the tests are widely used, and that the US has “deployed over 235,000 tests to public health laboratories in every state across the

U.S., Assistant Secretary of Health Adm. Brett Giroir said on Monday.”

The AP (5/14, Perrone) reports the FDA “said late Thursday it is investigating preliminary data suggesting Abbott Laboratories’ 15-minute test can miss COVID-19 cases, falsely clearing patients of infection.” The warning came “one day after researchers at New York University reported results suggesting Abbott’s test can miss up to half the infections caught by a rival test made by Cepheid.” The FDA “said in a statement it is reviewing the data with Abbott and working on a letter to health care providers about potential accuracy issues.” The agency “said physicians may need to confirm the results of a negative Abbott test if patients have signs and symptoms of the virus,” and regulators said they are “requiring Abbott to conduct follow-up studies on the test’s accuracy.” FDA Diagnostics Director Dr. Tim Stenzel said, “This test can still be used and can correctly identify many positive cases in minutes.”

NBC News (5/15, Dunn, 6.14M) reports Stenzel said in a statement, “We are still evaluating the information about inaccurate results and are in direct communications with Abbott about this important issue. We will continue to study the data available and are working with the company to create additional mechanisms for studying the test.” The FDA has received “15 adverse event reports about Abbott’s test.”

NPR (5/14, Neel, Hagemann, 3.12M) reports that its investigation found “as many as 15 to 20 out of every 100 tests may produce falsely negative results.” A subsequent study “released this week indicated that the test could be missing as many as 48% of infections.” The followup FDA studies “will include at minimum 150 people who have previously tested positive for coronavirus, and take place in clinical settings, the FDA release said.”

CNBC (5/14, Rodriguez, 3.62M) reports Abbott’s share price “dropped following the FDA alert, and it is down more than 3% in after-hours trading.” Abbott Labs “refuted the NYU study’s claims that its rapid coronavirus diagnostic test could be missing nearly half of positive cases.” In a statement Thursday, Abbott said, “While we understand no test is perfect, test outcomes depend on a number of factors including patient selection, specimen type, collection, handling, storage, transport and conformity to the way the test was designed to be run. ID NOW is intended to be used near the patient with a direct swab test method.”

Forbes (5/15, Japsen, 9.71M) reports because the number of adverse event reports “is so far small when compared to the nearly 1.8 million tests Abbott has shipped in the U.S., the FDA said it is reviewing the reports.” The FDA indicated Abbott’s “ID NOW test is still an important diagnostic tool to detect Covid-19.” For its part, Abbott said the ID NOW test “is helping to reduce the risk of infection in society by detecting more positive results than would otherwise be found.”

Among outlets also reporting are the Financial Times (5/14, Stacey, Subscription Publication, 1.34M) and Reuters (5/15, O’Donnell).

Trump, Azar Slam Former HHS Official Who Filed Whistleblower Complaint As “Disgruntled.”

Fox News (5/14, O’Reilly, 27.59M) reports President Trump on Thursday “defended the use of the anti-malaria drug hydroxychloroquine to treat the novel coronavirus and slammed the demoted government scientist who filed a whistleblower complaint claiming he was removed from his post for disagreeing with the Trump administration’s response to the contagion.” Making his comments “before boarding Air Force One for a trip to Pennsylvania, Trump said that there was a ‘tremendous response’ to hydroxychloroquine and called Rick Bright – the former director of the Biomedical Advanced Research and Development Authority – a ‘disgruntled person.’”

CNBC (5/14, Breuninger, 3.62M) reports Trump tweeted Thursday morning: “I don’t know the so-called Whistleblower Rick Bright, never met him or even heard of him. But to me he is a disgruntled employee, not liked or respected by people I spoke to and who, with his attitude, should no longer be working for our government!”

The Hill (5/14, Chalfant, 2.98M) reports HHS Secretary Alex Azar “is sharply rebuking remarks from ousted federal vaccine official Rick Bright about the coronavirus response, saying his allegations ‘do not hold water.’” Azar stated, “Everything he is complaining about was achieved. Everything he talked about was done.” The article says he “sought to counter comments Bright made the same day before House lawmakers, warning of the ‘darkest winter in modern history’ without a national play to fight the pandemic.”

Among other media outlets providing coverage are: the Washington Post (5/14, 14.2M), with a video of the President’s comments, the Washington Post (5/14, 14.2M), with a video of Azar’s comments, Bloomberg (5/14, Edney, Sink, 4.73M), Fox News (5/14, Halon, 27.59M), Fox News (5/14, 27.59M), with a video of Azar’s comments, Fox News (5/14, Garcia, 27.59M), in a separate article, Axios (5/14, Fernandez, 521K), the Washington Examiner (5/14, Miller, 448K), the Daily Caller (5/14, Kruta, 716K), and STAT (5/14, Florko, 24K).

Ivanka Trump Says She Wears Mask At White House.

USA Today (5/14, Jackson, Subramanian, 10.31M) reports “Ivanka Trump, daughter and senior adviser to President Donald Trump, says she wears a mask at the White House, and that’s one reason the president doesn’t have to.” Ms. Trump said, “There are different procedures as it relates to interacting with the president.” According to USA Today, “The president ‘is tested on a daily basis – all those

who come into contact with him are tested on a daily basis,' she said in an interview. 'No one is in close proximity to him that isn't wearing a mask.'" Ms. Trump added, "I always wear a mask when I am with the president, and everyone is instructed to do so as well."

Newsweek (5/14, Zhao, 1.53M) reports the President "failed to wear a mask during a visit to a Pennsylvania medical equipment distribution center on Thursday. His decision not to wear a mask was particularly noticeable as other government officials that accompanied him during the trip, including Health and Human Services Secretary Alex Azar and Rear Adm. John Polowczyk, were seen wearing masks in photos."

Taiwan Remains Sidelined From WHO's World Health Assembly Amid Pandemic.

The Washington Post (5/15, Aspinwall, Rauhala, 14.2M) reports that "with just 440 covid-19 cases and seven deaths, Taiwan looks to have conquered the coronavirus." However, "one symbol of recognition remains elusive: an invitation for Taiwan to observe next week's World Health Assembly." The Post says that "despite a growing pro-Taiwan coalition backing their inclusion, health officials in this self-ruled democracy remain sidelined from the World Health Organization's decision-making body at the urging of China's government, which claims sovereignty over Taiwan and has sought to sever its international contacts." The piece mentions "an April telephone call between Taiwan health minister Chen Shih-chung and" HHS Secretary Alex Azar.

HHS Awards \$15M For Expanded Use Of Telehealth Amid COVID-19 Pandemic.

mHealth Intelligence (5/14, Wicklund) reports HHS "is dispensing \$15 million in funding to almost 160 healthcare providers across the country to help them expand telehealth services to meet demands caused by the Coronavirus pandemic." The funds, from the CARES Act, are "being issued through the Health Resources and Services Administration (HRSA) and" are "earmarked to 'train students, physicians, nurses, physician assistants, allied health and other high-demand professionals in telehealth' and expand connected health platforms to replace or complement in-person care." HHS Secretary Alex Azar said, "This new funding from Congress will enable more heroic health professionals on the front lines of the COVID-19 pandemic to use telehealth for a broad range of care."

Medical Groups Urge Verma To Provide More COVID-19 Assistance For Medicare ACOs.

Bloomberg Law (5/14, Pugh, Subscription Publication, 4K) reports a coalition of medical groups, including the AMA and the Medical Group Management Association, is "asking the Trump Administration to provide additional pandemic-related

support for" Medicare ACOs. On April 30, CMS issued an interim final rule aimed at helping ACOs during the pandemic, but the coalition of medical groups wrote a letter to CMS Administrator Seema Verma asking for more help for ACOs.

FierceHealthcare (5/14, King, 146K) reports the "groups say accountable care organizations (ACOs) need until Oct. 31 to decide whether to leave the Medicare Shared Savings Program (MSSP) due to the COVID-19 pandemic." At present, "ACOs have until June 1 to decide whether to terminate their contract with MSSP," however, "providers have been worried they could soon see an exodus of ACOs leaving the program to avoid losses, especially if the June 1 deadline holds." The article says "pushing back the timeline will 'give ACOs more time' to understand a series of new rules to mitigate the impact of the COVID-19 pandemic, according to a letter from nine groups sent to the Centers for Medicare & Medicaid Services."

In Reversal, IHS Starting To Hire Traditional Healers.

Kaiser Health News (5/14, Akridge) reports that certain "plants have been used as medicines for generations by the Assiniboine and Gros Ventre tribes who live" on the Fort Peck and Fort Belknap reservations, respectively. Echinacea "is used to help boost the immune system. Valerian produces a strong sedative that can address nervousness, tension and stress. Licorice root acts as an antihistamine, which treats allergy symptoms." The article says the Indian Health Service is "starting to embrace" the use of such traditional treatments. The piece adds, "The Fort Belknap IHS hospital is seeking job applicants for two traditional practitioner positions, offering up to \$68,000 a year." Although IHS "has filled similar positions across the Navajo Nation in the past 15 years, these would be the first IHS positions of their kind in Montana." The article says this "move is surprising because the federal government would essentially be paying for medicine men, or women, to help treat IHS patients, despite punishing and maligning such expertise for generations."

HHS, DoD Award \$138M Contract For Expanded Production Of Prefilled Syringes To Be Used For Future COVID-19 Vaccine.

Homeland Preparedness News (5/14, Kovaleski) reports HHS and the Department of Defense "awarded a \$138 million contract to Apiject Systems America for Project Jumpstart and RAPID USA, two programs designed to expand U.S. production of medical-grade injection devices." This "contract will create a U.S.-based supply chain for prefilled syringes by using Blow-Fill-Seal (BFS) aseptic plastics manufacturing technology, suitable for combatting COVID-19 when a vaccine becomes available. By upgrading existing domestic BFS facilities with installations of filling-line and technical

improvements, the project will enable the manufacture of more than 100 million prefilled syringes for distribution across the United States by year-end 2020.”

NATIONAL FRONT PAGE NEWS

Headlines From Today’s Front Pages.

WALL STREET JOURNAL:

Nearly Three Million Sought Jobless Benefits Last Week
Coronavirus Finishes The Retail Reckoning That Amazon Started

Why Big Investors Aren’t Betting It All On A Coronavirus Cure
New York Sent Recovering Coronavirus Patients To Nursing Homes: “It Was A Fatal Error”

Is That A Rooster On My Customer-Support Call? Yes, Blame Coronavirus.

NEW YORK TIMES:

‘Rolling Shock’ As Job Losses Mount Even With Reopenings
He Saw ‘No Proof’ Closures Would Curb Virus. Now He Has De Blasio’s Trust.

As Coronavirus Overruns Russia, Doctors Are Dying On The Front Lines

India’s ‘Maximum City’ Engulfed By Coronavirus
Changing Subject Amid A Pandemic, Trump Turns To An Old Ploy: Blame Obama

Trump White House Changes Its Story On Michael Flynn
Meat Plant Closures Mean Pigs Are Gassed Or Shot Instead

WASHINGTON POST:

How Flynn Case Became A Trump 2020 Keystone
A Dying Man, A Desperate Search
CDC Offers Scant Guidelines For Reopening Safely
Pandemic Is Latest Blow To Sportswriting Profession
Burr Withdraws As Chairman Amid Stock Sale Investigation
In Poor Nations, Hunger May Be The Bigger Killer

FINANCIAL TIMES:

Macron Summons Sanofi Chief For Claim US Has “Right To” First Covid-19 Jab
Banking: The Great Return To The Office
US Jobless Claims Rise To 36M Since Start Of Lockdowns

WASHINGTON TIMES:

Chinese Deception Fuels Fears Of Ethnic Biological Weapons ‘Experiments’
Trump Blames Biden, Obama For Depleted National Stockpile Of Medical Supplies
From Phishing Scams To Fake Tests: Feds Struggle To Knock Down Coronavirus Fraud
MLB, NBA To Return? Youth Sports Could Be First

Coronavirus Crackdowns Around The World Make US Rules Look Lenient
From Asymptomatic To Lethal: Coronavirus Discrepancies Puzzle Scientists

STORY LINEUP FROM LAST NIGHT’S NETWORK NEWS:

ABC: HHS Whistleblower; Trump-PA Visit; CDC-New Guidelines; Unemployment; FBI-Sen. Burr; Georgia-Ahmaud Arbery Case; Florida-Wildfires; Coronavirus-Transmission; US Army Band Performs Over Video.

CBS: HHS Whistleblower; Trump-PA Visit; CDC-New Guidelines; Pediatric Multi-System Inflammatory Syndrome; Unemployment; Stay-At-Home Fatigue; FBI-Sen. Burr; Coronavirus-Potential Treatment; Georgia-Ahmaud Arbery Case; Coronavirus-USS Theodore Roosevelt; Milwaukee-Twins Graduate 1st & 2nd in Class; Pennsylvania-5-Year-Old Helps Mom Teach Remotely.

NBC: Pediatric Multi-System Inflammatory Syndrome; HHS Whistleblower; Trump-PA Visit; CDC-New Guidelines; Unemployment; Coronavirus-NBC Contributor III; Coronavirus-Airlines; FBI-Sen. Burr; Coronavirus-Vaccine; Coronavirus-Potential Treatment; Georgia-Ahmaud Arbery Case; Florida-Severe Weather; Nightly News Kids Edition.

NETWORK TV AT A GLANCE:

HHS Whistleblower – 12 minutes, 50 seconds
Coronavirus – 8 minutes, 30 seconds
Unemployment – 7 minutes, 20 seconds
FBI-Sen. Burr – 4 minutes, 20 seconds
Georgia-Ahmaud Arbery Case – 4 minutes, 0 seconds
CDC-New Guidelines – 3 minutes, 10 seconds
Trump-PA Visit – 1 minute, 50 seconds

STORY LINEUP FROM THIS MORNING’S RADIO NEWS

BROADCASTS:

ABC: FDA-Abbott Coronavirus Test; Stay-At-Home Fatigue; Reopening Economy; House-Relief Bill; VA Homes-COVID-19 Deaths Investigation.

CBS: HHS Whistleblower; Trump-PA Visit; FBI-Sen. Burr; Unemployment; JC Penny-Bankruptcy, Wall Street.

FOX: House-Relief Bill; CDC-New Guidelines; Sen. Kelly Loeffler-Docs to DOJ.

NPR: HHS Whistleblower; FDA-Abbott Coronavirus Test; Trump-PA Visit; Wall Street.

LAST LAUGHS

Late Night Political Humor.

Trevor Noah: “Do you remember that story about the senator in North Carolina who dumped his stocks after getting a government briefing that coronavirus was gonna wreck America? Well, now the FBI is getting involved. ... That’s

right, like a suspicious spouse, the FBI has decided they want to look through this senator's phone."

Trevor Noah: "And to me, maybe the worst part about this scandal is that Senator Richard Burr was telling everyone, telling everyone in America, that things were going to be okay while he and his family were quietly saving [themselves]. It would be like if Noah built the ark but didn't tell anyone why he was doing it."

Jimmy Kimmel: "Dr. Rick Bright harshly criticized the White House response to COVID-19. ... He warned us the window is closing to address the pandemic. Unless that window is a drive-through window at KFC, there's no way Trump's going to bother."

Jimmy Kimmel: "The President called that decision to reopen Wisconsin a big win and headed to Allentown, Pennsylvania. ... He went to a factory where they manufacture masks, and did the President wear a mask to the factory where they manufacture masks? Of course not. Everyone else did. He did not. But there's a good reason why he won't wear a mask. Wearing a mask is an act of respect, and consideration for others."

Stephen Colbert: "Today, [Dr. Rick] Bright testified before Congress. But even before the hearing began, Trump went on the offensive, tweeting, 'I don't know the so-called whistleblower Rick Bright, never met him or even heard of him, but to me he is a disgruntled employee, not liked or respected by people I spoke to and who, with his attitude, should no longer be working for our government!' That's quite a preamble! (As Trump) 'Before I assassinate this guy's character, let me first say, I have no idea what I'm talking about.'"

Jimmy Fallon: "Today, vaccine expert Dr. Rick Bright said without better planning, 2020 could be the darkest winter in modern history. It's not a good sign when our experts sound like the night's watch on 'Game of Thrones.' Winter is coming."

Seth Meyers: "Former Vice President Joe Biden appeared on Snapchat's daily political show yesterday, although I'm not sure Snapchat is a good way to prove you haven't disappeared."

Seth Meyers: "The FBI has seized the cell phone of Republican Senator Richard Burr as part of an investigation into whether he used information from a coronavirus intelligence briefing to sell stocks. It's also incriminating that right after the meeting, he signed up for Netflix and Hulu."

Seth Meyers: "In a new interview, President Trump claimed that his critics would like to keep the country closed during the coronavirus pandemic to damage him politically. I mean, if

anyone wants to damage you, they don't have to keep the country closed. They just have to keep your mic open."

NATIONAL NEWS

Trump Retweets Post Questioning Claim He Is A Racist. President Trump retweeted a post from a Twitter user named Maggie VandenBerghe, which said, "I was told Trump was RACIST but let me get some EVIDENCE to debate Trump supporters! What happens next? MAGA! @realDonaldTrump" The post includes video of VandenBerghe interviewing an African American man who says he was told Trump is a racist but when he did some research, he found that he likes him. Trump wrote in his tweet, "Thanks. You are very cool!"

Burr Steps Aside As Chair Of Senate Intelligence Committee Amid FBI Probe. The AP (5/14, Tucker) reports that Sen. Richard Burr (R-NC) has "temporarily stepped aside as chairman of the Senate Intelligence Committee" after the FBI "served a search warrant for his cellphone as part of an investigation into a well-timed sale of stocks tied to the coronavirus pandemic." Senate Majority Leader McConnell "announced the move, saying he and Burr had agreed that it was in the committee's best interests." Burr told reporters he thought it was "the right thing to do. ... This is a distraction to the hard work of the committee and the members, and I think that the security of the country is too important to have a distraction."

Pierre Thomas said on ABC World News Tonight (5/14, story 5, 2:00, Muir, 7.42M) that the FBI "wants to know if Burr used intelligence information about the coronavirus for financial gain by selling stocks just before the market cratered." Burr sold "up to \$1.7 million in travel and hotel investments just a day after a closed-door briefing on the impact of the virus."

The New York Times (5/14, Benner, Fandos, 18.61M) says the seizure of Burr's cellphone "and an accompanying search for his electronic storage accounts, confirmed by an investigator briefed on the case, represented a significant escalation of the inquiry by the Justice Department and the Securities and Exchange Commission. They suggest that Mr. Burr, a Republican and one of the most influential members of Congress, may be in serious legal jeopardy." The Times says "the sensitivity surrounding the decision to obtain a search warrant on a sitting senator," indicates "the move was approved at the highest levels of the department, a senior Justice Department official said, meaning that" Attorney General Barr "signed off on it." Pete Williams said on NBC Nightly News (5/14, story 8, 1:00, Holt, 7.88M) that the investigation "is clearly in a new phase." A search warrant "would require a judge's finding that there is probable cause

to think the phone could contain evidence of a crime." The CBS Evening News (5/14, story 7, 1:20, O'Donnell, 5.25M) provided similar coverage.

The Washington Post (5/14, Shepherd, 14.2M) reports that "if McConnell chooses to go by seniority," Sen. James Risch (R-ID) "would be next in line to chair the committee, but he already leads the Senate Foreign Relations Committee." The Post adds that after Risch is Sen. Marco Rubio (R-FL), "a national security hawk who had been widely expected to take over the committee once Burr retires." The Hill (5/14, Bolton, 2.98M) describes Rubio as "a likely successor" to Burr, and says the move would be "a major promotion for a lawmaker who contemplated leaving Congress only a few years ago."

Tillis: "Sen. Burr Does Owe All Of Us An Explanation." WBT-AM Charlotte, NC (5/14, 4K) reports that in an interview with the station, Sen. Thom Tillis (R-NC), who faces a tight reelection race this year, "remarked that Richard Burr owes everyone an explanation." Tillis said, "Sen. Burr does owe all of us an explanation and this is clear evidence that an investigation is underway. We need to see where the investigation leads."

Loeffler Does Not Answer Questions About FBI Investigation. The Atlanta Journal-Constitution (5/14, Mitchell, 895K) reports Loeffler "would not say Thursday whether she has been contacted by the FBI in connection with an investigation into stock trading during the pandemic," while her spokeswoman "told The Atlanta Journal-Constitution that the senator has not been served any search warrants."

Feinstein's Office Says She Was Questioned About Husband's Stock Trades. The San Francisco Chronicle (5/14, 2.67M) reports the office of Sen. Dianne Feinstein (D-CA) said the senator "was questioned by federal law enforcement agents about stock trades her husband made after the coronavirus hit" the US. Feinstein "also provided documents to federal agents to show she was not involved in the transactions by her husband, investment banker Richard Blum, her spokesman, said."

Senate Votes To Extend Parts Of FISA. Reuters (5/14, Zengerle) reports that the Senate voted 80-16 Thursday to approve a 2 1/2-year extension "of parts of the Foreign Intelligence Surveillance Act (FISA)...two months after the divisive provisions allowing government data collection expired." The measure must be approved by the House "before it can be sent to the White House for President Donald Trump to veto or sign into law" after the Senate "amended the measure approved by the Democratic-led House in March to improve legal protections for those subject to surveillance." Politico (5/14, Matishak, 4.29M) says the measure's "chances for swift final approval" in the House "remain cloudy."

WPost Report: Trump "Moving Closer To Reshaping" Postal Service. The Washington Post (5/14, Bogage, Dawsey, 14.2M) reports that "weeks before a Republican donor and top White House ally becomes postmaster general, the U.S. Postal Service has quietly begun a review of its package delivery contracts and lost its second-highest executive, leaving its board of governors without any officials who predate President Trump." According to the Post, "The moves, confirmed by six people with knowledge of the Postal Service's inner workings but not authorized to speak publicly, underscore how Trump is moving closer to reshaping an independent agency he has dubbed 'a joke.'" The Post also reports that the Postal Service "in recent weeks has sought bids from consulting firms to reassess what the agency charges companies such as Amazon, UPS and FedEx to deliver products on their behalf."

Trump Questions Biden's Mental Fitness. Salena Zito writes in the Washington Examiner (5/14, 448K) that in comments to the Examiner before his event in Pennsylvania Thursday, President Trump "took aim at Joe Biden's mental faculties, at one point claiming" the former Vice President "has absolutely no idea what's happening." Reacting to word that Biden had named Rep. Alexandria Ocasio-Cortez (D-NY) "co-chairwoman of a climate change panel," Trump said, "If you asked him who he named, he wouldn't even know it. ... Joe has absolutely no idea what's happening." Zito adds that Trump used several issues "to take jabs at Biden's mental fitness."

Abrams Promoted As Possible Running Mate For Biden. In a 6,000-word Washington Post Magazine (5/14, 14.2M) profile of Stacey Abrams, Kevin Powell writes, "I've witnessed this level of affection for very few political leaders in the Democratic circles I've been in since the 1980s." Powell says Abrams is "on political pundits' shortlists of potential running mates for Joe Biden," and has "a unique space in American politics," though "a relatively thin political résumé." Powell adds that she "is the first black woman in U.S. history to have won the gubernatorial nomination of either major party," and "garnered more votes than any Democrat who has run statewide in Georgia."

Prominent Black Women Offer Suggestions For Biden To Earn Support. LaTosha Brown of Black Voters Matter, author Tiffany Cross, Brittany Packnett Cunningham, Alicia Garza of Black Lives Matter Global Network, television personality Sunny Hostin, podcaster Angela Rye, and comedian Amanda Seales write in the Washington Post (5/14, 14.2M) that Biden's "only path to victory is through black women and the voters we know how to energize." They add, "You owe us, you need us and you must not take our

votes for granted.” They call on Biden to choose “a black woman as vice president.” They also urge him to pledge the necessary resources to win a Democratic majority in the US Senate with the help of “Black voters in Wisconsin, Florida, Michigan, Pennsylvania, North Carolina and Georgia.”

Rasmussen: 23% Of Republicans, 28% Of Democrats Would Prefer Different Nominees.

Rasmussen Reports (5/14, 5K) says on its website, “Republicans overwhelmingly expect President Trump to be their nominee this fall, but nearly one-in-four GOP voters would prefer someone else. The latest Rasmussen Reports national telephone and online survey finds that 23% of Likely Republican Voters think their party should find someone other than Trump to be their presidential nominee. Seventypercent (70%) disagree. Only seven percent (7%) are undecided. ... By comparison, 28% of Likely Democratic Voters say their party should find someone other than Joe Biden to be their 2020 presidential nominee. Fifty-four percent (54%) disagree, while another 18% are not sure.”

Trump Touts His “22-0” Record Of Congressional Endorsements.

President Trump tweeted Thursday morning that he is “22-0” in endorsing congressional candidates this season after races this week in California and Wisconsin. Trump wrote, “22-0 in my endorsements of Congressional Candidates this season. California & Wisconsin won big on Tuesday. Thank you to all of those very brilliant Voters. You will not be disappointed!”

Copyright 2020 by Bulletin Intelligence LLC Reproduction or redistribution without permission prohibited. Content is drawn from thousands of newspapers, national magazines, national and local television programs, radio broadcasts, social-media platforms and additional forms of open-source data. Sources for Bulletin Intelligence audience-size estimates include Scarborough, GfK MRI, comScore, Nielsen, and the Audit Bureau of Circulation. Data from and access to third party social media platforms, including but not limited to Facebook, Twitter, Instagram and others, is subject to the respective platform’s terms of use. Services that include Factiva content are governed by Factiva’s terms of use. Services including embedded Tweets are also subject to Twitter for Website’s information and privacy policies. The NIH News Briefing is published five days a week by Bulletin Intelligence, which creates custom briefings for government and corporate leaders. We can be found on the Web at BulletinIntelligence.com, or called at (703) 483-6100.

From: Lauer, Michael (NIH/OD) [E] [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=90FE9CAE30C64CFBB67ABD568E882796-LAUERM]
Sent: 6/1/2020 2:20:19 PM
To: Brandy, Aesha (NIH/OD) [C] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=52aa9651b97d41e58aff688573e4752f-brandya]
CC: Bundesen, Liza (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=3cded900576a49aea461d26e93bddac3-lbundesee]; Kosub, David (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=3e3eccf57f4e4fcfaecaa7885f39bee5-kosubd]; Lauer, Michael (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=90fe9cae30c64cfbb67abd568e882796-lauer]
Subject: Re: FOIA Request #54496
Attachments: 54496 Request.pdf

Hi Aesha – because of ongoing investigations (OIG and ODNI), we have no responsive documents.

Many thanks, Mike

From: "Brandy, Aesha (NIH/OD) [C]" (b) (6)
Date: Monday, June 1, 2020 at 9:42 AM
To: "Lauer, Michael (NIH/OD) [E]" (b) (6)
Cc: "Bunden, Liza (NIH/OD) [E]" (b) (6), "Kosub, David (NIH/OD) [E]" (b) (6)
Subject: FW: FOIA Request #54496

Hi Dr. Lauer –

Please see the attached NIH FOIA request from BuzzFeed. Would you forward responsive documents, if any, to me by COB Friday, May 5th. Let me know if you have any questions or would like to discuss.

Thanks and have a great day.

Best Regards,
Aesha Brandy, MBA*
Program Analyst
NIH Office of Extramural Research
Immediate Office of the Director

Building 1, Room 150
Bethesda, MD 20814

(b) (6)

(b) (6)

*Contractor

BuzzFeed News

REPORTING TO YOU

May 4, 2020

Peter Aldhous,
Science Reporter,
BuzzFeed News
415 800 3471
peter.aldhous@buzzfeed.com

FOIA Officer
NIH Office of Extramural Research
Building 31 Room 5B35
9000 Rockville Pike
Bethesda, MD 20892
nihfoia@mail.nih.gov

Dear FOIA officer,

This is a request under the Freedom of Information Act, 5 USC 552.

I am a journalist working on behalf of BuzzFeed, reporting on research relevant to the threat to human health from animal coronaviruses, and in particular the NIH's funding in this area to the EcoHealth Alliance, and the recent decision to terminate that grant.

I request the following records:

- Emails, memos, letters, text messages, and directives sent to and from Michael Lauer regarding Project Number: 2R01AI110964-06 "UNDERSTANDING THE RISK OF BAT CORONAVIRUS EMERGENCE" (see https://projectreporter.nih.gov/project_info_details.cfm?aid=9819304&icde=49778456, PI: Peter Daszak of the EcoHealth Alliance) from April 1 2020 through the date the search for responsive records is conducted.

I request these records in electronic format, such as PDF documents.

Reasonably Foreseeable Harm. The FOIA Improvement Act of 2016 amended the FOIA as follows (5 USC 552(a)(8)):

(A) An agency shall—

(i) withhold information under this section only if—

(I) the agency reasonably foresees that disclosure would harm an interest protected by an exemption described in subsection (b); or

(II) disclosure is prohibited by law; and

(ii) (I) consider whether partial disclosure of information is possible whenever the agency determines that a full disclosure of a requested record is not possible; and

(II) take reasonable steps necessary to segregate and release nonexempt information. .

The NIH Office of Extramural Research should not fail to meet the requirements of Section 552(a)(8) when processing my request and release responsive records to me in full or at least in part.

In the event some portions of the requested records are properly exempt from disclosure, please disclose any reasonably segregable non-exempt portions of the requested records. If it is your position that a document contains non-exempt segments, but that those non-exempt segments are so dispersed throughout the document as to make segregation impossible, please state what portion of the document is non-exempt, and how the material is dispersed throughout the document. If a request is denied in whole, please state specifically that it is not reasonable to segregate portions of the record for release.

Fee benefit

As a member of the media, I am entitled to be placed in the "news media, educational, or scientific requesters" category. As such, I should only be charged for duplication fees beyond the first 100 pages. Further, I assert that this request is in the public interest, because it is likely to contribute significantly to public understanding of the operations and activities of the government, and therefore request a fee waiver.

Fee waiver

Please waive any applicable fees. Release of the information is not primarily in my commercial interest and will contribute significantly to public understanding of government operations and activities. 5 U.S.C. § 552(a)(4)(A)(iii). Release of these records will explain to the public the decision to end a research project that experts are calling vital to understanding the current coronavirus pandemic and preventing another one (see <https://www.npr.org/sections/goatsandsoda/2020/04/29/847948272/why-the-u-s-government-stopped-funding-a-research-project-on-bats-and-coronaviru>).

Request for Expedited Processing

Please provide expedited processing of this request which concerns a matter of urgency. As a science reporter, I am primarily engaged in disseminating information. The public has an urgent need for information about the handling and termination of this project because it will bring information about a research effort investigating threats like the novel coronavirus that has killed tens of thousands of US citizens. The government's decision to terminate the project has clear and urgent implications for public health. The project could yield vital information for understanding the origins of the COVID-19 pandemic, and for drug design and testing. Also, if there were genuine concerns that the outbreak may have originated in an accidental release from a lab funded under this project, that is information the public has an urgent need to know.

I certify that my statements concerning the need for expedited processing are true and correct to the best of my knowledge and belief.

As I am making this request as a journalist and this information is of timely value, I would appreciate your communicating with me by telephone or email, rather than by mail, if you have questions regarding this request.

I look forward to your reply within 20 business days, as the statute requires.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Aldhous', with a horizontal flourish at the end.

Peter Aldhous

on behalf of BuzzFeed

From: Lauer, Michael (NIH/OD) [E] [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=90FE9CAE30C64CFBB67ABD568E882796-LAUERM]
Sent: 6/4/2020 11:27:59 AM
To: Jacobs, Anna (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=e76eeb11df9a4024b53864ffac4c4c56-jacobsa]
CC: Lauer, Michael (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=90fe9cae30c64cfbb67abd568e882796-lauer]; Black, Jodi (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=782921b9f08249b59a582e93f6963f5f-blackj]
Subject: Draft letter
Attachments: Daszak letter June XX 2020.docx

Hi Anna – thanks for the phone call – here’s a draft letter.

Best, Mike



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

National Institutes of Health
National Institute of Allergy
and Infectious Diseases
Bethesda, Maryland 20892

(b) (5)





From: Lauer, Michael (NIH/OD) [E] [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=90FE9CAE30C64CFBB67ABD568E882796-LAUERM]
Sent: 6/9/2020 7:42:06 PM
To: Garcia-Malene, Gorka (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4c4da0f5e0a0480aad2a86924caba7b7-garciamalen]
CC: Lauer, Michael (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=90fe9cae30c64cfbb67abd568e882796-lauer]
Subject: FW: NIH FOIA 53996 and 54026
Attachments: 53996 Request.pdf; 54026 Request.pdf

Hi Gorka – yes, that’s right, and we’ve turned this matter over to OIG and ONS.

Best, Mike

From: "Garcia-Malene, Gorka (NIH/OD) [E]" [REDACTED] (b) (6)
Date: Tuesday, June 9, 2020 at 12:06 PM
To: "Lauer, Michael (NIH/OD) [E]" [REDACTED] (b) (6)
Subject: NIH FOIA 53996 and 54026

Good afternoon, Mike –

Would you be able to confirm that all information submitted to grant R01AI110964 for years 2014-2019 has been compiled as part of the investigation into the Wuhan Institute of Virology. This is in connection with the attached requests, NIH FOIA 53996 and 54026, which seek, respectively:

- A Copy of Grant No. R01AI110964 (PI= Peter Daszak) Years 2014-2019.
- A copy of the grant application: The ecology of bat coronaviruses and the risk of future coronavirus emergence. NIAID R01AI110964.

Thanks,
Gorka

From: Schofield, Robin (NIH/NIAID) [E]
To: Moore, Marg (NIH/NIAID) [E]
Subject: FW: Foia: Zheng-Li-Shi and NIH conclusions on award funding R01AI110964 and DUNS Number: 077090066
Date: Tuesday, April 14, 2020 4:13:31 PM

R01AI110964
PI: Peter Daszak
Years 2014-2019

Robin L. Schofield, MPS
FOIA Coordinator
National Institute of Allergy and Infectious Diseases

From: Garcia-Malene, Gorka (NIH/OD) [E] (b) (6)
Sent: Tuesday, April 14, 2020 3:58 PM
To: Schofield, Robin (NIH/NIAID) [E] (b) (6)
Cc: Moore, Marg (NIH/NIAID) [E] (b) (6); Bordine, Roger (NIH/OD) [E] (b) (6)
Subject: RE: Foia: Zheng-Li-Shi and NIH conclusions on award funding R01AI110964 and DUNS Number: 077090066

Okay. Please proceed. This is not an expedited request.

From: Schofield, Robin (NIH/NIAID) [E] (b) (6)
Sent: Tuesday, April 14, 2020 3:57 PM
To: Garcia-Malene, Gorka (NIH/OD) [E] (b) (6)
Cc: Moore, Marg (NIH/NIAID) [E] (b) (6); Bordine, Roger (NIH/OD) [E] (b) (6)
Subject: RE: Foia: Zheng-Li-Shi and NIH conclusions on award funding R01AI110964 and DUNS Number: 077090066

She would get 2 hours free search time and not be charged for review time so assuming she is looking for all years of this grant, there would not be any fees.

Robin L. Schofield, MPS
FOIA Coordinator
National Institute of Allergy and Infectious Diseases

From: Garcia-Malene, Gorka (NIH/OD) [E] (b) (6)
Sent: Tuesday, April 14, 2020 3:28 PM
To: Moore, Marg (NIH/NIAID) [E] (b) (6); Bordine, Roger (NIH/OD) [E] (b) (6)
Cc: NIAID FOIA Office (b) (6)
Subject: RE: Foia: Zheng-Li-Shi and NIH conclusions on award funding R01AI110964 and DUNS

Number: 077090066

Hi Marg,

(b) (5)

Please let me know. That's one avenue forward for all of these.

Thanks,
Gorka

From: Moore, Marg (NIH/NIAID) [E] (b) (6)
Sent: Tuesday, April 14, 2020 12:48 PM
To: Garcia-Malene, Gorka (NIH/OD) [E] (b) (6); Bordine, Roger (NIH/OD) [E] (b) (6)
Cc: NIAID FOIA Office <NIAIDFOIAOffice@mail.nih.gov>
Subject: FW: Foia: Zheng-Li-Shi and NIH conclusions on award funding R01AI110964 and DUNS Number: 077090066

Gorka - Please advise. (b) (5)

Thank you.
Marg

From: NHLBI FOIA REQUEST (NIH/NHLBI) <[nhlbiifoiarequest@nhlbi.nih.gov](mailto:nhlbifoiarequest@nhlbi.nih.gov)>
Sent: Tuesday, April 14, 2020 12:20 PM
To: NIAID FOIA Office <NIAIDFOIAOffice@mail.nih.gov>
Cc: Manheim, Marianne (NIH/NHLBI) [E] (b) (6)
Subject: FW: Foia: Zheng-Li-Shi and NIH conclusions on award funding R01AI110964 and DUNS Number: 077090066

Good afternoon,

Please see the below request regarding information with NIAID.

Thank you,
Elisabeth

From: Iris Hewlett (b) (6)
Sent: Tuesday, April 14, 2020 11:22 AM
To: NHLBI FOIA REQUEST (NIH/NHLBI) <[nhlbiifoiarequest@nhlbi.nih.gov](mailto:nhlbifoiarequest@nhlbi.nih.gov)>
Subject: Foia: Zheng-Li-Shi and NIH conclusions on award funding R01AI110964 and DUNS Number: 077090066

Pursuant to 5 USC 552 I hereby seek NIH records conclusions relating to Zheng-Li Shi and NIH award

funding from 2014-2019 in the Sum of Action Amount of \$3,748,715; Grand Total = \$3,748,715
research identified as

UNDERSTANDING THE RISK OF BAT CORONAVIRUS EMERGENCE

Award Number: R01AI110964

ORGANIZATION: NATIONAL INSTITUTE OF ALLERGY & INFECTIOUS DISEASES

OPDIV: NIH as identified as follows:

FY: 2019 (Subtotal = \$661,980)

Recipient Name: ECOHEALTH ALLIANCE INC

DUNS Number: 077090066

City: PROSPECT PARK

State: NY

CFDA Number: 93.855

CFDA Program Title: Allergy and Infectious Diseases Research

Action Date: 7/24/2019

Action Type: COMPETING CONTINUATION

Action Amount: \$733,750

Issue Date FY: 2019

Funding FY: 2019

Recipient Name: ECOHEALTH ALLIANCE INC

DUNS Number: 077090066

Action Date: 8/5/2019

Action Type: COMPETING CONTINUATION

Action Amount: -\$71,770

Issue Date FY: 2018 (Subtotal = \$581,646)

Issue Date FY: 2018

Funding FY: 2018

Recipient Name: ECOHEALTH ALLIANCE INC

DUNS Number: 077090066

CFDA Number: 93.855

CFDA Program Title: Allergy and Infectious Diseases Research

Award Code: 000

Budget Year: 5

Action Date: 6/18/2018

Action Type: NON-COMPETING CONTINUATION

Action Amount: \$581,646

Issue Date FY: 2017 (Subtotal = \$597,112)

Issue Date FY: 2017

Funding FY: 2017

Recipient Name: ECOHEALTH ALLIANCE INC

DUNS Number: 077090066

CFDA Number: 93.855

CFDA Program Title: Allergy and Infectious Diseases Research

Award Code: 000

Budget Year: 4

Action Date: 5/26/2017

Action Type: NON-COMPETING CONTINUATION

Action Amount: \$597,112

Issue Date FY: 2016 (Subtotal = \$611,090)

Issue Date FY: 2016
Funding FY: 2016
Recipient Name: ECOHEALTH ALLIANCE INC
DUNS Number: 077090066
CFDA Number: 93.855
CFDA Program Title: Allergy and Infectious Diseases Research
Award Code: 000
Budget Year: 3
Action Date: 7/22/2016
Action Type: NON-COMPETING CONTINUATION
Action Amount: \$611,090

Issue Date FY: 2015 (Subtotal = \$630,445)

Issue Date FY: 2015
Funding FY: 2015
Recipient Name: ECOHEALTH ALLIANCE INC
DUNS Number: 077090066
CFDA Number: 93.855
CFDA Program Title: Allergy and Infectious Diseases Research
Award Code: 000
Budget Year: 2
Action Date: 6/10/2015
Action Type: NON-COMPETING CONTINUATION
Action Amount: \$630,445

Issue Date FY: 2014 (Subtotal = \$666,442)

Issue Date FY: 2014
Funding FY: 2014
Recipient Name: ECOHEALTH ALLIANCE INC
DUNS Number: 077090066
CFDA Number: 93.855
CFDA Program Title: Allergy, Immunology and Transplantation Research
Award Code: 000
Budget Year: 1
Action Date: 5/27/2014
Action Type: NEW
Action Amount: \$666,442.

Please fully acknowledge foia request as submitted.

Thank you,

Iris Hewlett

Submit New Request

Requester Details

To modify request details please update your requester profile or contact the our office for assistance.

Mrs. Robin Paterson

personal use

(b) (6)

Requester Default Category: Educational/Non-Commercial/Scientific

General Information

Institute or Center	NIAID
Institute or Center Name	NIAID
Request Type	FOIA
Requester Category	Educational/Non-Commercial/Scientific

Shipping Address

State (Other)

Request Information

Description	Under the freedom of information act I request a copy of the grant application: The ecology of bat coronaviruses and the risk of future coronavirus emergence. National Institutes of Health NIAID R01AI110964.
Date Range for Record Search:From	01/01/2013
Date Range for Record Search:To	12/31/2019
	Please include a copy of the summary statement for the grant including a compilation of the opinions of the experts who reviewed the grant application. Please also include a copy of the awarded contract along with all associated documents.

Fee Information

Willing to Pay All Fees	No
Willing Amount	\$25
Fee Waiver Requested	No
Fee Waiver Request Reason	

Billing Address

State (Other)

Other Information

State (Other)

Expedite Information

Expedite Requested	No
Expedite Reason	

From: Lauer, Michael (NIH/OD) [E] [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=90FE9CAE30C64CFBB67ABD568E882796-LAUERM]
Sent: 6/11/2020 8:39:13 PM
To: Garcia-Malene, Gorka (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4c4da0f5e0a0480aad2a86924caba7b7-garciamalen]
CC: Lauer, Michael (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=90fe9cae30c64cfbb67abd568e882796-lauer]
Subject: Re: NIH FOIA 53996 and 54026
Attachments: So Where Did the Virus Come From - WSJ.pdf

Hi Gorka – no, this is something totally different. To get a sense as to what it's about, see this [Washington Post piece](#) and this [Wall Street Journal piece](#) (attached) – happy to discuss further.

Best, Mike

From: "Garcia-Malene, Gorka (NIH/OD) [E]" [REDACTED] (b) (6)
Date: Thursday, June 11, 2020 at 3:09 PM
To: "Lauer, Michael (NIH/OD) [E]" [REDACTED] (b) (6)
Subject: RE: NIH FOIA 53996 and 54026

Hi Mike,

Just to clarify: [REDACTED] (b) (5)

Thanks,
Gorka

From: Lauer, Michael (NIH/OD) [E] [REDACTED] (b) (6)
Sent: Tuesday, June 9, 2020 3:42 PM
To: Garcia-Malene, Gorka (NIH/OD) [E] [REDACTED] (b) (6)
Cc: Lauer, Michael (NIH/OD) [E] [REDACTED] (b) (6)
Subject: FW: NIH FOIA 53996 and 54026

Hi Gorka – yes, that's right, and we've turned this matter over to OIG and ONS.

Best, Mike

From: "Garcia-Malene, Gorka (NIH/OD) [E]" [REDACTED] (b) (6)
Date: Tuesday, June 9, 2020 at 12:06 PM
To: "Lauer, Michael (NIH/OD) [E]" [REDACTED] (b) (6)
Subject: NIH FOIA 53996 and 54026

Good afternoon, Mike –

Would you be able to confirm that all information submitted to grant R01AI110964 for years 2014-2019 has been compiled as part of the investigation into the Wuhan Institute of Virology. This is in connection with the attached requests, NIH FOIA 53996 and 54026, which seek, respectively:

- A Copy of Grant No. R01AI110964 (PI = Peter Daszak) Years 2014-2019.

- A copy of the grant application: The ecology of bat coronaviruses and the risk of future coronavirus emergence. NIAID R01AI110964.

Thanks,
Gorka

THE WALL STREET JOURNAL.

This copy is for your personal, non-commercial use only. To order presentation-ready copies for distribution to your colleagues, clients or customers visit <https://www.djreprints.com>.

<https://www.wsj.com/articles/so-where-did-the-virus-come-from-11590756909>

LIFE & ARTS | IDEAS | ESSAY

So Where Did the Virus Come From?

Research into the origins of the new coronavirus raises questions about how it became so infectious in human beings



ILLUSTRATION: MITCH BLUNT

By Matt Ridley

May 29, 2020 8:55 am ET

New research has deepened, rather than dispelled, the mystery surrounding the origin of the coronavirus responsible for Covid-19. Bats, wildlife markets, possibly pangolins and perhaps laboratories may all have played some role, but the simple story of an animal in a market infected by a bat that then infected several human beings no longer looks credible.

A study published in early May by scientists at the Broad Institute in Cambridge, Mass., and at the University of British Columbia has uncovered an unusual feature of the virus's recent development: It has evolved too slowly. The genomes of viruses sampled from cases during the SARS epidemic of 2002-2003 showed rapid evolutionary change during the early months of the epidemic, as the virus adapted to its new host, followed by much slower change later. By contrast, samples taken from recent cases of the new coronavirus, SARS-CoV-2, have comparatively few genetic substitutions compared with an early case from December.

The authors, Shing Hei Zhan, Benjamin Deverman and Yujia Alina Chan, write: "We were surprised to find that SARS-CoV-2 exhibits low genetic diversity in contrast to SARS-CoV, which harbored considerable genetic diversity in its early-to-mid epidemic phase." This implies, they argue, that "by the time SARS-CoV-2 was first detected in late 2019, it was already pre-adapted to human transmission to an extent similar to late epidemic SARS-CoV." This is potentially very good news: Because the virus is relatively stable genetically, a vaccine that works against it, if we're able to develop one, will be more likely to work against all strains.

MORE IN IDEAS

- [A Low-Carb Strategy for Fighting the Pandemic's Toll](#) May 30, 2020
- [So Where Did the Virus Come From?](#) May 29, 2020
- [A Jewish Dynasty in a Changing China](#) May 28, 2020
- [The Solace of Solitary Encounters With Classical Music](#) May 28, 2020

The same study seems to rule out the possibility that infected animals at the Huanan Seafood Market in Wuhan transmitted the virus to several human beings, as some have suggested as a point of origin. The Chinese authorities have now confirmed that no animal samples from the market were infected. This suggests that a single

person brought a virus that was already adept at human transmission to the market and infected others.

Work published in March by Andrew Rambaut of Edinburgh University, analyzing the genomic sequences, calculates that the most recent common ancestor of the viruses now in circulation infected someone in late November or early December, though with a “confidence range” stretching back into October. That leaves little time for evolutionary adaptation, so the months during which the virus fine-tuned its ability to infect human beings were presumably before this and somewhere other than the market in Wuhan.

The closest animal version of the virus remains a bat sample collected by scientists in 2013 a thousand miles away in Yunnan. Details of where and how that sample was collected have been sketchy, but a new paper by two scientists from the Agharkar Research Institute in Pune, India, show that it is the same as a published sample with a different name that was collected from an abandoned mineshaft in southern Yunnan in 2013, following an outbreak of pneumonia-like illness that killed three miners there the year before.

One of the coronavirus’s key genes resembles a virus found in smuggled pangolins. But that virus cannot be the immediate source of Covid-19. Part of one of its key genes, coding for the “spike” protein that allows the virus to lock onto human cells, is distinct from the version that is causing the pandemic. In the human virus, this part of the gene, called the “receptor binding motif,” more closely resembles the virus found in smuggled pangolins, though the rest of the pangolin virus is less similar.

Compared with the bat and pangolin viruses, the one now infecting human beings also has an extra 12-letter nucleotide sequence, called a “furin cleavage site,” in the spike protein gene; this greatly enhances the virus’s ability to get into and out of different types of human cells. Kristian Andersen of the Scripps Institute in La Jolla, Calif., and colleagues argue that this might have arisen by mutation during “a period of unrecognized transmission in humans” after the original transmission from an animal.

What about the controversial claim that the virus may have originated in a laboratory? Both Ralph Baric’s team at the University of North Carolina at Chapel Hill and Shi Zhengli’s team at the Wuhan Institute of Virology have been working on SARS-like coronaviruses and testing their ability to infect human cells. They have for some years reported successful experiments in which they created new strains of the virus by manipulating the spike proteins that are now the focus of discovering the origin of SARS-CoV-2, and their research has included inserting furin cleavage sites.

The two teams made these so-called chimeric viruses in order to understand what makes viruses more or less dangerous and in the hope of being ready to protect people against a future SARS epidemic. In 2015 they published a joint experiment in which they combined parts of one mouse-adapted SARS-like coronavirus with a spike gene from a SARS-like coronavirus derived from Chinese bats.

The first case could have been a rural farmer or possibly a bat researcher collecting samples for virologists.

In reporting their results, they expressed caution about continuing such risky experiments: “On the basis of these findings, scientific review panels may deem similar studies building chimeric viruses based on circulating strains too risky to pursue, as increased pathogenicity in mammalian models cannot be excluded.” They added: “The potential to prepare for and mitigate future outbreaks must be weighed against the risk of creating more dangerous pathogens.”

Nikolai Petrovsky and colleagues at Flinders University in Australia have found that SARS-CoV-

2 has a higher affinity for human receptors than for any other animal species they tested, including pangolins and horseshoe bats. He suggests that this could have happened if the virus was being cultured in human cells, adding that “We can’t exclude the possibility that this came from a laboratory experiment.”

So what did happen? At present, the evidence is pointing tentatively to a chain of person-to-person infections occurring somewhere outside a city before somebody brought the virus to Wuhan, where the market acted as an amplifier. The first case could have been a rural farmer or possibly a bat researcher collecting samples for virologists. Or it is possible that another animal was involved in some way, with the virus bouncing between a farmer and his animals, or a wildlife smuggler and his poor pangolins.

There are more coronaviruses out there. If the evidence is pointing away from wildlife markets, and if the Chinese authorities are confident it wasn’t a laboratory leak, they should be eager to help the world find out what did actually happen.

Whatever the initial spark, what turned a brush fire into a global conflagration was city life. Viruses have erupted into human beings from contact with nature many times in the past. When more of the population lived in rural areas, hunted animals for food and foraged in forests for firewood, contact with bats would have been more frequent. But chains of infection in rural villages would have petered out.

Today, all it takes is one infected individual to go to a crowded market and cough on somebody who is about to travel to another country, and the world catches the disease. It is sure to happen again.

—Mr. Ridley is a member of the House of Lords and the author, most recently, of “*How Innovation Works: And Why It Flourishes in Freedom.*”

Copyright © 2020 Dow Jones & Company, Inc. All Rights Reserved

This copy is for your personal, non-commercial use only. To order presentation-ready copies for distribution to your colleagues, clients or customers visit <https://www.djreprints.com>.

From: Fine, Amanda (NIH/OD) [E] [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=61290B74AA9A44358954C45439FFDEB6-FINEAB]
Sent: 6/14/2020 2:59:31 PM
To: Lauer, Michael (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=90fe9cae30c64cfbb67abd568e882796-lauer]; Myles, Renate (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=7d317f5626934585b3692a1823c1b522-mylesr]
Subject: RE: Grant termination

Thanks Mike we can handle.

Hope you're having a good weekend!
Amanda

From: Lauer, Michael (NIH/OD) [E] (b) (6)
Sent: Sunday, June 14, 2020 9:35 AM
To: Myles, Renate (NIH/OD) [E] (b) (6); Fine, Amanda (NIH/OD) [E] (b) (6)
Cc: Lauer, Michael (NIH/OD) [E] (b) (6)
Subject: FW: Grant termination

Hi Renate and Amanda – forwarding to you.

Thanks, Mike

From: "Rainey, Jim" <jim.rainey@latimes.com>
Date: Saturday, June 13, 2020 at 6:53 PM
To: "Lauer, Michael (NIH/OD) [E]" (b) (6)
Subject: Grant termination

Dr. Lauer,

I am a reporter for the Los Angeles Times. I have written in the past about some of the work of the EcoHealth Alliance. As you know, the termination of the NIH grant (award renewal #2R01AI110964-06) to the EcoHealth Alliance for "Understanding the Risk of Bat Coronavirus Emergence" is a matter of considerable public interest.

I would like to talk to you as soon as possible about this award and why it was discontinued. You can reach me at this email or the attached phone numbers.

I am also available via **Signal**, the secure and encrypted messaging service. My contact number there is the same as **my cell number**, (b) (6). The source of all communications can be kept confidential, if necessary. That is a pledge I take very seriously.

I hope you will see fit to communicate with me.

With kind regards,

Jim

From: Lauer, Michael (NIH/OD) [E] [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=90FE9CAE30C64CFBB67ABD568E882796-LAUERM]
Sent: 5/7/2020 2:29:36 AM
To: Aguirre, Lisa (IOS/ONS) [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=148aca8632f14d2ca6227b9b5cde0947-Lisa.Aguirre]; Hudgens, Alisa (HHS/OS/ONS) [Alisa.Hudgens@hhs.gov]; Hollie, Les W (OIG/OI) [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=2a553c4e88894e6c9ff26cdcc9241fd7-Les.Hollie.]
CC: Tabak, Lawrence (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=02e22836b5ff4e9988e3770cfc7ee770-tabakl]; Muroff, Julie (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8f3fd404b36a4d4e8dda4a3dcb9a72c0-muroffj]; Lauer, Michael (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=90fe9cae30c64cfbb67abd568e882796-lauer]
Subject: Re: Wuhan Lab
Attachments: Wuhan Lab; NoA R01AI110964-01.pdf; NoA R01AI110964-06.pdf

Also – as mentioned earlier today, the grantee (EcoHealth Alliance) failed to report as required the subawards to the Federal Subaward Reporting System (2 CFR 170). I've highlighted the relevant section of the NoA.

Best, Mike

From: "Lauer, Michael (NIH/OD) [E]" (b) (6)
Date: Wednesday, May 6, 2020 at 2:53 PM
To: "Aguirre, Lisa (IOS/ONS)" (b) (6), "Hudgens, Alisa (HHS/OS/ONS)" (b) (6), "Hollie, Les W (OIG/OI)" (b) (6)
Cc: "Lauer, Michael (NIH/OD) [E]" (b) (6), "Tabak, Lawrence (NIH/OD) [E]" (b) (6), "Muroff, Julie (NIH/OD) [E]" (b) (6)
Subject: Wuhan Lab

Hi Lisa, Alisa, and Les – as we discussed.

- Narrative below (scroll down to my note to Larry).
- [Video](#) (need to skip the political ads)
- Two letters (6th and 7th attachments)

Our rationale:

(b) (5)

Background:

(b) (5)

Hope this helps,

Mike

Michael S Lauer, MD
NIH Deputy Director for Extramural Research
1 Center Drive, Building 1, Room 144
Bethesda, MD 20892
Phone: (b) (6)
Email: (b) (6)

From: "Lauer, Michael (NIH/OD) [E]" (b) (6)
Date: Wednesday, April 22, 2020 at 9:56 AM
To: "Tabak, Lawrence (NIH/OD) [E]" (b) (6)
Cc: "Lauer, Michael (NIH/OD) [E]" (b) (6), "Black, Jodi (NIH/OD) [E]" (b) (6),
"Schwetz, Tara (NIH/OD) [E]" (b) (6)
Subject: Wuhan Lab

Hi Larry – in follow-up to our 1:1 earlier today, (b) (5)

Many thanks,

Mike

From: Lauer, Michael (NIH/OD) [E] [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=90FE9CAE30C64CFBB67ABD568E882796-LAUERM]
Sent: 5/6/2020 6:51:58 PM
To: Aguirre, Lisa (IOS/ONS) [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=148aca8632f14d2ca6227b9b5cde0947-Lisa.Aguirre]; Hudgens, Alisa (HHS/OS/ONS) [Alisa.Hudgens@hhs.gov]; Hollie, Les W (OIG/OI) [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=2a553c4e88894e6c9ff26cdcc9241fd7-Les.Hollie.]
CC: Lauer, Michael (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=90fe9cae30c64cfbb67abd568e882796-lauer]; Tabak, Lawrence (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=02e22836b5ff4e9988e3770cfc7ee770-tabak]; Muroff, Julie (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8f3fd404b36a4d4e8dda4a3dcb9a72c0-muroffj]
Subject: Wuhan Lab
Attachments: State Department cables warned of safety issues at Wuhan lab studying bat coronaviruses - The Washington Post.pdf; China Lab In Focus Of Coronavirus Outbreak.pdf; Coronavirus China Origin in Wuhan Lab Unproven, But Denials Unconvincing National Review.pdf; Botao Xiao origins of COVID 19 virus.pdf; PIIS0140673620301835.pdf; Daszak letter 4 24 20.pdf; EcoHealth Alliance re AI grant 4 19 20.pdf; Hong Kong Wuhan disease control researcher was once attacked by bats attacking mainland scholars questioned virus leakage Hong Kong 01 Social News.pdf

Hi Lisa, Alisa, and Les – as we discussed.

- Narrative below (scroll down to my note to Larry).
- [Video](#) (need to skip the political ads)
- Two letters (6th and 7th attachments)

Our rationale:



Background:



Hope this helps,

Mike

Michael S Lauer, MD
NIH Deputy Director for Extramural Research

1 Center Drive, Building 1, Room 144

Bethesda, MD 20892

Phone: (b) (6)

Email: (b) (6)

From: "Lauer, Michael (NIH/OD) [E]" (b) (6)

Date: Wednesday, April 22, 2020 at 9:56 AM

To: "Tabak, Lawrence (NIH/OD) [E]" (b) (6)

Cc: "Lauer, Michael (NIH/OD) [E]" (b) (6), "Black, Jodi (NIH/OD) [E]" (b) (6),

"Schwetz, Tara (NIH/OD) [E]" (b) (6)

Subject: Wuhan Lab

Hi Larry – in follow-up to our 1:1 earlier today, (b) (5)

(b) (5)

Many thanks,

Mike

State Department cables warned of safety issues at Wuhan lab studying bat coronaviruses

[Josh Rogin](#)



A woman wearing a protective suit at a hospital in Wuhan, China. (Aly Song/Reuters)

Two years before the novel [coronavirus](#) pandemic upended the world, U.S. Embassy officials visited a Chinese research facility in the city of Wuhan several times and sent two official warnings back to Washington about inadequate safety at the lab, which was conducting risky studies on coronaviruses from bats. The cables have fueled discussions inside the U.S. government about whether this or another Wuhan lab was the source of the virus — even though conclusive proof has yet to emerge.

In January 2018, the U.S. Embassy in Beijing took the unusual step of repeatedly sending U.S. science diplomats to the Wuhan Institute of Virology (WIV), which had in 2015 become China's first laboratory to achieve the highest level of international bio research safety (known as BSL-4). WIV issued a news release in English about the last of these visits, which occurred on March 27, 2018. The U.S. delegation was led by Jamison Fouss, the consul general in Wuhan, and Rick Switzer, the embassy's counselor of environment, science, technology and health. Last week, WIV erased that statement from its website, though it remains archived on the Internet.

Full coverage of the coronavirus pandemic

What the U.S. officials learned during their visits concerned them so much that they dispatched two diplomatic cables categorized as Sensitive But Unclassified back to Washington. The cables warned about safety and management weaknesses at the WIV lab and proposed more attention and help. The first cable, which I obtained, also warns that the lab's work on bat coronaviruses and their potential human transmission represented a risk of a new SARS-like pandemic.

"During interactions with scientists at the WIV laboratory, they noted the new lab has a serious shortage of appropriately trained technicians and investigators needed to safely operate this high-containment laboratory," states the Jan. 19, 2018, cable, which was drafted by two officials from the embassy's environment, science and health sections who met with the WIV scientists. (The State Department declined to comment on this and other details of the story.)

Global Opinions writer Josh Rogin has obtained a 2018 U.S. diplomatic cable urging Washington to better support a Chinese lab researching bat coronaviruses. (Joshua Carroll, Kate Woodsome, Josh Rogin/The Washington Post)

The Chinese researchers at WIV were receiving assistance from the Galveston National Laboratory at the University of Texas Medical Branch and other U.S. organizations, but the Chinese requested additional help. The cables argued that the United States should give the Wuhan lab further support, mainly because its research on bat coronaviruses was important but also dangerous.

As the cable noted, the U.S. visitors met with Shi Zhengli, the head of the research project, who had been publishing studies related to bat coronaviruses for many years. In November 2017, just before the U.S. officials' visit, Shi's team had published research showing that horseshoe bats they had collected from a cave in Yunnan province were very likely from the same bat population that spawned the SARS coronavirus in 2003.

Sign up for our Coronavirus Updates newsletter to track the outbreak. All stories linked in the newsletter are free to access.

"Most importantly," the cable states, "the researchers also showed that various SARS-like coronaviruses can interact with ACE2, the human receptor identified for SARS-coronavirus. This finding strongly suggests that SARS-like coronaviruses from bats can be transmitted to humans to cause SARS-like diseases. From a public health perspective, this makes the continued surveillance of SARS-like coronaviruses in bats and study of the animal-human interface critical to future emerging coronavirus outbreak prediction and prevention."

The research was designed to prevent the next SARS-like pandemic by anticipating how it might emerge. But even in 2015, other scientists questioned whether Shi's team was taking unnecessary risks. In October 2014, the U.S. government had imposed a moratorium on funding of any research that makes a virus more deadly or contagious, known as "gain-of-function" experiments.

As many have pointed out, there is no evidence that the virus now plaguing the world was engineered; scientists largely agree it came from animals. But that is not the same as saying it didn't come from the lab, which spent years testing bat coronaviruses in animals, said Xiao Qiang, a research scientist at the School of Information at the University of California at Berkeley.

"The cable tells us that there have long been concerns about the possibility of the threat to public health that came from this lab's research, if it was not being adequately conducted and protected," he said.

There are similar concerns about the nearby Wuhan Center for Disease Control and Prevention lab, which operates at biosecurity level 2, a level significantly less secure than the level-4 standard claimed by the Wuhan Institute of Virology lab, Xiao said. That's important because the Chinese government still refuses to answer basic questions about the origin of the novel coronavirus while suppressing any attempts to examine whether either lab was involved.

Sources familiar with the cables said they were meant to sound an alarm about the grave safety concerns at the WIV lab, especially regarding its work with bat coronaviruses. The embassy officials were calling for more U.S. attention to this lab and more support for it, to help it fix its problems.

"The cable was a warning shot," one U.S. official said. "They were begging people to pay attention to what was going on."

No extra assistance to the labs was provided by the U.S. government in response to these cables. The cables began to circulate again inside the administration over the past two months as officials debated whether the lab could be the origin of the pandemic and what the implications would be for the U.S. pandemic response and relations with China.

Inside the Trump administration, many national security officials have long suspected either the WIV or the Wuhan Center for Disease Control and Prevention lab was the source of the novel coronavirus outbreak. According to the New York Times, the intelligence community has provided no evidence to confirm this. But one senior administration official told me that the cables provide one more piece of evidence to support the possibility that the pandemic is the result of a lab accident in Wuhan.

“The idea that it was just a totally natural occurrence is circumstantial. The evidence it leaked from the lab is circumstantial. Right now, the ledger on the side of it leaking from the lab is packed with bullet points and there’s almost nothing on the other side,” the official said.

As my colleague David Ignatius noted, the Chinese government’s original story — that the virus emerged from a seafood market in Wuhan — is shaky. Research by Chinese experts published in the Lancet in January showed the first known patient, identified on Dec. 1, had no connection to the market, nor did more than one-third of the cases in the first large cluster. Also, the market didn’t sell bats.

The Opinions section is looking for stories of how the coronavirus has affected people of all walks of life. Write to us.

Shi and other WIV researchers have categorically denied this lab was the origin for the novel coronavirus. On Feb. 3, her team was the first to publicly report the virus known as 2019-nCoV was a bat-derived coronavirus.

The Chinese government, meanwhile, has put a total lockdown on information related to the virus origins. Beijing has yet to provide U.S. experts with samples of the novel coronavirus collected from the earliest cases. The Shanghai lab that published the novel coronavirus genome on Jan. 11 was quickly shut down by authorities for “rectification.” Several of the doctors and journalists

who reported on the spread early on have disappeared.

On Feb. 14, Chinese President Xi Jinping called for a new biosecurity law to be accelerated. On Wednesday, CNN reported the Chinese government has placed severe restrictions requiring approval before any research institution publishes anything on the origin of the novel coronavirus.

The origin story is not just about blame. It's crucial to understanding how the novel coronavirus pandemic started because that informs how to prevent the next one. The Chinese government must be transparent and answer the questions about the Wuhan labs because they are vital to our scientific understanding of the virus, said Xiao.

We don't know whether the novel coronavirus originated in the Wuhan lab, but the cable pointed to the danger there and increases the impetus to find out, he said.

"I don't think it's a conspiracy theory. I think it's a legitimate question that needs to be investigated and answered," he said. "To understand exactly how this originated is critical knowledge for preventing this from happening in the future."

[Read this piece in Chinese](#)

[Read this piece in Spanish](#)

[David Ignatius: How did covid-19 begin? Its initial origin story is shaky.](#)

[Marc A. Thiessen: China should be legally liable for the pandemic damage it has done](#)

[We need smart solutions to mitigate the coronavirus's impact. Here are 23.](#)

[Michael L. Barnett and David C. Grabowski: Covid-19 is ravaging nursing homes. We're getting what we paid for.](#)

[Megan McArdle: Why the lockdown skeptics are wrong](#)

[Xinyan Yu: My hometown showed us how a pandemic begins. Could it also show us how one ends?](#)

China Lab In Focus Of Coronavirus Outbreak

[Don Reisinger](#) 05:35pm EDT



People wearing face masks wait to buy roasted duck at a restaurant in Wuhan, China's central Hubei ... [+]

AFP via Getty Images

For months, anyone who said the new SARS coronavirus might have come out of a virology research lab in Wuhan, China was dismissed as a right wing xenophobe.

When Zero Hedge — a financial news website whose comment section certainly fits the right wing stereotype — first put out its own bombastic version of the bat-borne virus escaping a research lab, they were banned from

Twitter.

FOX host Tucker Carlson starting banging this drum last week.

But on Tuesday, the narrative flipped. It's no longer a story shared by China bears and President Trump fans. Today, Josh Rogin, who is said to be as plugged into the State Department as any *Washington Post* columnist, was shown documents dating back to 2015 revealing how the U.S. government was worried about safety standards at that Wuhan lab. In fact, they were worried that one day, one of these experiments — including the one on bat coronaviruses — could escape and become a global nightmare.

In a best case scenario, Rogin's reveal may ultimately get China to cooperate more in regards to the origins of the virus, setting the table for better drugs to mitigate or even cure the deadly COVID-19. At the very least, for a government that likes to save face, the fact that the U.S. government helped build and fund the Wuhan virology lab in question should be enough for China to open that info vault to scientists at the World Health Organization.

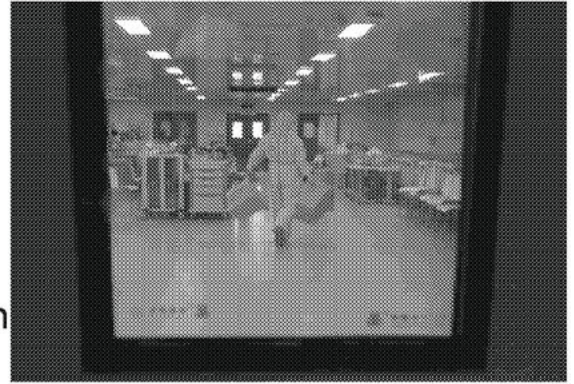
[Washington Post Opinion | State Department cables warned of safety issues at Wuhan lab studying bat coronaviruses](#)

"I don't think it's a conspiracy theory. I think it's a legitimate question that needs to be investigated and answered," Xiao Qiang, a research scientist at the School of Information at the University of California at Berkeley told Rogin. "To understand exactly how this originated is critical knowledge for preventing this from happening in the future."

China has not been forthcoming about the new SARS coronavirus origins. They're not being entirely transparent, despite being heralded as such by some leaders.

An example of that secrecy from Rogin:

“In January 2018, the U.S. Embassy in Beijing took the unusual step of repeatedly sending U.S. science diplomats to the Wuhan Institute of Virology (WIV), which had in 2015 become China’s first laboratory to achieve the highest level of international bio research safety (known as BSL-4). WIV issued a news release in English about the last of these visits, which occurred on March 27, 2018. The U.S. delegation was led by Jamison Fouss, the consul general in Wuhan, and Rick Switzer, the embassy’s counselor of environment, science, technology and health. Last week, WIV erased that statement from its website, though it remains archived on the Internet.”



A medical worker cleans up, Wuhan, Hubei Province, China, April 14, 2020. Tomorrow, leishenshan ... [+]

Barcroft Media via Getty Images

Worth noting, at least one young researcher from the lab —Huang Yanling — a graduate student rumored to be patient zero — was scrubbed from the lab’s website.

The first, mysterious samples from infected individuals arrived at Wuhan Institute of Virology on December 30, 2019.

According to the Scientific American magazine, Shi Zhengli, a renown bat scientist in China, was told by the Institute’s director that the Wuhan Center for Disease Control and Prevention — modeled after our own CDC — had detected a novel coronavirus in two hospital patients. They were suffering from an odd pneumonia. They wanted her laboratory to investigate because the virus belonged to the same family of bat-borne viruses that caused SARS, a disease that — by comparison — only infected 8,100 people and killed just

under 800 in an 8 month period in 2002-03.

“I had never expected this kind of thing to happen in Wuhan, in central China,” she was quoted as saying by [Scientific American on March 11](#). Her studies had shown that the southern, subtropical areas of Guangdong, Guangxi and Yunnan had the greatest risk of coronaviruses jumping to humans from animals—particularly bats, a known reservoir for many viruses. If bat coronaviruses were the culprit, she recalled to Scientific American, “could they have come from our lab?”

She has since promised the world that it did not come from her lab, though how she would know that for sure is unknown. We don't know where she is. If she is making the media rounds on Chinese television, few in the U.S. would believe her at this point.

Her research on bat coronaviruses goes back to 2015. Here is [one published in 2015](#) in Nature magazine. There is a lot of information about this new SARS, yet the world still seems stuck in the unknowns.

The U.S. government helped build and fund Wuhan virology labs. The thinking was that it was important for China to get up to par in the global life sciences. It was already a known center of previous outbreaks. Investing there and educating them on international safety standards was just preventative medicine.

Rogin's reporting suggests that government officials were well aware of the research being conducted in the lab on bat coronaviruses and were worried that the lab still had sub-par safety standards.

Rogin writes that, “What the U.S. officials learned during their visits concerned them so much that they dispatched two diplomatic cables categorized as Sensitive But Unclassified back to Washington. The cables warned about

safety and management weaknesses at the WIV lab and proposed more attention and help. The first cable, which I obtained, also warns that the lab's work on bat coronaviruses and their potential human transmission represented a risk of a new SARS-like pandemic."



Chinese President Xi Jinping hears about the progress on a vaccine at the Academy of Military ... [+]

Xinhua News Agency/Getty Images

Rogin's article probably stemmed from conversations with someone inside the State Department boiling at the rim over many weeks as the U.S. faces a "stop the world" moment because of this pandemic.

Over the weekend, the Chinese government banned academic and other research institutions from publishing its research on coronaviruses on their websites.

The thinking there is, perhaps, that people in the U.S. and Europe are using those studies to place blame on the Chinese government. China has been working overtime to convince people that questioning the origin of the disease is racist.

The Washington Post story today brings the possibility of a lab leak into the mainstream. It moves the needle on getting a clearer handle on the origin of the virus, and that could eventually lead to more cooperation between the U.S. and China in making sure this does not happen again.

7 Of The Best Gaming Chairs For The Serious Gamer

F

Shopping

I write about technology and video games for Forbes Finds.

Forbes and/or the author may earn a commission on sales made from links on this page.

If you've been playing video games all this time without cushioning yourself within the comforting confines of a bespoke gaming chair, you're missing out. Gaming chairs are designed to offer a supportive and cozy experience while looking right at home alongside your gaming PC or console.

With gaming chairs, you'll find seats that are typically comfortable, look good and offer a variety of color and material options. Maintaining a good posture while sitting for long periods is of paramount importance, and these chairs will help you do just that.

The following were selected as some of the best gaming chairs due to their build quality, support and comfort, as well as style, looks and any additional features. They are also all reasonably priced for what they offer.

Vertagear Racing Series S-Line SL4000 Gaming Chair Black/Blue Edition





Walmart

Vertagear Racing Series S-Line SL4000 Gaming Chair Black/Blue Edition

450

The Vertagear S-Line SL4000 is built for comfort. The chair has supportive padding, which is perfect for gamers who want to game for multiple hours in a single session. The chair is easy to assemble too — one person can put it together within 30 minutes or so.

On the bottom of the chair, there are custom Penta RS1 casters, which are coated with PU for a soft and smooth gliding experience on the chair, so moving around shouldn't feel bumpy.

The chair is a little expensive depending on the color you get, but it's still a great choice and should create an awesome gaming experience.

Noblechairs Epic Gaming Chair



Amazon

Noblechairs Epic Gaming Chair

419

The Noblechairs Epic is an excellent gaming chair that comes in your choice of

PU leather, NAPPA leather or real leather. It has air gaps at the top to improve airflow to help keep you cool and is built with ergonomics in mind, so you can sit more comfortably. In fact, Noblechairs said that the chairs will conform to the shape of your back and has obtained international certifications for the design.

Like the Secret Lab Omega, the Noblechairs Epic has a tilting mechanism that will allow you to lock it into place wherever you see fit. That allows you to obtain the perfect recline while you're playing games and dramatically enhances the broader experience. It even comes with what Noblechairs calls 4D armrests that let you adjust their height, depth, width and angle to maximize comfort.

Secretlab Omega 2020 Prime 2.0 PU Leather LCS Gaming Chair



Amazon

Secretlab Omega 2020 Prime 2.0 PU Leather LCS Gaming Chair

350

If you like your gaming chair to look a little more refined, a little less colorful and more demure, then the SecretLab Omega is a great choice. Not only is it competitively priced, but it offers heavy discounts if you shop directly, whether you opt for the more affordable PU leather, fabric covering or even its more premium leather option, though that does come at an added cost.

Updated in 2020, the Omega is the mid-size option that SecretLab offers, fitting everyone up to and below 5'11. There are larger and smaller offerings for those who fall outside the standard height and weight range though, with all shapes and sizes catered to.

Whichever size you opt for, you'll be able to enjoy the Omega's built-in lumbar support (no pillow required), durable armrests and even a gel-lined neck pillow to help keep you cool during the most intense of gaming sessions.

GTRACING Gaming Chair Racing Chair





Amazon

GTRACING Gaming Chair Racing Chair

156

It might not have the catchiest of names, but the GTRacing Pro GTF88 is an excellent gaming chair at an even more excellent price. Reduced to under \$150 at the time of writing, it's supremely affordable when compared with some of its contemporaries, and though it doesn't have the most high-end of feature sets, it's still a great gaming chair that will both support and comfort you no matter what game you're playing and for how long.

With a sturdy metal frame and ergonomic design, your back, shoulders and arms are all well supported, making sure that you don't develop poor posture habits, the bane of any gamer. That includes pillows for lumbar support and headrest, each of which — and the chair itself — are packed with high-density foam for a superior seating experience.

You can also customize the chair to your heart's desire, with options for swivel, reclining, rocking and height adjustment. Even the armrests can be rotated and height adjusted.

Available in a variety of colors and coated in 100 percent Grade A PU leather, this racing-inspired seat will be a great addition to your gaming arsenal at an affordable price.

Corsair CF-9010029-WW T3 RUSH Gaming Chair



Newegg

Corsair CF-9010029-WW T3 RUSH Gaming Chair

424

Corsair might be most well known for starting the RGB revolution on PC components, but it also makes fantastic gaming chairs; particularly of the mesh fabric kind. Its T3 Rush is the latest generation of gaming chair from the component company and it's only improved on what came before.

Designed to help alleviate heat buildup that is all too commonplace on some gaming chairs (particularly with PU leather) the T3 Rush is covered entirely in a soft fabric that makes it breathable, comfortable and soft to the touch.

With included neck cushion and memory foam lumbar support, the T3 Rush sacrifices nothing in its goal to improve comfort and support. Supremely adjustable, you can change the angle of the seat until it's practically a bed, sit straight up, tweak the height and even adjust the orientation of the armrests through four dimensions to make your T3 look and feel exactly how you like it.

Arozzi Verona Junior Gaming Chair for Kids



Amazon

Arozzi Verona Junior Gaming Chair for Kids

249

Not everyone is as hulking as their gaming avatars, and not everyone who needs a gaming chair is an adult. The Arozzi Verona Junior gaming chair is designed for growing gamers and those with a smaller than average physical footprint, with a maximum weight of just 130lbs. But by catering to such a niche, it offers a fantastic experience specifically tailored to that body type.

Ergonomically designed for a healthy posture, the Verona Junior enjoys both lumbar and headrest pillows, as well as armrests that can be tweaked to the exact position you need them to be in. You can rotate them, or adjust them up and down, though there are no lateral movement options.

Available in a variety of color options and with a comfortable, easy-to-clean pleather exterior, the Verona Junior is a fantastic gaming chair for a growing gamer or someone with a slighter build.

Nitro Concepts S300 EX Gaming Chair



Amazon

NITRO CONCEPTS S300 EX Gaming Chair

300

Designed to be its most comfortable gaming chair yet, Nitro Concepts' S300

EX builds on its already sterling pedigree for gaming chair production, with a few new additions. Integrating its new Health Enhancing Adjustment Technology, or H.E.A.T., it leverages lumbar and head support pillows for individual adjustment to the unique contours of your body. They're backed up by cooling holes in the neck-rest, making sure that even with the nylon seat-coating, you'll never get too hot during intense play.

They're built atop a steel frame for additional support, which can be leaned back, rocked, height adjusted and rotated, while the armrests can move up, down, forward and backwards, letting you make this gaming chair just right for your particular seating habits. It's also available in four stylish color options, each with color matching stitching and attractive accents.

Don't want something gaudy? Nitro Concepts has you covered too. The Stealth color option makes everything black, letting your gaming chair blend into the background so you can focus on your game and not look like a stereotypical "gamer" while doing it. You might even be able to swing it as an office chair upgrade.



I'm a freelance technology, video game, and entertainment journalist. I've been writing about the world of technology, video games, and entertainment for the last decade.

...

The Trail Leading Back to the Wuhan Labs

Jim Geraghty April 3, 2020 1:20 PM



Medical workers in protective suits attend to a patient inside an isolated ward of the Wuhan Red Cross Hospital in Wuhan, the epicenter of the novel coronavirus outbreak, in Hubei Province, China, February 16, 2020. (*China Daily via Reuters*)

There's no proof the coronavirus accidentally escaped from a laboratory, but we can't take the Chinese government's denials at face value.

NRPLUS MEMBER
ARTICLE

It is understandable that many would be wary of the notion that the origin of the coronavirus could be discovered by some documentary filmmaker who used to live in China. Matthew Tye, who creates YouTube videos, contends he has identified the source of the coronavirus — and a great deal of the information that he presents, obtained from public records posted on the

Internet, checks out.

The Wuhan Institute of Virology in China indeed posted a job opening on November 18, 2019, "asking for scientists to come research the relationship between the coronavirus and bats."



The Google translation of the job posting is: "Taking bats as the research object, I will answer the molecular mechanism that can coexist with Ebola and SARS- associated coronavirus for a long time without disease, and its relationship with flight and longevity. Virology, immunology, cell biology, and multiple omics are used to compare the differences between humans and other mammals." ("Omics" is a term for a subfield within biology, such as genomics or glycomics.)

PI Introduction:

Peng Zhou, Ph.D., Researcher, Wuhan Institute of Virology, Chinese Academy of Sciences, and Leader of Bat Virus Infection and Immunization. He received his PhD in Wuhan Virus Research Institute in 2010 and has worked on bat virus and immunology in Australia and Singapore. In 2009, he took the lead in starting the research on the immune mechanism of bat long-term carrying and transmitting virus in the world. So far, he has published more than 30 SCI articles, including the first and corresponding author's *Nature*, *Cell Host Microbe* and *PNAS*. At present, research on bat virus and immunology is continuing, and it has received support from the National Excellent Youth Fund, the Pilot Project of the Chinese Academy of Sciences, and the Major Project of the Ministry of Science and Technology.

The main research directions of the research group:

Taking bats as the research object, I will answer the molecular mechanism that can coexist with Ebola and SARS-associated corona virus for a long time without disease, and its relationship with flight and longevity. Virology, immunology, cell biology, and multiple omics are used to compare the differences between humans and other mammals.

On December 24, 2019, the Wuhan Institute of Virology posted a second job posting. The translation of that posting includes the declaration, "long-term research on the pathogenic biology of bats carrying important viruses has confirmed the origin of bats of major new human and livestock infectious diseases such as SARS and SADS, and a large number of new bat and rodent new viruses have been discovered and identified."

PI Introduction

Zhengli Shi, Ph.D., Researcher, Leader of Emerging Virus Group, Wuhan Institute of Virology, Chinese Academy of Sciences, Director of Emerging Infectious Disease Research Center of Wuhan Institute of Virology, Chinese Academy of Sciences, Editor-in-Chief, *Virologica Sinica*. Long-term research on the pathogenic biology of bats carrying important viruses has confirmed the origin of bats of major new human and livestock infectious diseases such as SARS and SADS, and a large number of new bat and rodent new viruses have been discovered and identified. So far in *Nature*, *Science*, *Nat Rev Microbiol*, the *Cell Host Microbe*, *Nat Microbiol*, *PLoS Pathog* and other SCI papers published journals 110 over papers, 2014 onwards for five consecutive years was selected Elsevier "China highly cited scholars' list (Immunology and Microbiology)". Has won the "advanced worker" of the Chinese Academy of Sciences, the "May 1 Labor Medal", Hubei Province has outstanding contributions to young and middle-aged experts, Chinese Academy of Sciences "Excellent Graduate Instructor", French Palm Education Knight Medal and other honors. As the first person to complete the research on "Chinese bat carrying important viruses", he won the first prize of the 2017 Hubei Natural Science Award and the second prize of the 2018 National Natural Science Award. Elected to the American Academy of Microbiology in 2019.

Tye contends that that posting meant, "we've discovered a new and terrible virus, and would like to recruit people to come deal with it." He also contends that "news didn't come out about coronavirus until ages after that." Doctors in

Wuhan knew that they were dealing with a cluster of pneumonia cases as December progressed, but it is accurate to say that a very limited number of people knew about this particular strain of coronavirus and its severity at the time of that job posting. By December 31, about three weeks after doctors first noticed the cases, the Chinese government notified the World Health Organization and the first media reports about a “mystery pneumonia” appeared outside China.

Scientific American verifies much of the information Tye mentions about Shi Zhengli, the Chinese virologist nicknamed “Bat Woman” for her work with that species.

Shi — a virologist who is often called China’s “bat woman” by her colleagues because of her virus-hunting expeditions in bat caves over the past 16 years — walked out of the conference she was attending in Shanghai and hopped on the next train back to Wuhan. “I wondered if [the municipal health authority] got it wrong,” she says. “I had never expected this kind of thing to happen in Wuhan, in central China.” Her studies had shown that the southern, subtropical areas of Guangdong, Guangxi and Yunnan have the greatest risk of coronaviruses jumping to humans from animals — *particularly bats, a known reservoir for many viruses. If coronaviruses were the culprit, she remembers thinking, “could they have come from our lab?”*

... By January 7 the Wuhan team determined that the new virus had indeed caused the disease those patients suffered — a conclusion based on results from polymerase chain reaction analysis, full genome sequencing, antibody tests of blood samples and the virus’s ability to infect human lung cells in a petri dish. The genomic sequence of the virus — now officially called SARS-CoV-2 because it is related to the SARS pathogen — was 96 percent identical to that of a coronavirus the researchers had identified in

horseshoe bats in Yunnan, they reported in a [paper](#) published last month in *Nature*. "It's crystal clear that bats, once again, are the natural reservoir," says Daszak, who was not involved in the study.

Some scientists aren't convinced that the virus jumped straight from bats to human beings, but [there are a few problems with the theory that some other animal was an intermediate transmitter of COVID-19 from bats to humans](#):

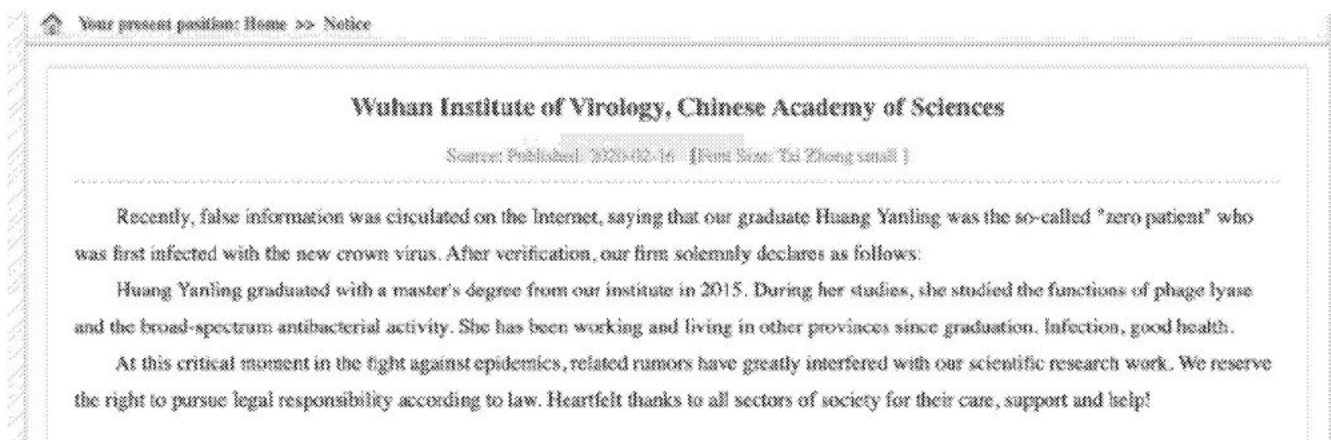
Analyses of the SARS-CoV-2 genome indicate a single spillover event, meaning the virus jumped only once from an animal to a person, which makes it likely that the virus was circulating among people before December. Unless more information about the animals at the Wuhan market is released, the transmission chain may never be clear. There are, however, numerous possibilities. A bat hunter or a wildlife trafficker might have brought the virus to the market. Pangolins happen to carry a coronavirus, which they might have picked up from bats years ago, and which is, in one crucial part of its genome, virtually identical to SARS-CoV-2. But no one has yet found evidence that pangolins were at the Wuhan market, or even that vendors there trafficked pangolins.

On February 4 — one week before the World Health Organization [decided to officially name this virus "COVID-19"](#) — [the journal *Cell Research*](#) posted a notice written by scientists at the Wuhan Institute of Virology about the virus, concluding, "our findings reveal that remdesivir and chloroquine are highly effective in the control of 2019-nCoV infection in vitro. Since these compounds have been used in human patients with a safety track record and shown to be effective against various ailments, we suggest that they should be assessed in human patients suffering from the novel coronavirus disease." One of the authors of that notice was the "bat woman," Shi Zhengli.






In his YouTube video, Tye focuses his attention on a [researcher at the Wuhan](#)

Institute of Virology named Huang Yanling: "Most people believe her to be patient zero, and most people believe she is dead."

There was enough discussion of rumors about Huang Yanling online in China to spur an official denial. On February 16, the Wuhan Institute of Virology denied that patient zero was one of their employees, and interestingly named her specifically: "Recently there has been fake information about Huang Yanling, a graduate from our institute, claiming that she was patient zero in the novel coronavirus." Press accounts quote the institute as saying, "Huang was a graduate student at the institute until 2015, when she left the province and had not returned since. Huang was in good health and had not been diagnosed with disease, it added." None of her publicly available research papers are dated after 2015.



The web page for the Wuhan Institute of Virology's Lab of Diagnostic Microbiology does indeed still have "Huang Yanling" listed as a 2012 graduate student, and her picture and biography appear to have been recently removed — as have those of two other graduate students from 2013, Wang Mengyue and Wei Cuihua.

		
Hu Yuanxuan 2011 PhD student	Li Heng 2011 PhD student	Qiao Jinxuan 2012 PhD student
		
Zhang Yun 2011 Graduate Student	Wang Ming 2012 Graduate Student	Huang Yanling 2012 graduate student

Her name still has a hyperlink, but the linked page is blank. The pages for Wang Mengyue and Wei Cuihua are blank as well.

Wuhan Institute of Virology, CAS
中国科学院武汉病毒研究所

Lab of Diagnostic Microbiology
诊断微生物学学科组

Home research direction Research Team Scientific research results Technical cooperation Cooperative Research Institution
Intragroup communication English Domain monitoring Information service

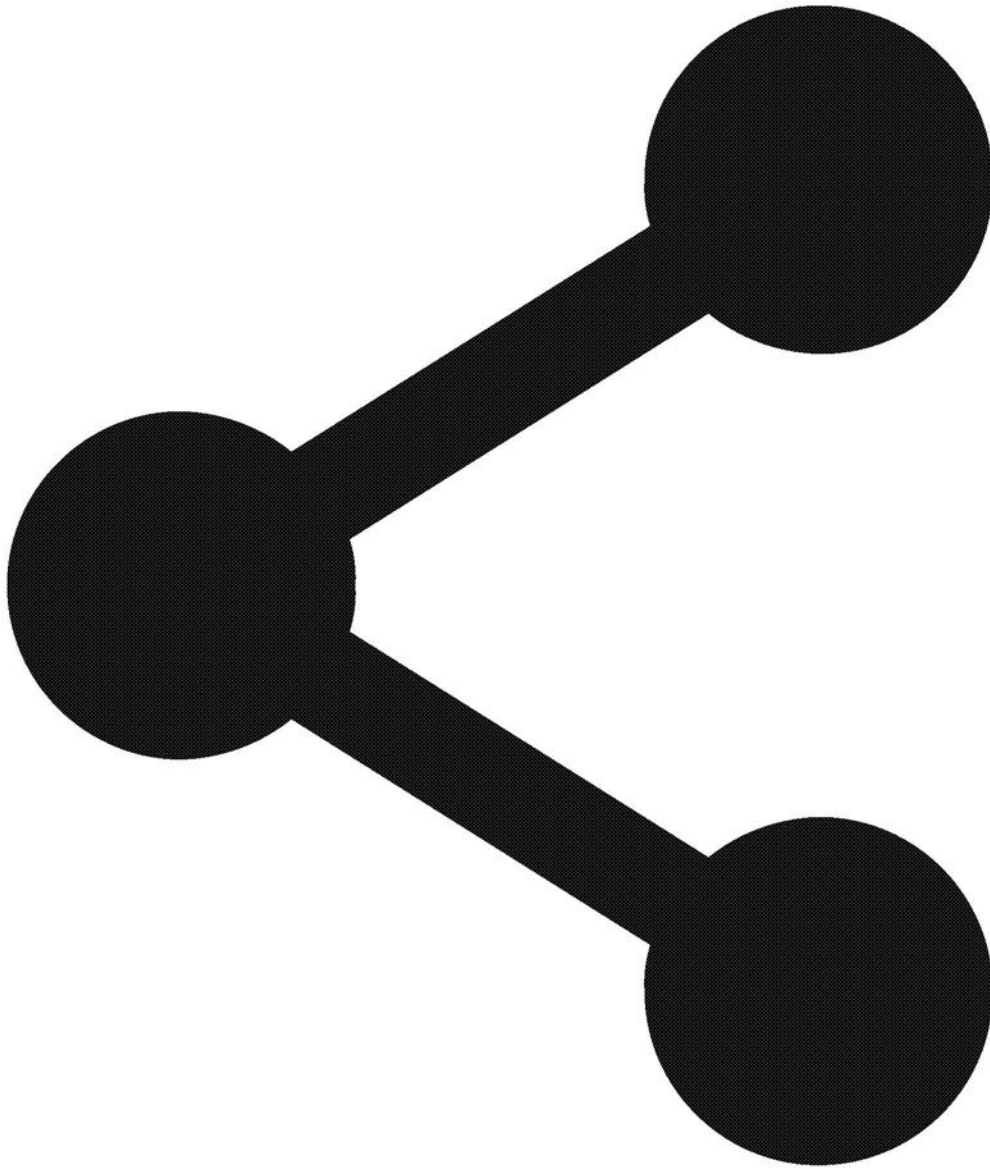
Technical Support Information System Department, Wuhan Documentation and Information Center, Chinese Academy of Sciences (zofh.wf@ib.ac.cn) bulo20150688

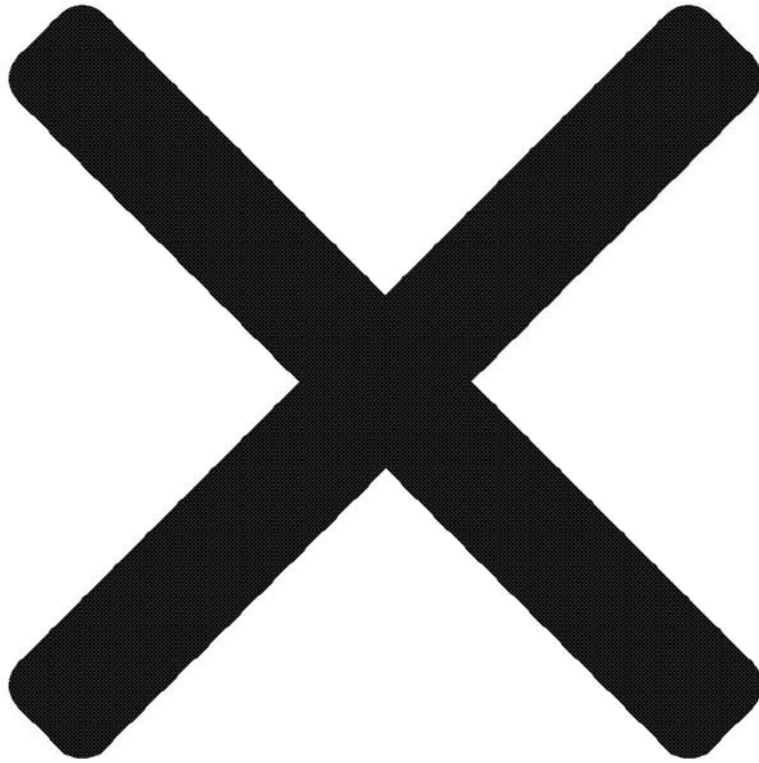
(For what it is worth, the *South China Morning Post* — a newspaper seen as being generally pro-Beijing — reported on March 13 that "according to the

government data seen by the Post, a 55 year-old from Hubei province could have been the first person to have contracted Covid-19 on November 17.”)

On February 17, Zhen Shuji, a Hong Kong correspondent from the French public-radio service Radio France Internationale, reported: “when a reporter from the Beijing News of the Mainland asked the institute for rumors about patient zero, the institute first denied that there was a researcher Huang Yanling, but after learning that the name of the person on the Internet did exist, acknowledged that the person had worked at the firm but has now left the office and is unaccounted for.”

NOW WATCH: 'Health Officials Warn There Is No Proof Coronavirus Is Impacted By Spring And Summer Weather'





<https://www.nationalreview.com/2020/04/coronavirus->

Tye says, "everyone on the Chinese internet is searching for [Huang Yanling] but most believe that her body was quickly cremated and the people working at the crematorium were perhaps infected as they were not given any information about the virus." (The U.S. Centers for Disease Control and

Prevention says that handling the body of someone who has died of coronavirus is safe — including embalming and cremation — as long as the standard safety protocols for handing a decedent are used. It's anyone's guess as to whether those safety protocols were sufficiently used in China before the outbreak's scope was known.)

As Tye observes, a public appearance by Huang Yanling would dispel a lot of the public rumors, and is the sort of thing the Chinese government would quickly arrange in normal circumstances — presuming that Huang Yanling was still alive. Several officials at the Wuhan Institute of Virology issued public statements that Huang was in good health and that no one at the institute has been infected with COVID-19. In any case, the mystery around Huang Yanling may be moot, but it does point to the lab covering up something about her.

China Global Television Network, a state-owned television broadcaster, illuminated another rumor while attempting to dispel it in a February 23 report entitled "Rumors Stop With the Wise":

On February 17, a Weibo user who claimed herself to be Chen Quanjiao, a researcher at the Wuhan Institute of Virology, reported to the public that the Director of the Institute was responsible for leaking the novel coronavirus. The Weibo post threw a bomb in the cyberspace and the public was shocked. Soon Chen herself stepped out and declared that she had never released any report information and expressed great indignation at such identity fraud on Weibo. It has been confirmed that that particular Weibo account had been shut down several times due to the spread of misinformation about COVID-19.

That Radio France Internationale report on February 17 also mentioned the next key part of the Tye's YouTube video. "Xiaobo Tao, a scholar from South China University of Technology, recently published a report that researchers at

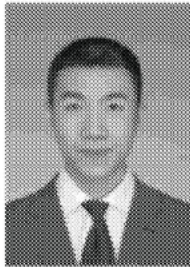
Wuhan Virus Laboratory were splashed with bat blood and urine, and then quarantined for 14 days.” HK01, another Hong Kong-based news site, [reported the same claim](#).

This doctor’s name is spelled in English as both “Xiaobo Tao” and “Botao Xiao.” From 2011 to 2013, Botao Xiao was a [postdoctoral research fellow at Harvard Medical School and Boston Children’s Hospital](#), and his [biography is still on the web site of the South China University of Technology](#).

www2.scut.edu.cn/biology_en/2017/06/14/jc5951a169022/page.htm

Botao Xiao

time: 2017-06-14



Botao Xiao

Email: botaoxiaojt@126.com or botaoxiao2013@jia.northwestern.edu

Office: B6-485
Single Molecule Lab: B6-138

Education

Ph.D., Northwestern University, Evanston, IL, USA, 2011
M.S., Chongqing University, Institute of Mechanics, Chinese Academy of Sciences, 2004
B.S., Chongqing University, 2000

Professional Experience

2017-Present, Professor, South China University of Technology
2013-2017, Professor, Huazhong University of Science and Technology
2011-2013, Postdoctoral Research Fellow, Harvard Medical School, Boston Children’s Hospital

Research Description

The Xiao group study mainly in the fields of cellular and molecular biomechanics, single molecule biophysics and engineering. Current research areas are: protein-ligand interactions, DNA and RNA assembly, high throughput nanoscale measurements and manipulations, mathematical modeling and quantitative analysis. The experimental techniques include: magnetic tweezers, optical tweezers, biomembrane force probe, fluorescence microscopy, atomic force microscopy, and electron microscopy. An online resume is online <http://www.bwh.harvard.edu/~botaoxiao>

At some point in February, Botao Xiao posted a research paper onto ResearchGate.net, [“The Possible Origins of 2019-nCoV coronavirus.”](#) He is listed as one author, along with Lei Xiao from Tian You Hospital, which is [affiliated with the Wuhan University of Science and Technology](#). The paper was removed a short time after it was posted, but archived images of its pages can be found [here](#) and [here](#).

The first conclusion of Botao Xiao's paper is that the bats suspected of carrying the virus are extremely unlikely to be found naturally in the city, and despite the stories of "bat soup," they conclude that bats were not sold at the market and were unlikely to be deliberately ingested.

The bats carrying CoV ZC45 were originally found in Yunnan or Zhejiang province, both of which were more than 900 kilometers away from the seafood market. Bats were normally found to live in caves and trees. But the seafood market is in a densely-populated district of Wuhan, a metropolitan [area] of ~15 million people. The probability was very low for the bats to fly to the market. According to municipal reports and the testimonies of 31 residents and 28 visitors, the bat was never a food source in the city, and no bat was traded in the market.

The U.S. Centers for Disease Control and Prevention and the World Health Organization could not confirm if bats were present at the market. Botao Xiao's paper theorizes that the coronavirus originated from bats being used for research at either one of two research laboratories in Wuhan.

We screened the area around the seafood market and identified two laboratories conducting research on bat coronavirus. Within ~ 280 meters from the market, there was the Wuhan Center for Disease Control & Prevention. WHCDC hosted animals in laboratories for research purpose, one of which was specialized in pathogens collection and identification. In one of their studies, 155 bats including *Rhinolophus affinis* were captured in Hubei province, and other 450 bats were captured in Zhejiang province. The expert in Collection was noted in the Author Contributions (JHT). Moreover, he was broadcasted for collecting viruses on nation-wide newspapers and websites in 2017 and 2019. He described that he was once by attacked by bats and the blood of a bat shot on his skin. He knew the extreme danger of the infection so he quarantined himself for 14 days.

In another accident, he quarantined himself again because bats peed on him.

Surgery was performed on the caged animals and the tissue samples were collected for DNA and RNA extraction and sequencing. The tissue samples and contaminated trashes were source of pathogens. They were only ~280 meters from the seafood market. The WHCDC was also adjacent to the Union Hospital (Figure 1, bottom) where the first group of doctors were infected during this epidemic. It is plausible that the virus leaked around and some of them contaminated the initial patients in this epidemic, though solid proofs are needed in future study.

The second laboratory was ~12 kilometers from the seafood market and belonged to Wuhan Institute of Virology, Chinese Academy of Sciences . . .

In summary, somebody was entangled with the evolution of 2019-nCoV coronavirus. In addition to origins of natural recombination and intermediate host, the killer coronavirus probably originated from a laboratory in Wuhan. Safety level may need to be reinforced in high risk biohazardous laboratories. Regulations may be taken to relocate these laboratories far away from city center and other densely populated places.

However, Xiao has told the *Wall Street Journal* that he has withdrawn his paper. "The speculation about the possible origins in the post was based on published papers and media, and was not supported by direct proofs," he said in a brief email on February 26.

The bat researcher that Xiao's report refers to is virologist Tian Junhua, who works at the Wuhan Centre for Disease Control. In 2004, the World Health Organization determined that an outbreak of the SARS virus had been caused by two separate leaks at the Chinese Institute of Virology in Beijing. The Chinese government said that the leaks were a result of "negligence" and the

responsible officials had been punished.

In 2017, the Chinese state-owned Shanghai Media Group made a seven-minute documentary about Tian Junhua, entitled “Youth in the Wild: Invisible Defender.” Videographers followed Tian Junhua as he traveled deep into caves to collect bats. “Among all known creatures, the bats are rich with various viruses inside,” he says in Chinese. “You can find most viruses responsible for human diseases, like rabies virus, SARS, and Ebola. Accordingly, the caves frequented by bats became our main battlefields.” He emphasizes, “bats usually live in caves humans can hardly reach. Only in these places can we find the most ideal virus vector samples.”

One of his last statements on the video is: “In the past ten-plus years, we have visited every corner of Hubei Province. We explored dozens of undeveloped caves and studied more than 300 types of virus vectors. But I do hope these virus samples will only be preserved for scientific research and will never be used in real life. Because humans need not only the vaccines, but also the protection from the nature.”

The description of Tian Junhua’s self-isolation came from a May 2017 report by Xinhua News Agency, repeated by the Chinese news site JQKNews.com:

The environment for collecting bat samples is extremely bad. There is a stench in the bat cave. Bats carry a large number of viruses in their bodies. If they are not careful, they are at risk of infection. But Tian Junhua is not afraid to go to the mountain with his wife to catch Batman.

Tian Junhua summed up the experience that the most bats can be caught by using the sky cannon and pulling the net. But in the process of operation, Tian Junhua forgot to take protective measures. Bat urine dripped on him like raindrops from the top. If he was infected, he could not find any medicine. It was written in the report.

The wings of bats carry sharp claws. When the big bats are caught by bat tools, they can easily spray blood. Several times bat blood was sprayed directly on Tians skin, but he didn't flinch at all. After returning home, Tian Junhua took the initiative to isolate for half a month. As long as the incubation period of 14 days does not occur, he will be lucky to escape, the report said.

Bat urine and blood can carry viruses. How likely is it that bat urine or blood got onto a researcher at either Wuhan Center for Disease Control & Prevention or the Wuhan Institute of Virology? Alternatively, what are the odds that some sort of medical waste or other material from the bats was not properly disposed of, and that was the initial transmission vector to a human being?

Virologists have been vehemently skeptical of the theory that COVID-19 was engineered or deliberately constructed in a laboratory; the director of the National Institutes of Health has written that recent genomic research "debunks such claims by providing scientific evidence that this novel coronavirus arose naturally." And none of the above is definitive proof that COVID-19 originated from a bat at either the Wuhan Center for Disease Control & Prevention or the Wuhan Institute of Virology. Definitive proof would require much broader access to information about what happened in those facilities in the time period before the epidemic in the city.

But it is a remarkable coincidence that the Wuhan Institute of Virology was researching Ebola and SARS-associated coronaviruses in bats before the pandemic outbreak, and that in the month when Wuhan doctors were treating the first patients of COVID-19, the institute announced in a hiring notice that "a large number of new bat and rodent new viruses have been discovered and identified." And the fact that the Chinese government spent six weeks insisting that COVID-19 could not be spread from person to person means that its denials about Wuhan laboratories cannot be accepted without

independent verification.



[Jim Geraghty](#) is the senior political correspondent of *National Review*. [@jimmeraghty](#)

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/339070126>

The possible origins of 2019-nCoV coronavirus

Preprint · February 2020

DOI: 10.13140/RG.2.2.21789.23901

CITATIONS

0

READS

849

2 authors, including:



Botao Xiao
South China University of Technology

26 PUBLICATIONS 265 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



National Natural Science Foundation of China (11372116) [View project](#)



National Natural Science Foundation of China (11772133) [View project](#)

The possible origins of 2019-nCoV coronavirus

Botao Xiao^{1,2*} and Lei Xiao³

¹ Joint International Research Laboratory of Synthetic Biology and Medicine, School of Biology and Biological Engineering, South China University of Technology, Guangzhou 510006, China

² School of Physics, Huazhong University of Science and Technology, Wuhan 430074, China

³ Tian You Hospital, Wuhan University of Science and Technology, Wuhan 430064, China

* Corresponding author: xiaob@scut.edu.cn

Tel / Fax: 86-20-3938-0631

The 2019-nCoV coronavirus has caused an epidemic of 28,060 laboratory-confirmed infections in human including 564 deaths in China by February 6, 2020. Two descriptions of the virus published on Nature this week indicated that the genome sequences from patients were 96% or 89% identical to the Bat CoV ZC45 coronavirus originally found in *Rhinolophus affinis*^{1,2}. It was critical to study where the pathogen came from and how it passed onto human.

An article published on The Lancet reported that 41 people in Wuhan were found to have the acute respiratory syndrome and 27 of them had contact with Huanan Seafood Market³. The 2019-nCoV was found in 33 out of 585 samples collected in the market after the outbreak. The market was suspicious to be the origin of the epidemic, and was shut down according to the rule of quarantine the source during an epidemic.

The bats carrying CoV ZC45 were originally found in Yunnan or Zhejiang province, both of which were more than 900 kilometers away from the seafood market. Bats were normally found to live in caves and trees. But the seafood market is in a densely-populated district of Wuhan, a metropolitan of ~15 million people. The probability was very low for the bats to fly to the market. According to municipal reports and the testimonies of 31 residents and 28 visitors, the bat was never a food source in the city, and no bat was traded in the market. There was possible natural recombination or intermediate host of the coronavirus, yet little proof has been reported.

Was there any other possible pathway? We screened the area around the seafood market and identified two laboratories conducting research on bat coronavirus. Within ~280 meters from the market, there was the Wuhan Center for Disease Control & Prevention (WHCDC) (Figure 1, from Baidu and Google maps). WHCDC hosted animals in laboratories for research purpose, one of which was specialized in pathogens collection and identification⁴⁻⁶. In one of their studies, 155 bats including *Rhinolophus affinis* were captured in Hubei province, and other 450 bats were captured in Zhejiang province⁴. The expert in collection was noted in the Author Contributions (JHT). Moreover, he was broadcasted for collecting viruses on nation-wide newspapers and websites in 2017 and 2019^{7,8}. He described that he was once by attacked by bats and the blood of a bat shot on his skin. He knew the extreme danger of the infection so he quarantined himself for 14 days⁷. In another accident, he quarantined himself again because bats peed on him. He was once thrilled for capturing a bat carrying a live tick⁸.

Surgery was performed on the caged animals and the tissue samples were collected for DNA and RNA extraction and sequencing^{4,5}. The tissue samples and contaminated trashes were source of pathogens. They were only ~280 meters from the seafood market. The WHCDC was also adjacent to the Union Hospital (Figure 1, bottom) where the first group of doctors were infected during this epidemic. It is plausible that the virus leaked around and some of them contaminated the initial patients in this epidemic, though solid proofs are needed in future study.

The second laboratory was ~12 kilometers from the seafood market and belonged to Wuhan Institute of Virology, Chinese Academy of Sciences^{1,9,10}. This laboratory reported that the Chinese horseshoe bats were natural reservoirs for the severe acute respiratory syndrome coronavirus (SARS-CoV) which caused the 2002-3 pandemic⁹. The principle investigator participated in a project which generated a chimeric virus using

the SARS-CoV reverse genetics system, and reported the potential for human emergence¹⁰. A direct speculation was that SARS-CoV or its derivative might leak from the laboratory.

In summary, somebody was entangled with the evolution of 2019-nCoV coronavirus. In addition to origins of natural recombination and intermediate host, the killer coronavirus probably originated from a laboratory in Wuhan. Safety level may need to be reinforced in high risk biohazardous laboratories. Regulations may be taken to relocate these laboratories far away from city center and other densely populated places.

Contributors

BX designed the comment and performed literature search. All authors performed data acquisition and analysis, collected documents, draw the figure, and wrote the papers.

Acknowledgements

This work is supported by the National Natural Science Foundation of China (11772133, 11372116).

Declaration of interests

All authors declare no competing interests.

References

1. Zhou P, Yang X-L, Wang X-G, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature* 2020. <https://doi.org/10.1038/s41586-020-2012-7>.
2. Wu F, Zhao S, Yu B, et al. A new coronavirus associated with human respiratory disease in China. *Nature* 2020. <https://doi.org/10.1038/s41586-020-2008-3>.
3. Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet* 2019. [https://doi.org/10.1016/S0140-6736\(20\)30183-5](https://doi.org/10.1016/S0140-6736(20)30183-5).
4. Guo WP, Lin XD, Wang W, et al. Phylogeny and origins of hantaviruses harbored by bats, insectivores, and rodents. *PLoS pathogens* 2013; **9**(2): e1003159.
5. Lu M, Tian JH, Yu B, Guo WP, Holmes EC, Zhang YZ. Extensive diversity of rickettsiales bacteria in ticks from Wuhan, China. *Ticks and tick-borne diseases* 2017; **8**(4): 574-80.
6. Shi M, Lin XD, Chen X, et al. The evolutionary history of vertebrate RNA viruses. *Nature* 2018; **556**(7700): 197-202.
7. Tao P. Expert in Wuhan collected ten thousands animals: capture bats in mountain at night. *Changjiang Times* 2017.
8. Li QX, Zhanyao. Playing with elephant dung, fishing for sea bottom mud: the work that will change China's future. *thepaper* 2019.
9. Ge XY, Li JL, Yang XL, et al. Isolation and characterization of a bat SARS-like coronavirus that uses the ACE2 receptor. *Nature* 2013; **503**(7477): 535-8.
10. Menachery VD, Yount BL, Jr., Debbink K, et al. A SARS-like cluster of circulating bat coronaviruses shows potential for human emergence. *Nature medicine* 2015; **21**(12): 1508-13.

Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China



Chaolin Huang*, Yeming Wang*, Xingwang Li*, Lili Ren*, Jianping Zhao*, Yi Hu*, Li Zhang, Guohui Fan, Jiuyang Xu, Xiaoying Gu, Zhenshun Cheng, Ting Yu, Jiaan Xia, Yuan Wei, Wenjuan Wu, Xuelei Xie, Wen Yin, Hui Li, Min Liu, Yan Xiao, Hong Gao, Li Guo, Jungang Xie, Guangfa Wang, Rongmeng Jiang, Zhancheng Gao, Qi Jin, Jianwei Wang†, Bin Cao†

Summary

Background A recent cluster of pneumonia cases in Wuhan, China, was caused by a novel betacoronavirus, the 2019 novel coronavirus (2019-nCoV). We report the epidemiological, clinical, laboratory, and radiological characteristics and treatment and clinical outcomes of these patients.

Methods All patients with suspected 2019-nCoV were admitted to a designated hospital in Wuhan. We prospectively collected and analysed data on patients with laboratory-confirmed 2019-nCoV infection by real-time RT-PCR and next-generation sequencing. Data were obtained with standardised data collection forms shared by WHO and the International Severe Acute Respiratory and Emerging Infection Consortium from electronic medical records. Researchers also directly communicated with patients or their families to ascertain epidemiological and symptom data. Outcomes were also compared between patients who had been admitted to the intensive care unit (ICU) and those who had not.

Findings By Jan 2, 2020, 41 admitted hospital patients had been identified as having laboratory-confirmed 2019-nCoV infection. Most of the infected patients were men (30 [73%] of 41); less than half had underlying diseases (13 [32%]), including diabetes (eight [20%]), hypertension (six [15%]), and cardiovascular disease (six [15%]). Median age was 49·0 years (IQR 41·0–58·0). 27 (66%) of 41 patients had been exposed to Huanan seafood market. One family cluster was found. Common symptoms at onset of illness were fever (40 [98%] of 41 patients), cough (31 [76%]), and myalgia or fatigue (18 [44%]); less common symptoms were sputum production (11 [28%] of 39), headache (three [8%] of 38), haemoptysis (two [5%] of 39), and diarrhoea (one [3%] of 38). Dyspnoea developed in 22 (55%) of 40 patients (median time from illness onset to dyspnoea 8·0 days [IQR 5·0–13·0]). 26 (63%) of 41 patients had lymphopenia. All 41 patients had pneumonia with abnormal findings on chest CT. Complications included acute respiratory distress syndrome (12 [29%]), RNAemia (six [15%]), acute cardiac injury (five [12%]) and secondary infection (four [10%]). 13 (32%) patients were admitted to an ICU and six (15%) died. Compared with non-ICU patients, ICU patients had higher plasma levels of IL2, IL7, IL10, GSCF, IP10, MCP1, MIP1A, and TNFα.

Interpretation The 2019-nCoV infection caused clusters of severe respiratory illness similar to severe acute respiratory syndrome coronavirus and was associated with ICU admission and high mortality. Major gaps in our knowledge of the origin, epidemiology, duration of human transmission, and clinical spectrum of disease need fulfilment by future studies.

Funding Ministry of Science and Technology, Chinese Academy of Medical Sciences, National Natural Science Foundation of China, and Beijing Municipal Science and Technology Commission.

Copyright © 2020 Elsevier Ltd. All rights reserved.

Introduction

Coronaviruses are enveloped non-segmented positive-sense RNA viruses belonging to the family Coronaviridae and the order Nidovirales and broadly distributed in humans and other mammals.¹ Although most human coronavirus infections are mild, the epidemics of the two betacoronaviruses, severe acute respiratory syndrome coronavirus (SARS-CoV)^{2–4} and Middle East respiratory syndrome coronavirus (MERS-CoV),^{5,6} have caused more than 10000 cumulative cases in the past two decades, with mortality rates of 10% for SARS-CoV and 37% for MERS-CoV.^{7,8} The coronaviruses already identified might only be the tip of the iceberg, with

potentially more novel and severe zoonotic events to be revealed.

In December, 2019, a series of pneumonia cases of unknown cause emerged in Wuhan, Hubei, China, with clinical presentations greatly resembling viral pneumonia.⁹ Deep sequencing analysis from lower respiratory tract samples indicated a novel coronavirus, which was named 2019 novel coronavirus (2019-nCoV). Thus far, more than 800 confirmed cases, including in health-care workers, have been identified in Wuhan, and several exported cases have been confirmed in other provinces in China, and in Thailand, Japan, South Korea, and the USA.^{10–13}

Lancet 2020; 395: 497–506

Published Online

January 24, 2020

[https://doi.org/10.1016/S0140-6736\(20\)30183-5](https://doi.org/10.1016/S0140-6736(20)30183-5)

50140-6736(20)30183-5

This online publication has been corrected. The corrected version first appeared at thelancet.com on January 30, 2020

See Comment pages 469 and 470

*Contributed equally

†Joint corresponding authors

Jin Yin-tan Hospital, Wuhan, China (Prof C Huang MD, Prof L Zhang MD, T Yu MD, J Xia MD, Y Wei MD, Prof W Wu MD, Prof X Xie MD); Department of Pulmonary and Critical Care Medicine, Center of Respiratory Medicine, National Clinical Research Center for Respiratory Diseases (Y Wang MD, G Fan MS, X Gu PhD, H Li MD, Prof B Cao MD), Institute of Clinical Medical Sciences (G Fan, X Gu), and Department of Radiology (M Liu MD), China-Japan Friendship Hospital, Beijing, China; Institute of Respiratory Medicine, Chinese Academy of Medical Sciences, Peking Union Medical College, Beijing, China (Y Wang, G Fan, X Gu, H Li, Prof B Cao); Department of Respiratory Medicine, Capital Medical University, Beijing, China (Y Wang, H Li, Prof B Cao); Clinical and Research Center of Infectious Diseases, Beijing Ditan Hospital, Capital Medical University, Beijing, China (Prof X Li MD, Prof R Jiang MD); NHC Key Laboratory of Systems Biology of Pathogens and Christophers Merieux Laboratory, Institute of Pathogen Biology (Prof L Ren PhD, Y Xiao MS, Prof L Guo PhD, Q Jin PhD, Prof J Wang PhD), and Institute of Laboratory Animal Science (Prof H Gao PhD), Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing, China; Tongji Hospital (Prof J Zhao MD, Prof J Xie MD), and Department

of Pulmonary and Critical Care Medicine, The Central Hospital of Wuhan (Y Hu MD, W Yin MD), Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China; Tsinghua University School of Medicine, Beijing, China (J Xu MD); Department of Respiratory medicine, Zhongnan Hospital of Wuhan University, Wuhan, China (Prof Z Cheng MD); Department of Pulmonary and Critical Care Medicine, Peking University First Hospital, Beijing, China (Prof G Wang MD); Department of Pulmonary and Critical Care Medicine, Peking University People's Hospital, Beijing, China (Prof Z Gao MD); and Tsinghua University-Peking University Joint Center for Life Sciences, Beijing, China (Prof B Cao)

Correspondence to:

Prof Bin Cao, Department of Pulmonary and Critical Care Medicine, China-Japan Friendship Hospital, Beijing 100029, China
caobin_ben@163.com

or

Prof Jianwei Wang, NHC Key Laboratory of Systems Biology of Pathogens and Christophe Merieux Laboratory, Institute of Pathogen Biology, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100730, China
wangjw28@163.com

Research in context

Evidence before this study

Human coronaviruses, including hCoV-229E, OC43, NL63, and HKU1, cause mild respiratory diseases. Fatal coronavirus infections that have emerged in the past two decades are severe acute respiratory syndrome coronavirus (SARS-CoV) and the Middle East respiratory syndrome coronavirus. We searched PubMed and the China National Knowledge Infrastructure database for articles published up to Jan 11, 2020, using the keywords "novel coronavirus", "2019 novel coronavirus", or "2019-nCoV". No published work about the human infection caused by the 2019 novel coronavirus (2019-nCoV) could be identified.

Added value of this study

We report the epidemiological, clinical, laboratory, and radiological characteristics, treatment, and clinical outcomes of 41 laboratory-confirmed cases infected with 2019-nCoV.

We aim to describe epidemiological, clinical, laboratory, and radiological characteristics, treatment, and outcomes of patients confirmed to have 2019-nCoV infection, and to compare the clinical features between intensive care unit (ICU) and non-ICU patients. We hope our study findings will inform the global community of the emergence of this novel coronavirus and its clinical features.

Methods

Patients

Following the pneumonia cases of unknown cause reported in Wuhan and considering the shared history of exposure to Huanan seafood market across the patients, an epidemiological alert was released by the local health authority on Dec 31, 2019, and the market was shut down on Jan 1, 2020. Meanwhile, 59 suspected cases with fever and dry cough were transferred to a designated hospital starting from Dec 31, 2019. An expert team of physicians, epidemiologists, virologists, and government officials was soon formed after the alert.

Since the cause was unknown at the onset of these emerging infections, the diagnosis of pneumonia of unknown cause in Wuhan was based on clinical characteristics, chest imaging, and the ruling out of common bacterial and viral pathogens that cause pneumonia. Suspected patients were isolated using airborne precautions in the designated hospital, Jin Yin-tan Hospital (Wuhan, China), and fit-tested N95 masks and airborne precautions for aerosol-generating procedures were taken. This study was approved by the National Health Commission of China and Ethics Commission of Jin Yin-tan Hospital (KY-2020-01.01). Written informed consent was waived by the Ethics Commission of the designated hospital for emerging infectious diseases.

27 (66%) of 41 patients had a history of direct exposure to the Huanan seafood market. The median age of patients was 49.0 years (IQR 41.0–58.0), and 13 (32%) patients had underlying disease. All patients had pneumonia. A third of patients were admitted to intensive care units, and six died. High concentrations of cytokines were recorded in plasma of critically ill patients infected with 2019-nCoV.

Implications of all the available evidence

2019-nCoV caused clusters of fatal pneumonia with clinical presentation greatly resembling SARS-CoV. Patients infected with 2019-nCoV might develop acute respiratory distress syndrome, have a high likelihood of admission to intensive care, and might die. The cytokine storm could be associated with disease severity. More efforts should be made to know the whole spectrum and pathophysiology of the new disease.

Procedures

Local centres for disease control and prevention collected respiratory, blood, and faeces specimens, then shipped them to designated authoritative laboratories to detect the pathogen (NHC Key Laboratory of Systems Biology of Pathogens and Christophe Merieux Laboratory, Beijing, China). A novel coronavirus, which was named 2019-nCoV, was isolated then from lower respiratory tract specimen and a diagnostic test for this virus was developed soon after that.¹⁴ Of 59 suspected cases, 41 patients were confirmed to be infected with 2019-nCoV. The presence of 2019-nCoV in respiratory specimens was detected by next-generation sequencing or real-time RT-PCR methods. The primers and probe target to envelope gene of CoV were used and the sequences were as follows: forward primer 5'-ACTTCTTTTTCTTGCTTTTCGTGGT-3'; reverse primer 5'-GCAGCAGTACGCACACAATC-3'; and the probe 5'-CY5-CTAGTTACTACTAGCCATCCTTACTGC-3'-BHQ1. Conditions for the amplifications were 50°C for 15 min, 95°C for 3 min, followed by 45 cycles of 95°C for 15 s and 60°C for 30 s.

Initial investigations included a complete blood count, coagulation profile, and serum biochemical test (including renal and liver function, creatine kinase, lactate dehydrogenase, and electrolytes). Respiratory specimens, including nasal and pharyngeal swabs, bronchoalveolar lavage fluid, sputum, or bronchial aspirates were tested for common viruses, including influenza, avian influenza, respiratory syncytial virus, adenovirus, parainfluenza virus, SARS-CoV and MERS-CoV using real-time RT-PCR assays approved by the China Food and Drug Administration. Routine bacterial and fungal examinations were also performed.

Given the emergence of the 2019-nCoV pneumonia cases during the influenza season, antibiotics (orally and intravenously) and oseltamivir (orally 75 mg twice daily) were empirically administered. Corticosteroid therapy

(methylprednisolone 40–120 mg per day) was given as a combined regimen if severe community-acquired pneumonia was diagnosed by physicians at the designated hospital. Oxygen support (eg, nasal cannula and invasive mechanical ventilation) was administered to patients according to the severity of hypoxaemia. Repeated tests for 2019-nCoV were done in patients confirmed to have 2019-nCoV infection to show viral clearance before hospital discharge or discontinuation of isolation.

Data collection

We reviewed clinical charts, nursing records, laboratory findings, and chest x-rays for all patients with laboratory-confirmed 2019-nCoV infection who were reported by the local health authority. The admission data of these patients was from Dec 16, 2019, to Jan 2, 2020. Epidemiological, clinical, laboratory, and radiological characteristics and treatment and outcomes data were obtained with standardised data collection forms (modified case record form for severe acute respiratory infection clinical characterisation shared by WHO and the International Severe Acute Respiratory and Emerging Infection Consortium) from electronic medical records. Two researchers also independently reviewed the data collection forms to double check the data collected. To ascertain the epidemiological and symptom data, which were not available from electronic medical records, the researchers also directly communicated with patients or their families to ascertain epidemiological and symptom data.

Cytokine and chemokine measurement

To characterise the effect of coronavirus on the production of cytokines or chemokines in the acute phase of the illness, plasma cytokines and chemokines (IL1B, IL1RA, IL2, IL4, IL5, IL6, IL7, IL8 (also known as CXCL8), IL9, IL10, IL12p70, IL13, IL15, IL17A, Eotaxin (also known as CCL11), basic FGF2, GCSF (CSF3), GMCSF (CSF2), IFN γ , IP10 (CXCL10), MCP1 (CCL2), MIP1A (CCL3), MIP1B (CCL4), PDGFB, RANTES (CCL5), TNF α , and VEGFA were measured using Human Cytokine Standard 27-Plex Assays panel and the Bio-Plex 200 system (Bio-Rad, Hercules, CA, USA) for all patients according to the manufacturer's instructions. The plasma samples from four healthy adults were used as controls for cross-comparison. The median time from being transferred to a designated hospital to the blood sample collection was 4 days (IQR 2–5).

Detection of coronavirus in plasma

Each 80 μ L plasma sample from the patients and contacts was added into 240 μ L of Trizol LS (10296028; Thermo Fisher Scientific, Carlsbad, CA, USA) in the Biosafety Level 3 laboratory. Total RNA was extracted by Direct-zol RNA Miniprep kit (R2050; Zymo research, Irvine, CA, USA) according to the manufacturer's instructions and

50 μ L elution was obtained for each sample. 5 μ L RNA was used for real-time RT-PCR, which targeted the NP gene using AgPath-ID One-Step RT-PCR Reagent (AM1005; Thermo Fisher Scientific). The final reaction mix concentration of the primers was 500 nM and probe was 200 nM. Real-time RT-PCR was performed using the following conditions: 50°C for 15 min and 95°C for 3 min, 50 cycles of amplification at 95°C for 10 s and 60°C for 45 s. Since we did not perform tests for detecting infectious virus in blood, we avoided the term viraemia and used RNAemia instead. RNAemia was defined as a positive result for real-time RT-PCR in the plasma sample.

Definitions

Acute respiratory distress syndrome (ARDS) and shock were defined according to the interim guidance of WHO

For the International Severe Acute Respiratory and Emerging Infection Consortium-*WHO* case record form for severe acute respiratory infections see <https://isaic.tghn.org/protocols/severe-acute-respiratory-infection-data-tools/>

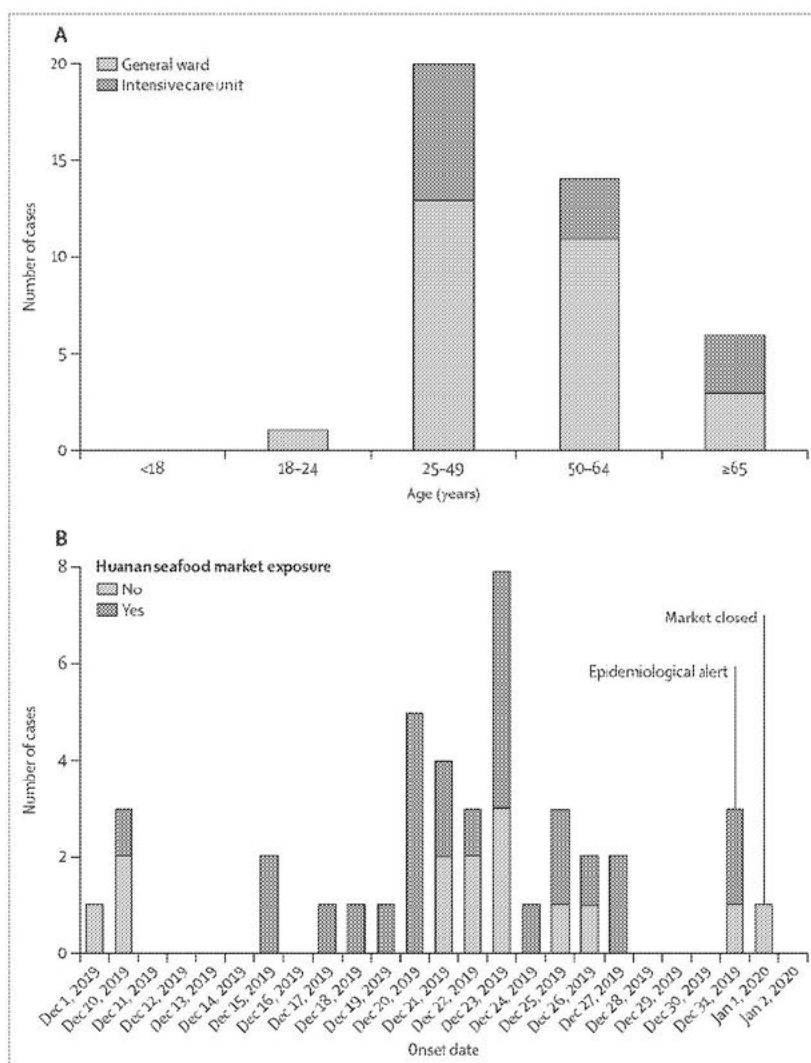


Figure 1: Date of illness onset and age distribution of patients with laboratory-confirmed 2019-nCoV infection (A) Number of hospital admissions by age group. (B) Distribution of symptom onset date for laboratory-confirmed cases. The Wuhan local health authority issued an epidemiological alert on Dec 30, 2019, and closed the Huanan seafood market 2 days later.

	All patients (n=41)	ICU care (n=13)	No ICU care (n=28)	p value
Characteristics				
Age, years	49·0 (41·0–58·0)	49·0 (41·0–61·0)	49·0 (41·0–57·5)	0·50
Sex	0·24
Men	30 (73%)	11 (85%)	19 (68%)	..
Women	11 (27%)	2 (15%)	9 (32%)	..
Huanan seafood market exposure	27 (66%)	9 (69%)	18 (64%)	0·75
Current smoking	3 (7%)	0	3 (11%)	0·31
Any comorbidity	13 (32%)	5 (38%)	8 (29%)	0·53
Diabetes	8 (20%)	1 (8%)	7 (25%)	0·16
Hypertension	6 (15%)	2 (15%)	4 (14%)	0·93
Cardiovascular disease	6 (15%)	3 (23%)	3 (11%)	0·32
Chronic obstructive pulmonary disease	1 (2%)	1 (8%)	0	0·14
Malignancy	1 (2%)	0	1 (4%)	0·49
Chronic liver disease	1 (2%)	0	1 (4%)	0·68
Signs and symptoms				
Fever	40 (98%)	13 (100%)	27 (96%)	0·68
Highest temperature, °C	0·037
<37·3	1 (2%)	0	1 (4%)	..
37·3–38·0	8 (20%)	3 (23%)	5 (18%)	..
38·1–39·0	18 (44%)	7 (54%)	11 (39%)	..
>39·0	14 (34%)	3 (23%)	11 (39%)	..
Cough	31 (76%)	11 (85%)	20 (71%)	0·35
Myalgia or fatigue	18 (44%)	7 (54%)	11 (39%)	0·38
Sputum production	11/39 (28%)	5 (38%)	6/26 (23%)	0·32
Headache	3/38 (8%)	0	3/25 (12%)	0·10
Haemoptysis	2/39 (5%)	1 (8%)	1/26 (4%)	0·46
Diarrhoea	1/38 (3%)	0	1/25 (4%)	0·66
Dyspnoea	22/40 (55%)	12 (92%)	10/27 (37%)	0·0010
Days from illness onset to dyspnoea	8·0 (5·0–13·0)	8·0 (6·0–17·0)	6·5 (2·0–10·0)	0·22
Days from first admission to transfer	5·0 (1·0–8·0)	8·0 (5·0–14·0)	1·0 (1·0–5·5)	0·0023
Systolic pressure, mm Hg	125·0 (119·0–135·0)	145·0 (123·0–167·0)	122·0 (118·5–129·5)	0·018
Respiratory rate >24 breaths per min	12 (29%)	8 (62%)	4 (14%)	0·0023

Data are median (IQR), n (%), or n/N (%), where N is the total number of patients with available data. p values comparing ICU care and no ICU care are from χ^2 test, Fisher's exact test, or Mann-Whitney U test. 2019-nCoV=2019 novel coronavirus. ICU=intensive care unit.

Table 1: Demographics and baseline characteristics of patients infected with 2019-nCoV

for novel coronavirus.⁹ Hypoxaemia was defined as arterial oxygen tension (PaO₂) over inspiratory oxygen fraction (FIO₂) of less than 300 mm Hg.¹⁵ Acute kidney injury was identified and classified on the basis of the highest serum creatinine level or urine output criteria according to the kidney disease improving global outcomes classification.¹⁶ Secondary infection was diagnosed if the patients had clinical symptoms or signs of nosocomial pneumonia or bacteraemia, and was combined with a positive culture of a new pathogen from a lower respiratory tract specimen (including the sputum, transtracheal aspirates, or bronchoalveolar lavage fluid, or from blood samples taken \geq 48 h

after admission).¹⁷ Cardiac injury followed the definition used in our previous study in H7N9 patients.¹⁸ In brief, cardiac injury was diagnosed if serum levels of cardiac biomarkers (eg, troponin I) were above the 99th percentile upper reference limit, or new abnormalities were shown in electrocardiography and echocardiography.

Statistical analysis

Continuous variables were expressed as median (IQR) and compared with the Mann-Whitney U test; categorical variables were expressed as number (%) and compared by χ^2 test or Fisher's exact test between ICU care and no ICU care groups. Boxplots were drawn to describe plasma cytokine and chemokine concentrations.

A two-sided α of less than 0·05 was considered statistically significant. Statistical analyses were done using the SAS software, version 9·4, unless otherwise indicated.

Role of the funding source

The funder of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report. The corresponding authors had full access to all the data in the study and had final responsibility for the decision to submit for publication.

Results

By Jan 2, 2020, 41 admitted hospital patients were identified as laboratory-confirmed 2019-nCoV infection in Wuhan. 20 [49%] of the 2019-nCoV-infected patients were aged 25–49 years, and 14 (34%) were aged 50–64 years (figure 1A). The median age of the patients was 49·0 years (IQR 41·0–58·0; table 1). In our cohort of the first 41 patients as of Jan 2, no children or adolescents were infected. Of the 41 patients, 13 (32%) were admitted to the ICU because they required high-flow nasal cannula or higher-level oxygen support measures to correct hypoxaemia. Most of the infected patients were men (30 [73%]); less than half had underlying diseases (13 [32%]), including diabetes (eight [20%]), hypertension (six [15%]), and cardiovascular disease (six [15%]).

27 (66%) patients had direct exposure to Huanan seafood market (figure 1B). Market exposure was similar between the patients with ICU care (nine [69%]) and those with non-ICU care (18 [64%]). The symptom onset date of the first patient identified was Dec 1, 2019. None of his family members developed fever or any respiratory symptoms. No epidemiological link was found between the first patient and later cases. The first fatal case, who had continuous exposure to the market, was admitted to hospital because of a 7-day history of fever, cough, and dyspnoea. 5 days after illness onset, his wife, a 53-year-old woman who had no known history of exposure to the market, also presented with pneumonia and was hospitalised in the isolation ward.

The most common symptoms at onset of illness were fever (40 [98%] of 41 patients), cough (31 [76%]), and myalgia or fatigue (18 [44%]); less common symptoms

were sputum production (11 [28%] of 39), headache (three [8%] of 38), haemoptysis (two [5%] of 39), and diarrhoea (one [3%] of 38; table 1). More than half of patients (22 [55%] of 40) developed dyspnoea. The median duration from illness onset to dyspnoea was 8.0 days (IQR 5.0–13.0). The median time from onset of symptoms to first hospital admission was 7.0 days (4.0–8.0), to shortness of breath was 8.0 days (5.0–13.0), to ARDS was 9.0 days (8.0–14.0), to mechanical ventilation was 10.5 days (7.0–14.0), and to ICU admission was 10.5 days (8.0–17.0; figure 2).

The blood counts of patients on admission showed leucopenia (white blood cell count less than $4 \times 10^9/L$; ten [25%] of 40 patients) and lymphopenia (lymphocyte count $<1.0 \times 10^9/L$; 26 [63%] patients; table 2). Prothrombin time and D-dimer level on admission were higher in ICU patients (median prothrombin time 12.2 s [IQR 11.2–13.4]; median D-dimer level 2.4 mg/L [0.6–14.4]) than non-ICU patients (median prothrombin time 10.7 s [9.8–12.1], $p=0.012$; median D-dimer level 0.5 mg/L [0.3–0.8], $p=0.0042$). Levels of aspartate aminotransferase were increased in 15 (37%) of 41 patients, including eight (62%) of 13 ICU patients and seven (25%) of 28 non-ICU patients. Hypersensitive troponin I (hs-cTnI) was increased substantially in five patients, in whom the diagnosis of virus-related cardiac injury was made.

Most patients had normal serum levels of procalcitonin on admission (procalcitonin <0.1 ng/mL; 27 [69%] patients; table 2). Four ICU patients developed secondary infections. Three of the four patients with secondary infection had procalcitonin greater than 0.5 ng/mL (0.69 ng/mL, 1.46 ng/mL, and 6.48 ng/mL).

On admission, abnormalities in chest CT images were detected among all patients. Of the 41 patients, 40 (98%) had bilateral involvement (table 2). The typical findings of chest CT images of ICU patients on admission were bilateral multiple lobular and subsegmental areas of consolidation (figure 3A). The representative chest CT findings of non-ICU patients showed bilateral ground-glass opacity and subsegmental areas of consolidation (figure 3B). Later chest CT images showed bilateral ground-glass opacity, whereas the consolidation had been resolved (figure 3C).

Initial plasma IL1B, IL1RA, IL7, IL8, IL9, IL10, basic FGF, GCSF, GMCSF, IFN γ , IP10, MCP1, MIP1A, MIP1B, PDGF, TNF α , and VEGF concentrations were higher in both ICU patients and non-ICU patients than in healthy adults (appendix pp 6–7). Plasma levels of IL5, IL12p70, IL15, Eotaxin, and RANTES were similar between healthy adults and patients infected with 2019-nCoV. Further comparison between ICU and non-ICU patients showed that plasma concentrations of IL2, IL7, IL10, GCSF, IP10, MCP1, MIP1A, and TNF α were higher in ICU patients than non-ICU patients.

All patients had pneumonia. Common complications included ARDS (12 [29%] of 41 patients), followed by

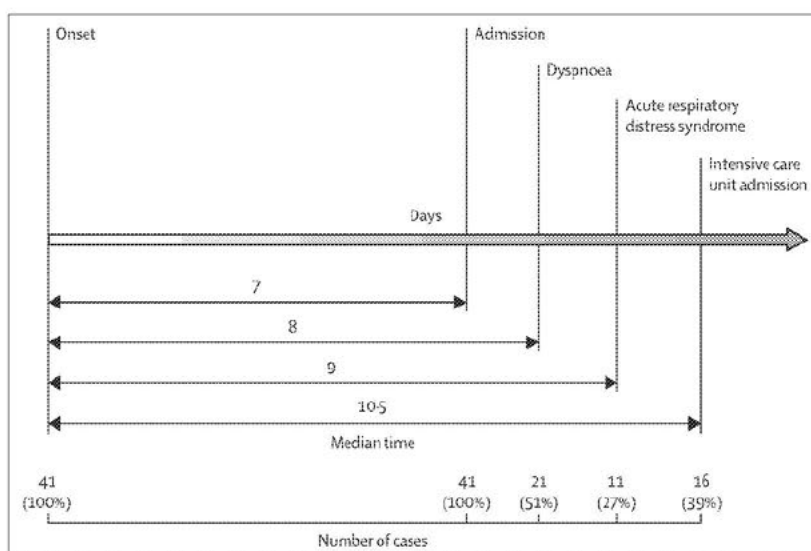


Figure 2: Timeline of 2019-nCoV cases after onset of illness

RNAemia (six [15%] patients), acute cardiac injury (five [12%] patients), and secondary infection (four [10%] patients; table 3). Invasive mechanical ventilation was required in four (10%) patients, with two of them (5%) had refractory hypoxaemia and received extracorporeal membrane oxygenation as salvage therapy. All patients were administered with empirical antibiotic treatment, and 38 (93%) patients received antiviral therapy (oseltamivir). Additionally, nine (22%) patients were given systematic corticosteroids. A comparison of clinical features between patients who received and did not receive systematic corticosteroids is in the appendix (pp 1–5).

As of Jan 22, 2020, 28 (68%) of 41 patients have been discharged and six (15%) patients have died. Fitness for discharge was based on abatement of fever for at least 10 days, with improvement of chest radiographic evidence and viral clearance in respiratory samples from upper respiratory tract.

Discussion

We report here a cohort of 41 patients with laboratory-confirmed 2019-nCoV infection. Patients had serious, sometimes fatal, pneumonia and were admitted to the designated hospital in Wuhan, China, by Jan 2, 2020. Clinical presentations greatly resemble SARS-CoV. Patients with severe illness developed ARDS and required ICU admission and oxygen therapy. The time between hospital admission and ARDS was as short as 2 days. At this stage, the mortality rate is high for 2019-nCoV, because six (15%) of 41 patients in this cohort died.

The number of deaths is rising quickly. As of Jan 24, 2020, 835 laboratory-confirmed 2019-nCoV infections were reported in China, with 25 fatal cases. Reports have been released of exported cases in many provinces in China, and in other countries;

See Online for appendix

	All patients (n=41)	ICU care (n=13)	No ICU care (n=28)	p value
White blood cell count, $\times 10^9$ per L	6.2 (4.1-10.5)	11.3 (5.8-12.1)	5.7 (3.1-7.6)	0.011
<4	10/40 (25%)	1/13 (8%)	9/27 (33%)	0.041
4-10	18/40 (45%)	5/13 (38%)	13/27 (48%)	..
>10	12/40 (30%)	7/13 (54%)	5/27 (19%)	..
Neutrophil count, $\times 10^9$ per L	5.0 (3.3-8.9)	10.6 (5.0-11.8)	4.4 (2.0-6.1)	0.00069
Lymphocyte count, $\times 10^9$ per L	0.8 (0.6-1.1)	0.4 (0.2-0.8)	1.0 (0.7-1.1)	0.0041
<1.0	26/41 (63%)	11/13 (85%)	15/28 (54%)	0.045
≥ 1.0	15/41 (37%)	2/13 (15%)	13/28 (46%)	..
Haemoglobin, g/L	126.0 (118.0-140.0)	122.0 (111.0-128.0)	130.5 (120.0-140.0)	0.20
Platelet count, $\times 10^9$ per L	164.5 (131.5-263.0)	196.0 (165.0-263.0)	149.0 (131.0-263.0)	0.45
<100	2/40 (5%)	1/13 (8%)	1/27 (4%)	0.45
≥ 100	38/40 (95%)	12/13 (92%)	26/27 (96%)	..
Prothrombin time, s	11.1 (10.1-12.4)	12.2 (11.2-13.4)	10.7 (9.8-12.1)	0.012
Activated partial thromboplastin time, s	27.0 (24.2-34.1)	26.2 (22.5-33.9)	27.7 (24.8-34.1)	0.57
D-dimer, mg/L	0.5 (0.3-1.3)	2.4 (0.6-14.4)	0.5 (0.3-0.8)	0.0042
Albumin, g/L	31.4 (28.9-36.0)	27.9 (26.3-30.9)	34.7 (30.2-36.5)	0.00066
Alanine aminotransferase, U/L	32.0 (21.0-50.0)	49.0 (29.0-115.0)	27.0 (19.5-40.0)	0.038
Aspartate aminotransferase, U/L	34.0 (26.0-48.0)	44.0 (30.0-70.0)	34.0 (24.0-40.5)	0.10
≤ 40	26/41 (63%)	5/13 (38%)	21/28 (75%)	0.025
>40	15/41 (37%)	8/13 (62%)	7/28 (25%)	..
Total bilirubin, mmol/L	11.7 (9.5-13.9)	14.0 (11.9-32.9)	10.8 (9.4-12.3)	0.011
Potassium, mmol/L	4.2 (3.8-4.8)	4.6 (4.0-5.0)	4.1 (3.8-4.6)	0.27
Sodium, mmol/L	139.0 (137.0-140.0)	138.0 (137.0-139.0)	139.0 (137.5-140.5)	0.26
Creatinine, $\mu\text{mol/L}$	74.2 (57.5-85.7)	79.0 (53.1-92.7)	73.3 (57.5-84.7)	0.84
≤ 133	37/41 (90%)	11/13 (85%)	26/28 (93%)	0.42
>133	4/41 (10%)	2/13 (15%)	2/28 (7%)	..
Creatine kinase, U/L	132.5 (62.0-219.0)	132.0 (82.0-493.0)	133.0 (61.0-189.0)	0.31
≤ 185	27/40 (68%)	7/13 (54%)	20/27 (74%)	0.21
>185	13/40 (33%)	6/13 (46%)	7/27 (26%)	..
Lactate dehydrogenase, U/L	286.0 (242.0-408.0)	400.0 (323.0-578.0)	281.0 (233.0-357.0)	0.0044
≤ 245	11/40 (28%)	1/13 (8%)	10/27 (37%)	0.036
>245	29/40 (73%)	12/13 (92%)	17/27 (63%)	..
Hypersensitive troponin I, pg/mL	3.4 (1.1-9.1)	3.3 (3.0-163.0)	3.5 (0.7-5.4)	0.075
>28 (99th percentile)	5/41 (12%)	4/13 (31%)	1/28 (4%)	0.017
Procalcitonin, ng/mL	0.1 (0.1-0.1)	0.1 (0.1-0.4)	0.1 (0.1-0.1)	0.031
<0.1	27/39 (69%)	6/12 (50%)	21/27 (78%)	0.629
≥ 0.1 to <0.25	7/39 (18%)	3/12 (25%)	4/27 (15%)	..
≥ 0.25 to <0.5	2/39 (5%)	0/12	2/27 (7%)	..
≥ 0.5	3/39 (8%)	3/12 (25%) ^a	0/27	..
Bilateral involvement of chest radiographs	40/41 (98%)	13/13 (100%)	27/28 (96%)	0.68
Cycle threshold of respiratory tract	32.2 (31.0-34.5)	31.1 (30.0-33.5)	32.2 (31.1-34.7)	0.39

Data are median (IQR) or n/N (%), where N is the total number of patients with available data. p values comparing ICU care and no ICU care are from χ^2 , Fisher's exact test, or Mann-Whitney U test. 2019-nCoV-2019 novel coronavirus. ICU=intensive care unit. ^aComplicated typical secondary infection during the first hospitalisation.

Table 2: Laboratory findings of patients infected with 2019-nCoV on admission to hospital

some health-care workers have also been infected in Wuhan. Taken together, evidence so far indicates human transmission for 2019-nCoV. We are concerned that 2019-nCoV could have acquired the ability for efficient human transmission.¹⁹ Airborne precautions, such as a fit-tested N95 respirator, and other personal protective equipment are strongly recommended. To

prevent further spread of the disease in health-care settings that are caring for patients infected with 2019-nCoV, onset of fever and respiratory symptoms should be closely monitored among health-care workers. Testing of respiratory specimens should be done immediately once a diagnosis is suspected. Serum antibodies should be tested among health-care workers

	All patients (n=41)	ICU care (n=13)	No ICU care (n=28)	p value
Duration from illness onset to first admission	7.0 (4.0–8.0)	7.0 (4.0–8.0)	7.0 (4.0–8.5)	0.87
Complications				
Acute respiratory distress syndrome	12 (29%)	11 (85%)	1 (4%)	<0.0001
RNAemia	6 (15%)	2 (15%)	4 (14%)	0.93
Cycle threshold of RNAemia	35.1 (34.7–35.1)	35.1 (35.1–35.1)	34.8 (34.1–35.4)	0.35
Acute cardiac injury ^a	5 (12%)	4 (31%)	1 (4%)	0.017
Acute kidney injury	3 (7%)	3 (23%)	0	0.027
Secondary infection	4 (10%)	4 (31%)	0	0.0014
Shock	3 (7%)	3 (23%)	0	0.027
Treatment				
Antiviral therapy	38 (93%)	12 (92%)	26 (93%)	0.46
Antibiotic therapy	41 (100%)	13 (100%)	28 (100%)	NA
Use of corticosteroid	9 (22%)	6 (46%)	3 (11%)	0.013
Continuous renal replacement therapy	3 (7%)	3 (23%)	0	0.027
Oxygen support				
Nasal cannula	27 (66%)	1 (8%)	26 (93%)	<0.0001
Non-invasive ventilation or high-flow nasal cannula	10 (24%)	8 (62%)	2 (7%)	..
Invasive mechanical ventilation	2 (5%)	2 (15%)	0	..
Invasive mechanical ventilation and ECMO	2 (5%)	2 (15%)	0	..
Prognosis				
Hospitalisation	7 (17%)	1 (8%)	6 (21%)	0.014
Discharge	28 (68%)	7 (54%)	21 (75%)	..
Death	6 (15%)	5 (38%)	1 (4%)	..

Data are median (IQR) or n (%). p values are comparing ICU care and no ICU care. 2019-nCoV=2019 novel coronavirus. ICU=intensive care unit. NA=not applicable. ECMO=extracorporeal membrane oxygenation. ^aDefined as blood levels of hypersensitive troponin I above the 99th percentile upper reference limit (>28 pg/mL) or new abnormalities shown on electrocardiography and echocardiography.

Table 3: Treatments and outcomes of patients infected with 2019-nCoV

suggests that receiving corticosteroids did not have an effect on mortality, but rather delayed viral clearance.^{27–29} Therefore, corticosteroids should not be routinely given systemically, according to WHO interim guidance.³⁰ Among our cohort of 41 laboratory-confirmed patients with 2019-nCoV infection, corticosteroids were given to very few non-ICU cases, and low-to-moderate dose of corticosteroids were given to less than half of severely ill patients with ARDS. Further evidence is urgently needed to assess whether systematic corticosteroid treatment is beneficial or harmful for patients infected with 2019-nCoV.

No antiviral treatment for coronavirus infection has been proven to be effective. In a historical control study,³¹ the combination of lopinavir and ritonavir among SARS-CoV patients was associated with substantial clinical benefit (fewer adverse clinical outcomes). Arabi and colleagues initiated a placebo-controlled trial of interferon beta-1b, lopinavir, and ritonavir among patients with MERS infection in Saudi Arabia.³² Preclinical evidence showed

the potent efficacy of remdesivir (a broad-spectrum antiviral nucleotide prodrug) to treat MERS-CoV and SARS-CoV infections.^{33,34} As 2019-nCoV is an emerging virus, an effective treatment has not been developed for disease resulting from this virus. Since the combination of lopinavir and ritonavir was already available in the designated hospital, a randomised controlled trial has been initiated quickly to assess the efficacy and safety of combined use of lopinavir and ritonavir in patients hospitalised with 2019-nCoV infection.

Our study has some limitations. First, for most of the 41 patients, the diagnosis was confirmed with lower respiratory tract specimens and no paired nasopharyngeal swabs were obtained to investigate the difference in the viral RNA detection rate between upper and lower respiratory tract specimens. Serological detection was not done to look for 2019-nCoV antibody rises in 18 patients with undetectable viral RNA. Second, with the limited number of cases, it is difficult to assess host risk factors for disease severity and mortality with multivariable-adjusted methods. This is a modest-sized case series of patients admitted to hospital; collection of standardised data for a larger cohort would help to further define the clinical presentation, natural history, and risk factors. Further studies in outpatient, primary care, or community settings are needed to get a full picture of the spectrum of clinical severity. At the same time, finding of statistical tests and p values should be interpreted with caution, and non-significant p values do not necessarily rule out difference between ICU and non-ICU patients. Third, since the causative pathogen has just been identified, kinetics of viral load and antibody titres were not available. Finally, the potential exposure bias in our study might account for why no paediatric or adolescent patients were reported in this cohort. More effort should be made to answer these questions in future studies.

Both SARS-CoV and MERS-CoV were believed to originate in bats, and these infections were transmitted directly to humans from market civets and dromedary camels, respectively.³⁵ Extensive research on SARS-CoV and MERS-CoV has driven the discovery of many SARS-like and MERS-like coronaviruses in bats. In 2013, Ge and colleagues³⁶ reported the whole genome sequence of a SARS-like coronavirus in bats with that ability to use human ACE2 as a receptor, thus having replication potentials in human cells.³⁷ 2019-nCoV still needs to be studied deeply in case it becomes a global health threat. Reliable quick pathogen tests and feasible differential diagnosis based on clinical description are crucial for clinicians in their first contact with suspected patients. Because of the pandemic potential of 2019-nCoV, careful surveillance is essential to monitor its future host adaptation, viral evolution, infectivity, transmissibility, and pathogenicity.

Contributors

BC and JW had the idea for and designed the study and had full access to all data in the study and take responsibility for the integrity of the

data and the accuracy of the data analysis. YWa, GF, XG, JiXu, HL, and BC contributed to writing of the report. BC contributed to critical revision of the report. YWa, GF, XG, JiXu, and HL contributed to the statistical analysis. All authors contributed to data acquisition, data analysis, or data interpretation, and reviewed and approved the final version.

Declaration of interests

All authors declare no competing interests.

Data sharing

The data that support the findings of this study are available from the corresponding author on reasonable request. Participant data without names and identifiers will be made available after approval from the corresponding author and National Health Commission. After publication of study findings, the data will be available for others to request. The research team will provide an email address for communication once the data are approved to be shared with others. The proposal with detailed description of study objectives and statistical analysis plan will be needed for evaluation of the reasonability to request for our data. The corresponding author and National Health Commission will make a decision based on these materials. Additional materials may also be required during the process.

Acknowledgments

This work is funded by the Special Project for Emergency of the Ministry of Science and Technology (2020YFC0841300) Chinese Academy of Medical Sciences (CAMS) Innovation Fund for Medical Sciences (CIFMS 2018-I2M-1-003), a National Science Grant for Distinguished Young Scholars (81425001/H0104), the National Key Research and Development Program of China (2018YFC1200102), The Beijing Science and Technology Project (Z19110700660000), CAMS Innovation Fund for Medical Sciences (2016-I2M-1-014), and National Mega-projects for Infectious Diseases in China (2017ZX10103004 and 2018ZX10305409). We acknowledge all health-care workers involved in the diagnosis and treatment of patients in Wuhan; we thank the Chinese National Health Commission for coordinating data collection for patients with 2019-nCoV infection; we thank WHO and the International Severe Acute Respiratory and Emerging Infections Consortium (ISARIC) for sharing data collection templates publicly on the website; and we thank Prof Chen Wang and Prof George F Gao for guidance in study design and interpretation of results.

References

- Richman DD, Whitley RJ, Hayden FG, eds. *Clinical virology*. 4th edn. Washington: ASM Press, 2016.
- Ksiazek TG, Erdman D, Goldsmith CS, et al. A novel coronavirus associated with severe acute respiratory syndrome. *N Engl J Med* 2003; **348**: 1953–66.
- Kuiken T, Fouchier RAM, Schutten M, et al. Newly discovered coronavirus as the primary cause of severe acute respiratory syndrome. *Lancet* 2003; **362**: 263–70.
- Drosten C, Günther S, Preiser W, et al. Identification of a novel coronavirus in patients with severe acute respiratory syndrome. *N Engl J Med* 2003; **348**: 1967–76.
- de Groot RJ, Baker SC, Baric RS, et al. Middle East respiratory syndrome coronavirus (MERS-CoV): announcement of the Coronavirus Study Group. *J Virol* 2013; **87**: 7790–92.
- Zaki AM, van Boheemen S, Bestebroer TM, Osterhaus ADME, Fouchier RAM. Isolation of a novel coronavirus from a man with pneumonia in Saudi Arabia. *N Engl J Med* 2012; **367**: 1814–20.
- WHO. Summary of probable SARS cases with onset of illness from 1 November 2002 to 31 July 2003. Dec 31, 2003. https://www.who.int/csr/sars/country/table2004_04_21/en/ (accessed Jan 19, 2020).
- WHO. Middle East respiratory syndrome coronavirus (MERS-CoV). November, 2019. <http://www.who.int/emergencies/mers-cov/en/> (accessed Jan 19, 2020).
- WHO. Novel coronavirus – China. Jan 12, 2020. <http://www.who.int/csr/don/12-january-2020-novel-coronavirus-china/en/> (accessed Jan 19, 2020).
- WHO. Novel coronavirus – Thailand (ex-China). Jan 14, 2020. <http://www.who.int/csr/don/14-january-2020-novel-coronavirus-thailand/en/> (accessed Jan 19, 2020).
- WHO. Novel coronavirus – Japan (ex-China). Jan 17, 2020. <http://www.who.int/csr/don/17-january-2020-novel-coronavirus-japan-ex-china/en/> (accessed Jan 19, 2020).
- WHO. Novel coronavirus – Republic of Korea (ex-China). Jan 21, 2020. <http://www.who.int/csr/don/21-january-2020-novel-coronavirus-republic-of-korea-ex-china/en/> (accessed Jan 23, 2020).
- CDC. First travel-related case of 2019 novel coronavirus detected in United States. Jan 21, 2020. <https://www.cdc.gov/media/releases/2020/p0121-novel-coronavirus-travel-case.html> (accessed Jan 23, 2020).
- Tan W, Zhao X, Ma X, et al. A novel coronavirus genome identified in a cluster of pneumonia cases — Wuhan, China 2019–2020. <http://weekly.chinacdc.cn/en/article/id/a3907201-f64f-4154-a19e-4253b453d10c> (accessed Jan 23, 2020).
- Sanz F, Gimeno C, Lloret T, et al. Relationship between the presence of hypoxemia and the inflammatory response measured by C-reactive protein in bacteremic pneumococcal pneumonia. *Eur Respir J* 2011; **38** (suppl 5): 2492.
- Kidney disease: improving global outcomes (KDIGO) acute kidney injury work group. KDIGO clinical practice guideline for acute kidney injury. March, 2012. <https://kdigo.org/wp-content/uploads/2016/10/KDIGO-2012-AKI-Guideline-English.pdf> (accessed Jan 23, 2020).
- Garner JS, Jarvis WR, Emori TG, Horan TC, Hughes JM. CDC definitions for nosocomial infections, 1988. *Am J Infect Control* 1988; **16**: 128–40.
- Gao C, Wang Y, Gu X, et al. Association between cardiac injury and mortality in hospitalized patients infected with avian influenza A (H7N9) virus. *Crit Care Med* 2020; published online Jan 20. DOI:10.1097/CCM.0000000000004207.
- Perlman S, Netland J. Coronaviruses post-SARS: update on replication and pathogenesis. *Nat Rev Microbiol* 2009; **7**: 439–50.
- Lee N, Hui D, Wu A, et al. A major outbreak of severe acute respiratory syndrome in Hong Kong. *N Engl J Med* 2003; **348**: 1986–94.
- Assiri A, Al-Tawfiq JA, Al-Rabeah AA, et al. Epidemiological, demographic, and clinical characteristics of 47 cases of Middle East respiratory syndrome coronavirus disease from Saudi Arabia: a descriptive study. *Lancet Infect Dis* 2013; **13**: 752–61.
- Wong CK, Lam CWK, Wu AKL, et al. Plasma inflammatory cytokines and chemokines in severe acute respiratory syndrome. *Clin Exp Immunol* 2004; **136**: 95–103.
- Mahallawi WH, Khabour OF, Zhang Q, Makhadmeh HM, Suliman BA. MERS-CoV infection in humans is associated with a pro-inflammatory Th1 and Th17 cytokine profile. *Cytokine* 2018; **104**: 8–13.
- He I, Ding Y, Zhang Q, et al. Expression of elevated levels of pro-inflammatory cytokines in SARS-CoV-infected ACE2+ cells in SARS patients: relation to the acute lung injury and pathogenesis of SARS. *J Pathol* 2006; **210**: 288–97.
- Faure E, Poissy J, Goffard A, et al. Distinct immune response in two MERS-CoV-infected patients: can we go from bench to bedside? *PLoS One* 2014; **9**: e88716.
- Falzarano D, de Wit E, Rasmussen AL, et al. Treatment with interferon- α 2b and ribavirin improves outcome in MERS-CoV-infected rhesus macaques. *Nat Med* 2013; **19**: 1313–17.
- Stockman LJ, Bellamy R, Garner P. SARS: systematic review of treatment effects. *PLoS Med* 2006; **3**: e343.
- Lansbury L, Rodrigo C, Leonardi-Bee J, Nguyen-Van-Tam J, Lim WS. Corticosteroids as adjunctive therapy in the treatment of influenza. *Cochrane Database Syst Rev* 2019; **2**: CD010406.
- Arabi YM, Mandourah Y, Al-Hameed F, et al. Corticosteroid therapy for critically ill patients with Middle East respiratory syndrome. *Am J Respir Crit Care Med* 2018; **197**: 757–67.
- WHO. Clinical management of severe acute respiratory infection when novel coronavirus (nCoV) infection is suspected. Jan 11, 2020. [https://www.who.int/internal-publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-\(ncov\)-infection-is-suspected](https://www.who.int/internal-publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected) (accessed Jan 19, 2020).
- Chu CM. Role of lopinavir/ritonavir in the treatment of SARS: initial virological and clinical findings. *Thorax* 2004; **59**: 252–56.
- Arabi YM, Allothman A, Balkhy HH, et al. Treatment of Middle East respiratory syndrome with a combination of lopinavir-ritonavir and interferon- β 1b (MIRACLE trial): study protocol for a randomized controlled trial. *Trials* 2018; **19**: 81.

-
- 33 Sheahan TP, Sims AC, Graham RL, et al. Broad-spectrum antiviral GS-5734 inhibits both epidemic and zoonotic coronaviruses. *Sci Transl Med* 2017; **9**: eaa13653.
- 34 Sheahan TP, Sims AC, Leist SR, et al. Comparative therapeutic efficacy of remdesivir and combination lopinavir, ritonavir, and interferon beta against MERS-CoV. *Nat Commun* 2020; **11**: 222.
- 35 Cui J, Li F, Shi Z-L. Origin and evolution of pathogenic coronaviruses. *Nat Rev Microbiol* 2019; **17**: 181–92.
- 36 Ge X-Y, Li J-L, Yang X-L, et al. Isolation and characterization of a bat SARS-like coronavirus that uses the ACE2 receptor. *Nature* 2013; **503**: 535–38.
- 37 Wang M, Hu Z. Bats as animal reservoirs for the SARS coronavirus: hypothesis proved after 10 years of virus hunting. *Virol Sin* 2013; **28**: 315–17.



National Institutes of Health
National Institute of Allergy
and Infectious Diseases
Bethesda, Maryland 20892

24 April 2020

Drs. Aleksei Chmura and Peter Daszak
EcoHealth Alliance, Inc.
460 W 34th St
Suite 1701
New York, NY 10001

Re: Termination of NIH Grant R01 AI 110964

Dear Drs. Chmura and Daszak:

I am writing to notify you that the National Institute of Allergy and Infectious Diseases (NIAID), an Institute within the National Institutes of Health (NIH), under the Department of Health and Human Services (HHS) has elected to terminate the project *Understanding the Risk of Bat Coronavirus Emergence*, funded under grant R01 AI110964, for convenience. This grant project was issued under the authorization of Sections 301 and 405 of the Public Health Service Act as amended (42 USC 241 and 284). This grant was funded as a discretionary grant as outlined in the [NIH Grants Policy Statement](#), which states that the decision not to award a grant, or to award a grant at a particular funding level, is at the discretion of the agency, in accordance with NIH's dual review system.

At this time, NIH does not believe that the current project outcomes align with the program goals and agency priorities. NIAID has determined there are no animal and human ethical considerations, as this project is not a clinical trial, but rather an observational study.

As a result of this termination, a total of \$369,819.56 will be remitted to NIAID and additional drawdowns will not be supported. The remaining funds have been restricted in the HHS Payment Management System, effective immediately.

Please let me know if you have any questions concerning the information in this letter.

Sincerely,

Lauer, Michael (NIH/OD) [E]

Digitally signed by Lauer, Michael (NIH/OD) [E]
Date: 2020.04.24 16:41:16 -04'00'

Michael S Lauer, MD
NIH Deputy Director for Extramural Research
Email: [REDACTED] (b) (6)

cc: Dr. Erik Stemmy
Ms. Emily Linde



Date: April 19, 2020

From: Michael S Lauer, MD
NIH Deputy Director for Extramural Research

Lauer, Michael
(NIH/OD) [E]

Digitally signed by Lauer,
Michael (NIH/OD) [E]
Date: 2020.04.19 10:47:40
-04'00'

To: Kevin Olival, PhD
Vice-President for Research
EcoHealth Alliance
[REDACTED] (b) (6)

Naomi Schrag, JD
Vice-President for Research Compliance, Training, and Policy
Columbia University
[REDACTED] (b) (6)

Subject: Project Number 2R01AI110964-06

Dear Dr. Olival and Ms. Schrag:

EcoHealth Alliance, Inc. is the recipient, as grantee, of an NIH grant entitled “Understanding the Risk of Bat Coronavirus Emergence.” It is our understanding that one of the sub-recipients of the grant funds is the Wuhan Institute of Virology (“WIV”). It is our understanding that WIV studies the interaction between corona viruses and bats. The scientific community believes that the coronavirus causing COVID-19 jumped from bats to humans likely in Wuhan where the COVID-19 pandemic began. There are now allegations that the current crisis was precipitated by the release from WIV of the coronavirus responsible for COVID-19. Given these concerns, we are pursuing suspension of WIV from participation in Federal programs.

While we review these allegations during the period of suspension, you are instructed to cease providing any funds from the above noted grant to the WIV. This temporary action is authorized by 45 C.F.R. § 75.371(d) (“Initiate suspension or debarment proceedings as authorized under 2 C.F.R. part 180”). The incorporated OMB provision provides that the funding agency may, through suspension, immediately and temporarily exclude from Federal programs persons who are not presently responsible where “immediate action is necessary to protect the public interest.” 2 C.F.R. § 180.700(c). It is in the public interest that NIH ensure that a sub-recipient has taken all appropriate precautions to prevent the release of pathogens that it is studying. This suspension of the sub-recipient does not affect the remainder of your grant assuming that no grant funds are provided to WIV following receipt of this email during the period of suspension.

[Wuhan Pneumonia] Wuhan disease control researcher was once attacked by bat attacked mainland scholars questioning virus leak



Social News

讚好 4,575

Written by: Wei Jingquan 2020-02-15 17:44 Last update date:2020-02-15 19:26

The new coronavirus (2019-nCoV) pneumonia epidemic continues, and WHO experts point out that the virus may originate from bats, especially Rhinolophus Bat. Xiaobo Tao, a professor at South China University of Technology, published a report entitled "Possibility of New Coronavirus (2019-nCoV) Source", pointing out that the Wuhan Disease Control Center, less than 300 meters away from the South China Seafood Market, which was allegedly the source of the outbreak, had captured bat To study coronavirus, more researchers were splashed by the blood and urine of bats. The researchers had to isolate themselves for 14 days.



academic journal, but only on the scientific paper sharing website. The paper has not been found. "Hong Kong 01" reporter wanted to call Xiao Botao for verification, but the other party did not listen to the call. Earlier it was suspected that the epidemic was related to another laboratory in Wuhan and the Wuhan Institute of Virology, Chinese Academy of Sciences, but officials denied it many times.

▼ The process of capturing bats in Wuhan CDC ▼



The scholar who wrote this report is Professor Xiao Botao of the School of Biological Science and Engineering of South China University of Technology. He used to work at Harvard Medical School and has collaborated with Northwestern University in the United States. He has been awarded the National Natural Science Foundation many times. Fund support. As of February 6, the report refers to the new coronavirus gene sequencing found that 96% and 89% are similar to the coronavirus (CoV ZC45) found in the head bat (CoV ZC45), but it is necessary to study the pathogen and how to pass it to humans. The report cited medical journal research, stating that 27 of the 41 people infected in Wuhan were linked to South China Seafood City, and 33 of the 585 samples collected in South China Seafood City had detected new coronaviruses.

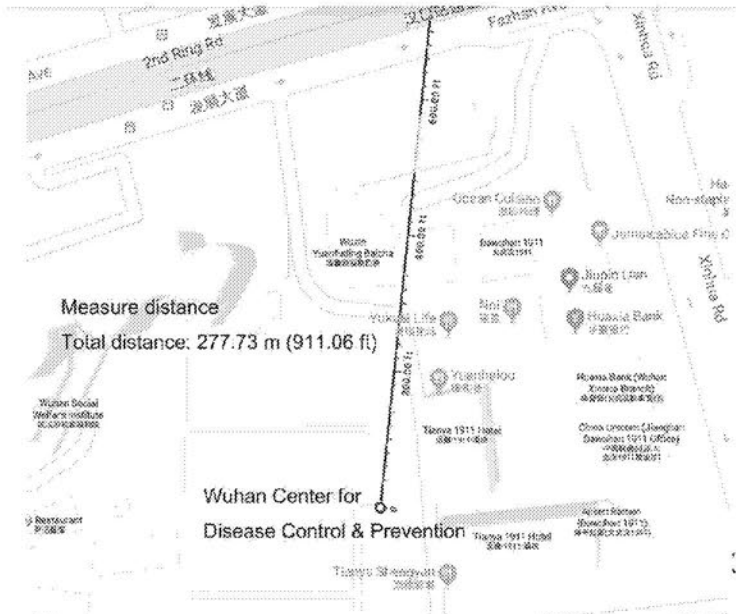
However, the bat carrying CoV ZC45 was first discovered in Yunnan and Zhejiang provinces, more than 900 kilometers away from South China Seafood City. In addition, bats usually live in the wild, and the population is dense. The possibility of bats flying to the place is "very low." . Although the South China Seafood Market sells game meat, it does not sell bats.

market and identified two laboratories conducting research on bat coronavirus. Within ~280 meters from the market, there was the Wuhan Center for Disease Control & Prevention (WHCDC) (Figure 1, from Baidu and Google maps). WHCDC hosted animals in laboratories for research purpose, one of which was specialized in pathogens collection and identification ⁴

⁵. In one of their studies, 155 bats including *Rhinolophus affinis* were captured in Hubei province, and other 450 bats were captured in Zhejiang province ⁴. The expert in collection was noted in the Author Contributions (JHT). Moreover, he was broadcasted for collecting viruses on nation-wide newspapers and websites in 2017 and 2019 ^{7,8}. He described that he was once by attacked by bats and the blood of a bat shot on his skin. He knew the extreme danger of the infection so he quarantined himself for 14 days ⁷. In another accident, he quarantined himself again because bats peed on him. He was once thrilled for capturing a bat carrying a live tick ⁹.

Surgery was performed on the caged animals and the tissue samples were collected for DNA and RNA extraction and sequencing ^{4,5}. The tissue samples and contaminated trashes were source of pathogens. They were only ~280 meters from the seafood market. The WHCDC was also adjacent to the Union Hospital (Figure 1, bottom) where the first group of doctors were infected during this epidemic. It is plausible that the virus leaked around and some of them contaminated the initial patients in this epidemic, though solid proofs





The report mentions the possibility of other ways, noting that there are two laboratories in Wuhan, in addition to the Wuhan Institute of Virology of the Chinese Academy of Sciences, which is 30 kilometers away from the South China Seafood Market and at the P4 level. WHCDC), the center possesses animals for research purposes including collecting and distinguishing pathogens.

The report quotes past official information that the Wuhan CDC once captured 155 bats from Hubei Province, including the chrysanthemum bat, and another 450 bats from Zhejiang Province. However, the researcher in charge of the research had been interviewed by the media in 2017 and 2019 to mention two accidents, including that he had been attacked by a bat, and the blood of the bat splashed on his skin, so he was isolated for 14 days; The bat urinates and must be isolated; he has found a live tick on the bat.





As for the Wuhan Institute of Virology, Chinese Academy of Sciences, 30 kilometers away from South China Seafood City, it has been tracking SARS-CoV virus research in 2003, such as using reverse genetics methods. Therefore, "direct speculation" refers to the possibility that the laboratory has leaked SARS-CoV or its derivatives.

- ▼ Professor Xiao Botao of South China University of Technology Full Paper
- ▼

[Origins of 2019-NCoV XiaoB Res](#) by [ZeroHedge](#) on Scribd





See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/339070128>

The possible origins of 2019-nCoV coronavirus

Preprint · February 2020
DOI: 10.1101/2020.02.27.20198026

CITATIONS
0

READS
849

2 authors, including:



Botao Xiao
South China University of Technology
26 PUBLICATIONS 265 CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:



National Natural Science Foundation of China (11372116) View project



National Natural Science Foundation of China (11772133) View project



Summary quoted opinion that high-risk laboratories should stay away from people

The report concluded that some people are concerned about the evolution of the 2019-nCoV coronavirus. In addition to the natural reorganization and the origin of the intermediate host, the lethal coronavirus may also come from the Wuhan laboratory. The safety level of the high-risk biological laboratory may need to be strengthened. Regulations should be taken to keep the laboratory location away from the city center and other densely populated places.



This report was published on the research sharing website Research Gate on February 6, and was not published in an authoritative academic journal, but Research Gate has not found the article. "Hong Kong 01" reporter called Xiao Botao for enquiries, but the other party did not answer the call.





The city of Wuhan was closed, public transportation stopped, tens of thousands of people were infected, people in the city were panicked, residents wore masks when they went out, and even more people went to the supermarket to protect themselves with plastic bags. (Chinatopix / Associated Press)

WHO: No intermediate host found

A World Health Organization official said on February 11th that after the Chinese health department disclosed the viral gene sequencing, scientists found that the new coronavirus may have come from bats, and then transferred to an intermediate host, and then infected humans. However, it is temporarily unknown which animal the intermediate host is. Sylvie Briand, director of the Infectious Diseases Hazard Management Department, attended a press conference at the Geneva headquarters and said that after the scientists arrived at the South China Seafood Market in Wuhan, the epidemic-stricken area, a large number of bats were not found, and further research needed.



▼ Wuhan pneumonia epidemic spread more than 60,000 people diagnosed





+ 5

Virus researcher "guaranteed by life" denied laboratory leak

There have been doubts about the epidemic related to the laboratories in the Mainland, including the laboratory of the Wuhan Institute of Virology, the Chinese Academy of Sciences, which is 30 kilometers away from the South China Seafood Market and the highest level 4 (P4).

Shi Zhengli, a researcher at the Wuhan Institute of Virology, Chinese Academy of Sciences, said on February 2 that the "guarantee of life" was not leak the laboratory, referring to "the new coronavirus is nature's punishment humans' uncivilized living habits," meaning it is related to wild game. Peter Daszak, a long-time partner of Shi Zhengli and a disease ecologist of the American non-profit organization Environmental Ecology and Health Alliance,





At the press conference of the State Council's Joint Defense and Joint Control Mechanism today (15th), Wu Yuanbin, director of the Department of Social Development and Technology of the Ministry of Science and Technology, said, "Guiding Opinions on Strengthening the Biosafety Management of the New Coronavirus High-grade Viral Microbiology Laboratory" is issued, requiring all competent departments to strengthen the management of laboratories, especially viruses, to ensure biosecurity.

▼ Wuhan CDC captures and studies bat documentary ▼



[Wuhan Pneumonia] WHO: Viruses or bats infect humans through intermediate hosts

China releases new coronavirus resource library 80% similar to SARS

[Wuhan Pneumonia · Multiple Images] The latest virus exposure looks like SARS and MERS








【Wuhan Pneumonia】 Researcher of the Institute of Virology: Using life to





Coronavirus disease

 19
  0
  3
  5
  7

全部評論 (146)

由新至舊



發表評論...

* 會員之留言需符合香港特別行政區法例
 * 香港01及用戶管理者保留刪除違反相關條款及細則之文章及/或謾言之權利



用戶_6454556

吹吹風，試試反應。

2020年2月16日 07:23. 回應, 讚好



用戶_9894522

有証据嗎，冇，不要乱作。

2020年2月16日 04:48. 回應, 讚好

更多評論



Aa





originated from the Wuhan Laboratory Ministry of Foreign Affairs: no scientific basis

Instant China 2020-04-16



New Coronary Pneumonia | Experts from Wuhan Virus Institute deny artificial synthesis: humans do not have such wisdom

Featured Chamber 2020-04-19



[New Coronary Pneumonia] US media: The embassy in China warned the Wuhan laboratory of safety problems two years ago

Instant International 2020-04-15



Chinese viruses, laboratory leaks, and plague: who can bear the heinous guilt?

Featured Analyze comments 13 hours ago



【Wuhan Pneumonia】 The postgraduate on the Internet is "Patient Zero" Wuhan Virus Institute: No one is infected

Featured Chamber 2020-02-16



【Wuhan Pneumonia】 WHO: Viruses or bats infect humans through intermediate hosts

Instant International 2020-02-12



【Wuhan Pneumonia】 Get the complete poison chain from snake





[Wuhan Pneumonia] New discovery in virus-infected potential intermediary host inland research: pangolin

Featured Hot topic 2020-02-07



[Wuhan Pneumonia] Has the questioned Wuhan Virus Research Institute edited the virus manually?

Instant China 2020-02-06



[Wuhan Pneumonia] Mainland research refers to snake as virus intermediary host Xu Shuchang: only inference is not true

Social News 2020-01-24



[New Coronary Pneumonia] Mainland experts: the virus is not artificially recommended to trace the source of bat habitat

Chamber 2020-03-10



[Wuhan Pneumonia] Deeply caught in the eye of public opinion storm to deconstruct the development history of Wuhan Institute of Virology, Chinese Academy of Sciences

Featured Chamber 2020-02-17



[Wuhan Pneumonia] Researcher of the Institute of Virology: Using life to guarantee the epidemic has nothing to do with the laboratory

Featured Instant China 2020-02-04



[Wuhan pneumonia] CCTV has reported a new coronavirus expert in





**【Wuhan Pneumonia】 Wrong bat?
Latest research by mainland
scholars: Coronavirus may be the
source**

Instant China 2020-01-23



**【Wuhan Pneumonia】 Research by the
Chinese Academy of Sciences:
Viruses have a strong ability to infect
humans or bats**

Featured Instant China 2020-01-22



**【New Coronary Pneumonia】 The US
intelligence community examines
whether the virus has accidentally
flowed out from Chinese
experiments**

Instant International 2020-04-18



**【Wuhan pneumonia】 New virus and
bats in Zhoushan most resemble
experts: Tracing game is not easy**

Featured Social News 2020-01-11



**【Wuhan Pneumonia】 First exposure
expert of coronavirus gene
sequencing: 73% identical to SARS
gene**

Featured Social News 2020-01-11



**【Wuhan Pneumonia】 South China
Agricultural University: Pangolin is a
potential intermediate host for the
virus**

Featured Instant China 2020-02-07



**【Wuhan Pneumonia】 New
coronavirus material and two**





[01 line newspaper](#) [About](#) [01 Job](#) [Advertisements](#) [01App](#) [FAQ](#) [Contact Us](#) [Privacy Statement](#)
[Terms and Conditions](#)

Hong Kong 01 Limited Copyright © 2020



Aa





Grant Number: 1R01AI110964-01
FAIN: R01AI110964

Principal Investigator(s):
PETER DASZAK, PHD

Project Title: Understanding the Risk of Bat Coronavirus Emergence

Aleksei
President
460 West 34th Street
17th Floor
New York, NY 100012317

Award e-mailed to: [REDACTED] (b) (6)

Budget Period: 06/01/2014 – 05/31/2015
Project Period: 06/01/2014 – 05/31/2019

Dear Business Official:

The National Institutes of Health hereby awards a grant in the amount of \$666,442 (see "Award Calculation" in Section I and "Terms and Conditions" in Section III) to ECOHEALTH ALLIANCE, INC. in support of the above referenced project. This award is pursuant to the authority of 42 USC 241 42 CFR 52 and is subject to the requirements of this statute and regulation and of other referenced, incorporated or attached terms and conditions.

Acceptance of this award including the "Terms and Conditions" is acknowledged by the grantee when funds are drawn down or otherwise obtained from the grant payment system.

Each publication, press release, or other document about research supported by an NIH award must include an acknowledgment of NIH award support and a disclaimer such as "Research reported in this publication was supported by the National Institute Of Allergy And Infectious Diseases of the National Institutes of Health under Award Number R01AI110964. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health." Prior to issuing a press release concerning the outcome of this research, please notify the NIH awarding IC in advance to allow for coordination.

Award recipients must promote objectivity in research by establishing standards that provide a reasonable expectation that the design, conduct and reporting of research funded under NIH awards will be free from bias resulting from an Investigator's Financial Conflict of Interest (FCOI), in accordance with the 2011 revised regulation at 42 CFR Part 50 Subpart F. The Institution shall submit all FCOI reports to the NIH through the eRA Commons FCOI Module. The regulation does not apply to Phase I Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) awards. Consult the NIH website <http://grants.nih.gov/grants/policy/coi/> for a link to the regulation and additional important information.

If you have any questions about this award, please contact the individual(s) referenced in Section IV.

Sincerely yours,

Laura A. Pone
Grants Management Officer
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

Additional information follows

SECTION I – AWARD DATA – 1R01AI110964-01**Award Calculation (U.S. Dollars)**

Salaries and Wages	\$167,708
Fringe Benefits	\$54,168
Supplies	\$21,400
Travel Costs	\$35,918
Other Costs	\$10,000
Consortium/Contractual Cost	\$227,663

Federal Direct Costs	\$516,857
Federal F&A Costs	\$149,585
Approved Budget	\$666,442
Federal Share	\$666,442
TOTAL FEDERAL AWARD AMOUNT	\$666,442

AMOUNT OF THIS ACTION (FEDERAL SHARE)	\$666,442
--	------------------

SUMMARY TOTALS FOR ALL YEARS			
YR	THIS AWARD		CUMULATIVE TOTALS
1		\$666,442	\$666,442
2		\$630,445	\$630,445
3		\$611,090	\$611,090
4		\$597,112	\$597,112
5		\$581,646	\$581,646

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

Fiscal Information:

CFDA Number:	93.855
EIN:	1311726494A1
Document Number:	RAI110964A

PMS Account Type:	P (Subaccount)
Fiscal Year:	2014

IC	CAN	2014	2015	2016	2017	2018
AI	8472350	\$666,442	\$630,445	\$611,090	\$597,112	\$581,646

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

NIH Administrative Data:

PCC: M51C / OC: 414A / Released: (b) (6) 05/20/2014

Award Processed: 05/08/2014 01:52:21 PM

SECTION II – PAYMENT/HOTLINE INFORMATION – 1R01AI110964-01

For payment and HHS Office of Inspector General Hotline information, see the NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm>

SECTION III – TERMS AND CONDITIONS – 1R01AI110964-01

This award is based on the application submitted to, and as approved by, NIH on the above-titled project and is subject to the terms and conditions incorporated either directly or by reference in the following:

- a. The grant program legislation and program regulation cited in this Notice of Award.

- b. Conditions on activities and expenditure of funds in other statutory requirements, such as those included in appropriations acts.
- c. 45 CFR Part 74 or 45 CFR Part 92 as applicable.
- d. The NIH Grants Policy Statement, including addenda in effect as of the beginning date of the budget period.
- e. This award notice, INCLUDING THE TERMS AND CONDITIONS CITED BELOW.

(See NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm> for certain references cited above.)

An unobligated balance may be carried over into the next budget period without Grants Management Officer prior approval.

This grant is subject to Streamlined Noncompeting Award Procedures (SNAP).

This award is subject to the requirements of 2 CFR Part 25 for institutions to receive a Dun & Bradstreet Universal Numbering System (DUNS) number and maintain an active registration in the Central Contractor Registration. Should a consortium/subaward be issued under this award, a DUNS requirement must be included. See <http://grants.nih.gov/grants/policy/awardconditions.htm> for the full NIH award term implementing this requirement and other additional information.

This award has been assigned the Federal Award Identification Number (FAIN) R01AI110964. Recipients must document the assigned FAIN on each consortium/subaward issued under this award.

Based on the project period start date of this project, this award is likely subject to the Transparency Act subaward and executive compensation reporting requirement of 2 CFR Part 170. There are conditions that may exclude this award; see <http://grants.nih.gov/grants/policy/awardconditions.htm> for additional award applicability information.

In accordance with P.L. 110-161, compliance with the NIH Public Access Policy is now mandatory. For more information, see NOT-OD-08-033 and the Public Access website: <http://publicaccess.nih.gov/>.

Treatment of Program Income:
Additional Costs

SECTION IV – AI Special Terms and Conditions – 1R01AI110964-01

THIS AWARD CONTAINS GRANT SPECIFIC RESTRICTIONS. THESE RESTRICTIONS MAY ONLY BE LIFTED BY A REVISED NOTICE OF AWARD.

RESTRICTION: This award is issued with the knowledge that subjects may be involved within the period of support, but definite plans were not set forth in the application as per 45 CFR 46.118. No human subjects may be involved in any project supported by this award until all requirements for Human Subjects research as identified in the PHS398/SF424 Instructions have been provided to and approved by NIH.

RESTRICTION: The present award is being made without a currently valid certification of IRB approval for this project with the following restriction: Only activities that are clearly severable and independent from activities that involve human subjects may be conducted pending the NIAID's acceptance of the certification of IRB review and approval.

No funds may be drawn down from the payment system and no obligations may be made against Federal funds for any research involving human subjects prior to the NIAID's notification to the grantee that the identified issues have been resolved and this restriction removed.

~~~~~  
This award includes funds for subcontract/consortium activity with Wuhan Institute of Virology, CHINA and is budgeted as follows:

|                      | -Yr 1     | -Yr 2     | -Yr 3     | -Yr 4     | -Yr 5     |
|----------------------|-----------|-----------|-----------|-----------|-----------|
| Total Direct Costs   | \$123,699 | \$128,718 | \$147,335 | \$147,335 | \$147,335 |
| F&A Costs @ 8%(MTDC) | \$9,896   | \$10,297  | \$11,787  | \$11,787  | \$11,787  |
| TOTAL COSTS          | \$133,595 | \$139,015 | \$159,122 | \$159,122 | \$159,122 |

Consortiums are to be established and administered as described in the NIH Grants Policy Statement. This written agreement with the consortium must address the negotiated arrangements for meeting the scientific, administrative, financial, and reporting requirements for this grant.

~~~~~  
This award includes funds for subcontract/consortium activity with East China Normal University, CHINA and is budgeted as follows:

	-Yr 1	-Yr 2	-Yr 3	-Yr 4	-Yr 5
Total Direct Costs	\$87,100	\$67,300	\$50,108	\$39,167	\$14,850
F&A Costs @ 8%(MTDC)	\$6,968	\$5,384	\$4,009	\$3,133	\$2,404
TOTAL COSTS	\$94,068	\$72,684	\$54,117	\$42,300	\$32,454

Consortiums are to be established and administered as described in the NIH Grants Policy Statement. This written agreement with the consortium must address the negotiated arrangements for meeting the scientific, administrative, financial, and reporting requirements for this grant.

~~~~~  
**Select Agents:**

Awardee of a project that at any time involves a restricted experiment with a select agent, is responsible for notifying and receiving prior approval from the NIAID. Please be advised that changes in the use of a Select Agent will be considered a change in scope and require NIH awarding office prior approval. The approval is necessary for new select agent experiments as well as changes in on-going experiments that would require change in the biosafety plan and/or biosafety containment level. An approval to conduct a restricted experiment granted to an individual cannot be assumed an approval to other individuals who conduct the same restricted experiment as defined in the Select Agents Regulation 42 CFR Part 73, Section 13.b (<http://www.selectagents.gov/Regulations.html>).

**Highly Pathogenic Agent:**

NIAID defines a Highly Pathogenic Agent as an infectious Agent or Toxin that may warrant a biocontainment safety level of BSL3 or higher according to the current edition of the CDC/NIH Biosafety in Microbiological and Biomedical Laboratories (BMBL) (<http://www.cdc.gov/OD/ohs/biosfty/bmb15/bmb15toc.htm>). Research funded under this grant must adhere to the BMBL, including using the BMBL-recommended biocontainment level at a minimum. If your Institutional Biosafety Committee (or equivalent body) or designated institutional biosafety official recommend a higher biocontainment level, the highest recommended containment level must be used.

When submitting future Progress Reports indicate at the beginning of the report:

If no research with a Highly Pathogenic Agent or Select Agent has been performed or is planned to be performed under this grant.

If your IBC or equivalent body or official has determined, for example, by conducting a risk assessment, that the work being planned or performed under this grant may be conducted at a biocontainment safety level that is lower than BSL3.

If the work involves Select Agents and/or Highly Pathogenic Agents, also address the following points:

Any changes in the use of the Agent(s) or Toxin(s) including its restricted experiments that have resulted in a change in the required biocontainment level, and any resultant change in location, if applicable, as determined by your IBC or equivalent body or official.



If work with a new or additional Agent(s)/Toxin(s) is proposed in the upcoming project period, provide:

- o A list of the new and/or additional Agent(s) that will be studied;
- o A description of the work that will be done with the Agent(s), and whether or not the work is a restricted experiment;
- o The title and location for each biocontainment resource/facility, including the name of the organization that operates the facility, and the biocontainment level at which the work will be conducted, with documentation of approval by your IBC or equivalent body or official. It is important to note if the work is being done in a new location.

**STAFF CONTACTS**

The Grants Management Specialist is responsible for the negotiation, award and administration of this project and for interpretation of Grants Administration policies and provisions. The Program Official is responsible for the scientific, programmatic and technical aspects of this project. These individuals work together in overall project administration. Prior approval requests (signed by an Authorized Organizational Representative) should be submitted in writing to the Grants Management Specialist. Requests may be made via e-mail.

**Grants Management Specialist:** Laura A. Pone  
**Email:** amidonl@niaid.nih.gov **Phone:** 301-451-2687 **Fax:** 301-493-0597

**Program Official:** Erik J. Stemmy  
**Email:** erik.stemmy@nih.gov **Phone:** (301)-402-3947

**SPREADSHEET SUMMARY**

**GRANT NUMBER:** 1R01AI110964-01

**INSTITUTION:** ECOHEALTH ALLIANCE, INC.

| Budget                      | Year 1    | Year 2    | Year 3    | Year 4    | Year 5    |
|-----------------------------|-----------|-----------|-----------|-----------|-----------|
| Salaries and Wages          | \$167,708 | \$167,708 | \$167,708 | \$167,708 | \$167,708 |
| Fringe Benefits             | \$54,168  | \$54,168  | \$54,168  | \$54,168  | \$54,168  |
| Supplies                    | \$21,400  | \$19,250  | \$7,250   | \$7,000   | \$3,500   |
| Travel Costs                | \$35,918  | \$35,918  | \$35,918  | \$35,918  | \$35,918  |
| Other Costs                 | \$10,000  | \$13,550  | \$11,050  | \$9,800   | \$9,400   |
| Consortium/Contractual Cost | \$227,663 | \$211,699 | \$213,239 | \$201,422 | \$191,576 |
| TOTAL FEDERAL DC            | \$516,857 | \$502,293 | \$489,333 | \$476,016 | \$462,270 |
| TOTAL FEDERAL F&A           | \$149,585 | \$128,152 | \$121,757 | \$121,096 | \$119,376 |
| TOTAL COST                  | \$666,442 | \$630,445 | \$611,090 | \$597,112 | \$581,646 |

| Facilities and Administrative Costs | Year 1    | Year 2    | Year 3    | Year 4    | Year 5    |
|-------------------------------------|-----------|-----------|-----------|-----------|-----------|
| F&A Cost Rate 1                     | 44.1%     | 44.1%     | 44.1%     | 44.1%     | 44.1%     |
| F&A Cost Base 1                     | \$339,194 | \$290,594 | \$276,094 | \$274,594 | \$270,694 |
| F&A Costs 1                         | \$149,585 | \$128,152 | \$121,757 | \$121,096 | \$119,376 |



NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

**Grant Number:** 2R01AI110964-06 REVISED  
**FAIN:** R01AI110964

**Principal Investigator(s):**  
PETER DASZAK, PHD

**Project Title:** Understanding the Risk of Bat Coronavirus Emergence

Dr. Daszak, Peter  
PD/PI  
460 West 34th Street  
Suite 1701  
New York, NY 100012320

**Award e-mailed to:** [REDACTED] (b) (6)

**Period Of Performance:**  
**Budget Period:** 07/24/2019 – 06/30/2020  
**Project Period:** 06/01/2014 – 06/30/2024

Dear Business Official:

The National Institutes of Health hereby revises this award to reflect a decrease in the amount of \$71,770 (see "Award Calculation" in Section I and "Terms and Conditions" in Section III) to ECOHEALTH ALLIANCE, INC. in support of the above referenced project. This award is pursuant to the authority of 42 USC 241 42 CFR 52 and is subject to the requirements of this statute and regulation and of other referenced, incorporated or attached terms and conditions.

Acceptance of this award including the "Terms and Conditions" is acknowledged by the grantee when funds are drawn down or otherwise obtained from the grant payment system.

Each publication, press release, or other document about research supported by an NIH award must include an acknowledgment of NIH award support and a disclaimer such as "Research reported in this publication was supported by the National Institute Of Allergy And Infectious Diseases of the National Institutes of Health under Award Number R01AI110964. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health." Prior to issuing a press release concerning the outcome of this research, please notify the NIH awarding IC in advance to allow for coordination.

Award recipients must promote objectivity in research by establishing standards that provide a reasonable expectation that the design, conduct and reporting of research funded under NIH awards will be free from bias resulting from an Investigator's Financial Conflict of Interest (FCOI), in accordance with the 2011 revised regulation at 42 CFR Part 50 Subpart F. The Institution shall submit all FCOI reports to the NIH through the eRA Commons FCOI Module. The regulation does not apply to Phase I Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) awards. Consult the NIH website <http://grants.nih.gov/grants/policy/coi/> for a link to the regulation and additional important information.

If you have any questions about this award, please contact the individual(s) referenced in Section IV.

Sincerely yours,



Tseday G Girma  
Grants Management Officer  
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

Additional information follows

---

**SECTION I – AWARD DATA – 2R01AI110964-06 REVISED****Award Calculation (U.S. Dollars)**

|                                        |           |
|----------------------------------------|-----------|
| Salaries and Wages                     | \$170,123 |
| Fringe Benefits                        | \$53,590  |
| Personnel Costs (Subtotal)             | \$223,713 |
| Consultant Services                    | \$49,750  |
| Materials & Supplies                   | \$20,850  |
| Travel                                 | \$15,027  |
| Subawards/Consortium/Contractual Costs | \$229,651 |

|                                                         |                  |
|---------------------------------------------------------|------------------|
| Federal Direct Costs                                    | \$538,991        |
| Federal F&A Costs                                       | \$122,989        |
| Approved Budget                                         | \$661,980        |
| Total Amount of Federal Funds Obligated (Federal Share) | \$661,980        |
| <b>TOTAL FEDERAL AWARD AMOUNT</b>                       | <b>\$661,980</b> |

**AMOUNT OF THIS ACTION (FEDERAL SHARE)** (\$-71,770)

| SUMMARY TOTALS FOR ALL YEARS |            |           |                   |
|------------------------------|------------|-----------|-------------------|
| YR                           | THIS AWARD |           | CUMULATIVE TOTALS |
| 6                            |            | \$661,980 | \$661,980         |
| 7                            |            | \$637,980 | \$637,980         |
| 8                            |            | \$637,980 | \$637,980         |
| 9                            |            | \$637,980 | \$637,980         |
| 10                           |            | \$637,980 | \$637,980         |

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

**Fiscal Information:**

**CFDA Name:** Allergy and Infectious Diseases Research  
**CFDA Number:** 93.855  
**EIN:** 1311726494A1  
**Document Number:** RAI110964B  
**PMS Account Type:** P (Subaccount)  
**Fiscal Year:** 2019

| IC | CAN     | 2019      | 2020      | 2021      | 2022      | 2023      |
|----|---------|-----------|-----------|-----------|-----------|-----------|
| AI | 8472364 | \$661,980 | \$637,980 | \$637,980 | \$637,980 | \$637,980 |

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

**NIH Administrative Data:**

**PCC:** M51C B / **OC:** 414B / **Released:** (b) (6) 08/02/2019  
**Award Processed:** 08/05/2019 12:01:51 AM

---

**SECTION II – PAYMENT/HOTLINE INFORMATION – 2R01AI110964-06 REVISED**

For payment and HHS Office of Inspector General Hotline information, see the NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm>

---

**SECTION III – TERMS AND CONDITIONS – 2R01AI110964-06 REVISED**

This award is based on the application submitted to, and as approved by, NIH on the above-titled project and is subject to the terms and conditions incorporated either directly or by reference in the following:

- The grant program legislation and program regulation cited in this Notice of Award.
- Conditions on activities and expenditure of funds in other statutory requirements, such as those included in appropriations acts.



- c. 45 CFR Part 75.
- d. National Policy Requirements and all other requirements described in the NIH Grants Policy Statement, including addenda in effect as of the beginning date of the budget period.
- e. Federal Award Performance Goals: As required by the periodic report in the RPPR or in the final progress report when applicable.
- f. This award notice, INCLUDING THE TERMS AND CONDITIONS CITED BELOW.

(See NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm> for certain references cited above.)

**Research and Development (R&D):** All awards issued by the National Institutes of Health (NIH) meet the definition of "Research and Development" at 45 CFR Part § 75.2. As such, auditees should identify NIH awards as part of the R&D cluster on the Schedule of Expenditures of Federal Awards (SEFA). The auditor should test NIH awards for compliance as instructed in Part V, Clusters of Programs. NIH recognizes that some awards may have another classification for purposes of indirect costs. The auditor is not required to report the disconnect (i.e., the award is classified as R&D for Federal Audit Requirement purposes but non-research for indirect cost rate purposes), unless the auditee is charging indirect costs at a rate other than the rate(s) specified in the award document(s).

An unobligated balance may be carried over into the next budget period without Grants Management Officer prior approval.

This grant is subject to Streamlined Noncompeting Award Procedures (SNAP).

This award is subject to the requirements of 2 CFR Part 25 for institutions to receive a Dun & Bradstreet Universal Numbering System (DUNS) number and maintain an active registration in the System for Award Management (SAM). Should a consortium/subaward be issued under this award, a DUNS requirement must be included. See <http://grants.nih.gov/grants/policy/awardconditions.htm> for the full NIH award term implementing this requirement and other additional information.

This award has been assigned the Federal Award Identification Number (FAIN) R01AI110964. Recipients must document the assigned FAIN on each consortium/subaward issued under this award.

Based on the project period start date of this project, this award is likely subject to the Transparency Act subaward and executive compensation reporting requirement of 2 CFR Part 170. There are conditions that may exclude this award; see <http://grants.nih.gov/grants/policy/awardconditions.htm> for additional award applicability information.

In accordance with P.L. 110-161, compliance with the NIH Public Access Policy is now mandatory. For more information, see NOT-OD-08-033 and the Public Access website: <http://publicaccess.nih.gov/>.

In accordance with the regulatory requirements provided at 45 CFR 75.113 and Appendix XII to 45 CFR Part 75, recipients that have currently active Federal grants, cooperative agreements, and procurement contracts with cumulative total value greater than \$10,000,000 must report and maintain information in the System for Award Management (SAM) about civil, criminal, and administrative proceedings in connection with the award or performance of a Federal award that reached final disposition within the most recent five-year period. The recipient must also make semiannual disclosures regarding such proceedings. Proceedings information will be made publicly available in the designated integrity and performance system (currently the Federal Awardee Performance and Integrity Information System (FAPIIS)). Full reporting requirements and procedures are found in Appendix XII to 45 CFR Part 75. This term does not apply to NIH fellowships.

---

**SECTION IV – AI Special Terms and Conditions – 2R01AI110964-06 REVISED**

Clinical Trial Indicator: No

This award does not support any NIH-defined Clinical Trials. See the NIH Grants Policy Statement Section 1.2 for NIH definition of Clinical Trial.

REVISED AWARD: This award is revised to adjust the budget in accordance with the letter from Aleksei Chmura/ECOHealth Alliance.

Supersedes previous Notice of Award dated **07/24/2019**.

\*\*\*\*\*

This Notice of Award (NoA) includes funds for activity with **The University of North Carolina at Chapel Hill** in the amount of **\$77,750 (\$50,000 direct costs + \$27,750 F&A costs)**.

This Notice of Award (NoA) includes funds for activity with **Wuhan Institute of Virology** in the amount of **\$76,301 (\$70,649 direct costs + \$5,652 F&A costs)**.

This Notice of Award (NoA) includes funds for activity with **Institute of Pathogen Biology** in the amount of **\$75,600 (\$70,000 direct costs + \$5,600 F&A costs)**.

\*\*\*\*\*

The Research Performance Progress Report (RPPR), Section G.9 (Foreign component), includes reporting requirements for all research performed outside of the United States. Research conducted at the following site(s) must be reported in your RPPR:

Wuhan Institute of Virology, CHINA

Institute of Pathogen Biology, CHINA

East China Normal University, CHINA

Duke-NUS Medical School, SINGAPORE

\*\*\*\*\*

This award reflects current Federal policies regarding Facilities & Administrative (F&A) Costs for foreign grantees including foreign sub-awardees, and domestic awards with foreign sub-awardees. Please see: Chapter 16 Grants to Foreign Organizations, International Organizations, and Domestic Grants with Foreign Components, Section 16.6 "Allowable and Unallowable Cost" of the NIH Grants Policy.

\*\*\*\*\*

This award may include collaborations with and/or between foreign organizations. Please be advised that short term travel visa expenses are an allowable expense on this grant, if justified as critical and necessary for the conduct of the project.

\*\*\*\*\*

The budget period anniversary start date for future year(s) will be **July 1**.

\*\*\*\*\*

Dissemination of study data will be in accord with the Recipient's accepted genomic data sharing plan as stated in the page(s) **203** of the application. Failure to adhere to the sharing plan as mutually agreed upon by the Recipient and the NIAID may result in Enforcement Actions as described in the NIH Grants Policy Statement.

\*\*\*\*\*

This award is subject to the Clinical Terms of Award referenced in the NIH Guide for Grants and Contracts, July 8, 2002, NOT AI-02-032. These terms and conditions are hereby incorporated by



reference, and can be accessed via the following World Wide Web address:  
<https://www.niaid.nih.gov/grants-contracts/niaid-clinical-terms-award> All submissions required by the NIAID Clinical Terms of Award must be forwarded electronically or by mail to the responsible NIAID Program Official identified on this Notice of Award.

\*\*\*\*\*

Awardees who conduct research involving Select Agents (see 42 CFR 73 for the Select Agent list; and 7 CFR 331 and 9 CFR 121 for the relevant animal and plant pathogens at <http://www.selectagents.gov/Regulations.html>) must complete registration with CDC (or APHIS, depending on the agent) before using NIH funds. No funds can be used for research involving Select Agents if the final registration certificate is denied.

Prior to conducting a restricted experiment with a Select Agent or Toxin, awardees must notify the NIAID and must request and receive approval from CDC or APHIS.

\*\*\*\*\*

#### Select Agents:

Awardee of a project that at any time involves a restricted experiment with a select agent, is responsible for notifying and receiving prior approval from the NIAID. Please be advised that changes in the use of a Select Agent will be considered a change in scope and require NIH awarding office prior approval. The approval is necessary for new select agent experiments as well as changes in on-going experiments that would require change in the biosafety plan and/or biosafety containment level. An approval to conduct a restricted experiment granted to an individual cannot be assumed an approval to other individuals who conduct the same restricted experiment as defined in the Select Agents Regulation 42 CFR Part 73, Section 13.b (<http://www.selectagents.gov/Regulations.html>).

#### Highly Pathogenic Agent:

NIAID defines a Highly Pathogenic Agent as an infectious Agent or Toxin that may warrant a biocontainment safety level of BSL3 or higher according to the current edition of the CDC/NIH Biosafety in Microbiological and Biomedical Laboratories (BMBL) (<http://www.cdc.gov/OD/ohs/biosfty/bmb15/bmb15toc.htm>). Research funded under this grant must adhere to the BMBL, including using the BMBL-recommended biocontainment level at a minimum. If your Institutional Biosafety Committee (or equivalent body) or designated institutional biosafety official recommend a higher biocontainment level, the highest recommended containment level must be used.

When submitting future Progress Reports indicate at the beginning of the report:

If no research with a Highly Pathogenic Agent or Select Agent has been performed or is planned to be performed under this grant.

If your IBC or equivalent body or official has determined, for example, by conducting a risk assessment, that the work being planned or performed under this grant may be conducted at a biocontainment safety level that is lower than BSL3.

If the work involves Select Agents and/or Highly Pathogenic Agents, also address the following points:

Any changes in the use of the Agent(s) or Toxin(s) including its restricted experiments that have resulted in a change in the required biocontainment level, and any resultant change in location, if applicable, as determined by your IBC or equivalent body or official.

If work with a new or additional Agent(s)/Toxin(s) is proposed in the upcoming project period, provide:

- o A list of the new and/or additional Agent(s) that will be studied;
- o A description of the work that will be done with the Agent(s), and whether or not the work is a restricted experiment;
- o The title and location for each biocontainment resource/facility, including the name of the organization that operates the facility, and the biocontainment level at which the work will be conducted, with documentation of approval by your IBC or equivalent body or official. It is important to note if the work is being done in a new location.

**STAFF CONTACTS**

The Grants Management Specialist is responsible for the negotiation, award and administration of this project and for interpretation of Grants Administration policies and provisions. The Program Official is responsible for the scientific, programmatic and technical aspects of this project. These individuals work together in overall project administration. Prior approval requests (signed by an Authorized Organizational Representative) should be submitted in writing to the Grants Management Specialist. Requests may be made via e-mail.

**Grants Management Specialist:** Tseday G Girma  
**Email:** tseday.girma@nih.gov **Phone:** 240-747-7388 **Fax:** 301-493-0597

**Program Official:** Erik J. Stemmy  
**Email:** erik.stemmy@nih.gov **Phone:** 240-627-3380

**SPREADSHEET SUMMARY**  
**GRANT NUMBER:** 2R01AI110964-06 REVISED

**INSTITUTION:** ECOHEALTH ALLIANCE, INC.

| Budget                                 | Year 6           | Year 7           | Year 8           | Year 9           | Year 10          |
|----------------------------------------|------------------|------------------|------------------|------------------|------------------|
| Salaries and Wages                     | \$170,123        | \$170,123        | \$170,123        | \$170,123        | \$170,123        |
| Fringe Benefits                        | \$53,590         | \$53,590         | \$53,590         | \$53,590         | \$53,590         |
| Personnel Costs (Subtotal)             | \$223,713        | \$223,713        | \$223,713        | \$223,713        | \$223,713        |
| Consultant Services                    | \$49,750         | \$49,750         | \$49,750         | \$49,750         | \$49,750         |
| Materials & Supplies                   | \$20,850         | \$14,850         | \$14,850         | \$14,850         | \$14,850         |
| Travel                                 | \$15,027         | \$15,027         | \$15,027         | \$15,027         | \$15,027         |
| Subawards/Consortium/Contractual Costs | \$229,651        | \$229,651        | \$229,651        | \$229,651        | \$229,651        |
| Publication Costs                      |                  | \$6,000          | \$6,000          | \$6,000          | \$6,000          |
| <b>TOTAL FEDERAL DC</b>                | <b>\$538,991</b> | <b>\$538,991</b> | <b>\$538,991</b> | <b>\$538,991</b> | <b>\$538,991</b> |
| <b>TOTAL FEDERAL F&amp;A</b>           | <b>\$122,989</b> | <b>\$98,989</b>  | <b>\$98,989</b>  | <b>\$98,989</b>  | <b>\$98,989</b>  |
| <b>TOTAL COST</b>                      | <b>\$661,980</b> | <b>\$637,980</b> | <b>\$637,980</b> | <b>\$637,980</b> | <b>\$637,980</b> |

| Facilities and Administrative Costs | Year 6    | Year 7    | Year 8    | Year 9    | Year 10   |
|-------------------------------------|-----------|-----------|-----------|-----------|-----------|
| F&A Cost Rate 1                     | 32%       | 32%       | 32%       | 32%       | 32%       |
| F&A Cost Base 1                     | \$384,340 | \$309,340 | \$309,340 | \$309,340 | \$309,340 |
| F&A Costs 1                         | \$122,989 | \$98,989  | \$98,989  | \$98,989  | \$98,989  |



---

**From:** Lauer, Michael (NIH/OD) [E] [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=90FE9CAE30C64CFBB67ABD568E882796-LAUERM]  
**Sent:** 5/26/2020 2:11:44 PM  
**To:** Jacobs, Anna (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=e76eeb11df9a4024b53864ffc4c4c56-jacobsal]  
**CC:** Black, Jodi (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=782921b9f08249b59a582e93f6963f5f-blackj]; Lankford, David (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4f29a9bef672409d967e3aa5fb36e96a-lankford]; Lauer, Michael (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=90fe9cae30c64cfbb67abd568e882796-lauer]  
**Subject:** Re: EcoHealth Alliance re Termination of NIH Research Grant R01 AI 110964  
**Attachments:** Re: Wuhan Lab; EcoHealth Alliance First-Level Appeal of NIH Grant Termination, dated May 22, 2020 (R01 AI 110964) (02103179xA1AB5).PDF

Excellent, Anna, I think we're scheduled for 11. I'm attaching some background material.

Best, Mike

---

**From:** "Jacobs, Anna (NIH/OD) [E]" (b) (6)  
**Date:** Tuesday, May 26, 2020 at 9:22 AM  
**To:** "Lauer, Michael (NIH/OD) [E]" (b) (6)  
**Cc:** "Black, Jodi (NIH/OD) [E]" (b) (6), "Lankford, David (NIH/OD) [E]" (b) (6)  
**Subject:** RE: EcoHealth Alliance re Termination of NIH Research Grant R01 AI 110964

Good morning, Mike,

Thanks for providing this information. I'd be glad to discuss, if you'd like, although my familiarity with the matter is a bit limited. I can reach out to Melanie to find time. I assume 15 minutes will suffice. If a conversation is no longer needed, just let me or Melanie know.

Thanks,

*Anna L. Jacobs, J.D., M.S.  
Senior Attorney  
HHS Office of the General Counsel  
Public Health Division, NIH Branch  
31 Center Drive, Bldg. 31, Rm. 2B-50  
Bethesda, MD 20892*

(b) (6) (phone)  
301-402-1034 (fax)

(b) (6)

NOTICE: The contents of this message and any attachments may be privileged and confidential. Please do not disseminate without the approval of the Office of the General Counsel. If you are not an intended recipient, or have received this message in error, please delete it without reading it and please do not print, copy, forward, disseminate, or otherwise use this information. Also, please notify the sender that you have received this communication in error. Your receipt of this message is not intended to waive any applicable privilege.

---

**From:** Lauer, Michael (NIH/OD) [E] (b) (6)  
**Sent:** Friday, May 22, 2020 6:04 PM  
**To:** Jacobs, Anna (NIH/OD) [E] (b) (6)

Cc: Lauer, Michael (NIH/OD) [E] (b) (6); Black, Jodi (NIH/OD) [E] (b) (6); Lankford, David (NIH/OD) [E] (b) (6)

**Subject:** FW: EcoHealth Alliance re Termination of NIH Research Grant R01 AI 110964

**Importance:** High

Hi Anna— at some point we should discuss this.

Many thanks, Mike

---

**From:** "Matthew R.Torsiello" (b) (6)

**Date:** Friday, May 22, 2020 at 5:12 PM

**To:** "Lauer, Michael (NIH/OD) [E]" (b) (6)

**Cc:** "Linde, Emily (NIH/NIAID) [E]" (b) (6), "Stemmy, Erik (NIH/NIAID) [E]"

(b) (6), "Andrew N. Krinsky" (b) (6), "Nels T. Lippert"

(b) (6), "Black, Jodi (NIH/OD) [E]" (b) (6), "Erbelding, Emily (NIH/NIAID)

[E]" (b) (6), "Bulls, Michelle G. (NIH/OD) [E]" (b) (6), Peter Daszak

(b) (6), Aleksei Chmura (b) (6)

**Subject:** EcoHealth Alliance re Termination of NIH Research Grant R01 AI 110964

Dr. Lauer:

Please see the attached letter from Andrew N. Krinsky on behalf of EcoHealth Alliance, Inc., pursuant to NIH Grants Policy Statement Section 8.7, regarding the decision by NIAID to terminate NIH Research Grant R01 AI 110964 on or about April 24, 2020.

Thank you.

Best,  
Matthew R. Torsiello



**Matthew R.Torsiello | Associate**

D: (b) (6) | F: 212-216-8001

(b) (6) | [Bio](#)

Tarter Krinsky & Drogin LLP  
1350 Broadway | New York | NY | 10018  
[www.tarterkrinsky.com](http://www.tarterkrinsky.com)

---

Tarter Krinsky & Drogin is fully operational. All attorneys and staff have been and will continue to be working remotely and TKD has put measures in place to ensure our services continue uninterrupted. However, because of anticipated delays in receiving regular mail and other deliveries, please e-mail copies of anything you send by regular mail or delivery, including issuing remittances electronically, until further notice. Please contact Katrina Soares at [reception@tarterkrinsky.com](mailto:reception@tarterkrinsky.com) or by phone at 212-216-8000 with any questions. Thank you in advance for your courtesies during these unprecedented times.

NOTE: If regular mailing or other specific transmission type is required by terms of a contract, order or statute, please comply with those obligations and transmit the materials by the means set forth in the agreement, order or statute as well as by email.

Confidentiality Disclosure: This information in this email and in attachments is confidential and intended solely for the attention and use of the named addressee(s). This information may be subject to attorney-client privilege or may otherwise be protected by work product privilege or other legal rules. It must not be disclosed to any person without our authority. If you are not the intended recipient, or a person responsible for delivering it to the intended recipient, you are not authorized to disclose, and must not disclose, copy, distribute, or retain this message or any part of it.



This email is an informal communication that is not meant to be legally binding upon the sender unless expressly noted to the contrary.

Tater Kinsky & Drogin LLP, Attorneys-at-Law.

---

**From:** Lauer, Michael (NIH/OD) [E] [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=90FE9CAE30C64CFBB67ABD568E882796-LAUERM]  
**Sent:** 5/7/2020 2:29:13 AM  
**To:** Aguirre, Lisa (IOS/ONS) [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=148aca8632f14d2ca6227b9b5cde0947-Lisa.Aguirre]; Hudgens, Alisa (HHS/OS/ONS) [Alisa.Hudgens@hhs.gov]; Hollie, Les W (OIG/OI) [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=2a553c4e88894e6c9ff26cdcc9241fd7-Les.Hollie.]  
**CC:** Tabak, Lawrence (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=02e22836b5ff4e9988e3770cfc7ee770-tabakl]; Muroff, Julie (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8f3fd404b36a4d4e8dda4a3dcb9a72c0-muroffj]; Lauer, Michael (NIH/OD) [E] [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=90fe9cae30c64cfbb67abd568e882796-la uerm]  
**Subject:** Re: Wuhan Lab  
**Attachments:** Wuhan Lab; NoA R01AI110964-01.pdf; NoA R01AI110964-06.pdf

Also – as mentioned earlier today, the grantee (EcoHealth Alliance) failed to report as required the subawards to the Federal Subaward Reporting System (2CFR 170). I've highlighted the relevant section of the NoA.

Best, Mike

---

**From:** "Lauer, Michael (NIH/OD) [E]" (b) (6)  
**Date:** Wednesday, May 6, 2020 at 2:53 PM  
**To:** "Aguirre, Lisa (IOS/ONS)" (b) (6), "Hudgens, Alisa (HHS/OS/ONS)" (b) (6), "Hollie, Les W (OIG/OI)" (b) (6)  
**Cc:** "Lauer, Michael (NIH/OD) [E]" (b) (6), "Tabak, Lawrence (NIH/OD) [E]" (b) (6), "Muroff, Julie (NIH/OD) [E]" (b) (6)  
**Subject:** Wuhan Lab

Hi Lisa, Alisa, and Les – as we discussed.

- Narrative below (scroll down to my note to Larry).
- [Video](#) (need to skip the political ads)
- Two letters (6<sup>th</sup> and 7<sup>th</sup> attachments)

Our rationale:

[Redacted content] (b) (5)

Background:

[Redacted content] (b) (5)



Hope this helps,

Mike

Michael S Lauer, MD  
NIH Deputy Director for Extramural Research  
1 Center Drive, Building 1, Room 144  
Bethesda, MD 20892  
Phone: (b) (6)  
Email: (b) (6)

---

**From:** "Lauer, Michael (NIH/OD) [E]" (b) (6)  
**Date:** Wednesday, April 22, 2020 at 9:56 AM  
**To:** "Tabak, Lawrence (NIH/OD) [E]" (b) (6)  
**Cc:** "Lauer, Michael (NIH/OD) [E]" (b) (6), "Black, Jodi (NIH/OD) [E]" (b) (6),  
"Schwetz, Tara (NIH/OD) [E]" (b) (6)  
**Subject:** Wuhan Lab

Hi Larry – in follow-up to our 1:1 earlier today, (b) (5)

Many thanks,

Mike

---

**From:** Wood, Gretchen (NIH/OD) [E] [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=549F390B39D044A8B5D1E0E1A8F76C1F-WOODGS]  
**Sent:** 7/6/2020 6:39:53 PM  
**To:** NIH Director's Executive Committee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8dd6ae9e97864c7a930aa2a27dc4cb28-OD-Small St]  
**CC:** NIH Director's Executive Committee Assistants [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=79962d4131f64ac09ca74465dea93854-OD-Small St]  
**Subject:** Executive Committee Meeting tomorrow, July 7, from 11:00 AM to Noon via Zoom  
**Attachments:** Executive Committee Meeting 07072020.docx; JASON Report\_FINAL[1].pdf; NAM vaccine summit.v2 as (002)\_CDC.docx; covid\_acip\_6\_2020.zip; Good Cause Extension Options - 06-26-2020.docx

Good afternoon,

Attached please find the materials for tomorrow's Executive Committee meeting.

Thank you,

Gretchen



Executive Committee Meeting  
Tuesday, July 7, 2020  
11:00 AM-Noon  
Via Zoom

AGENDA



(b) (5)

**Managing the Risk From COVID-19  
During a Return to On-Site University Research**

Contact: Gordon Long - [glong@mitre.org](mailto:glong@mitre.org)

JSR-20-NS1

July 2, 2020

Distribution Statement A: Approved for Public Release. Distribution is unlimited.

JASON  
The MITRE Corporation  
7515 Colshire Drive  
McLean, Virginia 22102  
(703) 983-6997



## Executive Summary

JASON charged itself to assess risks and best practices for restarting university research programs. Three elements comprise the charge:

1. Understand the primary sources of risk and how they interact with the university environment;
2. Suggest modifications to existing continuity-of-operations plans;
3. Identify the relevant information for collection from the personnel involved.

JASON members began meeting weekly on April 10. Three subgroups (Testing, Modeling, and Operations and Safety) met separately to develop results for weekly meetings. We have consulted the literature, much of it developed in just the last weeks, and relied on our expertise as university faculty to guide choices. Many members were involved in planning research restarts at their own universities.

The report is organized around eight questions that an administrator for a research institution may have:

1. What are the relevant characteristics of COVID-19?
2. How is the risk of airborne transmission?
3. What is the role of diagnostic testing?
4. How can health screening reduce spread?
5. How does one prevent a super-spreader event?
6. Is the campus an island from the community?
7. What operational policies are recommended?
8. How can institutions make risk-informed decisions going forward?

Each section of the report seeks to answer these questions through a narrative and concludes with findings and recommendations.

## Key findings and recommendations

After months of allowing only essential personnel on campus, universities have begun to ramp up research and allow typically a fraction of their researchers back on campus. The operations must evolve to keep the basic reproduction number,  $R$ , less than one in order to allow future increases in personnel density. This report outlines several different means of lowering the basic reproduction number, which are summarized in this section.

A low basic reproduction number relies on individuals recognizing the danger of COVID-19 and taking the recommended actions: washing hands, wearing face masks, keeping a minimum six foot separation from others, minimizing multiple occupancy in rooms, and tracking their own health. Universities must encourage these actions through signage, training, and modeling of good behavior by leaders. Face masks are particularly important.

**Key Finding:** Mask use can be highly effective as one component of risk reduction strategies for COVID-19 infection and transmission. However, mask effectiveness is variable, depending on the materials, designs and user discipline in wearing the masks.

**Key Recommendation:** Universities should provide masks that meet demonstrated technical performance at the levels needed, even if the level of performance exceeds that required by the city or state. Training should be provided on how to properly wear masks.

**Key Finding:** The use of a campus-wide “infographic” or “dashboard” showing the on-campus population, virus testing statistics, and information on the compliance with COVID-19 rules will create a shared situational awareness.

In this pandemic, universities are not islands and the reproduction number on-campus will not be very different than that of the surrounding community. If the  $R$  of the surrounding community changes, the university may need to change its on-campus density.

**Key Finding:** Universities will influence and be subject to disease dynamics of the larger communities within which they are embedded.

**Key Recommendation:** Universities should engage with state and local officials to understand the exposure of their personnel both on and off cam-



pus.

Universities can make use of daily symptom attestation to detect emerging cases and track the health of the population. Daily symptom attestation can reduce disease spread beyond what can be accomplished with individual mitigation behaviors such as wearing masks.

**Key Recommendations:** Develop a procedure for daily symptom attestation. A cellphone app for attestation offers the valuable opportunity to automatically determine if a probability-of-illness threshold has been reached. If symptoms exceed an established risk threshold, the individual should not come to work until they are confirmed to be clear of disease (e.g., negative test, quarantine period). Assume a high false-negative rate for symptom attestation during planning. Develop a procedure for rapid contact tracing when a researcher tests positive for COVID-19.

Unless a substantial fraction of the population can be tested on a daily basis and with fast turnaround times, virus testing will not help much in preventing transmission on campus. Testing can also serve other purposes, such as surveillance, but each purpose has particular requirements that must be addressed in advance.

**Key Recommendation:** When planning a virus testing program, make sure to understand the implications of false positives and false negatives to ensure the testing program yields meaningful results.

Super-spreaders, individuals with viral loads up to 10,000 times higher than average, cause infection outbreaks by rapidly infecting a large number of people.

**Key Finding:** A tracking system should respond quickly enough that once a symptomatic individual is detected, all contacts with that individual for the past 3-5 days are identified, notified and isolated in less than a day. Without this response speed, it may be difficult to stay ahead of the spread based on symptoms alone.

**Key Recommendation:** Limit the number of persons that an individual can come into contact with (e.g., through room and floor occupancy limits) to cap the size of super-spreading events.

**Key Recommendation:** When inexpensive, rapid virus tests become com-

mercially available, use them to test daily at the start of the work day to detect pre-symptomatic individuals, especially those with high viral titers.

Aerosols are an important means of transmission in laboratories and other enclosed spaces. In addition to wearing masks, minimizing double occupancy, and maintaining distance, buildings' HVAC systems can play a role in mitigating transmission.

**Key Recommendation:** Laboratory directors should consult their university's facilities and health and safety group on airflow in their labs to ensure at least 4 air changes per hour (ACH) is taking place and to increase the flow rate if the lab has more than single occupancy.



# Contents

|                                                             |           |
|-------------------------------------------------------------|-----------|
| <b>1 Introduction</b>                                       | <b>9</b>  |
| <b>2 What are the relevant characteristics of COVID-19?</b> | <b>12</b> |
| <b>3 What is the risk of airborne transmission?</b>         | <b>15</b> |
| 3.1 Risk reduction                                          | 16        |
| 3.1.1 Physical distancing                                   | 17        |
| 3.1.2 Masks and eye protection                              | 18        |
| 3.1.3 Reducing the occupancy of the room                    | 18        |
| 3.1.4 Modifications to HVAC systems                         | 18        |
| 3.1.5 Wearing masks as source control                       | 21        |
| 3.1.6 Reducing droplet generating activities                | 21        |
| <b>4 What is the role of diagnostic testing?</b>            | <b>24</b> |
| 4.1 The kinds of tests                                      | 24        |
| 4.1.1 Viral RNA testing                                     | 24        |
| 4.1.2 Viral antigen testing                                 | 26        |
| 4.1.3 Antibody testing                                      | 27        |
| 4.2 The functions of testing                                | 28        |
| 4.2.1 Diagnosis                                             | 28        |

|                                                             |           |
|-------------------------------------------------------------|-----------|
| 4.2.2 Screening                                             | 28        |
| 4.2.3 Monitoring                                            | 31        |
| <b>5 How can health screening reduce spread?</b>            | <b>34</b> |
| <b>6 How does one prevent a super-spreader event?</b>       | <b>38</b> |
| <b>7 Is the campus an island from the community?</b>        | <b>43</b> |
| 7.1 Island model                                            | 43        |
| 7.2 Archipelago model                                       | 44        |
| <b>8 What operational policies are recommended?</b>         | <b>46</b> |
| 8.1 Communication                                           | 46        |
| 8.2 Basic source of risk                                    | 46        |
| 8.3 Organizational methods to reduce dose                   | 47        |
| 8.4 Respiratory masks                                       | 47        |
| 8.4.1 Mask technical standards                              | 48        |
| 8.5 Eye protection                                          | 51        |
| 8.6 Physical distancing and its limits                      | 51        |
| 8.7 Compliance                                              | 52        |
| <b>9 How can institutions make risk-informed decisions?</b> | <b>54</b> |



|                                                              |           |
|--------------------------------------------------------------|-----------|
| <b>A Lessons from the 1918 pandemic</b>                      | <b>56</b> |
| <b>B Strategies to reduce <math>R_t</math></b>               | <b>59</b> |
| B.1 Increasing the rate of removal . . . . .                 | 59        |
| B.1.1 Screening via symptom attestation . . . . .            | 60        |
| B.1.2 Testing . . . . .                                      | 61        |
| B.1.3 Pulsed testing . . . . .                               | 63        |
| B.2 Sub-population . . . . .                                 | 64        |
| <b>C Shift work and community interactions</b>               | <b>66</b> |
| C.1 Spread of a virus . . . . .                              | 66        |
| C.2 Basic Model: SEIR for a Single Group . . . . .           | 67        |
| C.2.1 Time Course for Development of Symptoms of COVID-19    | 68        |
| C.3 Growth of an Epidemic and Lockdown . . . . .             | 69        |
| C.3.1 An earlier lockdown . . . . .                          | 71        |
| C.4 Dynamics following a return to work . . . . .            | 71        |
| C.5 Model of Karin et al.: A “4:10” Strategy . . . . .       | 73        |
| C.5.1 The idea of the “4-10” work cycle . . . . .            | 73        |
| C.5.2 Two halves of the community in “4-10” cycles . . . . . | 75        |
| <b>D Daily testing at the start of the workday</b>           | <b>76</b> |
| <b>E Pooled testing</b>                                      | <b>78</b> |

|                                                                |    |
|----------------------------------------------------------------|----|
| <b>E.1 Incorporating test imperfections</b> . . . . .          | 80 |
| <b>F Marginal risk from COVID-19</b>                           | 83 |
| <b>G Expected utility for decision-making</b>                  | 87 |
| <b>H Simple analysis of the impact of false-positive tests</b> | 94 |



## 1 Introduction

Universities and national laboratories are ramping-up research operations following several months of curtailed activity during the early stages of the COVID-19 pandemic. In addition Occupational Safety and Health Administration (OSHA), National Institute for Occupational Safety and Health (NIOSH), and university environmental, health, and safety (EHS) rules procedures, labs will have to implement new protections to minimize the transmission of COVID-19 in workplaces. These protections can be expected to disrupt many of the processes in place before the COVID-19 pandemic, presenting a significant challenge to administrators who must manage a balance between preventing an outbreak and supporting productive research. This study aims to provide useful guidance for administrators, and the scientific background on which that guidance is based, helping to create a shared understanding among all involved in the research enterprise. This report does not contain a single comprehensive plan for ramping up research, but suggests widely applicable operational procedures, many of which are already being implemented in research environments.

Parts of this report uses the basic production number  $R$  as a conceptual object for thinking about mitigation measures. Conceptually,  $R$  can be thought of as a number measuring the dynamics of disease transmission for a particular community, and is defined as the average number of new infections spawned from an average infected person under the condition where nobody else in the community has immunity to the disease. It is important to point out that we do not know the baseline  $R$ , typically called  $R_0$ , for the university or for the outside world. These values are functions of population demographics, the weather, the characteristics of the rooms and places where people congregate, and the nature of their interpersonal interactions. As an illustration of how difficult  $R_0$  is to estimate for the community at large, retrospective epidemiological studies of the SARS-CoV-2 outbreak in China generally place the community-wide  $R_0$  in the range of 2–6 [5]. When fully populated, college campuses are high-density, high-interaction environments, so one might expect the  $R_0$  for a university to be larger than the community  $R_0$ —though demographic elements such as age can have countervailing effects. Without prior knowledge of the university’s  $R_0$ , administrators are left to make assumptions about how much they must do to prevent an outbreak, enforcing as many mitigation measures as they deem sensible. They can then increase or relax safety measures if they observe evidence of growing or tempered transmission. The effective  $R$  with mitigation measures in place is called  $R_{\text{uni}}$  for the university campus, and  $R_{\text{comm}}$  for the community in which

the campus is embedded. Using this concept, and taking the view that universities hold the responsibility for the safety and health of their population, we developed three principles to guide our thinking:

1. The operation of the university should not exacerbate the spread of the disease relative to the local community conditions. In terms of the widely used *basic reproduction number*, this can be expressed as  $R_{\text{uni}} < R_{\text{comm}}$ . Ideally, the university should aim to achieve a condition where  $R_{\text{uni}} < 1$ .
2. There is no one-size-fits-all solution. Each university, each unit, each lab group has different populations, activities, and infrastructures to which a general plan will need to be tailored.
3. Given how rapidly the scientific understanding of SARS-CoV-2 is evolving, it is necessary to undertake the research restart endeavor with a mindset of nimbly responding to changing circumstances. This requires collecting local data, keeping abreast of changing scientific assessments, analyzing the evolving situation, and adjusting operations in response to eventualities.

JASON has structured this report around eight questions a vice president for research (or equivalent) might ask.

1. What are the relevant characteristics of COVID-19?
2. How is the risk of airborne transmission?
3. What is the role of diagnostic testing?
4. How can health screening reduce spread?
5. How does one prevent a super-spreader event?
6. Is the campus an island from the community?
7. What operational policies are recommended?
8. How can institutions make risk-informed decisions going forward?

Each section of the report seeks to answer these questions through a narrative and concludes with findings and recommendations.



JASON concludes that a safe return to research can take place. The history of the 1918 flu pandemic (see Appendix [A](#)) offers a valuable lesson about mindset: quick and decisive action is needed at the outset, and perseverance so as not to relax restrictions too early. A ramp up will take months and requires careful adherence to rules and processes. Researchers will need to exercise patience and follow procedures that may hinder their productivity, but are ultimately necessary for public health. And all involved need to appreciate that a research restart may entail a rapid shutdown, as would be necessary if there is evidence that the incidence of infection is increasing.

## 2 What are the relevant characteristics of COVID-19?

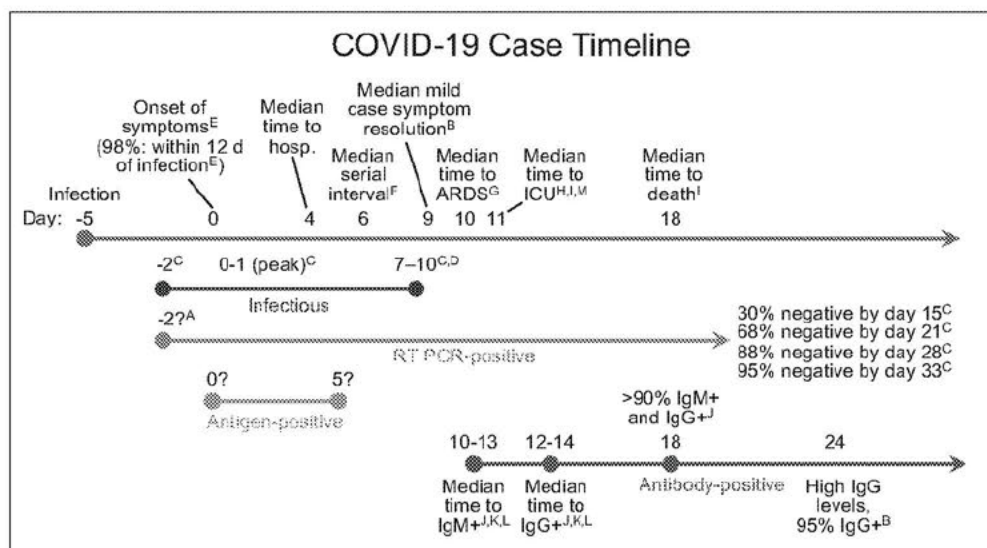


Figure 1: Timeline in days for the evolution of COVID-19 disease (blue), including the infectious period (red), PCR-positive period (green), antigen-positive (orange), and antibody-positive (purple). Symptoms onset occurs at day 0. Time points represent typical cases drawn from aggregated reports; actual event timing will reflect probability distributions centered approximately around these time points. ‘?’ indicates limited data or higher uncertainty. Mean serial interval is the average time until a secondary infection caused by the first becomes symptomatic. ARDS = acute respiratory distress syndrome; ICU = intensive care unit. Data are based on published reports as of 10 June 2020. References to figure labels are as follows: A[39], B[62], C[23], D[66], E[40], F[28], G[41], H[18], I[63], J[43], K[56], L[70], M[22].

Figure 1 presents a timeline of the current understanding of COVID-19 disease progression with an emphasis on the progress of cases that are sufficiently symptomatic to be diagnosed, and particularly those with respiratory symptoms. Several disease characteristics, particularly the onset of symptoms, the time period over which someone is infectious, and the time period over which various tests may register a positive result, are pertinent to designing a safe return to research. All the times in Figure 1 are for the median case; the population will exhibit some variation around these values and this variation needs to be considered in the design of policies. It



is important to note that individuals who are asymptomatic or only weakly symptomatic may also contribute to the spread of the disease.

Symptoms usually show about five days after infection, and 98% of cases show symptoms within 12 days of infection [40]. However, median infectiousness often precedes symptoms by about 2 days [23]. This presents a significant challenge for research restart. Screening for a fever or other gross symptoms leaves open the possibility that pre-symptomatic individuals are unknowingly spreading the disease on campus for several days. One study estimated that about half of all new infections originate from pre-symptomatic individuals [29].

Reverse transcription polymerase chain reaction (RT-PCR) testing is able to detect some infections during the pre-symptomatic period, with the probability of detection increasing towards symptoms onset [39]. It should also be noted that individuals can remain positive on a RT-PCR test for a significant period after they are no longer likely infectious because the body continues to shed non-infectious viral RNA for some time, with 68% becoming negative by day 28 and 95% being negative by day 33 [23]. For more on testing, see Section [4].

The time to symptoms onset is important for determining how long to quarantine individuals who have been exposed to a COVID-19 positive person and are thus potentially infectious. The standard quarantine period of 14 days was chosen by public-health officials before much information was available. More recent data suggests 98% of all infections will show symptoms within 12 days, permitting a shorter quarantine [40]. Even a quarantine of one week should catch about 80% of secondary infections, meeting the objective of  $R_{\text{campus}} < 1$ , assuming nearly all exposed persons can be identified. For more on estimating impacts on  $R$ , see Appendix [B.2].

This timeline and associated brief summary reflect the state of science in early June 2020. The scientific community's understanding of COVID-19 is rapidly evolving, and much data remains to be gathered and examined.

## Findings

**Finding:** The disease characteristic most relevant to research restart is the high fraction of transmissions from pre-symptomatic individuals. Current data suggests the median time to the onset of infectiousness comes about

two days prior to the onset of symptoms.

**Finding:** A quarantine period of 7–14 days is appropriate for individuals who may have been exposed to SARS-CoV-2, with the lower end being sufficient to prevent a major outbreak on campus provided almost all exposed persons can be identified.



### 3 What is the risk of airborne transmission?

There is extensive evidence of airborne transmission of respiratory viral illness. Airborne transmission occurs when an infectious person breathes, speaks, eats, coughs, or sneezes, emitting small liquid particles that float in the air, and these particles subsequently come into contact with a susceptible person's mucus membranes. It is extremely challenging to produce an estimate of the absolute risk of transmission for SARS-CoV-2 from airborne exposure, and we have not attempted one here. However, as a potentially illustrative example, Figure 2 shows an interpretation by Bueno de Mesquita et al. [7] of data from the largest human influenza challenge-transmission trial conducted to date, with 127 persons sharing poorly ventilated hotel rooms. The figure shows the estimated probability of influenza transmission as a function of cohabitation time. Note the exceptionally large variance between the 10<sup>th</sup> percentile estimate (dotted lines) and the 90<sup>th</sup> percentile estimate (dashed lines).

The suspended particles carrying virus exist in a continuum of sizes, from fractions of a wavelength of visible light to palpable droplets of spittle. Generally, the range is broken into two categories: *aerosols* that remain suspended for “long” periods of time, and *droplets* that fall to the ground quickly. The behavior depends on the precise environmental conditions and the choice of where to put the boundary is ultimately a subjective one.

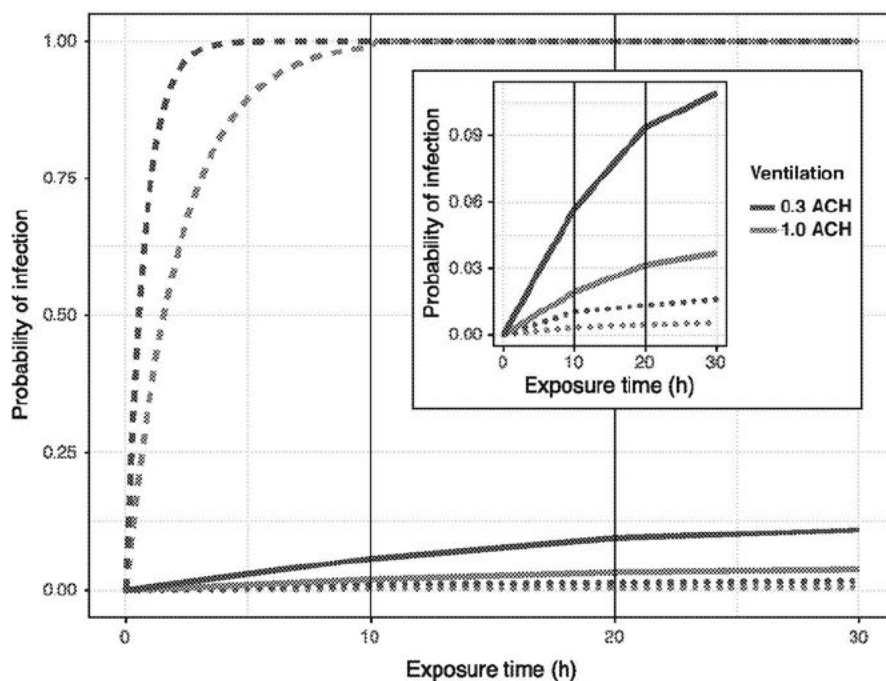


Figure 2: Probability of infection of a theoretical roommate in ultra-low-ventilation room (0.3 ACH, red) and low-ventilation room (1.0 ACH, blue). Solid line is the mean estimate, dashed line is the 90<sup>th</sup> percentile estimate, and dotted line is the 10<sup>th</sup> percentile estimate. Variation arises in large part because of the highly variable level of virus shed across different infectious persons (see Section 6). Inset graph is a zoom of the lower curves. ACH is the ventilation rate in air changes per hour. Figure adapted from 7.

### 3.1 Risk reduction

Strategies for reducing exposure to airborne particles include

1. physical distancing (e.g., the 6-foot rule);
2. wearing masks and eye protection;
3. reducing the number of people in a room;
4. modifications to ventilation systems.

In complement, strategies to reduce the release of airborne particles include:

5. wearing masks to reduce the emission of airborne droplets;



6. reducing particulate-generating activities such as speaking, singing, and eating in shared indoor spaces.

Each of these strategies is reviewed here.

### 3.1.1 Physical distancing

Physical distancing, such as the six-foot rule, emerges from the observation that a cough produces a jet of droplets and aerosols that travels about six feet into ambient air. Speech also produces a similar jet, only less powerful. The gas in these jets turns upwards because it is warm and humid and thus buoyant compared to ambient air. Small aerosols can be entrained in this upward plume [52]. Larger droplets, by contrast, separate from the plume under the influence of gravity and fall towards the ground. Most of this occurs within three to six feet [67], which is the origin of the six-foot rule. However, a small fraction of particles in the transition region will float at elevations where they can be easily inhaled, and may persist there for distances greater than six feet. These particles will tend to travel on the air currents in the room.

Quiet breathing entails conditions that relax somewhat the need for six feet of distance. Breathing produces essentially no large droplets and instead is limited to fine aerosols with less (albeit nonzero) viral load. For comparison, the volume of fine aerosol emitted by speaking is twenty times that of breathing, and the volume emitted over all particle size is hundreds of times that of breathing [49]. Thus, if two people must work closely for a short time, they should continue to wear a mask, not speak when in close proximity, and avoid being directly over another person to the extent possible.

Physical distancing can only partially mitigate the risk posed by the accumulation of aerosols and dispersion of aerosols in a room, which is also subject to room occupancy, airflow details, and activity intensity (discussed below). Thus, while physical distance helps avoid the great majority of the emitted viral load, especially outdoors, other measures are indicated to address the risk posed aerosols that build up in confined spaces.

### 3.1.2 Masks and eye protection

For large particles, masks and eye protection provide simple barriers to droplet projectiles from speech and cough jets. As particles become smaller, masks also filter inhaled air, becoming somewhat permeable to particles with diameters below about 10  $\mu\text{m}$ . For more on the utility of masks, see Section [8.4](#).

### 3.1.3 Reducing the occupancy of the room

Under steady occupancy, the viral load in aerosols increases and levels off to a fixed value. In a room with well-mixed air, the exposure risk to any one individual is directly proportional to the number of infectious persons occupying the room. Existing research is insufficient to estimate the absolute risk of ongoing exposure to aerosol, although some authors have attempted conservative approximations [\[19, 3\]](#).

By contrast, the relative risk of adding more people to the room can be estimated. One way to characterize the relative risk is relative probability of at least one infection occurring from having  $n$  persons in the room relative to the probability of one infection from having 2 persons in the room. This relative risk factor is given by

$$P_{\text{rel}}(1, n) = \frac{1}{2}n(n-1). \quad (3-1)$$

The derivation for this factor and additional considerations for estimating the relative and marginal risks are discussed in Appendix [G](#).

### 3.1.4 Modifications to HVAC systems

Heating, ventilation, and air-conditioning (HVAC) system modifications are one of the several ways to address the persistent risk of accumulated aerosols. A decision to modify the HVAC systems is not straightforward, however.

In the limit of a well-mixed room, increasing the provision of clean (outdoor or HEPA-filtered) air will help dilute the viral loads. However, increased airflow can also help move plumes of aerosols and droplets from speech, coughing, or eating across the room, increasing the risk of infection



to downstream individuals [42]. On balance, if speech is minimized, distancing measures are in force, and face masks are worn, then increasing the air supply in a room is probably beneficial—but a precise conclusion ultimately requires knowledge of the mask leakage rate, position of individuals, and air-flow patterns within the room. By contrast, in places where people eat, or if masks are not required, increased airflow may be counterproductive.

HVAC systems are usually designed either for displacement ventilation (where air inlets and outlets are at different elevations or on different sides of the room) or mixing ventilation (where air inlets are typically centered on the ceiling). Displacement ventilation provides superior air quality by displacing contaminated air in a bulk fashion. In the limit of perfect displacement ventilation, the rate of virus removal is roughly proportional to the air changes per hour (ACH), within the limits of normal ventilation rates where highly turbulent conditions are avoided.

In the United States, mixing ventilation is more common. With mixing ventilation, fine aerosols become diluted and distributed into the room. Under conditions of strong mixing (such as cool air entering from the ceiling) this can happen on a timescale of several minutes [9], but quiescent zones and streams remain possible. If aerosols from quiet breathing are homogeneously mixed into the room, the concentration in the room  $C(t)$  can be described as by

$$\frac{dC(t)}{dt} = \frac{\mathcal{N}}{V_{\text{room}}} - \frac{C(t) \ln(2)}{\tau_{1/2}} - C(t) \cdot ACH, \quad (3-2)$$

where  $\mathcal{N}$  is the constant emission rate of virus,  $V_{\text{room}}$  is the volume of the room,  $\tau_{1/2}$  is the infectious half-life of SARS-CoV-2 at 1.1 hrs<sup>1</sup> [60]. In the limit as time  $t \rightarrow \infty$ , the equilibrium concentration becomes

$$C(\infty) = \frac{\mathcal{N}}{V \left( ACH + \frac{\ln(2)}{\tau_{1/2}} \right)}. \quad (3-3)$$

The effect of equation [3-3] is illustrated in Figure [3]. More than half the benefit is achieved at 4 ACH, which is on the lower end of typical commercial spaces; and 90% of the benefit is achieved at 15 ACH, which is on the high end of what one might find in a laboratory space.

An alternative or complement to HVAC modifications would be to use

---

<sup>1</sup>Measured at 65% relative humidity and  $22 \pm 1^\circ\text{C}$ .

true<sup>2</sup> HEPA-equipped air purifiers to remove aerosol loading. Such a filter has the potential to provide around 100 cubic feet per minute (CFM) for approximately 10 watts of power consumption. If the clean air from the unit displaces room air, it has the potential to provide localized areas of highly reduced aerosol loading while also helping to clean the rest of the air in the room. A 100 CFM unit in a  $25 \times 25 \times 10$  foot room provides about 1 ACH of additional “fresh” air under the assumption of a well-mixed room.

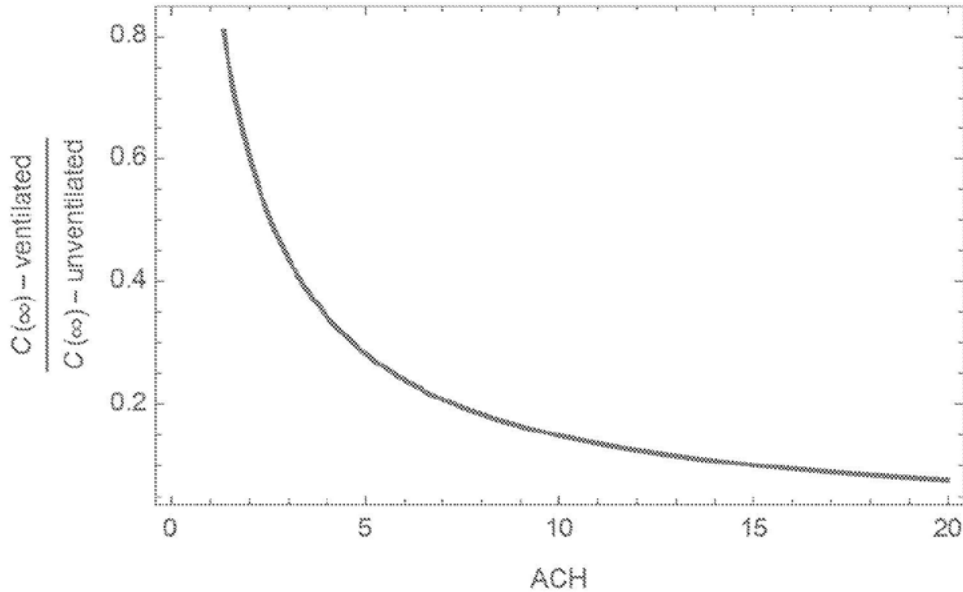


Figure 3: Diminishing benefit from increasing ventilation in the reduction of SARS-CoV-2 aerosol loads (exclusive of droplets).

Some buildings’ HVAC systems may circulate air between rooms in ways that are not apparent, allowing the spread of SARS-CoV-2 between rooms [19]. The campus facilities group must be consulted to ensure the air-flow is well understood and that the intended occupancy meets the capacity of the HVAC system.

<sup>2</sup>HEPA filters are high efficiency particulate air filters that meet consensus standards of the American Society for Testing and Materials (ASTM) or the American Society of Mechanical Engineers (ASME). These standards amount to filtering 99.97% of aerosol particles of  $0.3 \mu\text{m}$  in diameter. Some inexpensive filters labeled ‘HEPA’ may not meet these standards.



### 3.1.5 Wearing masks as source control

The published literature finds that if an infected person wears a mask, it reduces to the risk to others [55] [48]. For example, Milton et al. [48] found surgical-style masks reduced influenza virus emissions by about 3 fold (95% CI 1.8–6.3), and reduced virus-bearing particles larger than 5 microns by 25 fold (95% CI 3.5–180). This suggests significant attenuation of larger droplets from speech is possible. However, the imperfect seal of masks may still allow significant leakage [57] [31] [13]. JASON was not able to ascertain whether face-mask wearing would fully counteract the additional risk posed by speech relative to quiet breathing.

### 3.1.6 Reducing droplet generating activities

Because the viral load is proportional to the volume of respiratory fluid, and because the volume of a particle scales as its diameter to the third power, the viral load shed by a person is mostly carried in the largest particles emitted. Importantly, essentially all particles produced when people are quietly breathing fall well into the category of aerosols [49] [34]. Whereas speaking, coughing, and sneezing not only produce more aerosols than breathing, they also produce larger droplets that contain substantially more virus than the aerosols. Speaking will increase the dose to others by at least 20 times, even when wearing a mask [49]. If larger droplets escape from masks, which seems possible because of imperfect seals, the amount of virus emitted by speaking can be many hundreds of times that of breathing [10] [68].

While speaking is an important part of academic work, minimizing unnecessary speech, and speech in close proximity to a person, can provide substantial benefits. Written text could provide a functional alternative for infrequent communication, especially for laboratory workers in tight spaces. Additionally, studies have found that that speaking “loudly” produced more than four times as many aerosols than speaking softly<sup>[2] [3]</sup> Whispering, which does not involve movements of the vocal cords, produced about half the number of particles as “normal” speech, including a detectable reduction in larger

---

<sup>3</sup>The peak size also increased from 0.8  $\mu\text{m}$  for soft speech to about 1  $\mu\text{m}$ . It is unclear if this shift in size reflects changes in aerosol production, is an evaporation effect caused by reduced mixing time with ambient air, or is an effect of the geometry of the sampling instrument. If the effect relates to production, the increase in droplet diameter corresponds to another factor of two in emitted volume, suggesting that the total increase in emitted virus could be as much as eight times higher when speaking loudly.

particles around  $2\ \mu\text{m}$  [49]. The implications of this study are important for face mask usage. For example, if a face-mask attenuates 50% of outgoing particles (e.g., as might occur with a low-quality mask or respirator with a vent), then it would be better to speak softly and not wear a mask than to speak loudly with a mask. If a mask attenuates more than about 80% of outgoing droplets as implied for surgical masks by Milton et al. [48], then it is better to keep the mask on and speak at the lowest audible volume.

## Findings and recommendations

**Finding:** Physical distancing does not fully address the risk posed by aerosols in a room, which become dispersed in the room's air.

**Finding:** Masks reduce the risk for the wearer as well as the risk posed by the wearer to others. However, masks that force people to speak loudly may be counterproductive unless their outgoing filtration efficiency is high.

**Finding:** The relative risk of adding more persons to a room goes roughly as the square of the number of persons. Thus, doubling occupancy increases the risk by a factor of four.

**Finding:** The impact of increasing airflow on disease transmission depends on the activities occurring in and the layout of the room. When combined with masks, distancing, and minimization of loud speaking, increasing airflow is probably beneficial.

**Finding:** For mixing ventilation, there are diminishing returns to higher airflow. More than 50% of possible gains are had at 4 air changes per hour (ACH), 90% of gains at 15 ACH.

**Finding:** Speech sheds at least 20 times more virus than breathing on a minute-by-minute basis, even if wearing a mask. Viral shedding may be up to several-hundred fold depending on conditions.

**Recommendation:** Reduce unnecessary speech communication by using text through text messaging, scratch pads, white boards, or a dedicated computer and flat-panel display. If you must speak, speak softly.

**Finding:** Require all occupants of indoor rooms to wear masks. Respirators



with easy-exhale valves provide limited source control, but can be covered by an additional surgical mask.

**Recommendation:** Ensure room ventilation meets minimum standards. If your institution chooses not to require masks for all occupants, consider a study of how airflow patterns may transport plumes and larger droplets before increasing airflow.

**Recommendation:** Distribute personnel equally across rooms to minimize the number of persons per room; and equally within rooms to reduce the transmission of larger droplets.

## 4 What is the role of diagnostic testing?

There has been extensive discussion of “testing” as a potential requirement for restarting universities. Much of this discussion is ambiguous about the kind of testing or its value. There are many different kinds of diagnostic tests for SARS-CoV-2 that can be employed to serve substantially different ends, each with a different cost, logistics burden, error rate (false positives and negatives), turn-around time, and level of patient discomfort. This section discusses how these tests might be used as part of a research restart.

### 4.1 The kinds of tests

Testing for the presence (or past presence) of SARS-CoV-2 can be broken into three categories based on the target of detection:

1. Viral RNA testing;
2. Viral antigen testing;
3. Antibody testing.

#### 4.1.1 Viral RNA testing

Viral RNA testing seeks to detect the genetic material of SARS-CoV-2 and can be used to identify residues of genetic code from the virus in tissues, fluids, surfaces, air, etc. Essentially all of these tests operate by using enzymes that “amplify” or replicate the genetic material present in the sample. Quantitative versions can detect not only the presence of viral RNA but also estimate the amount of RNA present in the original sample—offering a proxy for viral titer and infectiousness. Importantly, however, none of these tests determine whether the RNA detected came from viable virus particles capable of infecting cells, or merely the debris of dead virus. Thus, these tests can indicate the presence of RNA long after the virus has ceased to be infectious. There are several different methods of RNA amplification, each offering different features as they relate to a diagnostic setting.

**PCR**—PCR, or more precisely, reverse-transcriptase polymerase chain reaction (RT-PCR) is an enzyme-based reaction that amplifies genetic code



segments in a series of thermal cycles. The test is extremely sensitive, but it requires well-controlled conditions and either trained personnel or robots to carry out. PCR is currently the diagnostic standard in the United States, with many small variations in the kits supplied by different commercial vendors.

Initially, PCR tests were only validated for highly invasive nasopharyngeal swabs that require a trained person to collect and were very uncomfortable for patients. Because nasopharyngeal swabbing tends to induce sneezing, medical staff also need to wear full personal protective equipment. At the time of this writing, some labs have begun to offer PCR processing of less invasive swabs taken from the anterior nares (nostrils), and there are now efforts to standardize a saliva-based test that can use samples collected by the patient.

Despite PCR's exquisite sensitivity, the overall efficiency of the sample-collection procedure and the variable expression of virus in human tissues at different stages of the disease can result in false negatives. A recent analysis by Kucirka et al. [39] found that over the 4 days between infection and the typical time of symptoms onset (day 5), the probability of a false-negative in nasopharyngeal samples went from 100% (95% CI, 100% to 100%) on day 1, to 67% (CI, 27% to 94%) on day 4. In other words, on days prior to a person showing symptoms, the test is more likely to give a false result than a correct one. On the day of symptoms onset, the median false-negative rate was down to 38% (CI, 18% to 65%). Despite this low probability of detecting an infection before symptoms, the test may be better at detecting infectiousness to others. This is because infectiousness is a function of the person's expressed viral titer, with higher titers producing lower false negatives. However, to our knowledge there are no studies attempting to quantify the predictive value of a PCR test on infectiousness. In contrast to false negatives, the test tends to have a very low false-positive rate [6] [33].

With the exception of a few hospital-grade robotic systems, most PCR-based tests require sample storage and transport to a certified laboratory capable of performing the needed RNA extraction, concentration, and PCR-based amplification. As such, these tests typically have long (12 hour to 2 day) turnaround times and are fairly expensive (\$50–\$100/test when processed at scale). This means PCR tests are suitable as a diagnostic of persons with suspected infection or exposure to the virus, but PCR tests cannot currently be performed quickly and cheaply “at the front door.”

**LAMP**—Reverse-transcriptase loop-mediated isothermal amplification (RT-

LAMP) is another amplification system that differentiates itself by using a simplified single heating cycle to process the sample. This circumvents much of the complication associated with PCR-based testing. In combination with chemical indicators or dyes, this test can be designed to yield a yes/no answer by simply observing a color change in a small plastic test tube. The time to process a sample is a few minutes, followed by about 30–60 minutes of waiting. The complication and cost of running the test is thus substantially reduced. With the amplification steps simplified, sample preparation steps become the primary burden. Some test designers are discarding sample preparation steps to improve ease of use at the cost of reducing the sensitivity to 1/10 its nominal value. If the test can be validated using saliva or self-sampled anterior nares swabs, then virtually all the steps requiring trained staff can be eliminated. With all steps simplified, commercially provided test kits could in principle be easy enough to perform virtually anywhere with minimal training and no more equipment than an electric heat block. However, FDA approved versions are unlikely to be available except to certified diagnostic laboratories unless the FDA deems the test robust enough to make a special exception for SARS-CoV-2.

The trade-off for the simplicity of LAMP tests is a reduction in sensitivity, resulting in higher false-negative rates. In addition, the genetic segments identified by LAMP test are shorter than in PCR tests, which means that they tend to be less specific, resulting in higher false positives than PCR. A non-clinical laboratory environment is also more likely to introduce variables such as poor temperature control, further increasing both false positive and false negative results. Based on informal pre-clinical data from test manufacturers, it appears that the error rates for LAMP tests are still likely to be low enough to serve as a useful detector of infectious persons.

#### 4.1.2 Viral antigen testing

Viral antigen tests directly detect the proteins of the virus rather than its RNA. Samples are diluted and specially made antibodies bind with the viral proteins, usually carrying with them some dye or fluorescent indicator up a lateral-flow strip. These tests tend to be highly specific, but are not as specific as RNA-based tests, meaning their false positive rates are higher but still acceptable.

The FDA has approved one laboratory-grade antigen test at the time of writing. That test uses a dedicated machine to read the test outcome



and is designed to be used only in laboratory settings. The approved test has about 80% of the sensitivity of PCR tests and the specificity is such that it will give a positive result for SARS-CoV-1 and SARS-CoV-2 [53]. By convention, antigen tests are usually read in 15 minutes to maximize their sensitivity, but the most highly infectious persons will show positive results in about one minute. They are also relatively inexpensive. The cost of an antigen-test cassette can be less than \$10. Some manufacturers are taking advantage of this fact by working to win FDA approval for viral antigen tests that do not require a machine and which have as their purpose a near-instant detection of the most infectious persons. While these tests will have lower sensitivities, the extreme speed and simplicity means they may have a role to play in identifying the most infectious persons and super-spreaders “at the front door.”

### 4.1.3 Antibody testing

Also called serological tests, antibody tests aim to determine if a person has been previously exposed to SARS-CoV-2 virus by detection of antibodies produced by the human immune system. Unlike viral RNA and antigen tests, antibody tests do not detect the presence of virus. It is likely that these antibodies will confer some protection against reinfection, and it is possible that the protection conferred from a strong immune response may last for a period of over a year [4, 65]. However, it is not yet known what level of antibody titer is needed to prevent re-infection, or how long a person who has had a mild infection might be immune to reinfection. Many antibody tests are not sensitive to antibody titer, giving only a qualitative measure of the presence of antibodies. Thus, it is not yet clear how antibody test results should be interpreted, or how those results are actionable from a public-health perspective. Under particular situations, knowledge of plausible antibody presence might help optimize how people are deployed in the battle against COVID-19 (e.g., tasking plausibly immune doctors and nurses to treat COVID-infected patients over those who are immune naive). But given the large uncertainties, it is not evident that antibody tests should be pursued by groups not needing to manage particular exposure risk.

A large number of antibody tests were approved by the FDA under Emergency Use Authorization; some have now lost that authorization. Many of the approved tests appear to have high false-positive and false-negative rates—making an already difficult interpretation problem even more challenging. In general, it seems wise to avoid creating a situation where anti-

body tests create a privileged class of persons who are deemed immune and thus not subject to the same restrictions or protections as others. Not only might unequal application of protection rules complicate compliance, it may have the perverse effect of moral hazard, creating an incentive to purposefully increase one's risk of exposure in the hope of moving to the privileged class.

## 4.2 The functions of testing

We discuss here three potential functions of testing, the qualities tests should have, and the role these functions might practically play in research restart. The three functions are: diagnosis, screening, and monitoring.

### 4.2.1 Diagnosis

Tests are essential to the clinical diagnosis of potentially exposed or symptomatic persons. A positive test justifies follow-up patient referrals as well as recommendations for isolation as a precaution to protect the community. It is essential for administrators to ensure access to medical services with adequate diagnostic-testing capability. Ideally, these tests must have high sensitivity and low error rates. Of the technologies described in Section [4.1](#) PCR tests are the most suitable. Factors like cost and convenience may be deemed less important here. The same is true of test turn-around time, if additional transmission precautions are taken in response to symptoms prior to one (or two) negative tests. Low false-negative rates are particularly important to ensuring infectious persons are not incorrectly given a clear pass. It is possible to substantially reduce the impact of modest false-negative rates by testing persons with a small (e.g., 1 day) wait in between—provided the test does not also have a high false-positive rate.

### 4.2.2 Screening

Screening implies testing the entire population or, a defined subset, on a regular basis. This places greater emphasis on cost, comfort, and convenience. A saliva-based test would be ideal because it is non-invasive. For screening, it is also crucial the test results be had and become actionable within



a short period of time. If a test returns a result after one day, for example, an infectious person will have been spreading the disease during that time. If the results take longer than two days, an infectious person is likely to develop symptoms on roughly the same timescale as the test result, rendering most of the tests moot (see Section [2] for a discussion of these timelines). Finally, as the goal is to reduce the spread of the disease on campus, it is more important to identify those who are highly infectious than those who are infected but only mildly infectious. An especially valuable aspect of a test-based screening would be its ability to detect super spreaders (see Section [6]). All things considered, this suggests there are incentives for trading away some test sensitivity for speed, convenience, and lower cost.

Both RNA and antigen tests can be used for screening. PCR tends to be slow and expensive, LAMP considerably less so. Antigen tests have the potential to be particularly fast and cheap because they usually do not need wet chemistry to process a sample, and the most infectious individuals will show a positive result in about one minute. Thus, antigen tests have the potential to enable testing “at the front door.” In Appendix [D] we show that such a real-time test performed daily before the start of the working day reduces the expected exposure time for coworkers by approximately a factor of 5 relative to a laboratory-based diagnostic in which samples are taken before going home and the results are processed in a lab overnight with the result returned before work the next morning. Although the sensitivity of rapid screening technologies is lower, the reduced exposure time for coworkers enabled by the rapid read-out provides substantial compensation, especially when considering that rapid tests are likely to be sensitive enough to catch the most infectious persons, such as super spreaders. On June 16, 2020, the FDA announced that it would now consider approving test implementations for screening purposes absent a prescription from a physician. Test makers can now submit requests for emergency-use authorization of tests specifically designed for screening. However, at the time of writing, no laboratory-free rapid screen has been approved by the FDA or by state-government officials.

In Appendix [B] we derive equations that model the impact a generalized, continuous screening program might have on controlling the transmission of disease using highly simplified compartment models. Section [B.1.2] give additional considerations for when the screen is a virus test. These findings result in equation [4-4] below, which can be used to help a university administrator estimate the benefit of a testing program relative to other risk-reduction measures. In this equation, the campus’ initial transmission environment is characterized by the basic reproduction number  $R_0$ , which is equal to the average number of secondary infections caused by an average infectious person

if the entire campus population had no immunity<sup>4</sup>. The effect of testing can then be expressed as a multiplier on that parameter, yielding a new basic reproduction number

$$R = R_0 \times \frac{1}{1 + r_t(1 - f_t)/\gamma}, \quad (4-4)$$

where  $0 < f_t < 1$  is the test's false-negative rate,  $r_t$  is the continuous testing rate in tests per unit time, and  $\gamma$  is the rate at which ill persons are removed from the susceptible population absent testing, and is equal to the inverse of their average infectious period. Realistically,  $\gamma$  will fall between two extremes: if ill persons circulate in the population throughout their illness with no regard for others,  $\gamma \approx 1/(6 \text{ days})$ ; but if perfectly effective health screening removes people as soon as they show symptoms, the serial interval (see Section 2) suggests  $\gamma \approx 1/(1 \text{ days})$ . We judge that health screening is valuable but will be far from perfectly effective (see Section 5).

Equation 4-4 makes clear the benefit of testing frequently (causing  $r_t$  to be large). Such a proposition is expensive and logistically burdensome. One approach to minimizing the burden would be to consider targeted testing of only those persons judged more likely to be infected. Such persons those who were recently in contact with an infected person as identified by contact tracing, or individuals engaging in riskier activities like commuting by public transport, air travel, or living in a fraternity. In Appendix B.1 we give an example where combining less frequent but targeted testing with regular symptoms attestation leads to the greatest benefit, reducing  $R_0$  by over 50%.

Another approach to minimizing the burden of testing is to consider pooled testing, in which multiple samples are combined and the test is processed to see if there is evidence of virus among the whole group. If a group of samples comes back positive, each member of the group must be individually re-tested (at least once, given false-negative rates) to eventually identify the infected person—and until that happens, all members of the group should quarantine. This strategy makes the most sense for expensive laboratory tests, like PCR. For realistic scenarios, pooled testing may reduce the costs of the laboratory step by about a factor of five; but sample collection costs are unchanged, and sample and handling cost may go up slightly because of the need to combine samples. The consequence of pooling samples, however,

---

<sup>4</sup>The basic production number is a conceptual object that includes effects from the disease itself, the characteristics of the susceptible and infected populations, the weather, the characteristics of places where people congregate, and the nature of their interactions. There is no true value of  $R_0$  for a disease class of persons. Estimates for the population-weighted reproduction number in Wuhan, China have ranged from 2 to 9.



is a reduction in test sensitivity, causing a higher false-negative rate ( $f_t$  in equation [4-4]). The change in sensitivity is not proportional to the number of tests being processed, however. This number would need to be determined for the particular test under consideration before one could evaluate the impact of reduced sensitivity on the false-negative rate. The benefit of pooled testing is also severely curtailed by false positives, which can rapidly lead to excess re-testing, washing out all cost savings. The study of pooled testing is a mature subject; Appendix [E] gives a more in-depth but still incomplete discussion by way of a simple example.

### 4.2.3 Monitoring

In principle, testing can identify current levels of active infection or the prevalence of previous exposure—but this requires designing a testing program that has sufficient statistical sampling. When the prevalence is low, false positive rates become particularly problematic as small changes in the prevalence may be washed out by false-positive noise. For example, consider a situation where the fraction of infected-but-asymptomatic people in the community is 2 per thousand ( $p = 0.002$ ). A medium-sized university restarting at 25% of normal density may have 2,500 researchers on campus,  $\sim 5$  of whom will be infected and asymptomatic. If the university has the capacity to test  $n$  people per day, the probability of selecting  $k$  infected persons in each day's test is

$$P(k) = \binom{n}{k} 0.002^k (1 - 0.002)^{n-k}. \quad (4-5)$$

If the university can test  $n = 500$  per day (thus testing everybody once per week), the probability of getting no infected persons ( $k = 0$ ) is 37%, and the probability of getting 1 infected person ( $k = 1$ ) is also 37%. If the false positive rate is 1% then, on average, each day of testing will produce 5 false-positive tests, swamping the true positive detections. Retesting can help mitigate this, but if the false-negative rate is also high, then retesting has limited value. For example, if the false-negative rate of presymptomatic infections is 80%, in line with estimates for nasopharyngeal PCR reported by Kucirka et al. [39], then the probability of detecting each true positive person in the day's draw drops to 4% per person. Thus, virtually all (96%) of truly infected persons will not be detected, and virtually all positive results will be erroneous. A further illustration of the impact of false positives is give in Appendix [F]. Guidelines for determining the minimum number of people that must be tested to achieve a finding with a given confidence is given in Humphry et al. [32].

A more cost effective alternative to monitoring the incidence on campus would be to monitor the rate at which people are diagnosed based on self-reported symptoms, and to ensure clinical diagnosis occurs through a health screening program that directs symptomatic individuals to get tested. Such a program is discussed in Section 5

## Findings and recommendations

**Finding:** Antibody testing has, at best, a limited role to play in a research restart program.

**Finding:** The more rapidly a test result can be had and the results acted upon to quarantine of an infected person, the more useful testing will be.

**Finding:** Antigen testing may be attractive for “testing at the front door,” and detecting super spreaders, but such tests are not yet FDA approved.

**Finding:** Testing against asymptomatic populations requires a test with a false-positive rate well below the disease prevalence to produce useful insights.

**Finding:** Re-testing to reduce false positives also increases false negatives, and vice-versa. The interaction can have a devastating effect on the overall efficacy of using testing for screening asymptomatic populations.

**Finding:** False positives and false negatives make monitoring the state of the campus through testing difficult. Monitoring may be best done by tracking the rate of clinically diagnosed cases arising from symptomatic populations, and comparing the result to the larger community rate. A health screening program can help ensure good coverage.

**Finding:** Testing only the populations with the highest risk of infection substantially improves performance for any given investment in testing. Contact tracing is one method of identifying at risk individuals. Other factors include living situation, commuting habits, and immune status.

**Finding:** While pooled testing can be used to reduce the cost of testing, one must consider the effect of false positives and false negatives. Ultimately the gains from pooling may be small compared to a less-expensive and less-sensitive test.



**Recommendation:** Before deciding to test, perform a statistical analysis to understand how the false-positive and false-negative rates of the tests available to you impact your ability to meet your objectives.

**Recommendation:** Monitor developments of testing technologies, especially those that may produce results rapidly without needing a diagnostic laboratory.

## 5 How can health screening reduce spread?

Screening is the general strategy of identifying infectious persons to remove them from circulation and attenuate the spread of the disease. The value of different screens depends on how early in the course of the disease they can be effectuated, and the false-negative rate of the screen.

Testing for virus, described in Section 4 is the most direct method for identifying infectious individuals, but many currently approved tests are expensive, logistically burdensome, and subject to high error rates. This section will focus on health screening, either through a survey tool (attestation) that asks people to report on symptoms they may experience, or by direct physiological sensing.

Health screens detect effects of the immune response to disease. They are, therefore, second-order measures of a person's infectiousness. A critical concern with relying solely on health screening is that pre-symptomatic individuals are believed to be the source of a large fraction of secondary infections, with one study placing the number at roughly half of all new infections [12]. Nonetheless, health screening can be made relatively simple and low cost. A daily attestation of symptoms via smart-phone app would be one example. Taking every person's temperature at the front door is another. It is the frequency and ease of implementation that allow these relatively insensitive screens to contribute significantly to limiting the spread of disease. Voluntary reporting of symptoms or the reporting of no symptoms constitutes the collection of health data that must be collected and stored securely. Campus general counsel and health services will have to give guidance to ensure health information is correctly handled and viewed only by the appropriate people.

The symptoms associated with COVID-19, with incidence frequency and standard errors, include:

1. Fever ( $0.64 \pm 0.030$ ) [41, 44, 66]
2. Sinus pain ( $0.50 \pm 0.18$ ) [66]
3. Cough ( $0.46 \pm 0.032$ ) [41, 44, 66]
4. Reduced or altered sense of smell or taste ( $0.44 \pm 0.17$ ) [66]
5. Expectoration ( $0.32 \pm 0.036$ ) [44]



6. Stuffy nose ( $0.25 \pm 0.15$ ) [66]
7. Chills ( $0.18 \pm 0.044$ ) [41]
8. Fatigue ( $0.18 \pm 0.025$ ) [41, 44]
9. Sore throat ( $0.13 \pm 0.039$ ) [41]
10. Headache ( $0.13 \pm 0.037$ ) [41, 66]
11. Difficulty breathing ( $0.11 \pm 0.034$ ) [41, 66]
12. Joint or muscle pain ( $0.099 \pm 0.023$ ) [44, 66]
13. Diarrhea ( $0.056 \pm 0.015$ ) [41, 44, 66]
14. Vomiting ( $0.026 \pm 0.018$ ) [41]

To illustrate the limited sensitivity of these screens, consider that only 64% of positive cases report fever *at any time* during the course of the disease, and fever may also not be the first symptom of the disease [44]. Thus screening individuals for fever alone should be expected to miss at minimum 1/3 of symptomatic cases. Algorithms that combine multiple reported symptoms have been shown capable of retrospectively identifying 65% of positive cases [47]. Published algorithms are a starting point for using health-screening data, but more sophisticated approaches tailored to the campus environment are possible.

For the purpose of screening on campus, the fact that symptoms are ambiguous as to origin creates false positives; these false positives will increase during the flu, allergy, and cold seasons. Tracking population-averaged trends in the campus community allows for the sensitivity attributed to each symptom to be adjusted on a continuous basis, reducing both false positives and false negatives. Stress or chronic conditions among certain individuals will tend to render algorithms tuned for the general population less predictive for those individuals. Algorithms can be made adaptive to each individual's baseline state, compensating for person-to-person variation and increasing sensitivity. By contrast, the fact that symptoms may be mild or not present simultaneously, and that individuals may engage in deceptions because of a desire to work, will increase the false-negative rate. In sum, it is not yet clear to what extent screening for multiple symptoms will increase a university's ability to identify infected individuals and a high false-negative rate should be assumed at the outset so as to not overestimate the impact of health

screens. An epidemiological compartment model for estimating the impact is given in Appendix [B.1](#)

Even assuming a high false-negative rate, the fact that symptom attestation is low cost and can be used frequently makes it a very useful component of a university's toolkit. As shown in Appendix [B.1](#) when an 80% false-negative rate is assumed for symptom attestation, and the attestation occurs only every other day,  $R_0$  can still be reduced by 38%. To compare, if the rate of testing is once every 14 days for each person, and the tests have an optimistic 25% false-negative rate,  $R_0$  is reduced by only 25%. The fact that symptom attestation can occur frequently substantially compensates for its low sensitivity.

In addition to yes/no reporting of symptoms, university researchers may wish to offer an opt-in version of the survey that allows willing participants to provide more detailed information. Useful data may include daily reports of one's body temperature (taken with the identical thermometer), overnight respiratory rate (from a wearable device), or blood-oxygen saturation. Research on habits could also be useful, such as reporting instances of high-contact events such as grocery shopping or public transport. It is important, however, that most of these more burdensome questions of uncertain value be voluntary, so as not to reduce compliance with the primary survey.

Finally, in addition to symptom reporting, the medical team should consider adding, on occasion, other questions to the daily attestation. For example, a semiweekly numerical evaluation by each researcher about how safe they feel in their lab; and biweekly questions about whether individuals feel increasing stress. Such data could reveal problems with conditions on campus, or unsafe laboratories, both of which could undermine efforts to prevent COVID-19 infections.

## Findings and recommendations

**Finding:** Modification of the standard SIR model to account for screening illustrates that a health attestation can substantially slow disease transmission. The high frequency of the screen and ability to act quickly compensates for the expected high number of false negatives.

**Finding:** The more rapidly screening results in the quarantine of infected persons, the more effective screening is.



**Finding:** There will be significant variation in the baseline symptom rate across the population because of chronic conditions. Additionally, changes in COVID-19 infection rates and non-COVID illness rates both change the predictive value of symptoms in opposing ways.

**Recommendation:** Develop a procedure for daily health screens, such as an attestation of symptoms before arriving at work. A smartphone app for attestation offers the valuable opportunity to automatically determine if this threshold is reached and thus act instantly on the information.

**Recommendation:** The university should mandate that a member of the university community displaying symptoms typically associated with common disease (like a cold) should not report to work. If in addition the individual complains of symptoms associated with COVID-19 or influenza-like illness, a diagnostic test for SARS-CoV-2 should be performed.

**Recommendation:** Develop a capacity to continually adjust the thresholds at which stay-home and testing-referral decisions are made. Adjustments will be needed based on the prevalence of COVID-19 in the community, changes in the understanding of the disease, and seasonal illness like influenza. Ideally, algorithms should automatically adjust to account for person-to-person variation.

**Recommendation:** Assume a high false-negative rate for symptom attestation when planning a restart.

## 6 How does one prevent a super-spreader event?

The concept of super-spreading is well known in epidemiology: it is the propensity of a single infected individual to infect a larger-than-average number of people. The effect arises from a combination of biological, behavioral, and environmental variables, all of which influence transmission [8].

This phenomenon is often associated with the 20/80 rule: 20% of the host population contributes at least 80% of the net transmission potential (as measured by the basic reproduction number,  $R$ .) The rule implies that control programs targeted at the core 20% group are potentially highly effective. Conversely, programs that fail to reach most of this group will be less effective in reducing levels of infection in the population as a whole [64]. In the case of SARS-CoV-2, this ratio may be closer to 5/95, as shown below in Figure [5] and the associated discussion below.

Are there distinguishing aspects of infection and transmission that might identify super-spreaders or circumstances leading to super-spreading events? One element of such identification, as discussed below, is that within the population of infected persons, some may carry a viral load  $10^3$  to  $10^5$  times higher than the modal case. Importantly, given the data available, this appears linked to the stage of the infection. In addition, some infected persons may have a higher potential to spread SARS-CoV-2 through the ways in which they speak, cough, or exhibit other personal characteristics. Comorbidities may increase their ability to transmit the virus, as noted below. Their interaction with their environment can contribute to increased transmission if the infected engage in high risk behavior such as attending large gatherings, riding on public transport, not wearing a mask or donning it improperly. The environment may contribute through poorly-designed ventilation.

There are large differences in the number of aerosol particles produced during breathing among different people (coefficient of variation around 1.2; see Section [3] for a discussion of aerosols and droplets). This variation amounts to roughly a factor of 100 between the 95<sup>th</sup> percentile emitter and the 5<sup>th</sup> percentile emitter and is believed to arise because of variations in mucus surface tension in the lung [15]. Variation in droplets produced during speech, which carry much more virus but are also substantially attenuated by both interpersonal distance and mask wearing, was recently found to vary by a factor of about 4 between the 95<sup>th</sup> percentile emitter and the 5<sup>th</sup> percentile emitter [2].



While variations in aerosol and droplet production are significant, they are small compared to the much larger variation in viral titers observed across COVID-19-infected individuals. In particular, differences of up to  $8 \log_{10}$  ( $10^8$ ) in viral load between individuals have been observed—a million times larger than the variation in aerosol production [1]. Importantly, this variation is not variation in the peak titer, but variation in titers estimated from virus tests at whatever time they were performed. The variation in peak titer will be smaller.

Person-to-person variation in immune-system strength appears to contribute partially to the variation in observed titers. One study found that peak viral titer in patients with certain comorbidities was, on average, greater by a factor of 100 [59]. Viral titer also appears to increase with patient age, which is correlated with slower immune response [59, 36, 28]. In particular, To et al. [59] estimates titers increase by a multiple of 7.5 per each decade of age. Independently, aerosol emissions appear to double between age 20 and 40 [35, 2]. Combining the two effects, it appears plausible that the typical 50 year-old professor could shed 1000 times more virus in the form of aerosols than the typical 20 year-old student at the peak of infectivity.

The data from Jones et al. [36] can help illustrate why individuals with high viral titers may dominate the spread of the COVID-19. The study reports the results of 3,712 patients who tested positive for SARS-CoV-2. Figure 4 reproduces the data showing how many samples fell into each of a set of bins of estimated viral load on the swab. The bins range from  $10^4$  (limit of detection) to  $10^{12}$  copies/swab. Some of that variation can be attributed to infection age (changes in titer over the course of the disease), and some variation to variables associated with the collection of patient samples.

Multiplying the abscissa and ordinate at each point in Figure 4 yields the total virus in the bin, and normalizing over the sum of virus in all bins, yields the relative contribution of each bin to the total sampled virus, as shown in Figure 5. Assuming the data represents a snapshot of the infected population, Figure 5 shows that at any point in time the majority of the virus being shed is being shed by a small group of people. Those in the last seven bins comprise only about 5% of the population but contribute about 90% of the total virus being shed [5].

---

<sup>5</sup>To be clear, this particular analysis is uncorrelated with other identifying factors and thus does not by itself say whether those in the most infectious bins are identifiable in some way, or whether the “average” person will pass through one of these bins briefly during the course of the disease.

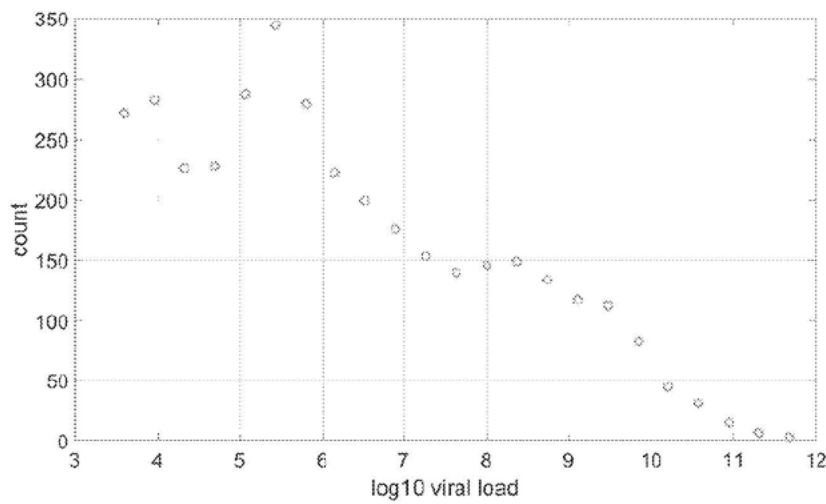


Figure 4: “Histogram of viral loads: The plot shows the frequency distribution of 3,712 values of patient SARS-CoV-2 (logarithm base 10) viral load, estimated from real-time RT-PCR Ct values... The sharp drop on the left side of the distribution is due to RT-PCR sensitivity and the limit on the cycles.” Caption and data extracted from a figure in [36]

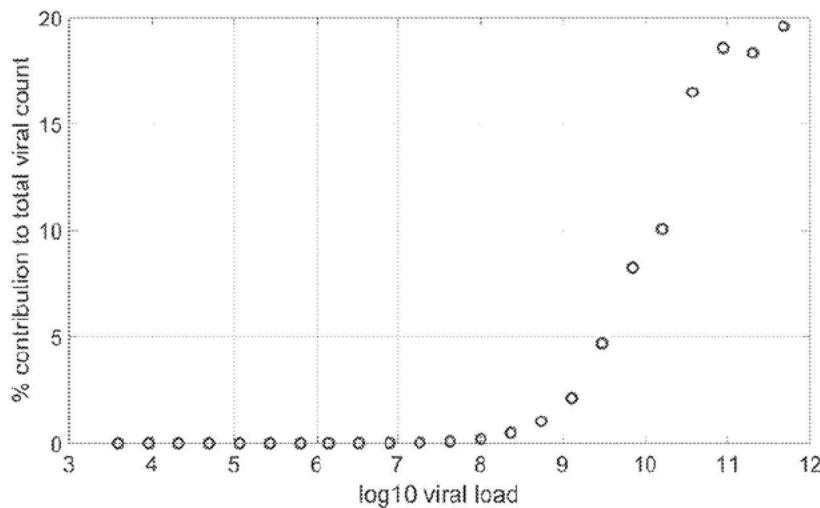


Figure 5: Total amount of virus present in each bin of Figure [4]. This plot helps visualize how much virus is contributed by patients in each bin to the total amount of virus present in the sampled population.



As a final consideration, it is notable that viral titers appear to be highest around the time, and possibly just before, symptoms onset. While not yet robustly demonstrated, the inference that viral loads are at least as high just before symptom onset as they are when first measured is apparent from Figure 6. The analysis of Kim et al. [38] supports this assessment: “In sensitivity analysis, using the same estimating procedure but holding constant the start of infectiousness from 1 to 7 days before symptom onset, infectiousness was shown to peak at 2 days before symptom onset.” This suggests that super-spreaders are likely to be present among the pre-symptomatic population, making the identification of super-spreaders a special challenge.

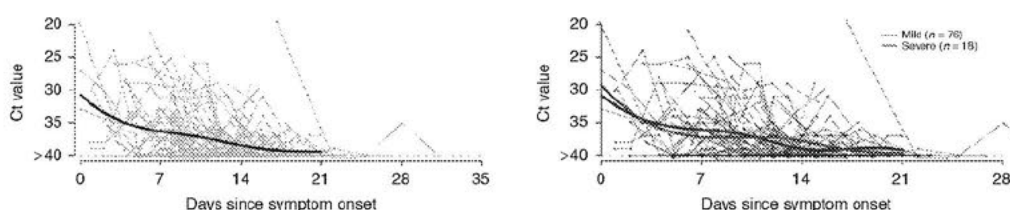


Figure 6: Figure and caption reproduced from [28]. “Viral load (threshold cycle (Ct) values) detected by RT-PCR in throat swabs from patients infected with SARS-CoV-2 (N=94), overall and stratified by disease severity... The detection limit was Ct=40, which was used to indicate negative samples. The thick lines show the trend in viral load, using smoothing splines. We added some noise to the data points to avoid overlaps.”

## Findings and recommendations

**Finding:** Super spreaders will contribute disproportionately to the number of secondary infections; they cannot be neglected in the design of protective measures.

**Finding:** In general, data suggest older persons are both more infectious to others and more at risk of infection.

**Finding:** Super-spreaders are likely to be pre-symptomatic individuals with high viral titers.

**Finding:** If super-spreaders are pre-symptomatic individuals, health screens that depend on symptoms will prove less effective than expected based on model results obtained using the average infectious case.

**Finding:** Virus testing (both antigen and RNA tests) has the potential to identify super-spreaders with exceptionally high viral titers.

**Finding:** A symptomatic person with an exceptionally high viral titer at diagnosis has a good chance of having been a super-spreader. Immediate quarantine followed by contact tracing for these individuals will be especially helpful in attenuating the rapid spread of the disease.

**Recommendation:** If the technology becomes accessible, consider a program to screen by viral testing all asymptomatic people on a regular basis, ideally before work and perhaps twice per day. Such tests do not need to be sensitive to low viral titers, but should be affordable, give results rapidly, and be comfortable enough for repeated use.

**Recommendation:** Establish a rapidly responding contact-tracing and quarantine program. Even a small program could have significant impact if it has enough capacity to address those suspected of being super-spreaders (e.g., the top 5% of cases).



## 7 Is the campus an island from the community?

SARS-CoV-2 can spread in any human-to-human interaction across a given day. University personnel generally interact with community members at home, at the store, on public transportation, etc. Thus, infection rates for on-campus personnel are not exclusively a function of on-campus activities. This section explores how infection rates on a university campus are influenced by infections off campus.

### 7.1 Island model

We consider whether reducing the basic reproduction number  $R$ , within a small sub-population is effective in altering the course of the disease when that sub-population is embedded within a host population where the infection is less-well controlled. In an SIR epidemiological model (Appendix B), if we label the smaller university population as group 1 and the larger population as group 2, this interaction can be represented for group 1 with an effective transmissivity ( $\beta$ ) given by

$$\beta^* = \beta_1 d \frac{I_1}{N_1} + \beta_2 (1 - d) \frac{I_2}{N_2}. \quad (7-6)$$

The terms,  $I/N$ , represent the fractions of groups 1 and 2 that are infected,  $d$  is the fraction of time group 1 is a distinct entity not interacting with other populations, and  $1 - d$  is the fraction of time that group 1 participates as part of group 2. All fractions range from zero to one.

Simulations in Appendix B.2 illustrate how the influence of a growing infection in group 2 on infections in group 1 can be minimized by decreasing interaction with group 2 and achieving a smaller value of  $R$  in group 1. Given at least some interactions with group 2, however, infections in group 1 will inevitably infect those in group 2 whether or not group 1 keeps  $R < 1$ . Nevertheless, equation 7-6 makes clear that reducing the interactions with the broader community is helpful. Certain universities may find it valuable to develop programs that help their populations reduce community interactions, especially for high-risk groups (e.g., immune-compromised or mission-critical staff) and those living in tight quarters with other community members (e.g., dorms and group houses) where an infection poses a higher

risk to others. Such programs might include shuttle-bus services, childcare, provisions for groceries, lunchtime food, or access to off-campus business and services through programs that reduce risky interactions.

Disease dynamics in any population are, of course, the aggregate of the dynamics within the sub-populations. Efforts to control spread within a university will have benefits for the larger population so long as policies do not adversely affect the larger community. It follows, for example, that an infected individual that is detected by a screening activity at the university should quarantine, as opposed to continuing to interact with the larger population.

## 7.2 Archipelago model

The concept of isolating, at least partially, a sub-population in order to better control spread of the disease can be extended to individual groups within a university. Karin et al. [37] advocate a strategy involving dividing a university population into two halves, where one half works for 4 days in a given week followed by 10 days of quarantine. The other half works for 4 days in the alternate week, also followed by 10 days of quarantine. The advantage of this approach is that it lowers population density on campus and, even if the campus environment does not achieve  $R < 1$ , can help maintain an effective  $R < 1$  through the quarantine phase.

The dynamics of the “4-10” strategy are analogous to those given by equation [7-6] if group 2 is re-interpreted as quarantined. In this case,  $d = 4/10$  and  $\beta_2$  is small. If, however, the “quarantine phase” becomes tantamount to normal interactions with the larger population, then the 4-10 strategy is helpful for reducing on-campus population density, and thereby reducing  $\beta_1$ , but increases interactions with the larger population, making the university more beholden to the dynamics of the larger community. A more complete discussion of the dynamics of the 4-10 strategy is given in Appendix [C.5]

The foregoing scenarios are simplistic representations of populations dynamics that involve complex spatio-temporal patterns and stochastic interactions. Populations and sub-populations are not thoroughly mixed, for example, and geometric aspects such as the relative location of a university and its host community will vary widely. Nevertheless, modeling illustrates scenarios of interest and helps show connections in the dynamics common to various policies. No university is an island, but efforts to control the spread



of the disease within such a sub-population have direct benefits.

## Findings and recommendations

**Finding:** A standard epidemiological compartment model modified to represent a sub-population hosted within a larger population indicates that the fraction of infected in the sub-population is lower inasmuch as the sub-population both reduces contact with the larger population and maintains a lower  $R$  than the larger population.

**Finding:** Because disease dynamics in models have exponential growth rates, making a decision to move to a lockdown phase earlier, even by one or two days, can have significant positive impacts, reducing the duration of lockdown required.

**Finding:** The recently discussed “4-10” scenario for return-to-work is effective in lowering on-campus population density but its overall efficacy depends on persons in the 10-day quarantine period significantly minimizing interactions with non-university communities having a higher  $R$ .

**Finding:** Universities will influence and be subject to the disease dynamics of the larger communities in which they are embedded.

**Recommendation:** Universities should seek to understand the exposure of their personnel and the infection rates both on and off campus. Frequent coordination with local health officials will keep university decision-makers informed.

**Recommendation:** Universities may wish to develop programs to help people reduce their dependence on community engagements, especially those activities that pose a higher risk of infection, and for those individuals that are in vulnerable populations.

## 8 What operational policies are recommended?

Universities are developing operational policies allowing research to restart while attempting to manage risk to their researchers and surrounding community. The operational policies will require unfamiliar behavior on the part of researchers and the university administration will have the challenge of enforcing these new rules.

### 8.1 Communication

Informative communication is a key component of success. Researchers subject to new rules and procedures must understand them if they are to buy into their legitimacy. Training videos, written explanations, clear signage, and conversations with laboratory leaders should all be employed to educate the research community and enlist their cooperation.

**Recommendation:** Administrators, facilities, and health professionals should work to create materials to educate the research community on the new rules and procedures and they were devised.

### 8.2 Basic source of risk

Infection occurs when virus comes into contact with mucus membranes such as the eyes, nose, mouth or respiratory tract. The virus can be carried on objects (fomites), or in liquid droplets and aerosols suspended in the air. These virus-bearing substances impinge on a person as a series of individual events, each one bringing some probability of infection. The exposure rate  $n(t)$  is the number of virions (virus particles) impinging on a person per unit time. The total dose is then

$$N_{tot} = \int_0^T n(t) dt.$$

The goal of risk mitigation measures is to reduce  $n(t)$  and  $T$  to levels where the disease is unlikely to spread on campus, defined as  $R < 1$  (see Section [1](#)).

**Finding:** Dose = exposure rate  $\times$  exposure time. Minimizing dose means minimizing the exposure rate and exposure time in all work environments,



including transit areas such as corridors, stairwells, and elevators.

### 8.3 Organizational methods to reduce dose

The findings above suggest simple and effective methods for reducing exposure in case an infected researcher makes their way into a research lab. Minimizing the time in the lab and working in shifts both provide means of reducing exposure. Creating research cohorts or “pods” may be possible for larger labs. Members of one pod should not mix with members of other pods, confining any potential infection (see Section [7] and associated appendices).

Each lab will need to find its own means of operating during a restart. While distancing, masks, and disinfection measures help reduce the risk, options that minimize the time two or more researchers are in a lab together will likely provide the most effective protection. Core or shared facilities, and remote labs such as telescopes or seismic stations, can all be made safer using the same principles applied appropriately at each location.

**Recommendation:** Adopt organizational changes to create shifts and cohorts that minimize the number of researcher interactions. Tailor these protocols to the needs of each laboratory, shared facility, and remote station.

**Recommendation:** Track which coworkers work together to facilitate contact tracing.

**Recommendation:** Develop systems and protocols that can minimize time spent in lab.

### 8.4 Respiratory masks

The primary viral transmission vector for COVID-19 is believed to be airborne transmission from droplets and aerosols (Section [3] and reference [14]). Large droplets (diameter greater than approximately  $10\ \mu\text{m}$ ) are actively generated by speaking, sneezing, and coughing. Droplets larger than  $30\text{--}40\ \mu\text{m}$  (at creation) are large enough to fall under the force of gravity and the probability of transmission is therefore a decreasing function of distance from the infected person [67]. Aerosols are smaller airborne particles produced by

breathing, and in much greater numbers by speaking. Once generated they can remain airborne for several hours, potentially causing transmission over larger distances and, speculatively, through unfiltered air-handling systems.

In the United States, public-health advisories about the use of masks covering the mouth and nose to mitigate COVID-19 transmission evolved from the initial statements that masks were not useful, to an acknowledgment that masks could reduce the risk of transmission, especially from the wearer to others. Unfortunately, the benefits of masks in reducing infection risk for the wearer have not been communicated nearly as well. The scientific literature on mask use related to viral transmission [58], as well as recent work specifically related to COVID-19, clearly indicate that masks also significantly reduce the risk of transmission in both directions, including for a mask wearer in the vicinity of an infected person [16, 69]. The level of protection varies with the material, design, and fit of the mask. Thus, university restart plans should include an evaluation of what types of masks are acceptable and best suited for the scenarios under consideration.

There are well-established standards for medical masks, which address the reduced transmission to the wearer from both aerosols and droplets, as indicated in table 1. Surgical masks are relatively comfortable and provide a useful benchmark for what may be achieved in masks to be made available to workers in most research environments.


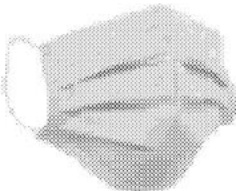

If there are shortages, certified medical masks must be prioritized for healthcare workers. Other types of masks, both commercial and do-it-yourself (DIY), can be nearly as effective as surgical-masks in actual use, as described below.

#### 8.4.1 Mask technical standards

The two key variables in masks are the materials used in the mask and the structural design of the mask itself. Public-health advisories for COVID-19 have recommended the use of cotton, which was the standard material used medically before the advent of disposable masks. Today surgical masks (rectangular-with-pleats) are made from special paper-based cloth, and most respirator style (fitted) masks are made from layers of electrostatically charged non-woven polypropylene fabric.

Some early literature on materials for DIY face masks did not provide



| Mask Type                                                                           | Standards              | Filtration Effectiveness               |                                        |                                        |
|-------------------------------------------------------------------------------------|------------------------|----------------------------------------|----------------------------------------|----------------------------------------|
|    | China: YY/T0969        | 3.0 Microns: ≥95%<br>0.1 Microns: ✗    |                                        |                                        |
|   | China: YY 0469         | 3.0 Microns: ≥95%<br>0.1 Microns: ≥30% |                                        |                                        |
|                                                                                     | USA: ASTM F2100        | Level 1                                | Level 2                                | Level 3                                |
|                                                                                     |                        | 3.0 Microns: ≥95%<br>0.1 Microns: ≥95% | 3.0 Microns: ≥98%<br>0.1 Microns: ≥98% | 3.0 Microns: ≥98%<br>0.1 Microns: ≥98% |
|                                                                                     | Europe: EN 14683       | Type I                                 | Type II                                | Type III                               |
| 3.0 Microns: ≥95%<br>0.1 Microns: ✗                                                 |                        | 3.0 Microns: ≥98%<br>0.1 Microns: ✗    | 3.0 Microns: ≥98%<br>0.1 Microns: ✗    |                                        |
|  | USA: NIOSH (42 CFR 84) | N95 / KN95                             | N99 / KN99                             | N100 / KN100                           |
|                                                                                     | China: GB2626          | 0.3 Microns: ≥95%                      | 0.3 Microns: ≥99%                      | 0.3 Microns: ≥99.97%                   |
|                                                                                     | Europe: EN 149:2001    | FFP1                                   | FFP2                                   | FFP3                                   |
|                                                                                     |                        | 0.3 Microns: ≥80%                      | 0.3 Microns: ≥94%                      | 0.3 Microns: 99%                       |

3.0 Microns: Bacteria Filtration Efficiency standard (BFE).

0.1 Microns: Particle Filtration Efficiency standard (PFE).

0.3 Microns: Used to represent the most-penetrating particle size (MPPS), which is the most difficult size particle to capture.

✗: No requirements.

Table 1: Compilation of technical standards for various types of medical masks. Source [54].

adequate statistics or material specifications to form generalized results. Several recent studies provide guidance on which materials are suitable [45, 51] provides some insight on the performance on material and designs. This study specifically addressed masks as-worn, which includes leakage around the edges of loose-fitting masks. The study used a 3M model 1826 surgical mask as a baseline for comparison. It demonstrated that for particles with a nominal size of 0.04 micron, the surgical mask removed more than 70% of particles, while rectangular single-use medical masks (Table 1) and rectangular cotton do-it-yourself (DIY) mask with a non-woven polyethylene insert removed almost 60%, and fitted cotton DIY masks removed 65–70%. Other DIY masks (rectangular cotton masks) tested more poorly, removing as little as 30% of small particles. This indicates the importance of specifying standards for masks.

Another recent study has illustrated the importance of how a mask is worn to its performance [69]. In this study, neither N95 masks nor surgical masks performed as indicated by their standards unless they were fit very tightly. The authors found that only by duct-taping the masks to the silicon dummy could the expected filtration efficiencies be achieved. Addition of a nose-clip to the surgical mask provided a significant increase in filtration efficiency. Masks must be worn properly throughout the working day if they are to provide the expected benefits.

If masks can be made available in bulk and certified for performance with proper fitting procedures, single-use medical masks could present a level of protection approaching that of surgical masks. However, these are disposable that may raise concerns for sustainability as well as continuing costs. If these items are not reliably available in the quantities needed, or if sustainability is highly valued, there are mask design and materials combinations that provide equivalent protection in washable (and thus reusable) masks. Providing a source of such masks would require some effort to establish specifications and identify a supply chain with sufficient capacity.

**Finding:** Mask efficacy is highly variable, and depends on the materials, designs, and user discipline in wearing the mask.

**Recommendation:** Universities should provide masks that meet demonstrated technical performance at the levels needed for the research environment. Training should be provided on how to properly wear masks.



## 8.5 Eye protection

To the degree that masks are advocated because they protect the wearer from infection (as well as protecting others from potentially being infected by the wearer), one can consider eye protection in addition to the mouth and nose protection offered by a mask. Safety glasses are needed for many laboratory applications, and can also help to protect the wearer's eyes from virus-bearing droplets in the air. Eyeglasses offer less protection than more encompassing safety glasses.

Face masks for respiratory protection can cause eye protection to fog up or become stifling. Since the evidence suggests respiratory protection is far more important, administrators might wish to consider the potential compliance problems generated by requiring eye protection in addition to respiratory protection.

## 8.6 Physical distancing and its limits

Some universities have created per-person area allocations in labs to enforce 6-foot physical distancing. While area allocations help reduce transmission via droplets, they are significantly less effective for aerosols that float in the air, presenting a risk to everyone in the room.

Section [3](#) contains a discussion of virus transmission by aerosols, and transmission mitigation by the HVAC systems and physical distancing. In the simplest terms, the room is a slowly leaking box. Limiting the time during which two or more people are in the room is the best way to prevent aerosol-borne transmission. In Section [8.4](#) we recommend that researchers always wear at least surgical masks, reducing the viral density in the room air, as well as the number of virus bearing particles inhaled. These measures make physical separation less critical, though still sensible whenever possible.

**Finding:** Standardized area allocations, minimum occupancy, and the use of masks work together to reduce dose by reducing exposure rate and exposure time.

**Recommendation:** Laboratory directors should work to minimize the occupancy of their labs to time when both people are essential to the task at hand.

**Recommendation:** Laboratory directors should consult their university's facilities and Health and Safety group on airflow in their labs to ensure there is at least adequate airflow and, and consider increasing the flow rate in the lab in case of higher occupancy.

**Finding:** Minimizing dose within the lab is insufficient; similar standards need to be met throughout the rest of the building, with particular attention to confined spaces that may receive little airflow but have frequent visitors (corridors, stairwells, and elevators).

## 8.7 Compliance

Universities will develop special rules for restarting research such as those recommended in this report. The restart rules add to the burden of usual rules from OSHA, NIOSH, the state, the city, and the university that govern laboratory operations. Laboratory directors must make it clear to their researchers that the restart rules are in addition to the usual laboratory rules, and that the restart rules may preclude activities normally allowed by the university. Laboratory directors may not have prior experience enforcing laboratory rules. Lab-level enforcement may become more important, for example, in ensuring continued face mask compliance. University administrations should provide training and support to help laboratory directors enforce rules by providing training materials to inform subordinate researchers, as recommended above.

Administrators must work with faculty and laboratory directors to develop meaningful consequences for those that do not follow rules and procedures. The consequences for misbehavior should be like any other safety violation and lead to expulsion from the laboratory building after warnings. As with the rationale for the creation of COVID-19 rules and procedures, the consequences and the reasons for these consequences must also be communicated through a variety of channels.

Leaving the enforcement of new rules and procedures to principal investigators (who may not even be on campus) or relying on reporting by other researchers can be expected to result in wide-spread flouting of the rules and procedures. Administrators must work with faculty, lab directors, the university's general counsel, and human resources to create a tiered response to rule flouting. Ultimately, the university should seek to create the sense that flouting is a transgression against the community, and sanctions must



be seen as coming from the university and not just from one's immediate supervisor.

**Recommendation:** Create and communicate a clear set of consequences for failure to follow COVID-19 rules and procedures and create a tiered response for transgressions.

## 9 How can institutions make risk-informed decisions?

Once a restart effort begins, institutional administrators will have to make regular decisions about expanding or contracting operations based on data gathered during the restart. This section considers how principal investigators and administrators may use this data for daily or weekly decision making about the conduct of operations.

Universities will operate in the low prevalence, low-testing regimes during the early stage. As such, insights into how campus operations are directly influencing the transmission of the disease will be hard to come by, as explained in Section [4.2.3](#). Instead, other data collected during a restart, such as information on how many people are in rooms, and how long researchers are in their labs, may be more actionable. Daily symptom attestation (see Section [5](#)) can also be aggregated and studied for hints of off-campus infection.

Compliance data should also be collected to determine whether researchers are following new health-and-safety rules. Levels of adherence to assigned work hours and work areas, the proper wearing of masks, and consistency of symptom attestation can be thought of as leading indicators of the infection rate. In other words, not following the most basic rules should be expected to lead to increased levels of infection [\[25\]](#).

Since viral testing may be prohibitively expensive or of limited value because of false positives, the aggregate of other data, suitably processed and presented in summary form as a “dashboard” may help decision makers reduce the rate of infections on campus and know when to ramp up (or down) the number of people on campus.

There are multiple benefits of this proposed dashboard:

- Analysis of daily reports of health attestations, and whether or not those reporting symptoms subsequently test positive, may help refine algorithms and the associated weights given to symptoms.
- With time, improved virus tests with greater specificity and faster turnaround times will become available and results from such tests should be added to the dashboard and correlated with other data.



- Knowing who is on campus and where they are during the day can also inform contact tracing efforts
- Knowing which rooms were used, by how many, and when they are empty, can support cleaning and maintenance staff, allowing them to work safely.
- Further aggregation of information into a well-crafted community dashboard, accessible to all members of the institution’s community, is an opportunity to develop shared situational awareness of “how we are doing.”

Should there be evidence of increasing infection risk, recent studies illustrate the importance of rapidly locking down activities to prevent further disease spread [20, 30]. This value is also apparent from the history of the 1918 flu epidemic (Appendix A). It is critical that administrators and designated health officers have rapid access to the necessary data and monitor that data regularly, to identify a local outbreak so that they can make the needed decisions.

## Findings and recommendations

**Finding:** Restart information related to symptom reporting, testing, campus access, and compliance with new rules must be rapidly reported and aggregated into a format that can support immediate decision making.

**Recommendation:** Create a public dashboard of testing, research compliance, facility access, symptom reporting, and local population prevalence information to inform decisions and create a shared sense of the situation.

## A Lessons from the 1918 pandemic

It is not too much to ask what help we can get today from the experiences of our parents or grandparents in the H1N1 influenza pandemic of 1918–19. This pandemic, which killed tens of millions of people globally and an estimated 675,000 across the United States<sup>[6]</sup> stimulated a variety of nonpharmaceutical responses across our country. Here we summarize some lessons and warnings regarding these measures employed a hundred years ago in a variety of US cities.

Response to the 1918–19 pandemic in the US has received significant study, revealing some useful lessons and warnings that are relevant today. Although Covid-19 is not influenza, it is similar enough in transmission to be instructive regarding nonpharmaceutical intervention (NPI) – mainly social distancing measures. Similarly US cities reflect many geographic, social, economic and climate differences. Yet responses across many (but not all) cities were similar in the face of no effective anti-viral drug or vaccine – sound familiar?

A very useful statistical study of nonpharmaceutical intervention (NPI) methods, their effectiveness and application in mitigating excess death rates (EDR) was done using data culled from many sources of the time (1918–19)<sup>[46]</sup>. Their major findings from 43 cities demonstrate that early application; multiple techniques and sustained application are associated with mitigation of the EDR. Typical interventions were school closures, public gathering bans and isolation and quarantine. A number of studies indicate that these measures impacted time to peak death rate, peak death rate and total number of excess deaths<sup>[27]</sup>. In particular cities that implemented NPI earlier, used multiple interventions and sustained them longer reaped the benefits of delaying the peak EDR, reducing the peak EDR and reducing aggregate excess deaths. The conclusions of<sup>[46]</sup> are based on Spearman rank correlation studies: cities that implemented NPI earlier had greater delays to peak EDR (Spearman  $r = -0.74$ ,  $P < 0.001$ ), lower peak EDR (Spearman  $r = 0.31$ ,  $P = 0.2$ ) and lower total mortality (Spearman  $r = 0.37$ ,  $P = 0.02$ ). Further, there was a significant association between increased duration of NPI and reduced total mortality (Spearman  $r = -0.39$ ,  $P = 0.003$ ). In addition to the effectiveness of NPI the work of Markel et al. illustrates the dangers of relaxing NPI measures too soon and suffering a second wave of deaths.

---

<sup>6</sup><https://www.cdc.gov/flu/pandemic-resources/1918-pandemic-h1n1.htm>



Fig. 7 illustrates a “tale of four cities” and how they fared with respect to start up date, types, duration and relaxation of nonpharmaceutical interventions. Probably the most interesting part of this tale is St. Louis, panel A in Figure 7. In early October, city health commissioner Dr. Max C. Starkloff ordered closure of schools, movie theaters, saloons, sporting events and other public gathering spots as well as suspension of Sunday church services [6]. In many respects St. Louis fared relatively well with the 8th lowest aggregate excess deaths per capita of 43 cities studied. However, this city also points out that relaxation of NPI measures too soon can lead to a resurgent, second wave. For St. Louis premature relaxation resulted in a second peak with death rate higher than the first peak. Denver in panel C illustrates a similar course of events with an early relaxation and subsequent larger second wave. In both cases reimposition of NPI measures was used and resulted in a steep decline in the death rate. New York City (panel B) fared relatively well with an early and sustained application of isolation and quarantine and an aggregate death total ranked 15th lowest of the 43 cities studied by [46]. Pittsburgh (panel D) had the highest aggregate death rate of all the 43 cities studied. The use of multiple NPI measures was limited and not sustained. Neither New York nor Pittsburg suffered a pronounced second wave. In summary although there are many confounding factors of geography, climate, air pollution, etc., the association of NPI measures, now called social distancing, with reduced rates of respiratory virus disease transmission has been convincingly demonstrated in studies of the 1918–19 influenza pandemic. Ref. [46] argue that in future pandemics NPI “might play a salubrious role in delaying the temporal effect of a pandemic, reducing the overall and peak attack rate; and reducing the number of cumulative deaths.” This view is supported by a variety of other sources (e.g., [21] and [27].)

However, the lessons of how to apply nonpharmaceutical techniques and the pitfalls of ceasing these measures too early appear not to have been as widely recognized as historical lessons demonstrate in our “tale of four cities,” above. Further, we note that opponents of NPI techniques can have serious impact and disastrous effects. San Francisco in 1918–19 is an example where NPI was successfully introduced under a WW1 patriotic banner, but tended to wane as residence tired of restrictions and masks. Eventually after much controversy NPI measures were relaxed and a strong second wave occurred, bringing reports that San Francisco’s cumulative death toll was the highest of any major US city, estimated at 673 per 100,000<sup>7</sup>

<sup>7</sup>“San Francisco, California and the 1918–1919 Influenza Epidemic.” University of Michigan Center for the History of Medicine: Influenza Encyclopedia, <https://www.influenzaarchive.org/cities/city-sanfrancisco.html>

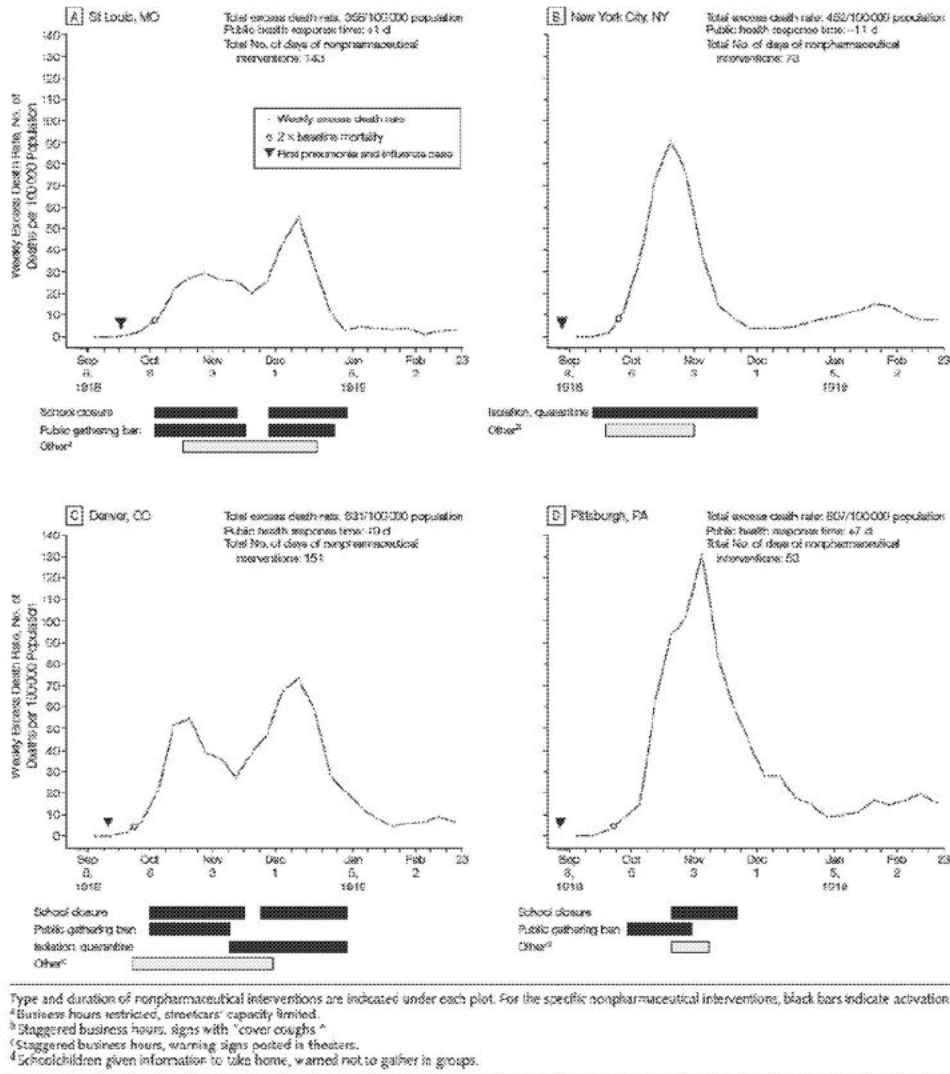


Figure 7: A tale of four cities—response to 1918–19 pandemic. Weekly excess death rates from Sept.8, 1918 through Feb. 22, 1919. For these four cities the profile of weekly death rates are shown with types of NPI techniques employed and dates in use. Note the positive effect of early implementation of multiple techniques and sustained use and the negative effects of premature relaxation of NPI use and the resurgence in a second wave. After [46].



## B Strategies to reduce $R$

An SIR model represents the population as residing within three compartments: susceptible (S), infected (I) and recovered (R). The sum of the fractional populations across these compartments is  $S + I + R = 1$ . The rate at which susceptible individuals become infected depends on the transmissivity,  $\beta$ , as well as the number already infected, and the rate at which infected recover,  $\gamma$ , giving:

$$\dot{S} = -\beta SI, \quad (\text{B-7})$$

$$\dot{I} = \beta SI - \gamma I, \quad (\text{B-8})$$

$$\dot{R} = \gamma I. \quad (\text{B-9})$$

In the approximation of a disease-free limit,  $S = 1$ , the solution to Eq. [B-8] is,  $I(t) = I_o \exp[(\beta - \gamma)t]$ , where  $I_o$  is an initial fraction infected. For  $I$  to grow,  $\beta$  must be greater than  $\gamma$ . Equivalently, the basic reproductive number, defined as  $R_o = \beta/\gamma$ , must be greater than one.  $R_o$  indicates the number of people an infected person subsequently infects under the idealized circumstances that the entire population is susceptible. Note that setting Eq. [B-8] to zero permits for solving for  $S$  at peak infectivity, which equals  $1/R_o$ .

Within the context of the SIR model there are only two general approaches for reducing  $R_o$ : increasing the rate of removal and decreasing transmissivity. First, we consider increased rates of ‘removing’ infected via quarantine in the context of SIR. Second, we consider whether a subgroup that decreases  $\beta$ , or increases  $\gamma$ , can control the dynamics of the disease when embedded within a larger population, again using SIR. These simulations quantitatively illustrate how quarantine and reductions in transmissivity can be effective for controlling the spread of COVID-19.

### B.1 Increasing the rate of removal

We wish to update Eq. [B-8] to include the effects of identifying infected individuals through symptom screening or testing and subsequently quarantining those individuals such that they do not interact with the susceptible population.

### B.1.1 Screening via symptom attestation

We assume a rate of symptom attestation of  $r_s$  and that this approach to screening has a false negative rate of  $f_s$ . Assuming that people identified with symptoms are quarantined, we have,

$$\dot{I} = \beta SI - \gamma I - r_s(1 - f_s)I. \quad (\text{B-10})$$

The solution in the disease free limit is  $I(t) = I_o \exp[(\beta - \gamma - r(1 - f_s))t]$ , such that the analogue of  $R_o$  becomes  $\beta/(\gamma + r_s(1 - f_s))$ .

A baseline SIR simulation is adopted for illustrative purposes having an  $R_o = 2$ , with  $\beta = 1/(3 \text{ days})$  and  $\gamma = 1/(6 \text{ days})$  (Eq. [B-8]). The baseline simulation gives peak infection rates of 15% and 80% of all people ultimately become infected. If Eq. [B-10] is instead applied with a symptom attestation - based screening rate  $r_s = 1/(2 \text{ days})$  and  $f_s = 80\%$ , peak infections are 2%, 37% are ultimately infected, and  $R_o = 1.25$  (see Fig. [8]).

A larger value of  $r_s$  than  $\gamma$  reflects the potential for screening a population regularly, and the large value of  $f_s = 80\%$  reflects imperfections of symptom attestation as a screening approach. To take screening according to fevers as an example, more than 80% of patients have been reported to present with fevers at the onset of the disease [44, 11] but there is a significant risk that asymptomatic individuals can also transmit the disease [24]. Errors in screening equipment or personnel performance as well as ignoring or evading screening measures could further contribute to false negatives. Gostic et al. [26] estimate that even under best-case assumptions that screening will miss more than half of infected people.

There are two other factors that inform our use of a high false negative rate. First, the false negative rate will evolve over the age of an infection. How early an individual can be detected is critical for stemming the spread of the disease, such that individuals that are infectious but asymptomatic pose a major challenge [24]. The simple SIR model used here, however, treats the probability of identifying anyone that is infected as being equal. Second, and related to the first point, our representation assumes that each screening is independent, with an increased rate of screening proportionately increasing rates of removal. In fact, repeated screening of an infected individual will only allow for quarantine once symptoms appear. A more complete screening model would account for emergence of symptoms together with the rates of screening when determining rate of removal. Adjusting the model to rates faster than  $1/(2 \text{ days})$  would further strain the assumption that tests are inde-



pendent. A final consideration is that screening will typically be undertaken using a more complete set of symptoms than just fever, such as including cough, shortness of breath, or fatigue. The false negative rate when using multiple symptoms for screening is lower relative to using just one [47], but the degree to which false negative rates are suppressed will depend upon the degree to which symptoms are independent from one another and the specific criteria used when calling for quarantine.

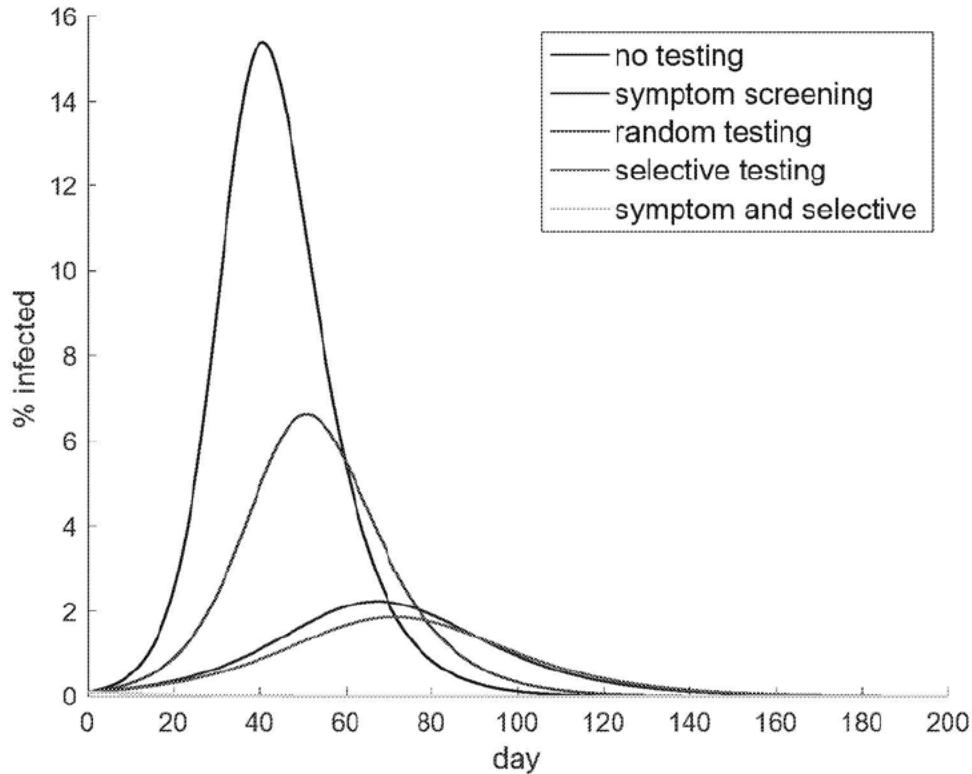


Figure 8: Infections from a baseline SIR model (black) and with introducing symptom attestation (blue), random testing (red), focused testing (magenta), and symptom attestation and focused testing combined (cyan). Baseline values have  $\beta = 1/(3 \text{ days})$  and  $\gamma = 1/(6 \text{ days})$  with all modification acting to increase the rate of removal and, hence, the effective  $\gamma$ .

### B.1.2 Testing

From the perspective of reducing  $R_o$ , testing is complimentary to symptom attestation, and can be represented similarly,

$$\dot{I} = \beta SI - \gamma I - r_t(1 - f_t)I. \quad (\text{B-11})$$

Assuming that the population can be tested at a rate of  $r_t = 1/(14 \text{ days})$  and  $f_t = 25\%$  false negatives gives peak infections of 7%, 59% ultimately infected, and  $R_o = 1.5$ . For the selected parameters, screening the population for symptoms every 2 days appears more effective than testing every 14 days despite testing having a much lower false negative rate. The assumptions of independence and equal probability associated with our simple screening model is also made with respect to testing. Confidence in the conclusion that screening would out-perform testing is tempered by these assumptions. Specifically, independence of test results when applied at a rate of  $1/(14 \text{ days})$  seems relatively more plausible than independence of screening at a rate of  $1/(2 \text{ days})$ .

Eq. [B-11] assumes randomized testing with the result that the number of tests administered to infected individuals is linearly proportional to  $I$ . In practice, a more common testing strategy than randomized testing is to administer tests to individuals that are more likely to be infected. For example, tests could be preferentially administered to those whose work or travel requirements make them more likely to be exposed or those who have been in contact with symptomatic individuals. Antibody testing could also be used to exclude those who recovered from infection.

To account for selective testing, we define the probability that someone is infected conditional on being tested as,

$$P(I|T) = \frac{P(T|I)P(I)}{P(T)}, \quad (\text{B-12})$$

where the right hand side uses Bayes Theorem. The probability of testing is,

$$P(T) = P(T|I)P(I) + P(T|S)P(S) + P(T|R)P(R). \quad (\text{B-13})$$

Assuming that the conditional probabilities are constant leads to,

$$P(I|T) = \frac{I}{I + \frac{p_s}{p_i}S + \frac{p_r}{p_i}R}. \quad (\text{B-14})$$

Eq. [B-14] represents the ability to concentrate testing on the infected population.

Modifying Eq. [B-11] to account for selective testing gives,

$$\dot{I} = \beta SI - \gamma I - \frac{r_t(1 - f_t)I}{I + \frac{p_s}{p_i}S + \frac{p_r}{p_i}R}. \quad (\text{B-15})$$



Ratios  $\frac{p_s}{p_i}$  and  $\frac{p_r}{p_i}$  describes the degree to which tests are focused away from susceptible and recovered populations onto the infected. Randomized testing corresponds to  $p_s$ ,  $p_r$ , and  $p_i$  being equal, where upon Eq. [B-15] simplifies to Eq. [B-11]. Assuming that  $\frac{p_s}{p_i} = \frac{p_r}{p_i} = 0.5$  doubles the efficacy of testing and gives  $R_0 = 1.22$ , slightly below that simulated for screening. A similar equations could be applied to symptom attestation, but the fact that this approach to screening is generally cheaper, faster, and less invasive than testing suggests that such focusing is less important to consider.

Combining both screening and testing according to the foregoing parameter specifications gives an  $R_o = 0.89$ , such that the initial small number of infections in the population decays. This combined results illustrates that a screening strategy that combines symptom attestation and testing will, generally, be more effective than either in isolation. Here, it is assumed that symptom attestation and testing act independently, but correlations in false negatives would yield smaller improvements.

### B.1.3 Pulsed testing

In seeking an optimal approach to testing the question arises as to whether a time-variable testing regime would help further reduce the spread of the disease. Fig. [9] shows a simulation having the same parameters as for the selective testing simulations shown in Fig. [8] but also includes a scenario whereby testing maintains its long-term average but alternates between two weeks of intensive testing and two weeks of reduced testing. The growth of the disease accordingly alternates from declining during intervals of intensive testing to rapid growth during intervals of reduced testing, but no long-term change in the course of the disease is apparent. Both scenarios produce 22% of the population having recovered from infection after 1000 days.

Results are qualitatively unchanged in our simulations using other choices of  $\beta$  and  $\gamma$ , other amplitudes of the square wave, different periods of the intensive-relaxed testing procedure, or use of sinusoidal variations. Including an incubation compartment in the model, i.e., an SEIR model, slows the trajectory of disease spread but appears similarly insensitive to constant versus pulsed testing.

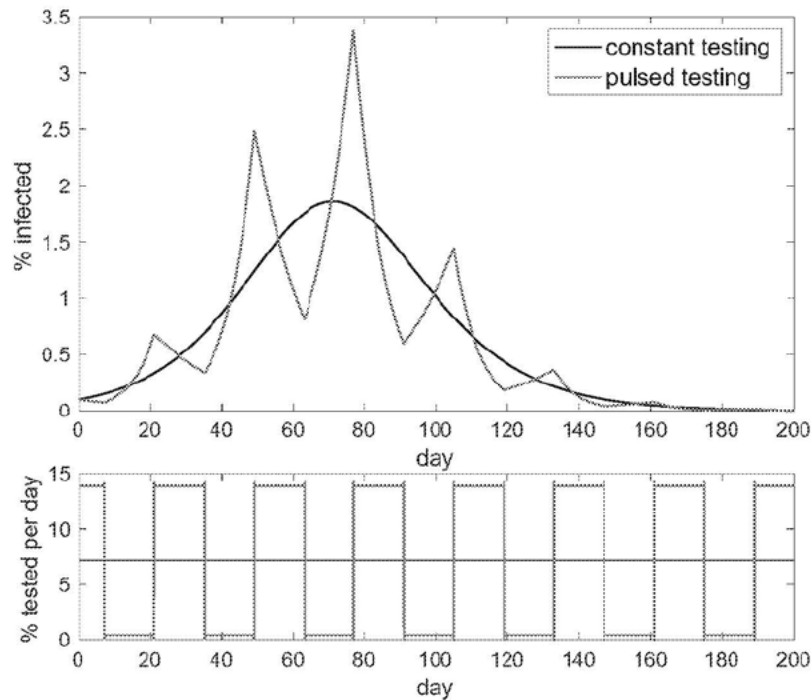


Figure 9: Simulation of the percent infected in a population using selective testing using a constant rate of testing and pulsed testing (blue). (Bottom) Constant and a pulsed testing scenarios; both have the same long-term average.

## B.2 Sub-population

A variety of means exists by which to reduce transmission, which are considered in other sections, and to increase removal, some of which are illustrated in foregoing subsections. The question arises as to whether reducing  $R_o$  within a sub-population is effective in altering the course of the disease when it is embedded within a larger population with which the sub-population interacts.

We consider a model having a small sub-population, group 1, that interacts with a larger host population, group 2. Group 2 evolves independent of group 1, whereas group 1 partially follows its own dynamics for a fraction of the day,  $d$ , and otherwise that of the larger group,  $1 - d$ . Transmission becomes a weighted average between the  $\beta$ 's associated with each group,

$$\beta^* = \beta_1 d I_1 / N_1 + \beta_2 (1 - d) I_2 / N_2 \quad (\text{B-16})$$

. The transmission characteristics of group 1 become more important as the



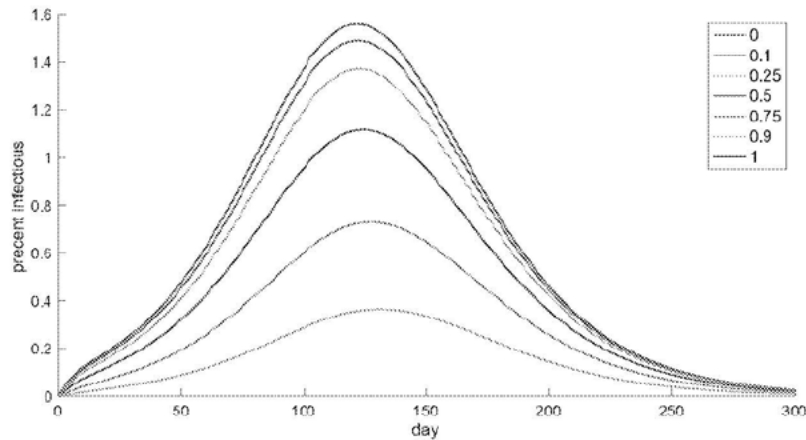


Figure 10: Simulation of the percent infected in group 1, where members of group 1 spend between all their time with group 1,  $d = 1$ , or all their time with group 2,  $d = 0$ . Inasmuch as  $d > 0$ , members of group 1 continue to inherit infections from exposure to group 2.

fraction of time spent in group 1 increases and the prevalence of infection in group 1 grows relative to that in group 2. The SIR model for group 1 becomes,

$$\dot{S}_1 = -\beta^* S_1, \quad (\text{B-17})$$

$$\dot{I}_1 = \beta^* S_1 - \gamma I_1, \quad (\text{B-18})$$

$$\dot{R}_1 = \gamma I_1. \quad (\text{B-19})$$

Group 2 follow basic SIR dynamics irrespective of variations in Group 1. Simulations are made using  $\gamma = 1/(6 \text{ days})$ ,  $\beta_1 = 1/(10 \text{ days})$  and  $\beta_2 = 1/(5 \text{ days})$ . Infections would decline in group 1 except for ongoing exposure to group 2, which is parameterized with  $d$  ranging from 0 to 1 (Fig. [10](#)).

Although the models explored here are very simple, they point to the importance of symptom screening and testing, followed by quarantine of positive cases, for purposes of mitigating the spread of disease. Focusing tests on those most likely to be infected is helpful, whereas time-variable deployment of testing capability shows no discernible advantage. Measures taken within a sub-population are effective inasmuch as interaction with a much larger population do not dominate transmission characteristics.

## C Shift work and community interactions

This appendix summarizes the predictions of standard epidemiological modeling using the standard disease basic reproduction number  $R$  as a measure of the spreading characteristics.  $R$  is a combination of the transmissibility of a disease along with the number of potential contacts, which can be reduced via social distancing measures. We include the basic population responses indicated by the time course of infectious individuals during the development of an epidemic followed by a lock-down with a much reduced  $R$ .

### C.1 Spread of a virus

It is worthwhile to review a few facts about how a virus propagates in a population as these features are critical to both the spread of the virus, as well as a means to defeat the virus in the absence of a vaccine, e.g. [50]. Typically a virus reproduces in new hosts every  $\tau$  days, producing  $R_0$  new infections, where  $R_0$  is referred to as the reproduction ratio or reproduction factor. To emphasize the rapid (exponential) growth possible, if  $\tau = 3$  days and  $R_0 = 3$ , which are approximately the case for SARS-CoV-2, then 10 infected individuals on day one produce 30 infections by day four, and 90 infections by day seven (a factor of 9 in one week). After one month we can expect a multiplication of the virus by approximately  $3^{10} \approx 59,000$  or, given the starting number of 10 infections, a total about 600,000 infected individuals. If the mortality rate is say one percent (data for SARS-Cov-2 is likely higher), than that is 6000 deaths in just one month from this one disease. The numbers also increase rapidly. It is clear that when such a virus enters a community, it is necessary to take aggressive action to impede the spread.

The reproduction ratio  $R_0$  can be thought of as the product of the number of contacts a healthy, or susceptible, person has with an infected person times the probability of acquiring the virus; the latter almost certainly increases with the time of contact between individuals; for  $R_0 > 1$  the virus spreads through the population, with an exponential growth in the number of infected individuals as the previous example indicates. Social distancing measures, with the extreme being a lockdown on a community, correspond to a time period during which the effective reproduction number has decreased significantly and reached values  $< 1$  so that the number of new cases per day in the community is decreasing. Upon return to work we can expect the



effective  $R_0$  to increase above its value from the time period of lockdown and if its value exceeds unity a second wave of the virus is expected. If the latter occurs, the sooner actions are taken to reduce  $R_0$ , the better the chance of preventing the rapid growth of infections that happened in the first wave.

One important feature to recognize is that  $R_0$  is, in part, a *social* number. It combines features of the virus, e.g. its infectivity, with how people in a community interact. Although during the spread of the virus, the estimates of the reproduction ratio are  $R_0 \approx 2.4 - 3$ , it is possible that social distancing strategies, e.g. masks, keeping some distance away from people during conversations, washing hands regularly, etc. can significantly reduce  $R_0$ , though it is not easy to estimate this reduction of the individual steps or the aggregate of steps. It is clear that mitigation strategies will be more challenging in high population density regions than in low density communities.

We first illustrate the state of a lockdown to see how the effectiveness of a lockdown impedes the spread of a virus.

## C.2 Basic Model: SEIR for a Single Group

We assume that the population has a fixed number of individuals and for convenience work with equations representing fractions of the population. We use a common epidemiological model, which is a system of first-order ordinary differential equations for the parameters  $S$ ,  $E$ ,  $I$ , and  $R$ , where  $S$  indicates the fraction of the population that is susceptible to the disease,  $E$  is the fraction of the population exposed but as yet not infectious, and  $I$  is the fraction of the population who are infectious but not yet symptomatic.  $R$  denotes the fraction of the population who are either symptomatic but not circulating to infect others (i.e., they are confined to their homes), have recovered, or have succumbed to the illness. The equations describing the

system are:

$$\dot{S} = -\frac{1}{\tau_I} R_0 S I \quad (\text{C-20a})$$

$$\dot{E} = \frac{1}{\tau_I} R_0 S I - \frac{1}{\tau_E} E \quad (\text{C-20b})$$

$$\dot{I} = \frac{1}{\tau_E} E - \frac{1}{\tau_I} I \quad (\text{C-20c})$$

$$\dot{R} = \frac{1}{\tau_I} I. \quad (\text{C-20d})$$

Here  $R_0$  describes how strongly  $S$  and  $I$  interact in transmitting the disease,  $\tau_E$  is the characteristic amount of time a person remains exposed before becoming infectious, and  $\tau_I$  is the typical time a person remains infectious before showing symptoms. Following Karin et al. [37], in the simulations reported here,  $\tau_E = 3$  days and  $\tau_I = 4$  days, as suggested by data reporting COVID-19 transmission. It is assumed that after a person show symptoms and transfers from  $I$  to  $R$ , they become sufficiently well isolated that it is acceptable to approximate them as no longer interacting with the broader population. The population fractions  $S(t)$ ,  $E(t)$ ,  $I(t)$ , and  $R(t)$  are normalized so that  $S(t) + E(t) + I(t) + R(t) = 1$ . For example,  $I(t)$  always denotes the fraction of the population at any time  $t$  that is infectious. Similarly, at any time  $t$  the fraction of the population what will soon be, is or has been infected is  $E(t) + I(t) + R(t) = 1 - S(t)$ .

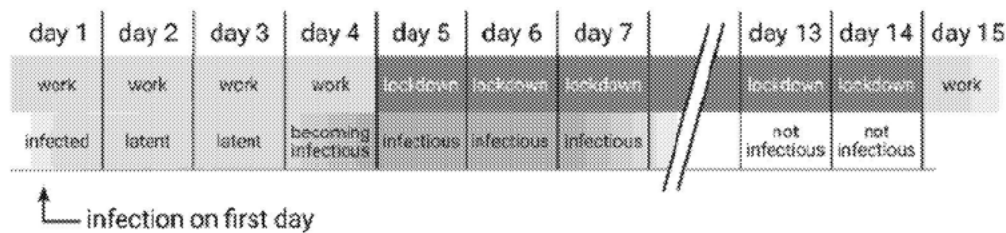


Figure 11: Evolution of an infection in SARS-CoV-2. Reference: [37]

### C.2.1 Time Course for Development of Symptoms of COVID-19

We utilize a SEIR model (susceptible-exposed-infected-removed), where the fraction of the population in the different groups is represented by  $S(t)$ ,  $E(t)$ ,  $I(t)$



and  $R(t)$ . Two time constants represent the features of a virus that infects a person. An individual remains asymptomatic for a few days, yet can spread the virus, and then only somewhat later shows symptoms of the virus. The typical time variation of infection characteristics of COVID-19 means an infected individual is asymptomatic but infectious 3 days after exposure and has a peak infectiousness occurring about four days after exposure (Figure 11). In the mathematical model the presence of symptoms is assumed to remove the worker from the work environment. The assumption are approximately consistent with the current understanding of the virus, e.g. Lauer et al. estimate a mean incubation period of 5 days, i.e., the time an infected person has from exposure to showing symptoms (with  $< 3\%$  showing symptoms within 2 days and  $> 97\%$  showing symptoms within 11 days [17]).

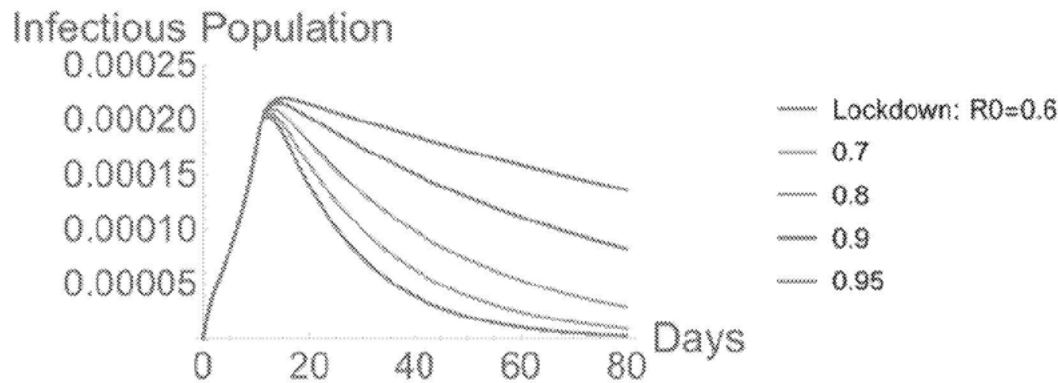


Figure 12: The infectious population  $I(t)$  in the evolution of a virus, with a time of epidemic growth followed by a lockdown to slow the growth. In the simulation the epidemic evolved for 10 days with  $R_0 = 2.4$ , which was then followed by a lockdown with  $R_0 = 0.6, 0.7, 0.8, 0.9$  and  $0.95$ , as shown by the different curves. The simulation utilized an SEIR model with times scales  $\tau_E = 3$  days and  $\tau_I = 4$  days and an initial value  $S(0) = 0.9999$  and  $E(0) = 0.0001$ .

### C.3 Growth of an Epidemic and Lockdown

To appreciate the typical dynamics leading to a return-to-work scenario, we use the well-known SEIR model to simulate spread of a virus with  $R_0 = 2.4$ . In some major cities a partial or complete lockdown was imposed one or two weeks after infections were recognized in the community, though the virus

was likely spreading in the community for a longer time. For example, in New Jersey, on 16 March there were approximately 80 recognized infections of SARS-CoV-2, and the Governor issued a stay-at-home order effective 21 March.

In the example simulations shown in this section, after 10 days of spreading of the virus, lockdown of the community is imposed and, for simplicity, though it does not affect qualitative features,  $R_0$  was set to a constant value less than unity. We chose  $R_0 = 0.6 - 0.95$  and report the fraction of the population that is infectious  $I(t)$  as a function of time in Figure [12]. We observe that  $I(t)$  first grows rapidly (exponentially), peaks a few days after lockdown begins and then progressively decays. Note that for this example, the peak in the fraction of the population that is infected is 0.0002. In a community of  $10M$ , this corresponds to 2000 individuals who are infected circulating in the community on an given day.

Not surprisingly, following lockdown the rate of decay is tied to the effectiveness of the lockdown ( $R_0 < 1$ ). It can be shown analytically in the simple SIR model that in the case the  $S(t) \approx 1$  (only a small fraction of the population gets the virus), then for times after lockdown,  $t > t_{LD}$ , the infectious fraction changes according to  $I(t)/I(t_{LD}) = e^{((R_0-1)(t-t_{LD})/\tau)}$ . Use of published data from virus testing is then one way to estimate  $R_0$  during a period of lockdown, at least if the number of positive cases can be reasonably associated with the fraction of the population that is infectious.

In addition, we report the total fraction of the population that will soon be, is or has been infected,  $1 - S(t) = E(t) + I(t) + T(t)$ , as shown in Figure [13]. Some fraction of this group will have been hospitalized or will need hospitalization, of which a smaller fraction will end up in the ICU; a small fraction of the infected will die. We can see that an exponential, early time growth period transitions, upon lockdown, to a stage of nearly linear growth in the total number of infected individuals. For  $R_0 < 1$  in lockdown we expect the virus to be defeated, at least temporarily, and the rate of diminution is larger for smaller  $R_0$ . Note also that for a successful lockdown such as  $R_0 = 0.7$  in Figure [13] the the fraction of the population that has been infected at 80 days reaches about 0.0015, which in a community of  $10M$  corresponds to 15,000 people.



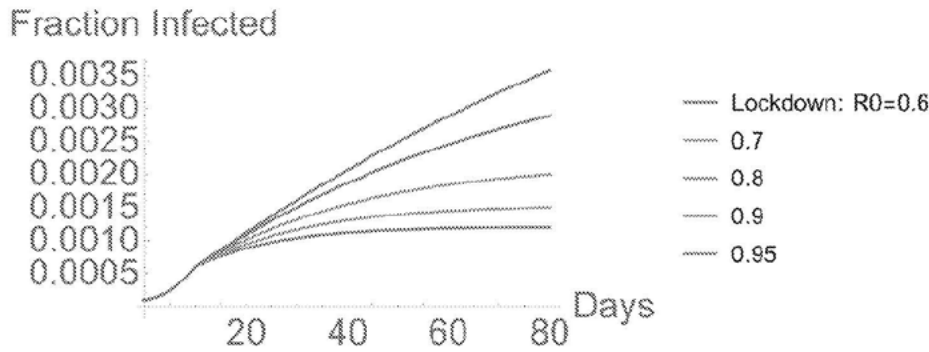


Figure 13: Total fraction of the population that will be, is, or has been infected at any time,  $1 - S(t)$ , obtained from the same simulations that led to Figure 11. In the simulation the epidemic evolved for 10 days with  $R_0 = 2.4$ , which was then followed by a lockdown with  $R_0 = 0.6, 0.7, 0.8, 0.9$  and  $0.95$ , as shown by the different curves. The simulation utilized an SEIR model with times scales  $\tau_E = 3$  days and  $\tau_I = 4$  days and an initial value  $S(0) = 0.9999$  and  $E(0) = 0.0001$ .

### C.3.1 An earlier lockdown

In the face of a spreading virus rapid action is key. This will be important if a second wave were to start but the idea is illustrated with the dynamics at the start of the epidemic. We use the parameters of the previous example,  $R_0 = 0.7$ , but implement a lockdown after 5 days or 8 days, which can be compared with the lockdown after 10 days. The results for the total fraction infected (again, in the SEIR description, we calculate this as  $1 - S(t)$ ) as a function of time are shown in Figure 14. The transition away from the exponential growth following lockdown is apparent. As in the previous example, if the parameters chosen for the simulation applied to a population of  $10M$ , then they predict 15,000 total infected individuals if the lockdown is effected after 10 days, but only about 6500 infected individuals if action were taken after 5 days.

## C.4 Dynamics following a return to work

During successful lockdown the number of infectious individuals decreases. Any simple return to work strategy should be expected to increase the effective value of  $R_0$  and when  $R_0 > 1$  the virus will spread again since there

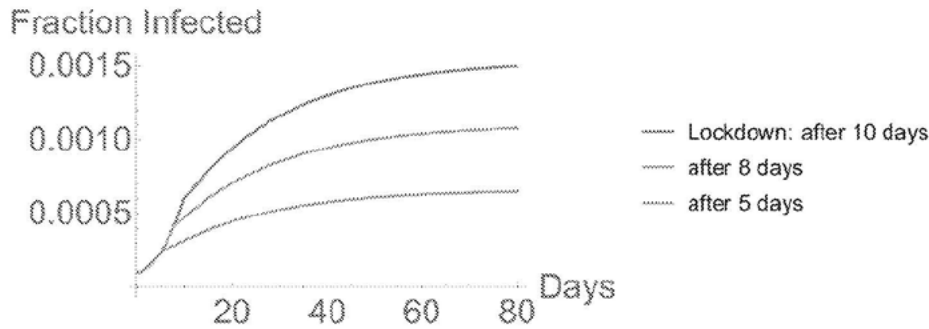


Figure 14: Fraction of the population infected versus time for lockdowns after 5, 8 or 10 days with  $R_0 = 2.4$  initially, which was then followed by a lockdown with  $R_0 = 0.7$ . The simulation utilized an SEIR model with times scales  $\tau_E = 3$  days and  $\tau_I = 4$  days and an initial value  $S(0) = 0.9999$  and  $E(0) = 0.0001$ .

remain infected individuals in the population to trigger a second wave. The rate of increase is faster the larger the value of  $R_0$  is above unity.

To illustrate these points and to highlight how the magnitude of  $R_0$  in the return-to-work phase can have significant influences on the rate of change of infections in the community we ran SEIR simulations with  $R_0 = 2.4$  for 10 days, which was followed by a 40 day lockdown period with  $R_0 = 0.6$  (see Figures [11] and [13] where the same initial conditions were used). We report how different values of  $R_0$  in the return-to-work phase affect the time course of the fraction of the population that is infectious as a function of time (Figure [15]).

For the values chosen for this simulation, at the peak of the initial phase, 0.02% of individuals were infectious (and present in the community) at about days 11-12, but by the end of the 40-day lockdown this number had decreased by a factor of 10. Nevertheless, even if  $R_0 = 1.2$ , which is estimated to be half of the current typical value for SARS-CoV-2 at the start of the pandemic, the number of infectious individuals has almost doubled 30 days later (day 80). By day 100, the increasing rate of infections is evident and the number of infectious individuals has already reached 1/3rd of the value at the peak near the beginning of the epidemic.

Only slightly larger values of  $R_0$  lead to much larger growth rates, because these responses are exponential, with a rate approximately proportional to  $R_0 - 1$ . Thus, we can observe in Figure [15] that, when  $R_0 = 1.4$  and 50 days



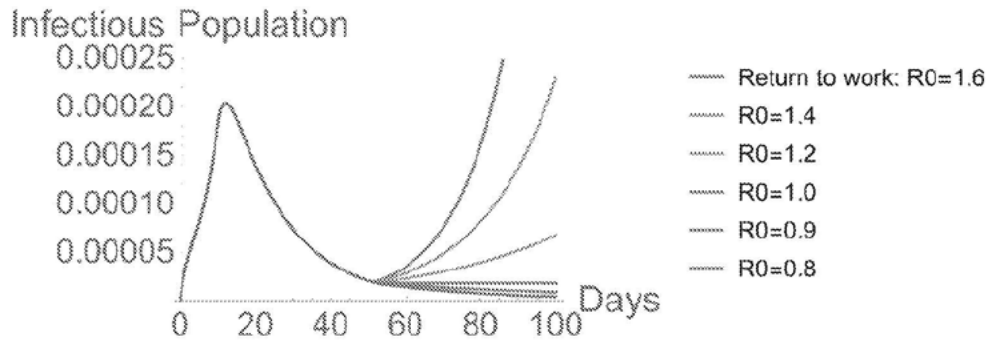


Figure 15: Fraction of the population that is infectious at any time following an epidemic, lockdown and a return-to-work phase. In the simulation the epidemic evolved for 10 days with  $R_0 = 2.4$ , which was then followed by a 40-day lockdown with  $R_0 = 0.6$ , after which a return-to-work period began. The simulation utilized an SEIR model with times scales  $\tau_E = 3$  days and  $\tau_I = 4$  days and an initial value  $S(0) = 0.9999$  and  $E(0) = 0.0001$ .

into the return-to-work phase, already by day 100, the number of infectious individuals has exceeded the peak earlier in the epidemic.

Although these simulations are based on a simplistic model they do highlight that, in the absence of a vaccine, there is not a lot of room for error in encouraging, implementing, and/or enforcing all manners of social distancing strategies to try to maintain  $R_0$  below unity in a return-to-work environment. Next, we discuss a strategy that was suggested recently to return to work using a time periodic work cycle tied to the evolution of the infection in an exposed individual.

## C.5 Model of Karin et al.: A “4:10” Strategy,

### C.5.1 The idea of the “4-10” work cycle

Because the virus has a dynamics that symptoms typically show up within 4-5 days (Figure 11), Karin et al. offered a strategy for people to work according to a cycle of  $k$  days in the office and  $14 - k$  days in lockdown at home [37]. Before we show their full model we illustrate how this approach of returning to the office 4 of 10 workdays during a two week period (denoted “4:10”), with higher  $R_0$  during those workdays, is compatible with maintaining the virus

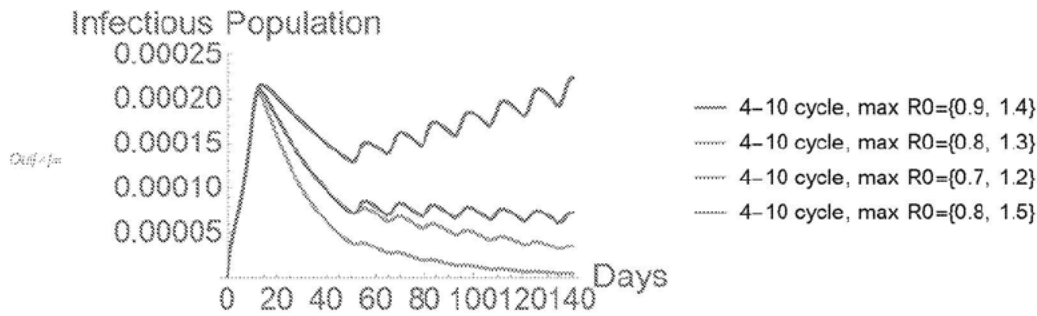


Figure 16: Infectious fraction for different variations of a “4:10” strategy in a back-to-work phase (individuals working 4 consecutive days every two weeks). In the simulation the epidemic evolved for 10 days with  $R_0 = 2.4$ , which was then followed by a 40-day lockdown after which a return-to-work period began. The values for  $R_0$  during lockdown and workdays are indicated. The return-to-work phase includes time periods with  $R_0 > 1$ , yet the 4:10 strategy maintains an effective  $R_0 < 1$  so that the infections continue to decline. The simulation utilized an SEIR model with times scales  $\tau_E = 3$  days and  $\tau_I = 4$  days and an initial value  $S(0) = 0.9999$  and  $E(0) = 0.0001$ .

at bay, and not triggering exponential growth if the maximum  $R_0$ , though greater than unity, is not too large. In the model the restricted number of work days has the feature that it maintains an effective value of  $R_0 < 1$ .

We ran the SEIR model as illustrated above (10 days of epidemic, then 40 days of lockdown, followed by a return to work), but this time implementing a return-to-work phase with with the “4:10” strategy. We choose various combinations of  $R_0$  during lockdown and during workdays, respectively, as  $\{R_0^{\text{lockdown}}, R_0^{\text{work}}\} = \{0.9, 1.4\}, \{0.8, 1.3\}, \{0.7, 1.2\}$ . The state at the end of lockdown is shown in Figure [11](#)

The typical results for these values of  $R_0^{\text{lockdown}}$  are shown in Figure [16](#). In each case the workdays have  $R_0 > 1$ , yet for the two simulations with the smaller  $R_0$  at lockdown, the fraction of infectious individuals, though now oscillatory, is continuing to decrease during the back-to-work phase. In the case of  $\{R_0^{\text{lockdown}}, R_0^{\text{work}}\} = \{0.9, 1.4\}$  we see that the effective value of  $R_0$  during the two-week cycle is sufficiently large that the fraction of infectious individuals increases.

This “4-10” strategy suggests that outside of lockdown social distancing should limit the incremental increase in the reproduction ratio to approxi-



mately  $\Delta R_0 = \frac{7}{2} (1 - R_0^{\text{lockdown}})$ . For  $R_0^{\text{lockdown}} = 0.8$  this allows  $R_0^{\text{work}} = 1.5$ , for which the simulation is shown in Figure [16]. In fact, the return-to-work curve is slowly decreasing in this case.

### C.5.2 Two halves of the community in “4-10” cycles

One strategy towards a restart is to bring part of the work force back part of the time so as to maintain a work environment with a relatively low density, thus contributing towards reduced contacts. For example, the work force can be divided into two or three non-mixing groups and each group can work a set number of days followed by a period of workdays at home or a furlough. Karin et al. [37] used SEIR-type models to predict how the number of infected people (the workers) in a population varies in time if a work schedule is implemented with  $k$  days at work and  $14 - k$  days of social isolation (“lockdown”), i.e., at the end of each day the workers return home during which they are assumed to have a lower level of contacts than in the workplace (e.g. family, shopping, etc.).

When applied to an entire population with half in each group, Karin et al. [37] find, with some assumptions about the values of  $R_0$  for each group, that with little mixing between the two groups, a 4-day work schedule, followed by a 10-day lockdown leads to a nearly steady decrease (small oscillations are present similar to Figure [16]) in the number of infections in the population. Thus, people are working 4 days every other week. The model result is a consequence of the fact that anyone infected at work subsequently is isolated at home for most if not all of their infectious period, and of course would not return to work until recovered. The 4:10 cycle has an effective  $R_0 < 1$  though it should be kept in mind that the model had little mixing between the two groups

## D Daily testing at the start of the workday

In this section, we illustrate a five-fold reduction in exposure for daily tests administered at the start of the workday as opposed to at the end of the workday.

The crucial times are when the last negative test was taken, and when the first positive test is taken, and when it is reported. Take 0 to be the time when the last negative was taken,  $t_S$  (S for sick) when the first negative test result becomes known, and  $t_N$  for when the first negative test is taken. We assume the person becomes sick at some random time  $t_0$  in the interval  $[0, t_N]$ .

Let  $f_w(t)$  be 1 when the person is at work, and 0 when the person is not at work. Let  $f_i(t - t_0)$  be infectivity of the person at time  $t$ .  $f_i(t) = 0$  for  $t \leq t_0$ , and it increases monotonically to 1. (Eventually it goes back to 0, but we will only care about the time up to  $t_S$  when presumably the person is still infectious.)

Then the expected amount of time at work when the person is infectious

is

$$\int_0^{t_N} 1/t_N \int_{t_0}^{t_S} f_i(t - t_0) f_w(t) dt dt_0. \tag{D-21}$$

The inner integral is the exposure time if the person becomes infectious at  $t_0$ , and the outer integral averages that over the time from 0 to  $t_N$ , by which time the person has become sick.

The first case has tests that are done in real time ( $t_N = t_S = 1$ ) just before work and every day, measuring time in days. Further assume  $f_w$  is 1 for the first 8 hours (1/3 of a day), and 0 thereafter. Then the expected exposure time is

$$\int_0^{1/3} \int_{t_0}^{1/3} f_i(t - t_0) dt dt_0 = \int_0^{1/3} \int_0^{1/3-t_0} f_i(x) dx dt_0. \tag{D-22}$$

If  $f_i(x) = 1$  when  $x > 0$ , this integral is 1/18 of a day, which is 4/3 hours.

In the other scenario the tests are taken at the end of the work day, so  $t_N = 1$ , and reported at the beginning of the next work day, so  $t_S = 5/3$ ,



once again assuming an 8 hour work day. Now  $f_w$  is 0 until the work day starts, which is overnight, when  $t = 2/3$ , and then it is 1 until the work day ends at  $t = 1$ , and then 0 again overnight. So the expected exposure time is

$$\int_0^1 \int_{t_0}^1 f_i(t - t_0) f_w(t) dt dt_0 = \int_0^1 \int_{\max(t_0, 2/3)}^1 f_i(t - t_0) dt dt_0. \quad (\text{D-23})$$

This breaks into two pieces,

$$\int_0^{2/3} \int_{2/3}^1 f_i(t - t_0) dt dt_0 + \int_{2/3}^1 \int_{t_0}^1 f_i(t - t_0) dt dt_0$$

If once again we assume  $f_i(x) = 1$  when  $x > 0$ , the first integral is  $2/9$ , the second integral is  $1/18$ , and the total expected exposure time is  $5/18$ , which is 5 times as much as the first case.

If  $f_i$  doesn't jump to 1 instantaneously, the contrast is even worse. The first case uses the values of  $f_i(x)$  for small  $x$ , up to  $1/3$ . The first integral in the second case uses the values of  $f_i(x)$  for  $x$  bigger than  $2/3$ .

## E Pooled testing

Suppose there is a probability  $I$  that a person is infected and so a probability  $H = 1 - I \approx 1$  that a given person is healthy.

Suppose we need to test  $N \gg 1$  people to determine who is infected. Further suppose the test is perfect and that a given person's health status is independent of that of the others.

Adopt the protocol that samples will be pooled into  $G$  groups of  $M$  members each so that  $GM = N$ . Further, if a given group tests positive, follow up tests will be done on each of the  $M$  member of the group.

The probability that a given group is positive (i.e., contains at least one infected individual) is  $(1 - H^M)$ , so that the total number of tests that need to be performed on average is

$$G[1 + M(1 - H^M)] \quad (\text{E-24})$$

where the first term are the pooled tests and the second are the  $M$  individual followup tests that need to be done if a group tests positive. Since  $G = N/M$ , the total number of tests that need to be done is

$$N[M^{-1} + (1 - H^M)]. \quad (\text{E-25})$$

Comparing this to the  $N$  individual tests that would need to be done if there were no pooling, we find the pooling efficiency  $\epsilon$  to be given by

$$\epsilon^{-1} = [M^{-1} + (1 - H^M)] \quad (\text{E-26})$$

Determining the group size  $M^*$  that maximizes  $\epsilon$  involves a transcendental equation. But for  $IM \ll 1$ , (i.e., it's rare to find a group with an infected member), there is a simplification: the factor in parentheses is

$$1 - H^M = 1 - (1 - I)^M \approx IM \quad (\text{E-27})$$



In that case,

$$\epsilon^{-1} = (M^{-1} + IM). \quad (\text{E-28})$$

The maximal efficiency  $\epsilon^*$  is maximized at  $M^* = I^{-\frac{1}{2}}$ , so that  $IM^* = I^{\frac{1}{2}}$  and  $\epsilon^* = \frac{1}{2} I^{-\frac{1}{2}}$ .

In the case that  $I = 0.01$ , the optimal group size is  $M^* = 10$ , the probability that a group tests positive is  $IM^* = 0.1$ , and the total number of tests required is reduced by a  $\epsilon^* = 5$ .

Some comments:

1. When  $I$  is larger than 0.01, pooled testing (at least for the protocol chosen) doesn't make much sense. If  $I = 0.1$ , then the optimal  $M^* = 3$ , and the efficiency is  $\epsilon^* = 1.5$ . At this level, the logistical challenges created by pooling do not justify the efficiency gain.
2. When  $I$  is very small, there appears to be a potential for a large benefit. If  $I = 0.0001$ , then  $M^* = 100$  and  $\epsilon^* = 50$ . But, in fact, the groups can't get too large since a single positive would get too diluted to be detected reliably. Current PCR tests can handle up to  $M = 10$ , which is the optimum for  $I = 0.01$ .
3. Group testing is a mature subject [https://en.wikipedia.org/wiki/Group\\_testing](https://en.wikipedia.org/wiki/Group_testing) and no doubt there are protocols that are even more efficient than chosen here, but none simpler. They can be tailored to where the bottlenecks are (sample collection, insufficient reagent, preparation time, etc.).
4. It will make sense to choose groups that are in close contact (e.g., families living together or co-workers). If there's one infected, likely more are, so the signal would be amplified. And if the pooled sample tests positive, the whole group should be assumed to be exposed and so quarantined while individual testing is performed.

## E.1 Incorporating test imperfections

A test will be characterized by  $P_D$ , the probability of detection (also called the sensitivity) and  $P_{FA}$ , the probability of a false alarm (a false positive). An imperfect test has  $P_D < 1$  and finite, but hopefully small,  $P_{FA}$ .

For such an imperfect test, the average number of tests required for the protocol outlined above is

$$G[1 + M(1 - H^M)P_D + MH^M P_{FA}] \quad (\text{E-29})$$

Here, the first term is the initial test of the group, the second corresponds to having to test the whole group when there is a true positive, and the third is having to test the whole healthy group when there's a false alarm in the group test. Then the efficiency will be

$$\epsilon^{-1} = [M^{-1} + (1 - H^M)P_D + H^M P_{FA}] \quad (\text{E-30})$$

For  $MI \ll 1$ , this can be approximated by

$$\epsilon^{-1} = [M^{-1} + MI(P_D - P_{FA}) + P_{FA}] \quad (\text{E-31})$$

A crucial question is how  $P_D$  and  $P_{FA}$  depend upon dilution (i.e., the group size  $M$ ).  $P_{FA}$  is the probability of a false alarm in the test of an entirely healthy group – it seems plausible that this will be independent of  $M$ . It also can't be too large, lest the test be essentially useless. On the other hand,  $P_D$  is the probability of detecting at least one infected individual in a sample diluted  $M$ -fold. Given the non-linear amplification of PCR, it's plausible to take  $P_D$  as independent of  $M$  up to some cutoff  $M_C$ , and then zero for larger values of  $M$ . Under these assumptions, the efficiency can be maximized as before to find

$$M^* = \min\{M_C, [I(P_D - P_{FA})]^{-\frac{1}{2}}\} \quad (\text{E-32})$$

and

$$\epsilon^* = [M^{*-1} + M^*I(P_D - P_{FA}) + P_{FA}]^{-1} \quad (\text{E-33})$$



It's reasonable to suppose that any test will be operated conservatively to put  $P_D$  close to 1 while tolerating some level of false alarms. As an example, Figures [17] and [18] below show how  $M^*$  and  $\epsilon^*$  vary with  $I$  and  $P_{FA}$  when  $M_C = 10$  and  $P_D = 1$ .

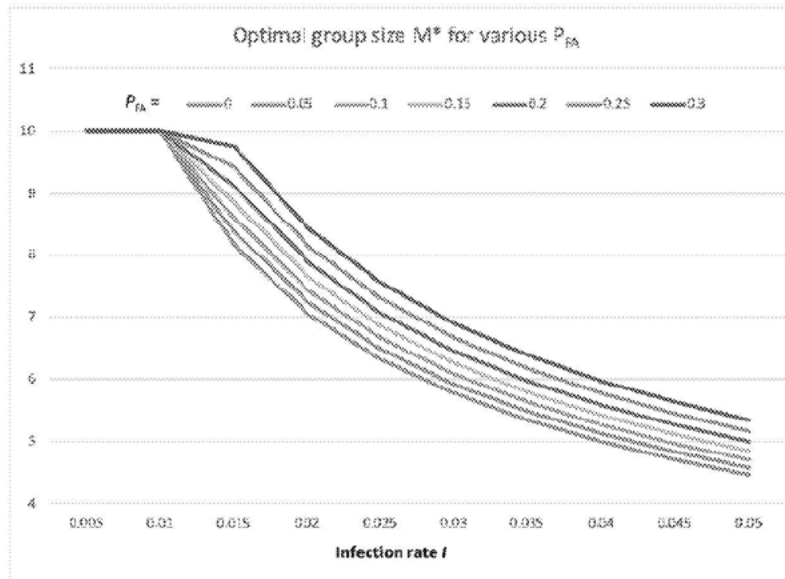


Figure 17: Optimal group size  $M^*$  for various  $P_{FA}$ ;  $M_C = 10$  and  $P_D = 1$ .

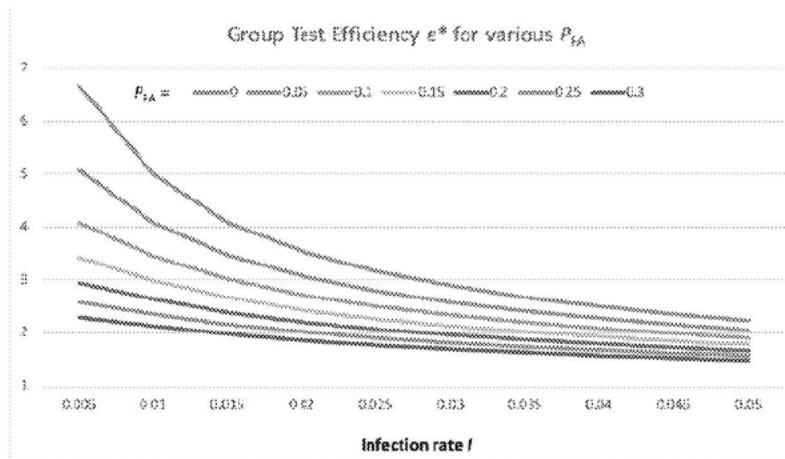


Figure 18: Optimal group size  $\epsilon^*$  for various  $P_{FA}$ ;  $M_C = 10$  and  $P_D = 1$ .

The optimal group size depends only weakly on the false alarm rate, while the group test efficiency degrades considerably as PFA increases. In sum, at least with the testing protocol as defined and for plausible false alarm

rates, group testing would be useful only for infection rates less than about 1%.



## F Marginal risk from COVID-19

This brief note estimates the added risk of death due to COVID-19 as a function of age. The result depends on factors that are as yet not well established.

The Social Security administration publishes a tabulation of annual mortality risk vs. age for the U.S. population<sup>[8]</sup> The fraction of the population in each 1 year age bin that die per year, as a function of age, is plotted in Figure<sup>[19]</sup>

The Case Fatality Ratio (CFR) for COVID-19 remains a topic of ongoing investigation, complicated by the lack of full knowledge about the number of asymptomatic cases. The data are typically coarsely binned. Figure<sup>[20]</sup> shows the CFR estimates from CDC, along with a quadratic fit. The numbers used here are for symptomatic cases. If only half the infections produce symptoms then the marginal risk numbers below fall by a factor of two.

The rate at which the US population is contracting COVID-19 was drawn from data at Oxford University<sup>[9]</sup> They estimate that 1.6 million cases were contracted in the 60 day interval between April 1 and May 30, with a very linear trend. At this rate we should expect 9.7 million additional cases each year, which is a fraction of  $9.7E6/320E6 = 3\%$  of the population infected per year.

Under the assumption that the rate of infection is age-independent, we can compare the mortality risk from COVID-19 (the infection rate times the CFR-fit in each age bracket) to that of all other causes.

Conclusions:

1. The marginal annual mortality risk increase at the current infection rate is a few percent, Fig<sup>[21]</sup>
2. Despite the well-publicized age-dependence of COVID-19 outcomes, this marginal risk is surprisingly age-independent.

<sup>[8]</sup>[https://www.ssa.gov/oact/STATS/table4c6\\_2016.html#fn1](https://www.ssa.gov/oact/STATS/table4c6_2016.html#fn1)

<sup>[9]</sup><https://ourworldindata.org/mortality-risk-covid>

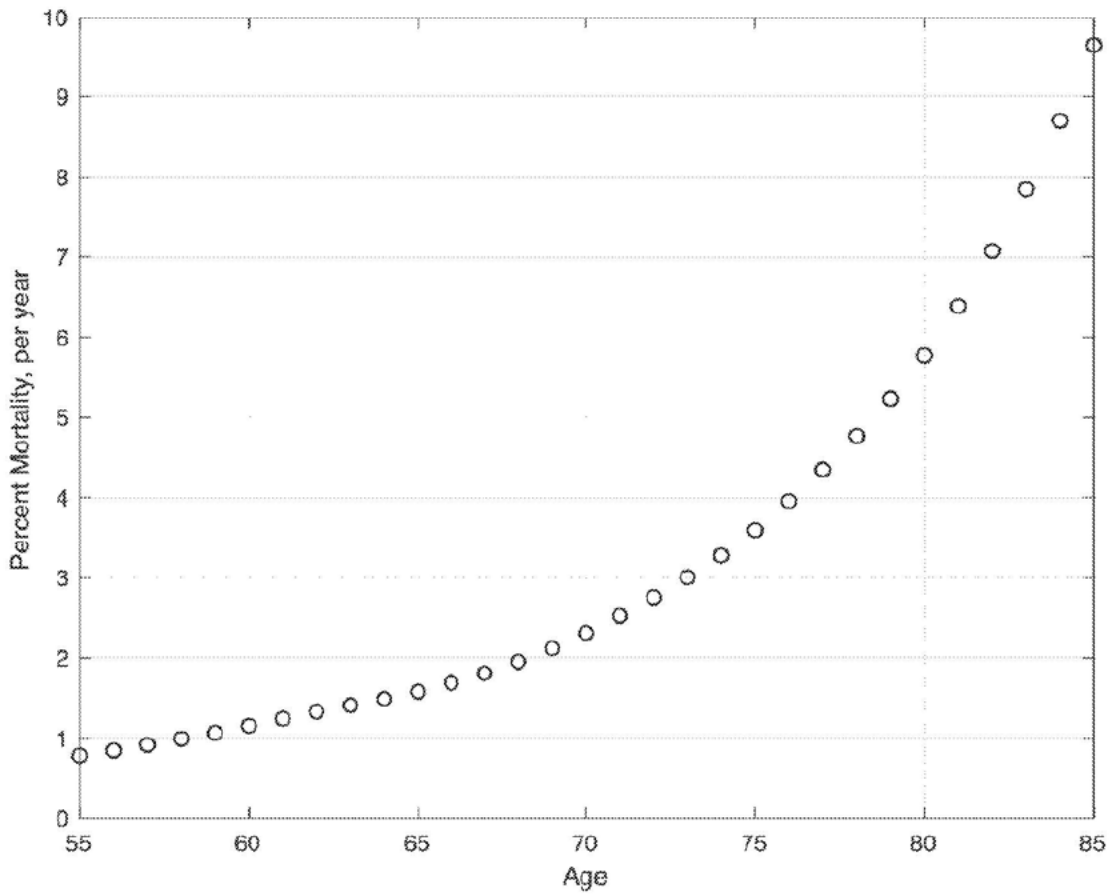


Figure 19: Mortality (fraction of cohort that dies, per year) as a function of age. From Social Security Administration.



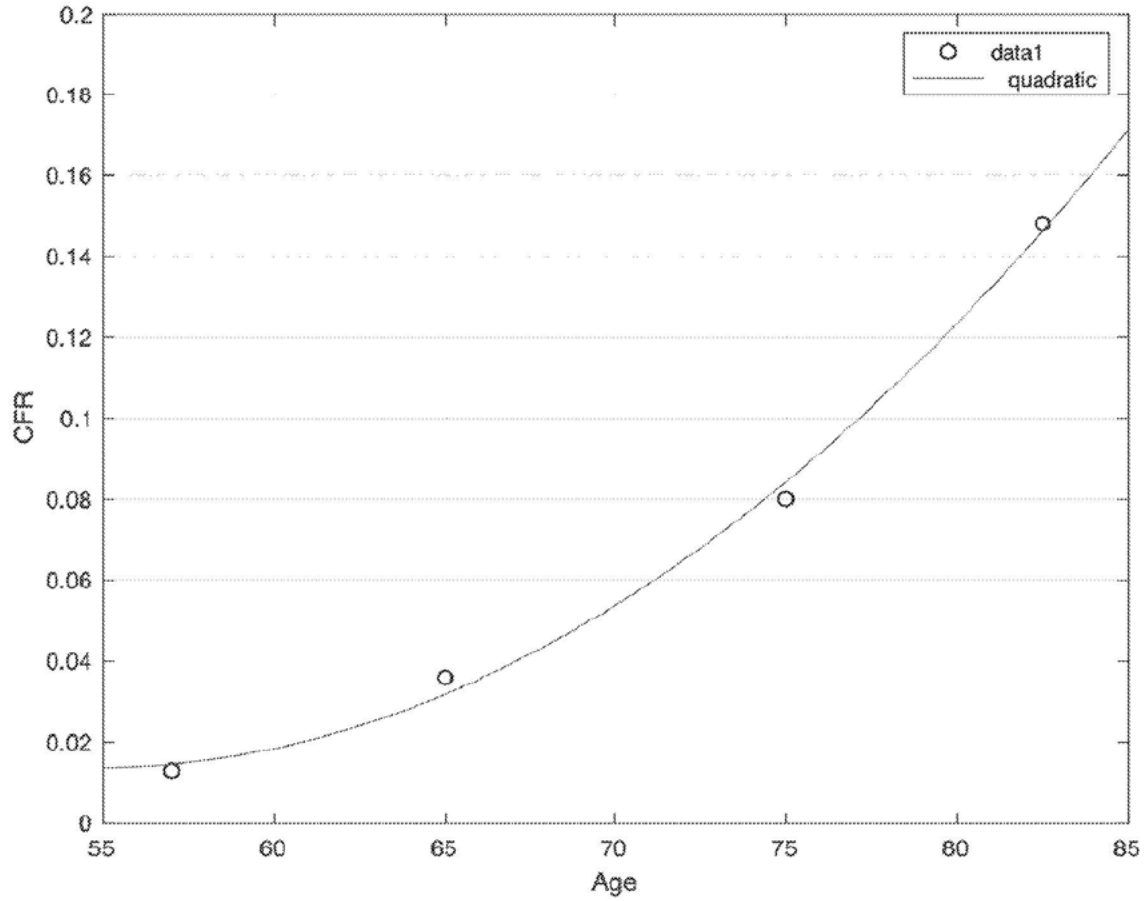


Figure 20: Case Fatality Ratio (CFR) estimates from CDC, for symptomatic cases, along with a quadratic fit.

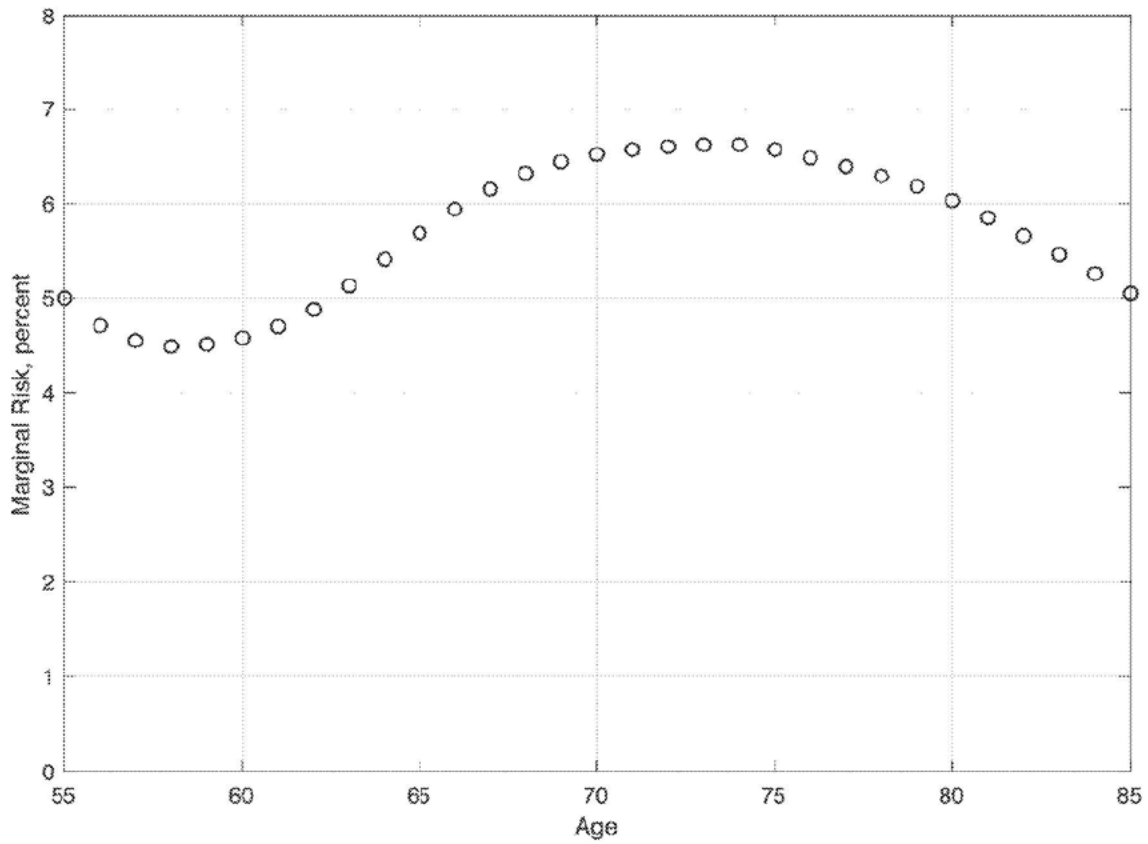


Figure 21: Marginal risk from COVID as a function of age. If we include asymptomatic cases in the normalization of the CFR, the marginal risk is about a factor of two smaller.



## G Expected utility for decision-making

Aerosol transmission may be an important part of the way the SARS-CoV-2 virus spreads. Evans [19] and Section 3 provide a means of assessing relative risk to aerosol transmission for those working or learning in labs with fresh air changes or filtering. This note provides a method for computing the relative risk for different numbers of people in a room and an example using the method of Evans [19] in order to assess risk as a function of parameter variations. A research group has  $N$  people and the PI must decide how many,  $u$ , will work at the same time in a laboratory.  $f$  is the poorly known infection rate among the  $N$  researchers in the group and  $t_o$  is the time between infection and the appearance of symptoms. Reducing the number of transmissions of the SARS-CoV-2 virus between group members while working in the lab is the PI's goal. The time rate of transmission in the lab,  $g$  may be calculated using the Evans [19] method and depends on air-changes in the room, the virus lifetime as an aerosol, and so on. A workday in the lab is  $\tau$ .

If  $u = 0$  or  $u = 1$ , transmission cannot take place. If the PI chooses to have two people in the room, then the probability none are infected is  $(1 - ft_o)^2$ , that one is infection  $2(1 - ft_o)ft_o$ , and that both are infected  $(ft_o)^2$ . Transmission occurs if one researcher is infected and the other is not and the probability is  $g\tau$ . The combined probability for transmission to occur if the PI chooses to have two people in the lab is  $2(1 - ft_o)ft_og\tau$  for one day of work.

In general,

$$P(u \text{ chosen} | m \text{ infected}) = P(u | m) = \binom{u}{m} ft_o^m (1 - ft_o)^{u-m}.$$

With  $m$  infected and  $u - m$  uninfected, there are  $m(u - m)$  ways transmission can occur and  $g\tau(1 - g\tau)^{n-1}m(u - m)$  gives the probability for one transmission. If  $ug\tau \ll 1$ , then two transmissions are unlikely compared to one transmission and the probability is  $g\tau m(u - m)$ :

$$\begin{aligned} P(\geq 1 \text{ transmission } u \text{ chosen} | m \text{ infected}) &= P(1, u | m) \\ &= \binom{u}{m} ft_o^m (1 - ft_o)^{u-m} g\tau m(u - m) \end{aligned}$$

| No. in<br>room, $u$ | $P_{rel}(1, u)$ | $P(1, u)$            |                  |
|---------------------|-----------------|----------------------|------------------|
|                     |                 | 550 seat lecture     | 400 sq. ft. lab  |
| 2                   | 1               | $2.6 \times 10^{-6}$ | 0.00013          |
| 3                   | 3               | $7.7 \times 10^{-6}$ | 0.00038          |
| 4                   | 6               | 0.00015              | 0.00076          |
| 5                   | 10              | 0.000025             | 0.00113          |
| 10                  | 45              | 0.00011              | 0.0057           |
| 30                  | 435             | 0.0011               | 0.055            |
| 100                 | 4,950           | 0.012                | > 1 transmission |

Table 2: Relative and absolute infection rates per hour. For the absolute probabilities, the number gives the probability of one transmission per hour, > 1 transmission means more than one transmission per hour is likely.

and summing over  $m$  gives for one or more transmissions between  $u$  people,

$$P(1, u) = \sum_{m=1}^{u-1} \binom{u}{m} ft_o^m (1 - ft_o)^{u-m} g\tau m(u-m) \quad (\text{G-34})$$

Though important parameters,  $f$ ,  $t_o$ , and  $g$  remain uncertain, Eq. [G-34](#) still gives an important result for the probability of transmission relative to the probability of transmission with just two people in the room,

$$P_{rel}(1, u) = \frac{P(1, u)}{P(1, 2)} = \frac{1}{2}u(u-1) \quad (\text{G-35})$$

Table [2](#) gives the increased relative risk as people are added to the room.

The absolute probability  $P(1, 2)$  depends on the infection rate between two people  $g$ , the infection rate of the research group  $f$ , and  $t_o$ , the time between infection and symptoms. In the state of Massachusetts, on May 12, there were 1,000 new cases per day for a population of 6.7 million. The daily new cases result from testing, giving a lower limit of  $f > 0.00015/\text{day}$ , as many infections go untested and unreported.  $t_o = 5.1 \pm 0.7$  days [\[17\]](#). Evans [\[19\]](#) Eqs. 1 and 8 gives  $g$  for a specific room. Table [3](#) gives the model parameters for a typical lab and 500 seat lecture room.

Table [2](#) gives the absolute probabilities per hour of exposure for a lab and lecture hall in the right columns. If researchers in a lab do not have much contact outside of the group for  $\approx 2$  weeks or 80 hours, confidence builds that they are not and unlikely to become infected. For five people



| Parameter  | Lab Room<br>400 sq. ft. | Lecture Room<br>551 seats, 5,728 sq. ft. |
|------------|-------------------------|------------------------------------------|
| $r_{src}$  | 1 nL/min                | 1 nL/min                                 |
| $r_{room}$ | 445 m <sup>3</sup> /h   | 21,000 m <sup>3</sup> /h                 |
| $t$        | 1 h                     | 1 h                                      |
| $g$        | 0.078/h                 | 0.0025/h                                 |
| $P(1, 2)$  | 0.00013                 | $2.6 \times 10^{-6}$                     |

Table 3: Model parameters for a typical lab room and large lecture room for Evans [19] Eq. 8.

working together for 80 hours have a group probability of 9% of becoming infected. For a large lecture hall, a term of lectures is 42 hours of lecture (14 weeks, 3 hours per week), so a group of 100 people have a probability of 40% of transmitting one infection between two members.

Knowing the probability of transmitting a single COVID-19 infection, to create one additional case, does not help decision makers very much. They need to balance the damage from an additional case against the gain from operating in an environment that allows a case to be transmitted. This memo lays out one method of balancing the gain and loss.

Ernst Weber (1795-1878) and his student Gustav Fechner (1801-1887) were pioneers of psychophysics – the study of human perception of physical stimulus. Their body of work has been applied to the wider realm of human endeavor including perception, finance, and numerical cognition. The Weber-Fechner law relates perception  $p$  with stimulus  $S$ ,

$$p = k \ln \frac{S}{S_o}$$

where  $S_o$  is a reference stimulus value. For  $S = S_o + \delta$  and  $\delta \ll S_o$ ,  $p \sim k\delta/S_o$ .  $k$  is a constant.

Daniel Bernoulli (1700-1782) employed similar ideas to the St. Petersburg Paradox,

“The determination of the value of an item must not be based on the price, but rather on the utility it yields. There is no doubt that a gain of one thousand ducats is more significant to the pauper than to a rich man though both gain the same amount.”

to lay the groundwork for expected utility theory. Expected utility theory takes into account the human perception of gain or loss as proportional rather than absolute. This work uses the same notion.

The following is a calculation of expected utility of *adding* another lab of the type described in above. A number  $u$  of researchers share the lab for 80 hours, two work weeks, after which time we could conclude that none are infected and will not become infected if they follow proper safety procedures. If one of the researchers turns out to be infected, the probability of one COVID-19 transmission between two researchers during their 80 hours together is,

$$p_{trans} = \frac{1}{2}u(u-1)p(1,2)$$

and  $p(1,2) = 0.00013$  for a set reference parameters in [19]. For  $u$  researchers, the expected gain of being able to work together in the lab is  $\Delta g = 80u$  hours. Over the same two weeks, the total research capacity of a medium sized research university (10,000 faculty, staff, and student researchers) operating at 25% capacity is  $g = 196,400$  hours. If, as a result of the  $u$  researchers working together, an infection occurs, there are two losses:  $\Delta l_1 = 80$  hours of lost research, out of  $l_1 = 196,400$  hours and the personal time lost to the researcher. If the researcher is 30 years old, they have a life expectancy of  $l_2 = 47$  years and will lose  $\Delta l_2 = 336$  hours of their life, assuming a two week course of COVID-19. The expected utility is then,

$$E(u) = (1-p)(u) \ln \frac{g + \Delta g}{g} - p \ln \left( \frac{l_1 + \Delta l_1}{l_1} + \frac{l_2 + \Delta l_2}{l_2} \right).$$

Fig. [22] shows  $E(u)$  as a function of  $u$  for different fractions of  $p(1,2) = 0.00013$ :  $p(1,2)$  has to be reduced by a factor of 3 for two people working in the lab to yield a positive return and a reduction of 30 yields would have 10 people working in the lab as a maximum expected utility.

The analysis above also considers a 550 seat lecture room with a  $p(1,2) = 2.6 \times 10^{-6}$ . The gain in this case comes from the exposure of  $u$  students to a term of lectures (14 weeks, 3h per week),  $\Delta g = 42u$ . A medium sized university with 4,350 students each taking one large lecture course will have  $g = 190,260$  student lecture hours.

Three loss terms occur in the case of an infection: the loss of a term of instruction in the case of an infection,  $\Delta l_1 = 42$ ,  $l_1 = 761,040$ , the loss of  $\Delta l_2 = 336$  hours of health by a 20 year old student with a life expectancy of  $l_2 = 490,560$  hours=56 years and, with probability of  $1/u$ , the 60% marginal probability of the loss of the life of a 60 year lecturer, whose non-COVID-19



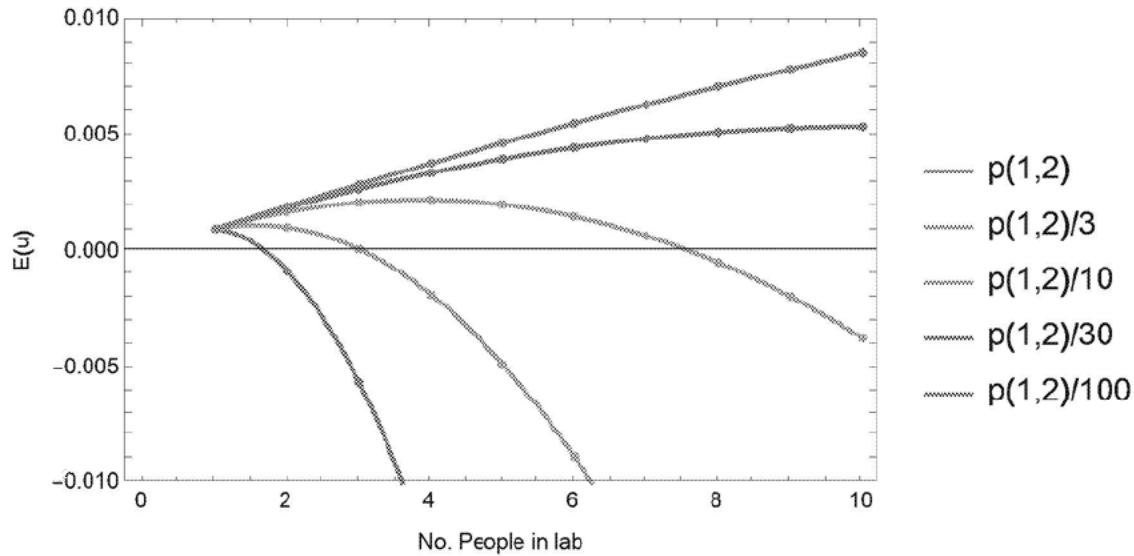


Figure 22: Expected utility as a function of the number of people in the lab for an 80 hours. The dots indicate integral numbers of people.

annual probability of death is  $l_3 = 0.0115$ <sup>10</sup> Fig. 23 and Fig. 24 shows that at nominal values, the expected utility is largest with 8 people in the lecture room, and if  $p(1,2)$  can be reduced by a factor of 10, about 66 people can be in the lecture room. Fig. 24 shows the threat to the life of the lecturer does not dominate the expected utility owing to the  $1/u$  probability that the lecturer is the one on the receiving end of the infection transmission.

These two examples considered the incremental increase in the expected utility from adding a lab or lecture and the increment is small because  $\Delta g \ll g$ . A lab or campus wide optimization over all venues  $E_i$  each populated by  $u_i$  people and maximizing,

$$E(u_1, \dots, u_n) = \sum_{i=1}^n E_i(u_1, \dots, u_n)$$

to find the optimal set of venue populations  $u_i$ .  $E_i$  embodies the physical characteristics of the  $i^{\text{th}}$  lab or lecture room and depends  $u_1, \dots, u_n$  through the total gain or loss. The process could be tiered by defining set of top priority rooms and optimizing for them first, then optimizing for a second tier and so on.

<sup>10</sup>Appendix F gives a non-COVID-19 mortality rate of 0.011 and a case fatality rate of 0.018 for a 60 year old, so given that a 60 year contracts COVID-19, their mortality rate increases by 60%.

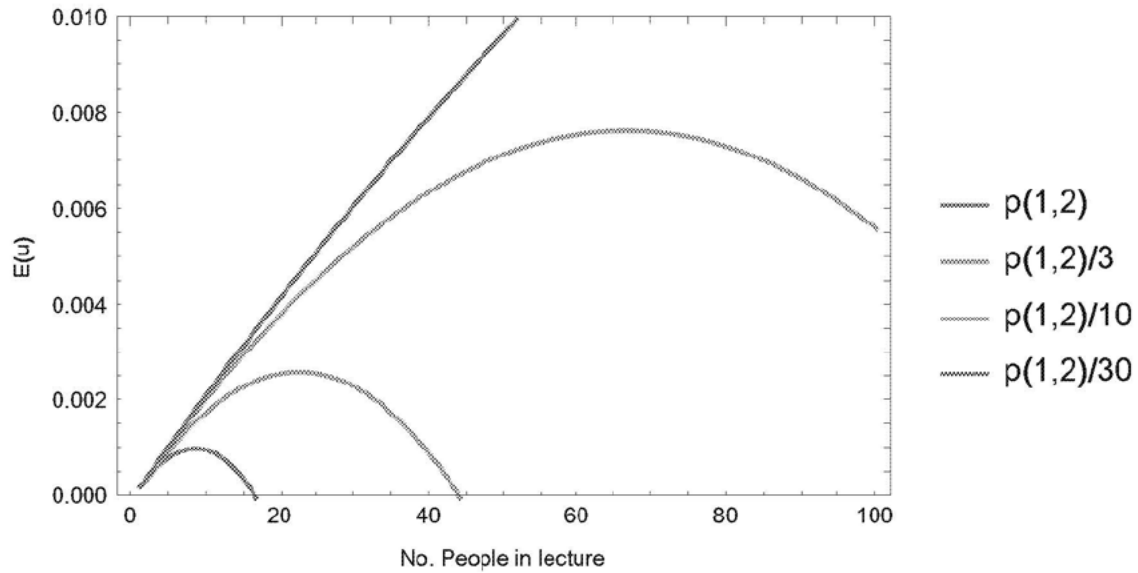


Figure 23: Expected utility as a function of the number of people in a 551 seat lecture hall for different values of  $p(1, 2)$ .

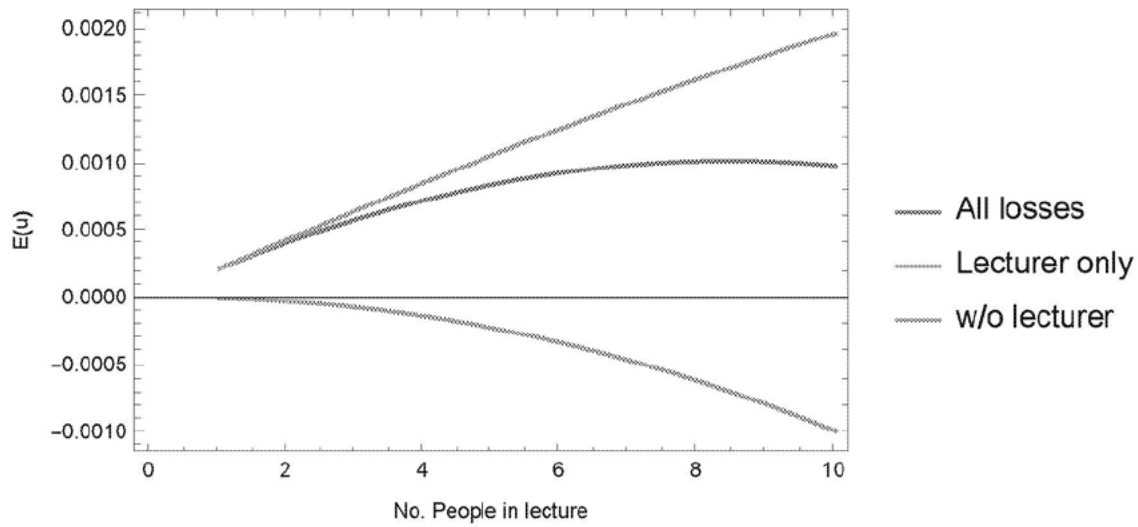


Figure 24: Expected utility as a function of the number of people in a 551 seat lecture hall, breaking out losses from the lecturer only (orange), everyone aside from the lecturer (green) and total (blue).



The loss and gain may be separately weighted,

$$E(u) = \alpha(1-p)(u) \ln \frac{g + \Delta g}{g} - \beta p \ln \left( \frac{l_1 + \Delta l_1}{l_1} + \frac{l_2 + \Delta l_2}{l_2} \right).$$

to reflect that the gain in productivity may be valued less than the loss from a transmission of the disease,  $\alpha < \beta$ . Determining the weights before carrying out the calculation reduces the bias in the relative valuation of the gain and loss.

## H Simple analysis of the impact of false-positive tests

This section considers the using of testing at low disease prevalence ( $<10\%$ ) when the test has a high false-positive rate.

$N$  is the population size,  $f$  is the fraction of the population who have been infected but not yet showing symptoms,  $g$  is the fraction of the population that can be tested at any one time, and  $h$  is the fraction of tests that return positive for an uninfected patient. The false positive tests follows a Poisson distribution.

The number of infected people is  $Nf$  and  $Nfg$  is the number of true positives. The number of false positive tests is  $Nh$ . Then  $s = Nfg/\sqrt{Nh} = fg\sqrt{N/h}$  is the significance of the false positive tests – the number of standard deviations above the mean background of  $Nh$  false positives tests that  $Nfg$  tests lie. For a specified significance,  $h = Nf^2g^2/s^2$  gives the false positive rate that may be tolerated while still yielding a specified significance  $s$ . Figure 25 provides an example for  $N = 10,000$ .

Figure 25 illustrates how false positives affect the value of a test. First we consider the case with a university with 10,000 researchers and 1% of its population infected but pre-symptomatic. If the university is able to test 10% of its population (green square), the contour indicates that a test false-positive rate of no more than 0.3% can be tolerated before the true-positive rate becomes less than one standard deviation above the expected false positive rate.

A second scenario considers the university is able to test 55% of its population by using a different test having a false-positive rate of 10%. The infection rate is still 1% (red star on figure), but the figure shows the testing program will yield a significant infection signal as a 30% false positive rate can be tolerated.

Finally, things take a turn for the worst and the university has 2.5% infection rate (blue circle on figure), and the university achieves a 55% testing rate. In this case the true positives swamp the false positive results.



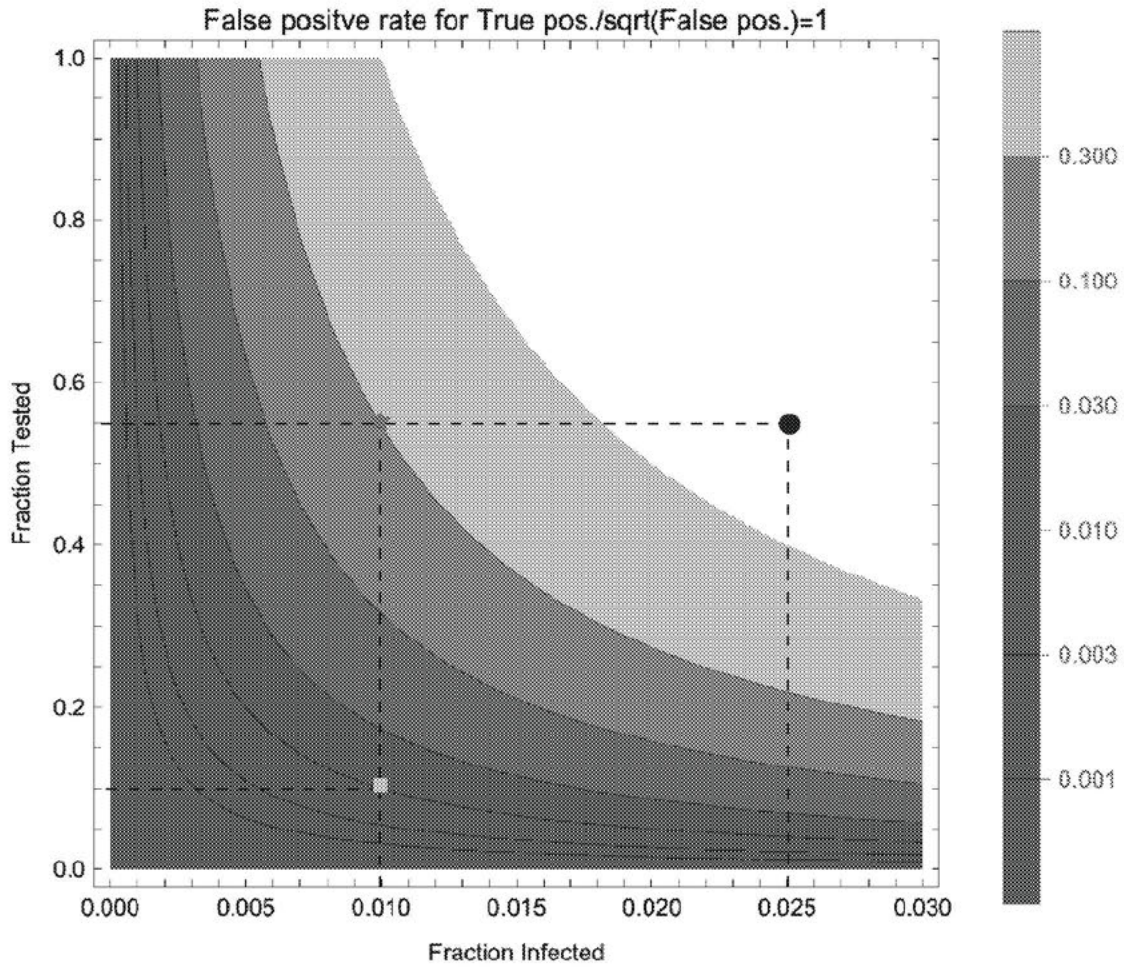


Figure 25: Contour plot for  $N = 10,000$  tests. The contours are lines of constant false positive fraction  $h$ . The star is an example showing that for a  $f=1\%$  infection rate and a test fraction of  $g$  of 56%, a false positive rate of  $h = 30\%$  less is required for a true positive test signal to lie one standard deviation above background ( $s = 1$ ). Other symbols for scenarios explained in the main text.

## References

- [1] Benjamin M. Althouse, Edward A. Wenger, Joel C. Miller, Samuel V. Scarpino, Antoine Allard, Laurent Hébert-Dufresne, and Hao Hu. Stochasticity and heterogeneity in the transmission dynamics of SARS-CoV-2, 2020.
- [2] Sima Asadi, Anthony S. Wexler, Christopher D. Cappa, Santiago Barreda, Nicole M. Bouvier, and William D. Ristenpart. Aerosol emission and superemission during human speech increase with voice loudness. *Scientific Reports*, 9(1):2348, December 2019. ISSN 2045-2322. doi: 10.1038/s41598-019-38808-z.
- [3] Augenbraun, Lasner, Raval Sawaoka Mitra, Prabhu, and J Doyle. Assessment and Mitigation of Aerosol Airborne SARS-CoV-2 Transmission in Laboratory and Office Environments. *Journal of Occupational Environmental Hygiene*, March 2020.
- [4] Linlin Bao, Wei Deng, Hong Gao, Chong Xiao, Jiayi Liu, Jing Xue, Qi Lv, Jiangning Liu, Pin Yu, Yanfeng Xu, Feifei Qi, Yajin Qu, Fengdi Li, Zhiguang Xiang, Haisheng Yu, Shuran Gong, Mingya Liu, Guanpeng Wang, Shunyi Wang, Zhiqi Song, Wenjie Zhao, Yunlin Han, Linna Zhao, Xing Liu, Qiang Wei, and Chuan Qin. Reinfection could not occur in SARS-CoV-2 infected rhesus macaques. Preprint, Microbiology, March 2020.
- [5] Yinon M. Bar-On, Ron Sender, Avi I. Flamholz, Rob Phillips, and Ron Milo. A quantitative compendium of COVID-19 epidemiology. *arXiv:2006.01283 [q-bio]*, June 2020.
- [6] Bernhard Blythe. St. louis saw the deadly 1918 spanish flu epidemic coming. shutting down the city saved countless lives. *St. Louis Post Dispatch*, March 2020.
- [7] Paul Jacob Bueno de Mesquita, Catherine J. Noakes, and Donald K. Milton. Quantitative aerobiologic analysis of an influenza human challenge-transmission trial. *Indoor Air*, page ina.12701, June 2020. ISSN 0905-6947, 1600-0668. doi: 10.1111/ina.12701.
- [8] Emma Cave. COVID-19 Super-spreaders: Definitional Quandaries and Implications. *Asian Bioethics Review*, 2020. doi: 10.1007/s41649-020-0018.
- [9] C. Y.H. Chao, M. P. Wan, and G. N. Sze To. Transport and Removal of Expiratory Droplets in Hospital Ward Environment. *Aerosol Science*



- and Technology*, 42(5):377–394, March 2008. ISSN 0278-6826, 1521-7388. doi: 10.1080/02786820802104973.
- [10] C.Y.H. Chao, M.P. Wan, L. Morawska, G.R. Johnson, Z.D. Ristovski, M. Hargreaves, K. Mengersen, S. Corbett, Y. Li, X. Xie, and D. Katoshevski. Characterization of expiration air jets and droplet size distributions immediately at the mouth opening. *Journal of Aerosol Science*, 40(2):122–133, February 2009. ISSN 00218502. doi: 10.1016/j.jaerosci.2008.10.003.
- [11] Jun Chen, Tangkai Qi, Li Liu, Yun Ling, Zhiping Qian, Tao Li, Feng Li, Qingnian Xu, Yuyi Zhang, Shuibao Xu, et al. Clinical progression of patients with COVID-19 in Shanghai, China. *Journal of Infection*, 2020.
- [12] A.N Cohen and B. Kessel. False positives in reverse transcription PCR testing for SARS-CoV-2. *medRxiv*, 2020. doi: 10.1101/2020.04.26.20080911. URL <https://www.medrxiv.org/content/early/2020/05/20/2020.04.26.20080911>.
- [13] Talib Dbouk and Dimitris Drikakis. On respiratory droplets and face masks. *Physics of Fluids*, 32(6):063303, June 2020. ISSN 1070-6631, 1089-7666. doi: 10.1063/5.0015044.
- [14] Y. Drossinos and N.I. Stilianakis. What aerosol physics tells us about airborne pathogen transmission. *Aerosol Science and Technology*, 54(6): 639–643, 2020.
- [15] D. A. Edwards, J. C. Man, P. Brand, J. P. Katstra, K. Sommerer, H. A. Stone, E. Nardell, and G. Scheuch. Inhaling to mitigate exhaled bioaerosols. *Proceedings of the National Academy of Sciences*, 101(50): 17383–17388, December 2004. ISSN 0027-8424, 1091-6490. doi: 10.1073/pnas.0408159101.
- [16] S.E. Eikenberry et al. To mask or not to mask: Modeling the potential for face mask use by the general public to curtail the covid-19 pandemic, 2020. URL <https://doi.org/10.1101/2020.04.06.20055624>.
- [17] S.A. Lauer et al. The incubation period of coronavirus disease 2019 (covid-19) from publicly reported confirmed cases: estimation and application. *preprint*, 2020.
- [18] Xiaobo Yang et al. Clinical course and outcomes of critically ill patients with SARS-CoV-2 pneumonia in Wuhan, China: a single-centered, retrospective, observational study. *The Lancet Respiratory Medicine*, 8(5), 2020. doi: 10.1016/S2213-2600(20)30079-5.

- [19] Matthew Evans. Avoiding COVID-19: Aerosol Guidelines. Preprint, Infectious Diseases (except HIV/AIDS), May 2020.
- [20] S. Flaxman, S. Mishra, A. Gandy, et al. Estimating the effects of non-pharmaceutical interventions on COVID-19 in Europe. *Nature*, 2020. doi: 10.1038/s41586-020-2405-7.
- [21] Huizhi G. Wong j. Xiao J. Shiu E. Ryu S. Fong, Min and B. Cowling. Nonpharmaceutical measures for pandemic influenza in nonhealth-care settings— social distancing measures, emerging infectious diseases. Technical report.
- [22] Center for Disease Control and Prevention. Interim Clinical Guidance for Management of Patients with Confirmed Coronavirus Disease (COVID-19); updated 2 June 2020. Technical report, 2020. URL <https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html>.
- [23] National Centre for Infectious Diseases and Academy of Medicine the Chapter of Infectious Disease Physicians. Position Statement from the National Centre for Infectious Diseases and the Chapter of Infectious Disease Physicians, Academy of Medicine, Singapore – 23 May 2020. Technical report, 2020. URL [https://www.ams.edu.sg/view-pdf.aspx?file=media%5c5556\\_fi\\_331.pdf&ofile=Period+of+Infectivity+Position+Statement+\(final\)+23-5-20+\(logos\).pdf](https://www.ams.edu.sg/view-pdf.aspx?file=media%5c5556_fi_331.pdf&ofile=Period+of+Infectivity+Position+Statement+(final)+23-5-20+(logos).pdf).
- [24] Monica Gandhi, Deborah S Yokoe, and Diane V Havlir. Asymptomatic transmission, the Achilles’ heel of current strategies to control COVID-19, 2020.
- [25] Atul Gawande. Amid the Coronavirus Crisis, a Regimen for Reentry. *The New Yorker*, May 2020.
- [26] Katelyn Gostic, Ana CR Gomez, Riley O Mummah, Adam J Kucharski, and James O Lloyd-Smith. Estimated effectiveness of symptom and risk screening to prevent the spread of COVID-19. *Elife*, 9:e55570, 2020.
- [27] Mecher C. E. Hatchett, Richard and Lipsitch M. Public health interventions and epidemic intensity during the 1918 influenza pandemic. *Pubs. NAS*, 104:7582–7587, 2007.
- [28] Xi He, Eric H. Y. Lau, Peng Wu, Xilong Deng, Jian Wang, Xinxin Hao, Yiu Chung Lau, Jessica Y. Wong, Yujuan Guan, Xinghua Tan, Xiaoneng Mo, Yanqing Chen, Baolin Liao, Weilie Chen, Fengyu Hu, Qing Zhang, Mingqiu Zhong, Yanrong Wu, Lingzhai Zhao, Fuchun Zhang,



- Benjamin J. Cowling, Fang Li, and Gabriel M. Leung. Temporal dynamics in viral shedding and transmissibility of COVID-19. *Nature Medicine*, 26(5):672–675, 2020. doi: 10.1038/s41591-020-0869-5. URL <https://doi.org/10.1038/s41591-020-0869-5>
- [29] Xi He, Eric H. Y. Lau, Peng Wu, Xilong Deng, Jian Wang, Xinxin Hao, Yiu Chung Lau, Jessica Y. Wong, Yujuan Guan, Xinghua Tan, Xiaoneng Mo, Yanqing Chen, Baolin Liao, Weilie Chen, Fengyu Hu, Qing Zhang, Mingqiu Zhong, Yanrong Wu, Lingzhai Zhao, Fuchun Zhang, Benjamin J. Cowling, Fang Li, and Gabriel M. Leung. Temporal dynamics in viral shedding and transmissibility of COVID-19. *Nature Medicine*, 26(5):672–675, 2020. doi: 10.1038/s41591-020-0869-5. URL <https://doi.org/10.1038/s41591-020-0869-5>
- [30] S. Hsiang et al. The effect of large-scale anti-contagion policies on the COVID-19 pandemic. *Nature*, 2020. doi: 10.1038/s41586-020-2404-8.
- [31] David S. Hui, Benny K. Chow, Leo Chu, Susanna S. Ng, Nelson Lee, Tony Gin, and Matthew T. V. Chan. Exhaled Air Dispersion during Coughing with and without Wearing a Surgical or N95 Mask. *PLoS ONE*, 7(12):e50845, December 2012. ISSN 1932-6203. doi: 10.1371/journal.pone.0050845.
- [32] Roger W. Humphry, Angus Cameron, and George J. Gunn. A practical approach to calculate sample size for herd prevalence surveys. *Preventive Veterinary Medicine*, 65(3-4):173–188, October 2004. ISSN 0167-5877. doi: 10.1016/j.prevetmed.2004.07.003.
- [33] Guanmin Jiang, Xiaoshuai Ren, Yan Liu, Hongtao Chen, Wei Liu, Zhaowang Guo, Yaqin Zhang, Chaoqun Chen, Jianhui Zhou, Qiang Xiao, and Hong Shan. Application and optimization of RT-PCR in diagnosis of SARS-CoV-2 infection. Preprint, Infectious Diseases (except HIV/AIDS), February 2020.
- [34] G.R. Johnson, L. Morawska, Z.D. Ristovski, M. Hargreaves, K. Mengersen, C.Y.H. Chao, M.P. Wan, Y. Li, X. Xie, D. Katoshevski, and S. Corbett. Modality of human expired aerosol size distributions. *Journal of Aerosol Science*, 42(12):839–851, December 2011. ISSN 00218502. doi: 10.1016/j.jaerosci.2011.07.009.
- [35] Graham Richard Johnson and Lidia Morawska. The Mechanism of Breath Aerosol Formation. *Journal of Aerosol Medicine and Pulmonary Drug Delivery*, 22(3):229–237, September 2009. ISSN 1941-2711, 1941-2703. doi: 10.1089/jamp.2008.0720.

- [36] Terry C Jones, Barbara Mühlemann, Talitha Veith, Guido Biele, Marta Zuchowski, Jörg Hoffmann, Angela Stein, Anke Edelmann, Victor Max Corman, and Christian Drosten. An analysis of SARS-CoV-2 viral load by patient age. *medRxiv*, 2020. doi: 10.1101/2020.06.08.20125484. URL <https://www.medrxiv.org/content/early/2020/06/09/2020.06.08.20125484>.
- [37] Omer Karin, Yinon M. Bar-On, Tomer Milo, Itay Katzir, Avi Mayo, Yael Korem, Boaz Dudovich, Eran Yashiv, Amos J. Zehavi, Nadav Davidovich, Ron Milo, and Uri Alon. Adaptive cyclic exit strategies from lockdown to suppress COVID-19 and allow economic activity. Preprint, *Epidemiology*, April 2020.
- [38] Seong Eun Kim, Hae Seong Jeong, Yohan Yu, Sung Un Shin, Soosung Kim, Tae Hoon Oh, Uh Jin Kim, Seung-Ji Kang, Hee-Chang Jang, Sook-In Jung, and Kyung-Hwa Park. Viral kinetics of SARS-CoV-2 in asymptomatic carriers and presymptomatic patients. *International Journal of Infectious Diseases*, 95:441 – 443, 2020. ISSN 1201-9712. doi: <https://doi.org/10.1016/j.ijid.2020.04.083>. URL <http://www.sciencedirect.com/science/article/pii/S120197122030299X>.
- [39] Lauren M. Kucirka, Stephen A. Lauer, Oliver Laeyendecker, Denali Boon, and Justin Lessler. Variation in False-Negative Rate of Reverse Transcriptase Polymerase Chain Reaction-Based SARS-CoV-2 Tests by Time Since Exposure. *Annals of Internal Medicine*, 2020. doi: 10.7326/M20-1495. URL <https://doi.org/10.7326/M20-1495>. PMID: 32422057.
- [40] Stephen A. Lauer, Kyra H. Grantz, Qifang Bi, Forrest K. Jones, Qulu Zheng, Hannah R. Meredith, Andrew S. Azman, Nicholas G. Reich, and Justin Lessler. The Incubation Period of Coronavirus Disease 2019 (COVID-19) From Publicly Reported Confirmed Cases: Estimation and Application. *Annals of Internal Medicine*, 172(9):577–582, 2020. doi: 10.7326/M20-0504. URL <https://doi.org/10.7326/M20-0504>. PMID: 32150748.
- [41] Xu Li and Xiaochun Ma. Acute respiratory failure in COVID-19: is it “typical” ARDS? *Critical Care*, 24(198), 2020. doi: 10.1186/s13054-020-02911-9.
- [42] Yuguo Li, Hua Qian, Jian Hang, Xuguang Chen, Ling Hong, Peng Liang, Jiansen Li, Shenglan Xiao, Jianjian Wei, Li Liu, and Min Kang. Evidence for probable aerosol transmission of SARS-CoV-2 in a poorly ventilated restaurant. Preprint, *Infectious Diseases (except HIV/AIDS)*, April 2020.



- [43] Q. Long, B. Liu, and H. et al. Deng. Antibody responses to SARS-CoV-2 in patients with COVID-19. *Nature Medicine*, 2020. doi: 10.1038/s41591-020-0897-1.
- [44] Lei Luo, Dan Liu, Xin-long Liao, Xian-bo Wu, Qin-long Jing, Jia-zhen Zheng, Fang-hua Liu, Shi-gui Yang, Bi Bi, Zhi-hao Li, Jian-ping Liu, Wei-qi Song, Wei Zhu, Zheng-he Wang, Xi-ru Zhang, Pei-liang Chen, Hua-min Liu, Xin Cheng, Miao-chun Cai, Qing-mei Huang, Pei Yang, Xin-fen Yang, Zhi-gang Huang, Jin-ling Tang, Yu Ma, and Chen Mao. Modes of contact and risk of transmission in COVID-19 among close contacts. *medRxiv*, 2020. doi: 10.1101/2020.03.24.20042606. URL <https://www.medrxiv.org/content/early/2020/03/26/2020.03.24.20042606>.
- [45] Steven R. Lustig, John J. H. Biswakarma, Devyesh Rana, Susan H. Tilford, Weike Hu, Ming Su, and Michael S. Rosenblatt. Effectiveness of Common Fabrics to Block Aqueous Aerosols of Virus-like Nanoparticles. *ACS Nano*, 14(6):7651–7658, June 2020. ISSN 1936-0851, 1936-086X. doi: 10.1021/acsnano.0c03972.
- [46] Harvey B. Lipman PhD J. Alexander Navarro Alexandra Sloan Joseph R. Michalsen Alexandra Minna Stern Markel, Howard and Martin S. Cetron. Nonpharmaceutical interventions implemented by us cities during the 1918-1919 influenza pandemic. *J. Amer. Med. Asso.*, 298.
- [47] C. Menni, A.M. Valdes, and M.B. Freidin et al. Real-time tracking of self-reported symptoms to predict potential COVID-19. *Nature Medicine*, 2020. doi: 10.1038/s41591-020-0916-2.
- [48] Donald K. Milton, M. Patricia Fabian, Benjamin J. Cowling, Michael L. Grantham, and James J. McDevitt. Influenza Virus Aerosols in Human Exhaled Breath: Particle Size, Culturability, and Effect of Surgical Masks. *PLoS Pathogens*, 9(3):e1003205, March 2013. ISSN 1553-7374. doi: 10.1371/journal.ppat.1003205.
- [49] L. Morawska, G.R. Johnson, Z.D. Ristovski, M. Hargreaves, K. Mengersen, S. Corbett, C.Y.H. Chao, Y. Li, and D. Katoshevski. Size distribution and sites of origin of droplets expelled from the human respiratory tract during expiratory activities. *Journal of Aerosol Science*, 40(3):256–269, March 2009. ISSN 00218502. doi: 10.1016/j.jaerosci.2008.11.002.
- [50] S.S. Morse, R.L. Garwin, and P.J. Olsiewski. Next flu pandemic: What to do until the vaccine arrives. *Science*, 314:929, 2016.

- [51] A. Mueller et al. Assessment of fabric masks as alternatives to standard surgical masks in terms of particle filtration efficiency, April 2020. <https://doi.org/10.1101/2020.04.17.20069567>.
- [52] Arash Naseri, Omid Abouali, and Goodarz Ahmadi. Effect of turbulent thermal plume on aspiration efficiency of micro-particles. *Building and Environment*, 118:159–172, June 2017. ISSN 03601323. doi: 10.1016/j.buildenv.2017.03.018.
- [53] Quidel. Sofia SARS Antigen FIA Instructions for Use. <https://www.fda.gov/media/137885/download>. Technical report.
- [54] Paddy Robertson. Comparison of mask standards, ratings, and filtration effectiveness, June 2020. <https://smartairfilters.com/en/blog/comparison-mask-standards-rating-effectiveness/>.
- [55] Rebecca E. Stockwell, Michelle E. Wood, Congrong He, Laura J. Sherard, Emma L. Ballard, Timothy J. Kidd, Graham R. Johnson, Luke D. Knibbs, Lidia Morawska, Scott C. Bell, Maureen Peasey, Christine Duplancic, Kay A. Ramsay, Nassib Jabbour, Peter O’Rourke, Claire E. Wainwright, and Peter D. Sly. Face Masks Reduce the Release of *Pseudomonas aeruginosa* Cough Aerosols When Worn for Clinically Relevant Periods. *American Journal of Respiratory and Critical Care Medicine*, 198(10):1339–1342, November 2018. ISSN 1073-449X, 1535-4970. doi: 10.1164/rccm.201805-0823LE.
- [56] Baoqing Sun, Ying Feng, Xiaoneng Mo, Peiyan Zheng, Qian Wang, Pingchao Li, Ping Peng, Xiaoqing Liu, Zhilong Chen, Huimin Huang, Fan Zhang, Wenting Luo, Xuefeng Niu, Peiyu Hu, Longyu Wang, Hui Peng, Zhifeng Huang, Liqiang Feng, Feng Li, Fuchun Zhang, Fang Li, Nanshan Zhong, and Ling Chen. Kinetics of SARS-CoV-2 specific IgM and IgG responses in COVID-19 patients. *Emerging Microbes & Infections*, 9(1):940–948, 2020. doi: 10.1080/22221751.2020.1762515. URL <https://doi.org/10.1080/22221751.2020.1762515>. PMID: 32357808.
- [57] Julian W. Tang, Thomas J. Liebner, Brent A. Craven, and Gary S. Settles. A schlieren optical study of the human cough with and without wearing masks for aerosol infection control. *Journal of The Royal Society Interface*, 6(suppl\_6), December 2009. ISSN 1742-5689, 1742-5662. doi: 10.1098/rsif.2009.0295.focus.
- [58] R. Tellier et al. Recognition of aerosol transmission of infectious agents: a commentary. *BMC Infectious Diseases*, 19(101):1–9, 2019.



- [59] Kelvin Kai-Wang To, Owen Tak-Yin Tsang, Wai-Shing Leung, Anthony Raymond Tam, Tak-Chiu Wu, David Christopher Lung, Cyril Chik-Yan Yip, Jian-Piao Cai, Jacky Man-Chun Chan, Thomas Shiu-Hong Chik, Daphne Pui-Ling Lau, Chris Yau-Chung Choi, Lin-Lei Chen, Wan-Mui Chan, Kwok-Hung Chan, Jonathan Daniel Ip, Anthony Chin-Ki Ng, Rosana Wing-Shan Poon, Cui-Ting Luo, Vincent Chi-Chung Cheng, Jasper Fuk-Woo Chan, Ivan Fan-Ngai Hung, Zhiwei Chen, Honglin Chen, and Kwok-Yung Yuen. Temporal profiles of viral load in posterior oropharyngeal saliva samples and serum antibody responses during infection by SARS-CoV-2: an observational cohort study. *The Lancet Infectious Diseases*, 20(5):565 – 574, 2020. ISSN 1473-3099. doi: [https://doi.org/10.1016/S1473-3099\(20\)30196-1](https://doi.org/10.1016/S1473-3099(20)30196-1). URL <http://www.sciencedirect.com/science/article/pii/S1473309920301961>.
- [60] Neeltje van Doremalen, Trenton Bushmaker, Dylan H. Morris, Myndi G. Holbrook, Amandine Gamble, Brandi N. Williamson, Azaibi Tamin, Jennifer L. Harcourt, Natalie J. Thornburg, Susan I. Gerber, James O. Lloyd-Smith, Emmie de Wit, and Vincent J. Munster. Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1. *New England Journal of Medicine*, page NEJMc2004973, March 2020. ISSN 0028-4793, 1533-4406. doi: 10.1056/NEJMc2004973.
- [61] Chantal B.F. Vogels, Anderson F. Brito, Anne Louise Wyllie, Joseph R Fauver, Isabel M. Ott, Chaney C. Kalinich, Mary E. Petrone, Arnau Casanovas-Massana, M. Catherine Muenker, Adam J. Moore, Jonathan Klein, Peiwen Lu, Alice Lu-Culligan, Xiaodong Jiang, Daniel J. Kim, Eriko Kudo, Tianyang Mao, Miyu Moriyama, Ji Eun Oh, Annsea Park, Julio Silva, Eric Song, Takehiro Takehashi, Manabu Taura, Maria Tokuyama, Arvind Venkataraman, Orr-El Weizman, Patrick Wong, Yexin Yang, Nagarjuna R. Cheemarla, Elizabeth White, Sarah Lapidus, Rebecca Earnest, Bertie Geng, Pavithra Vijayakumar, Camila Odio, John Fournier, Santos Bermejo, Shelli Farhadian, Charles Dela Cruz, Akiko Iwasaki, Albert I. Ko, Marie-Louise Landry, Ellen F. Foxman, and Nathan D. Grubaugh. Analytical sensitivity and efficiency comparisons of SARS-COV-2 qRT-PCR assays. Preprint, *Infectious Diseases (except HIV/AIDS)*, April 2020.
- [62] Ania Wajnberg, Mayce Mansour, Emily Leven, Nicole M Bouvier, Gopi Patel, Adolfo Firpo, Rao Mendu, Jeffrey Jhang, Suzanne Arinsburg, Melissa Gitman, Jane Houldsworth, Ian Baine, Viviana Simon, Judith Aberg, Florian Krammer, David Reich, and Carlos Cordon-Cardo. Humoral immune response and prolonged PCR positivity in a cohort of

- 1343 SARS-CoV 2 patients in the New York City region. *medRxiv*, 2020. doi: 10.1101/2020.04.30.20085613. URL <https://www.medrxiv.org/content/early/2020/05/05/2020.04.30.20085613>
- [63] N. Wilson, A. Kvalsvig, L. Barnard, and M. G Baker. Case-Fatality Risk Estimates for COVID-19 Calculated by Using a Lag Time for Fatality. *Emerging Infectious Diseases*, 26(6), 2020. doi: 10.3201/eid2606.200320.
- [64] M. E. J. Woolhouse, C. Dye, J.-F. Etard, T. Smith, J. D. Charlwood, G. P. Garnett, P. Hagan, J. L. K. Hii, P. D. Ndhlovu, R. J. Quinnell, C. H. Watts, S. K. Chandiwana, and R. M. Anderson. Heterogeneities in the transmission of infectious agents: Implications for the design of control programs. *Proceedings of the National Academy of Sciences*, 94(1):338–342, 1997. ISSN 0027-8424. doi: 10.1073/pnas.94.1.338. URL <https://www.pnas.org/content/94/1/338>
- [65] Li-Ping Wu, Nai-Chang Wang, Yi-Hua Chang, Xiang-Yi Tian, Dan-Yu Na, Li-Yuan Zhang, Lei Zheng, Tao Lan, Lin-Fa Wang, and Guo-Dong Liang. Duration of Antibody Responses after Severe Acute Respiratory Syndrome. *Emerging Infectious Diseases*, 13(10):1562–1564, October 2007. ISSN 1080-6040, 1080-6059. doi: 10.3201/eid1310.070576.
- [66] R. Wölfel, V.M. Corman, and W. et al Guggemos. Virological assessment of hospitalized patients with COVID-2019. *Nature*, 581, 2020. doi: 10.1038/s41586-020-2196-x.
- [67] X. Xie, Y. Li, A. T. Y. Chwang, P. L. Ho, and W. H. Seto. How far droplets can move in indoor environments ? revisiting the Wells evaporation?falling curve. *Indoor Air*, 17(3):211–225, June 2007. ISSN 0905-6947, 1600-0668. doi: 10.1111/j.1600-0668.2007.00469.x.
- [68] Xiaojian Xie, Yuguo Li, Hequan Sun, and Li Liu. Exhaled droplets due to talking and coughing. *Journal of The Royal Society Interface*, 6(suppl\_6), December 2009. ISSN 1742-5689, 1742-5662. doi: 10.1098/rsif.2009.0388.focus.
- [69] R. Yan, S. Chillrud, D.L. Magadini, and B. Yan. Developing home-disinfection and filtration efficiency improvement methods for N95 respirators and surgical facial masks: stretching supplies and better protection during the ongoing COVID-19 pandemic. *Journal of the International Society for Respiratory Protection*, 37(1), 2020.
- [70] Juanjuan Zhao, Quan Yuan, Haiyan Wang, Wei Liu, Xuejiao Liao, Yingying Su, Xin Wang, Jing Yuan, Tingdong Li, Jinxiu Li, Shen Qian, Congming Hong, Fuxiang Wang, Yingxia Liu, Zhaoqin Wang, Qing He,



Zhiyong Li, Bin He, Tianying Zhang, Yang Fu, Shengxiang Ge, Lei Liu, Jun Zhang, Ningshao Xia, and Zheng Zhang. Antibody responses to SARS-CoV-2 in patients of novel coronavirus disease 2019. *Clinical Infectious Diseases*, 03 2020. ISSN 1058-4838. doi: 10.1093/cid/ciaa344. URL <https://doi.org/10.1093/cid/ciaa344>

**A Framework for Evidence Based and Equitable Distribution of Vaccine for the Novel Coronavirus**

(b) (5)





|