From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Wed, 19 Feb 2020 14:51:46 +0000
To: Dale Fisher;XING, Jun;Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);(SPmig) LEI ZHOU;wufan@shmu.edu.cn (b)(6) (b)(6)
Subject: Re: Wuhan draft questions

Yes, please do.
Thanks,
Weigong
From: Dale Fisher <mdcfda@nus.edu.sg>
Sent: Wednesday, February 19, 2020 10:39:26 PM
To: XING, Jun <xingj@who.int>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>; wufan@shmu.edu.cn <wufan@shmu.edu.cn> (b)(6) (b)(6)
Subject: RE: Wuhan draft questions

I am waiting for your collated comments. Shall I just revise and circulate……I only had 4 hrs sleep last night so can't go much longer. If you have no comments I will just do it, circulate and then send to Bruce 15 mins later….ok everyone ?

From: XING, Jun <xingj@who.int>
Sent: Wednesday, 19 February 2020 10:30 PM
To: Dale Fisher <mdcfda@nus.edu.sg>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>; wufan@shmu.edu.cn; (b)(6) (b)(6)
Subject: RE: Wuhan draft questions

- External Email -

I guess people are waiting for the revised version…

From: Dale Fisher <mdcfda@nus.edu.sg>
Sent: Wednesday, February 19, 2020 3:25 PM
To: XING, Jun <xingj@who.int>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>;

wufan@shmu.edu.cn; (b)(6)
Subject: RE: Wuhan draft questions

Is anything coming…..i would like to sleep ☺

From: XING, Jun <xingj@who.int>
Sent: Wednesday, 19 February 2020 9:20 PM
To: Dale Fisher <mdcfda@nus.edu.sg>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>; wufan@shmu.edu.cn; (b)(6)
Subject: RE: Wuhan draft questions

- External Email -

Here is the full list of Chinese experts (adding Dr Lin). Thanks.

From: XING, Jun
Sent: Wednesday, February 19, 2020 2:12 PM
To: 'Dale Fisher' <mdcfda@nus.edu.sg>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; 'zhoulei@chinacdc.cn' <zhoulei@chinacdc.cn>; 'wufan@shmu.edu.cn' <wufan@shmu.edu.cn>; (b)(6)
Subject: RE: Wuhan draft questions

Hi Dale,
As discussed, I have added emails of the Chinese experts above (still missing Dr Lin though). Please use this group for the next version of the questions. Thanks.
Best regards,
Jun

From: Dale Fisher <mdcfda@nus.edu.sg>
Sent: Wednesday, February 19, 2020 11:12 AM
To: Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; XING, Jun <xingj@who.int>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>
Subject: Wuhan draft questions

Evening all;

Here is my first attempt…a starting point

Jun; please share

thanks

Dale Fisher

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Important: This email is confidential and may be privileged. If you are not the intended recipient, please delete it and notify us immediately; you should not copy or use it for any purpose, nor disclose its contents to any other person. Thank you.

Important: This email is confidential and may be privileged. If you are not the intended recipient, please delete it and notify us immediately; you should not copy or use it for any purpose, nor disclose its contents to any other person. Thank you.

From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Sun, 1 Mar 2020 20:48:58 +0000
To: AYLWARD, Raymond Bruce J.;Alexander SEMENOV (b)(6) Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Clifford LANE (cliff.lane@nih.gov);Dale FISHER (mdcfda@nus.edu.sg);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);LEE Jong-Koo (docmohw@snu.ac.kr);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Tim ECKMANNS (EckmannsT@rki.de);XING, Jun;gmleung
Cc: Dr VAN KERKHOVE, Maria;Zunyou Wu;(SPmig) LEI ZHOU; (b)(6) liangwn@nhc.gov.cn (b)(6)
Subject: RE: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19

One more quick not on slide 11. The proportions for severe and critical are reported at 13.8% and 6.1%, respectively in the joint mission report. So the 15% and 5% on slide 11 should be changed to 14% and 6%, respectively.

Thanks,
Weigong

From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Sunday, March 1, 2020 3:39 PM
To: AYLWARD, Raymond Bruce J (b)(6) Alexander SEMENOV (b)(6) ; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>
Cc: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; Zunyou Wu (b)(6) (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>; (b)(6) liangwn@nhc.gov.cn; (b)(6)
Subject: RE: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19

Dear Bruce, Maria, and all,

I still think the figure in slide 7 is a bit misleading and those red arrow lines should be modified. The mild and moderate cases do not died directly, but a small portion of them progressed to the next level. I thought this was pointed out during our discussion on Sunday. The suggested change was to have the red arrow lines go to the next level instead of going to death directly except the one from critical to death.

Thanks,
Weigong

From: AYLWARD, Raymond Bruce J. <aylwardb@who.int>
Sent: Sunday, March 1, 2020 1:41 PM
To: Alexander SEMENOV (b)(6) ; Chikwe IHEKWEAZU

(chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>
Cc: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; Zunyou Wu <(b)(6)>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>; wsjkwlwn@163.com; liangwn@nhc.gov.cn; (b)(6)
Subject: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19
Importance: High

Dear International Members of the Joint Mission,

Clearly I need to get more sleep! Maria just pointed out that I had forgotten to send the attachments – please find the message/attachments again here:

I trust (hope!) that everyone remains in good health as you approach Day 7 since your departures from China. (b)(6)

(b)(6)

Congratulations to those of you who have been on the frontlines of managing new cases and importations such as Chikwe in Nigeria.

I'm writing tonight to share with you three things:

1. the official **Chinese version of the Joint Mission report** that WHO received from the National Health Commission and which will be posted on our site;

2. the **WHO website links for the English version** of the report in case helpful:
   - in the section of WHO Coronavirus page: https://www.who.int/emergencies/diseases/novel-coronavirus-2019
   - direct link to the report in English: https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf

3. a **short overview presentation** I quickly put together to share some of the key findings of the report in a VC with RD/WPRO and the WPRO Ministers of Health on Friday morning.

Please note, **I have added 3 slides on 'key epi/technical insights'** from our Mission to the end of the presentation. Maria and I put these together and WU Zunyou did a quick check/correction of them earlier this evening for us. **I would be most grateful if you might have a look at the 3 'technical insight' slides and provide any thoughts/corrections from your side**. I am not trying to be comprehensive but just to find a few key points that are important to understanding the evolving epi and containment impact in China.

I have also cc'd Dr LIANG, Dr WANG Bin, Dr Wu Zunyou and Dr Zhou Lei so that they can 'hear' the conversation (b)(6)

With very best regards to all,

Bruce

From: AYLWARD, Raymond Bruce J.
Sent: Friday, February 28, 2020 10:58
To: GHEBREYESUS, Tedros Adhanom <(b)(6)
Cc: KASAI, Takeshi <(b)(6)>; GALEA, Gauden <galeag@who.int>; wsjkwlwn@163.com; liangwn@nhc.gov.cn; liangwn@nhc.gov.cn; (b)(6) LI Juan (lijuan@nhc.gov.cn) <lijuan@nhc.gov.cn>; zhangyang@nhc.gov.cn; Alexander SEMENOV (b)(6) <(b)(6) hikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; RYAN, Michael J. <ryanm@who.int>; SCHWARTLANDER, Bernhard F. <schwartlanderb@who.int>; MINHAS, Raman <minhasr@who.int>; SNIDER, Paige Anne <sniderp@who.int>; ALEXANDER, Nyka <alexandern@who.int>; STERN, Gabriella <sterng@who.int>
Subject: NEW - FOR PUBLIC RELEASE: WHO-China Joint Mission on COVID-19
Importance: High

Dr Tedros & colleagues,

Our eagle-eyed counterparts spotted a tiny edit I had inadvertently overlooked in the version just sent (an updated section now has six sub-sections but I had forgotten to say '6' instead of '5' in the preambular para).

I would be most grateful if the attached version be used as the 'final final' (with time stamp of 1100hr in the file name).

Apologies to all for any inconvenience.

Bruce

From: AYLWARD, Raymond Bruce J.
Sent: Friday, February 28, 2020 10:22
To: GHEBREYESUS, Tedros Adhanom <drtedros@who.int>
Cc: KASAI, Takeshi <kasait@who.int> (b)(6) ; liangwn@nhc.gov.cn; liangwn@nhc.gov.cn; (b)(6) LI Juan (lijuan@nhc.gov.cn) <lijuan@nhc.gov.cn>; zhangyang@nhc.gov.cn; Alexander SEMENOV (b)(6) (b)(6) Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng)

<chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; RYAN, Michael J. <ryanm@who.int>; SCHWARTLANDER, Bernhard F. <schwartlanderb@who.int>; MINHAS, Raman <minhasr@who.int>; SNIDER, Paige Anne <sniderp@who.int>; ALEXANDER, Nyka <alexandern@who.int>; STERN, Gabriella <sterng@who.int>
Subject: FOR PUBLIC RELEASE: WHO-China Joint Mission on COVID-19
Importance: High

Dear Dr Tedros,

It is my honor to share with you the attached, final version of the ***Report of the WHO-China Joint Mission on COVID-19***, on behalf of myself, my Co-Lead Dr LIANG Wannian, our Deputy Team Leader Dr WANG Bin, and the entire Joint Team of Chinese national and international members.

I am pleased to inform you that in the 24 hours since sharing a preliminary version of this report, the China and international members have fully aligned the language of the English and Chinese versions, allowing the release of both versions today.

It is agreed with our Chinese counterparts that the English version can be released immediately, given the urgency of sharing these findings with the international community. The Honorable Minister of Health, Dr MA Xiaowei, will release the Chinese version within hours.

In closing, I would like to reiterate my personal gratitude to Dr LIANG for his deep experience and guidance as we consolidated our findings, and to the entire Team for their tremendous contributions throughout. As you and I have discussed, this was truly a Joint Mission and the quality of this report reflects the world-class expertise of all team members, both national and international. The attached findings and recommendations reflect the collective opinion of the entire team, all of whom have been closely engaged in its writing and finalization.

It is our common hope and belief that the findings contained herein can inform the global work you are leading to stem the ongoing international spread of COVID-19.

Regards

Bruce

From: 倪大新
Sent: Sat, 29 Feb 2020 16:47:04 +0800 (GMT+08:00)
To: goarn
Cc: acicero@jhu.edu;Watson, John (CDC/DDID/NCIRD/DVD);AF RGO/WHE EMO;AF RGO/OUTBREAK AFRO;AHLUWALIA, Indu;Ahmed Zaghloul (Dr.);ALBERTI, Kathryn;Aldighieri, Dr. Sylvain (WDC);Alexandre.JULLY@ec.europa.eu;ALEXANDROVA EZERSKA, Lidia;'Ali.khan@unmc.edu';ALI AHMED, Yahaya;ALLAIN IOOS, Sophie;(SPmig) Allison Prather;AL-SHORBAJI, Farah;Amadou.SALL@pasteur.sn;BULIVA, Evans;Amrish Baidjoe (b)(6));Anja.Wolz@brussels.msf.org;Anne-Marie.pegg@paris.msf.org;(SPmig) Alice Wimmer;Axelle Ronsse (Axelle.Ronsse@brussels.msf.org);AZE, Jean-christophe;'azharul@icddrb.org';'aziao@unicef.org';BALDE, Thierno;BARBOZA, Philippe;BASHAR, Abdelmenem;BATRA, Neale Spencer;BEN EMBAREK, Peter Karim;'BenjaminD@africa-union.org';Bonbon, Etienne (AGAH);boneil@samaritan.org;McCloskey, Brian (CDC phe.gov.uk);CASTILLA ECHENIQUE, Jorge;CAYABYAB, Ramoncito;celine.gurry@cepi.net;chikwe.ihekweazu@ncdc.gov.ng;CHRISTENSEN, Renee;(SPmig) Claire Beck;CLARAVALL LARRUCEA, Marie Chantal;Navarro-Colorado, Carlos (CDC unicef.org);Ohuabunwo, Chima (CDC afenet.net);'creddy@tephinet.org';C-Watts;MERIANOS, Angela;Anvar Munavvarov (munavvarov@un.org);'daniel.bausch@lshtm.ac.uk';Daniel.Bausch@phe.gov.uk;DEGAIL CHABRAT, Marie Amélie;DE LA ROCQUE DE SEVERAC, Stéphane;delbreuve@un.org;'desk.urgence@paris.msf.org';DIAZ, Janet Victoria;Dominic Dwyer (dominic.dwyer@sydney.edu.au);Coggeshall, Kira (CDC/DDPHSIS/CGH/DGHP);DOULL, Linda;Dr VAN KERKHOVE, Maria;Emma Diggle (E.Diggle@savethechildren.org.uk);Gooding, Elizabeth (PHAC/ASPC) (elizabeth.gooding@canada.ca);'emanuele.capobianco@ifrc.org';emergencypmo;(SPmig) Emina Becirovic;Emmanuel.GRELLETY@epicentre.msf.org;'emohsni@globalhealthdev.org';'eoc@ecdc.europa.eu';Evelyn.DEPOORTERE@ec.europa.eu;executive.director@emphnet.net;f.diaz@oie.int;'fadzilah@moh.gov.my' (fadzilah@moh.gov.my);FALERO CUSANO, Maria Fernanda;FALL, Ibrahima Soce;farenzan@ips.ac.cn;FAZEKAS, Kathleen Marie;FOLEFACK TENGOMO, Gervais Leon;FORMENTY, Pierre B.h.;francois-william.tremblay@canada.ca;Florian Vogt (fvogt@itg.be);'gfontana@unicef.org';(SPmig) Inho Kim;goarn@santepubliquefrance.fr;GRAAFF, Peter Jan;Grazina Mirinaviciute (Grazina.Mirinaviciute@ecdc.europa.eu);g.torres@oie.int;GREIN, Thomas;gwen.eamer@ifrc.org;Gregory, Christopher (CDC/DDID/NCEZID/DVBD);HOLDEN, Robert Andrew;htang@ips.ac.cn;HUGONNET, Stéphane Alexandre Louis;'Hugues ROBERT' (b)(6) Haley West;'iameda@unicef.org';ide-kazuhiko@mhlw.go.jp;INIG@rki.de;ioannis.karagiannis@phe.gov.uk;Jansen, Andreas;januszp@nicd.ac.za;'jean-claude.manuguerra@pasteur.fr';'jean-louis.romette@univ-amu.fr';jlee106@korea.kr; (b)(6) ;'Josep.jansa@ecdc.europa.eu';Jerome Pfaffmann;Julie.HALL;LeDuc, James (CDC utmb.edu);Keith Hamilton (k.hamilton@oie.int);KAASIK-AASLAV, Kaja;kathleen.laberge@canada.ca;KATO, Masaya;kerriganm@nicd.ac.za;KIFF, Jeremy;ljaz, Kashef (CDC/DDPHSIS/CGH/DGHP);'kleung@iom.int';kola.jinadu@ncdc.gov.ng;Kretsinger, Katrina (CDC who.int);L.Baxter@savethechildren.org.uk;LaskeJ@rki.de;LEE, Chin-kei;LEGAND, Anais;liming@ips.ac.cn;LINDMEIER, Christian;Lionel.Gbaguidi@fao.org;'lmoses2@tulane.edu';(SPmig) Lauren Sauer;ltorre;Lucia Mullen;m.marrana@oie.int;MAHAMUD, Abdi Rahman;(SPmig) Gidraf Maina;Romano, Maria (AGAH);'marii@unicef.org';mdcfda@nus.edu.sg;'MerawiA@africa-union.org';MINELLI, Elisabetta;'morales (b)(6) .ar';msff-nord-kivu-coepidemio@paris.msf.org;'Myriam.Henkens@msf.org' (Myriam.Henkens@msf.org);n.hellman@savethechildren.org.uk;NAHATABA, Brenda Lydia Watera;'namusisiolivia@afenet.net' (namusisiolivia@afenet.net);nathalie.imbault@cepi.net;Ferguson, Neil (CDC imperial.ac.uk);nina.gobat@phc.ox.ac.uk;'olaolu.aderinola@ncdc.gov.ng';(SPmig) Olivier le

Polain;MORGAN, Oliver;outbreak;p.caceres@oie.int;'panu.saaristo@ifrc.org' (panu.saaristo@ifrc.org);paolo tizzani;Pascale.LISSOUBA@epicentre.msf.org;'paul.effler@health.wa.gov.au';Gounalan Pavade (g.pavade@oie.int);pbspiegel@jhu.edu;PENDERGAST, Scott Douglas;PERKINS, Mark;PESIGAN, Arturo;(SPmig) Peter Horby;Ludovic.Plee@fao.org;poh_lian_lim@ttsh.com.sg;QUEYRAS, Guillaume;rapid.deployments (rapid.deployments@phe.gov.uk);Rawan Araj;Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);rekpini;Raoul Kamadjeu (rkamadjeu@unicef.org);ROVIRA VILAPLANA, Jose;Ryan, Michael (CDC who.int);SALIO, [redacted]u;Scott Dowell;SHOC;SIMONIAN, Guillaume;SLATTERY, Raphael James;'smedcalf@unmc.edu';KIM, Sooyoung;Sibylle.BERNARD-STOECKLIN;STOROZHENKO, Oleg Nikolayevich;(SPmig) Denis Coulombier 24/7 ECDC Duty;Tom Drake;Endericks, Tina (CDC phe.gov.uk);tinglesby@jhu.edu;trezvani@taskforce.org;(SPmig) Trina Helderman;Trish NEWPORT;UMALI DALANGIN, Khristeen;vdelriovilas@yahoo.co.uk;Vicari, Dr. Andrea (WDC);DiStefano, Vittoria (TCE) (Vittoria.DiStefano@fao.org);VON EIJE, Karin;YAO, N'da Konan Michel;YOTI, Zabulon;zenkevich_es@gsen.ru;zhangyp@chinacdc.cn;ZIG-Assistenz@rki.de;VonDobschuetz, Sophie (AGAH);Wantanee.Kalpravidh@fao.org;BEJTULLAHU, Armand;DRURY, Patrick Anthony;CASEY, Sean;JACQUERIOZ BAUSCH Frédérique;Donatella Massai;Benjamin SYME;Jonas GUTSCHKE;Naouar LABIDI;ALICE CHEN;Maria Jasen;Aeschylus Arnold Silva;Sena Dzakuma;Nicolae Voicu;FROST, Melinda;GRIFFIN, Michael;CROSS, Caroline Marie;BAGUMAHO, Simon;ZITOUN, Flavien,christian,séverin;Azziz-Baumgartner, Eduardo (CDC/DDID/NCIRD/ID);TAPPERO, Jordan Williams;David Blazes;Jordan Tappero;Leonidas Alexakis;Thiago XAVIER;Brödel, Sophie;James Coltheart;creddy@taskforce.org;Mahmoud Kayed;Farah Massoud;Gail Carson;Simeon Renoldner;SALMON, Sharon;CHREKI, Hanane;Sara Ferraz;Naureen Naqvi;DEL RIO VILAS, Victor;PERERA, Wagawatta Liyanage Sugandhika Padmini;PAVLIN, Boris;SMALLWOOD, Catherine;Bertrand Sudre;DJORDJEVIC, Irena;Namseon Beck;AYLWARD, Raymond Bruce J.;goarn

Subject: Hotly urged to stop debate and take action now to stop the possible COVID-19 pandemic

Dear All,

This will be for the final time, as a former GOARN Steering Committee Member, I write to you, the GOARN experts and the key technical experts team for this epidemic response, to appeal for getting consensus and taking action to combat and contain COVID-19 right away, because there will be no more time for any further arguing and discussion on how we should deal with this global threat, the global epidemic is coming just

before all of us. We have no more time but to response right away.

I am astonished when I read from the web-news that Italy will adjust its policy that to do less samples so that they will not report so many cases to avoid public panic which said being followed the suggestion of ECDC.

I am astonished that Japanese Government said they will only focus on the treatment of serious patients, and they will limit the tests only for the samples that would meet the "criteria", and it seems that the international community have no objection and suggestions with that.

I am astonished that international experts are still arguing and discussing again and again on how to prepare, what is the good strategy, what is the best measures, but just hesitate for the prompt response, after the international expert teams has completed the long-enough-time in inspection and summarized what has happened in China, and what has been done, what has been achieved there.

I am astonished that the arguing and discussion may be still going on after the DG has issued very clear statement in the past two days, and the joint mission report for China has published on the WHO website.

There's no time for arguing! There's no time for discussion!! There's no time for talking about preparation!!! It's the time for action!!!!

As DG said, "The epidemics in the Islamic Republic of Iran, Italy and the Republic of Korea demonstrate what this virus is capable of." "But this virus is not influenza. With the right measures, it can be contained. That is one of the key messages

from China. " "That suggests that containment is possible." "Indeed, there are many countries that have done exactly that. There are several countries that have not reported a case for more than two weeks: Belgium, Cambodia, India, Nepal, Philippines, the Russian Federation, Sri Lanka and Viet Nam." People may still say, it's impossible for all the other countries to follow the model of China's strategies and measures, it's impossible for us to shutdown the city, shutdown the village, shutdown the factories, shutdown the schools...That's true, I would say it's a must for Wuhan and some cities of Hubei Province, but for all other parts of China, it's not a must, it's only play a facilitating role. For the most key and useful strategy and measures for the control of COVID-19 in China is just like what DG request the world to do, "Every country needs to be ready to detect cases early, to isolate patients, trace contacts, provide quality clinical care, prevent hospital outbreaks, and prevent community transmission."

I couldn't imagine what will happen in Wuhan city, what will happen in Hubei Province, what will happen in China, if China didn't take so proactive action without further hesitation? As you can see, although China has done so much, so hard, and with so extraordinary efforts, Wuhan city has reported altogether 48557 confirmed cases, 2169 death, and there are still 6585 serious cases in the hospitals, but Wuhan city one has a population of about 10 million, and China has a population of about 1.4 billion.

I couldn't image what will happen if the outbreak become a true global epidemic, I couldn't image why so many experts still think the COVID-19 is just something a little bit serious than

Flu? is it just because they are global experts?? is it just because they think COVID-19 is something like flu??? if so, they will be the sinner of the world! they will be the sinner of the world people!!
So do please stop arguing and discussion any more, but to guide the international community to take action right away, to guide every country to review if there is any hidden transmission there, to mobilize international efforts to provide immediate support to the ROK, to Iran, to Italy, where the medical system is on the brim of or has already in disruption, to help them put all suspect patients in hospitals, to identify all the transmission route to find all close contacts of each suspect and confirmed cases, and to put all close contacts in quarantine for 14 days, just what China has done for Wuhan, for Hubei Province. It's the action needed for ROK, for Iran, for Italy! It's the action needed for all of us!! It's the action needed for the whole world people!!!
Do please take action right away!!!

Best wishes,

Dr. NI Daxin
Former GAORN Steering Committee member from China CDC
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主题：GOARN weekly ops call 2020-02-27

Apologies, with updated location for those attending in person to room 0142, due to last minute competing meeting

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Updated with additional COVID-19 agenda items below in blue for the call today, no need to respond.

Dear colleagues,

You are kindly invited to the GOARN Weekly Operations Call on **Thursday, 27 February 2020** at **14:00 – 15:00 (Geneva time).**

Agenda:

- EVD, DRC
    - Find daily WHO Situation updates posted on the Knowledge Platform > Operations > Ebola Virus Disease, Democratic Republic of the Congo (North Kivu), 2018 > Updates (on the right side)
- COVID-19
    - Epi update
    - Operations:

        - China Mission
        - Iran Mission
    - Partner updates
    - Health Ops, and network updates
    - Risk Communications and Community Engagement
- Other business

Please see below dial-in details:

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Subject: Re:Response to your reply: RE: Hotly urged to stop debate and take action now to stop the possible COVID-19 pandemic

Dear Dr. Beck，

I don't mean rude to you, so if you think what I said rude to you, I'll say I am sorry. But I have to say, not only to you, but to the experts of the whole world with the same opinion of you, as you may have no harm from your heart, but when your views impact the government, impact the whole world to take right action to prevent a pandemic from happening which it is still possible, I need to speak out.

The most important fact is in the past few days, hundreds of patients reported from Italy, from the Republic of Korea, also many cases reported from Iran, in these countries, the hospitals in the focus area there has already been impossible for them to get even serious patients hospitalized, not to say the mild cases, that means many

cases are still stranding in the community, the communal transmission will still going on. In the same time, we all see the importations to many countries from Italy, from Iran in the past few days. So if the international community cannot reach agreement and take action right away, the pandemic will be inevitable and will be strike the whole world very soon, very hardly.

How to contain the epidemic? Do shutdown a necessary option? Yes, it is for those areas with wide communal transmission where it's impossible to identify the patient and their contacts or the transmission route, so it's impossible to tell who may be infected, who may be not, and so it's necessary to limit the area from spreading the infections to other parts of the country, to other parts of the world, for the sake of public benefits, for the sake of the health of the World people, this is what Wuhan has done, this is what Hubei had done, this is what China has done, so that is why china can achieve the control effectiveness. Actually in the past days, the reported cases out of Hubei province remaining in only a few cases, it will get completed containment very quickly. Even for Wuhan, the reported cases has decreased very quickly, from thousands of cases every day to around 200-300 cases a day, and most of them came from the suspected cases and contacts who have been already under isolation, so we can expect the situation in Wuhan will also improve very soon, and the transmission there will be totally stopped soon as well. So this is why you see export cases from China at early January, but you only see very few cases or even no exportation from China for a long time already. This is also why I appeal for the right action of the international community.

So if people still think it's OK for the COVID-19 become pandemic, then you can just look at it joyfully and continue to argue, to discuss, talking about to help the international community especially Africa countries to do the wonderful preparations. Do you think that will work? Do you think that will be cost effective?

If you do want to stop the COVID-19 to become a pandemic, we only have very limited time now. So do please the international community get up to take action right away, to support WHO and hard-hit

countries immediately, without any more arguing and discussion, without any hesitation. Then what we need to do? First most important thing to do is to help those countries with most cases to expand the hospitals very quickly, to enable all patients be hospitalized, to stop them to continue transmit and spread the disease in the community, these are the most important infection resources; second to help the countries to enhance contact tracing to identify contacts and provide quarantine for all of them, this will determine how quickly they can stop the transmission there.

The ROK government has already said they may have no capacity to provide hospitalization for all cases themselves, the same thing is happening in Italy, in Iran, so if we don't take action now, we will only see the spreading of the disease in the country, the spreading of the disease to the World, and we will see such situation will happen in more and more countries, then every country can only rely on themselves with desperation, because if we don't put prevention first, there will be more and more patients until it come to a point that beyond any government can afford, especially under the situation of COVID-19, under the situation of pandemic of COVID-19.

So before you make decision, please think a little bit what will it be if the pandemic do happen? Is it cost effective to take action right now or just to let it happen and then to respond to it desperately?

Best regards,

Dr. Ni Daxin

Former GAORN Steering Committee member from China CDC

Now working in Zambia

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主題：Response to your reply: RE: Hotly urged to stop debate and take action now to stop the possible COVID-19 pandemic

Dear Dr. Beck

Thank you so much for the response and sharing your thoughts with us.

I will try to respond to your questions inserted to your email below in red color.

Hope you find most of them reasonable.

Best regards,

Daxin

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主题：RE: Hotly urged to stop debate and take action now to stop the possible COVID-19 pandemic

Dear all,

Thanks Dr. Daxin for sharing your suggestion.

But some would have different thoughst on this including myself.

Your advice definitely require lots of resources and involves ethical concerns.

It is a hard work and costly, so this is why the international community need to get consensus and work together to support the WHO and the countries infected.

There are substantial cases escaping from the strategy you suggest including early case detection, isolation and contact tracing because of 1) substantial virus-shedding by those who are in the early stage with minimal symptoms, 2) limited laboratory capacity to detect the cases, and 3) limited resources for systematic quarantine/isolation for those with mild cases or even asymptomatic cases.

The strategy including early case detection, isolation and contact tracing are all from WHO advice (see DG statements), it is the time now for all experts to support WHO and the countries with most infections there.

For 1) When contact tracing conducted, and all of the patients and close contacts being put under quarantine, almost all people with virus-shedding in the early stage with minimal symptoms will be under control. So the detection of patient early, and thorough contact tracing are the key for the control.

2) Should lab capacity be a big problem if international community work together?

3) Is this costly if compared with the cost to deal with a pandemic? or even compared with the cost to deal with the widespreading of the disease in the city or in the country?

But the strategy would be possible in some countries in early stage with mostly import cases and some sporadic communal transmissions with tactics of border blocking to prevent further influx of new cases, or 2) quarantine/blocking contaminated provinces (or states in EU) as proven in china. The two setting do not demand lots of resources for case detection, isolation and management as only limited groups could be focused such as

those with respiratory symptoms or fever who has history of travel to the hot spots and contact with the confirm/suspect cases.

But for those countries where are prominent communal transmission such as S Korea, Italy, Japan or so on (there would be > X 10 cases than that reported in Japan), this approach demands substantial resources and involving some ethical issues as well as (would) not cost effective.

As above, what is most cost effective? Let's say when pandemic is there, how many cases around the World would expected? can we suppose it may be around thousands of millions to billions cases? And then how much death altogether would be expected? it may be around hundreds of thousands to millions then. How much it will cost only for medication? not to say the impact on the families, on the societies.

Well, you mentioned several times about the ethical issues, I agree that it may be a problem to different countries, but I am wondering how each country will do when they need to balance the personal benefits with the public benefits, for example when some people's freedom need to be temporarily confined or limited, but it would bring substantial public benefits, for example to avoid many people from infected or died.

If the ultimate goal of the outbreak response is to decrease overall mortality (directly by the Covid-19 and unnecessary death caused by over-stretched health system) and to minimize secondary adverse consequences in other sectors, it would be more cost effective 1) to protect high risk groups such as elders and those with chronic health conditions, 2) spare the regular health system which continue to provide health care without interruption nor risk of contamination by identifying health facilities dedicated to Covid-19 response only, and 3) detect those Covid-19 cases only who demand hospitalization for adequate medical care.

When it's in pandemic, how high risk groups be protected? Communal transmission may happen everywhere, especially when mild cases are not hospitalized, and their contacts are not found out and quarantined, those high risk groups can be better protected? Hospital infection may also happen everywhere, when too many patients there and there will be more serious patients need to go to hospital, just like what happened in the focus area in Italy now, and some patients may not have typical clinical symptoms, so a lot of infections of doctors, nurses and other patients will be happened other than respiratory departments in the hospitals. But when detail investigation and contact tracing be conducted, all of them should already be identified,so it's easy to prevent them from infected or to infect others.

So I do believe, if we take the strategy of controlling influenza, or only focus on the treatment of serious patients, and do little for mild cases, not to say to conduct contact tracing, it will be a direct way leading to pandemic, after we all see from ROK, Italy, Iran, etc. how the disease can be spread very easily and quickly in a community if we don't take proactive control measures, don't you agree? Do you still thinks you should control the COVID-19 with the strategies for controlling flu.

You may say we will have vaccine soon? when will it be available? who should be vaccinated? how many people can be vaccinated? can it be in time to prevent the pandemic? can the coverage of vaccination be enough to prevent pandemic? how many people will get infected and died before that?

We need to remind the fact that, excluding the high risk groups, the mortality could be comparable to that of (bad) seasonal flu. Most cases do not require hospitalization and are recovered fully without sequalae with conservative management.

So it's not worthwhile to care about the death of the high risk groups? not to say many death will also happened to non-high risk

groups under situation of pandemic, such as doctors, nurses and many adults.

Best Regards

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Subject: Re: Hotly urged to stop debate and take action now to stop the possible COVID-19 pandemic

Dear all

As another former member of GOARN with the utmost respect for GOARN I completely support this plea to recognise that this virus is very damaging to health systems, is and will continue to spread and that no country is safe.

There is a very urgent need for an unequivocal call to all countries to prepare to be open and courageous and to take robust measures to delay and actively flatten their curves - repeatedly now and over the next one to two years.

Thank you Ni Daxin for your timely and heartfelt message.

Julie

Get Outlook for iOS

From: 倪大新 <nidx@chinacdc.cn>

Sent: Saturday, February 29, 2020 9:29:55 AM

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Subject: Hotly urged to stop debate and take action now to stop the possible COVID-19 pandemic

Dear All,

This will be for the final time, as a former GOARN Steering Committee Member, I write to you, the GOARN experts and the key technical experts team for this epidemic response, to appeal for getting consensus and taking action to combat and contain COVID-19 right away, because there will be no more time for any further arguing and discussion on how we should deal with this global threat, the global epidemic is coming just before all of us. We have no more time but to response right away.

I am astonished when I read from the web-news that Italy will adjust its policy that to do less samples so that they will not report so many cases to avoid public panic which said being followed the suggestion of ECDC.

I am astonished that Japanese Government said they will only focus on the treatment of serious patients, and they will limit the tests only for the samples that would meet the "criteria", and it seems that the international community have no objection and suggestions with that.

I am astonished that international experts are still arguing and discussing again and again on how to prepare, what is the good strategy, what is the best measures, but just hesitate for the prompt response, after the international expert teams has completed the long-enough-time in inspection and summarized what

has happened in China, and what has been done, what has been achieved there.

I am astonished that the arguing and discussion may be still going on after the DG has issued very clear statement in the past two days, and the joint mission report for China has published on the WHO website.

There's no time for arguing! There's no time for discussion!! There's no time for talking about preparation!!! It's the time for action!!!!

As DG said, "The epidemics in the Islamic Republic of Iran, Italy and the Republic of Korea demonstrate what this virus is capable of." "But this virus is not influenza. With the right measures, it can be contained. That is one of the key messages from China. " "That suggests that containment is possible." "Indeed, there are many countries that have done exactly that. There are several countries that have not reported a case for more than two weeks: Belgium, Cambodia, India, Nepal, Philippines, the Russian Federation, Sri Lanka and Viet Nam."

People may still say, it's impossible for all the other countries to follow the model of China's strategies and measures, it's impossible for us to shutdown the city, shutdown the village, shutdown the factories, shutdown the schools...That's true, I would say it's a must for Wuhan and some cities of Hubei Province, but for all other parts of China, it's not a must, it's only play a facilitating role. For the most key and useful strategy and measures for the control of COVID-19 in China is

just like what DG request the world to do, "Every country needs to be ready to detect cases early, to isolate patients, trace contacts, provide quality clinical care, prevent hospital outbreaks, and prevent community transmission."

I couldn't imagine what will happen in Wuhan city, what will happen in Hubei Province, what will happen in China? As you can see, although China has done so much, so hard, and with so extraordinary efforts, Wuhan city has reported altogether 48557 confirmed cases, 2169 death, and there are still 6585 serious cases in the hospitals, but Wuhan city one has a population of about 10 million, and China has a population of about 1.4 billion.

I couldn't image what will happen if the outbreak become a true global epidemic, I couldn't image why so many experts still think the COVID-19 is just something a little bit serious than Flu? is it just because they are global experts?? is it just because they think COVID-19 is something like flu??? if so, they will be the sinner of the world! they will be the sinner of the world people!!

So do please stop arguing and discussion any more, but to guide the international community to take action right away, to guide every country to review if there is any hidden transmission there, to mobilize international efforts to provide immediate support to the ROK, to Iran, to Italy, where the medical system is on the brim of or has already in disruption, to help them put all suspect patients in hospitals, to identify all the transmission

route to find all close contacts of each suspect and confirmed cases, and to put all close contacts in quarantine for 14 days.

Do please take action right away!!!

Best wishes,

Dr. NI Daxin

Former GAORN Steering Committee member from China CDC

Now working in Zambia

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主题：GOARN weekly ops call 2020-02-27

Apologies, with updated location for those attending in person to room 0142, due to last minute competing meeting

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Updated with additional COVID-19 agenda items below in blue for the call today, no need to respond.

Dear colleagues,

You are kindly invited to the GOARN Weekly Operations Call on **Thursday, 27 February 2020** at **14:00 – 15:00 (Geneva time).**

Agenda:

- EVD, DRC

    - Find daily WHO Situation updates posted on the Knowledge Platform > Operations > Ebola Virus Disease, Democratic Republic of the Congo (North Kivu), 2018 > Updates (on the right side)

- COVID-19

  - Epi update
  - Operations:
    - China Mission
    - Iran Mission
  - Partner updates
  - Health Ops, and network updates
  - Risk Communications and Community Engagement

- Other business

Please see below dial-in details:

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Subject: The Comparison of the Strategies for the Prevention and Control of COVID-19 Eng Version 20200321

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Dear GOARN experts and community，

I am sure you are all very busy with the response to COVID-19, and in the same time being worrisome and frustrating with the present pandemic situation, just like me, especially after I wrote the letter to you all on 29 February 2020, and the international community doesn't change much of the control practice in the past three

weeks, so that the pandemic evolving so quickly and so fiercely.

But why is that? I am not so sure everyone knows what happens, why it happens? Even after the epidemic evolving so quickly. So I wrote an article on 17 March 2020 and published on China Daily on 19 March 2020. (https://cn.chinadaily.com.cn/a/202003/19/WS5e731e02a3107bb6b57a7913.html?from=timeline&isappinstalled=0)

As it is in Chinese, so I spend two more days and try my efforts to develop an English version, and would like to share with you here, for the sake of people's health, for those countries with high disease burden, and also for the countries with limited resources and capacity, like Zambia where I am now in.

Do hope you can read it carefully and will find it helpful.

Best regards,

Dr. Ni Daxin
Former GOARN Steering Committee Member

Comparative Study of the Two Kinds of Strategies and Measures for the Prevention and Control of COVID-19

Dr. Ni Daxin
Former Steering Committee Member
of the Global Outbreak Alert and Response Network (GOARN)

On 31 December 2019, an outbreak of pneumonia of unknown pathogen was discovered in Wuhan, China. On 7 January 2020, a new coronavirus was identified as the cause of the pneumonia. Since then, as the epidemic spread to other parts of China and some other countries of the world, it attracted high attention from the international community. On 30 January 2020, the World Health Organization declared the COVID-19 outbreak a public health emergency of international concern. After the outbreak detected, the Chinese government has taken active prevention and control strategies and measures. After more than two months of unremitting efforts, not only has the increase of new cases been effectively controlled, but also the local transmission has been tending to be completely contained by mid-March 2020. But at the same time, the international epidemic went from imported cases and limited local transmission in a few countries in January 2020, to rapid growth in a few countries including the Republic of Korea, Iran and Italy in February, then the global epidemic spread rapidly and accelerated in March. On 11 March 2020, the World Health Organization officially declared the COVID-19 outbreak a global pandemic.

With the spread of the epidemic around the world, different countries have adopted different strategies and measures, and the international academic community has never stopped arguing about how to control the epidemic of COVID-19, the World Health Organization's recommendations have not been well implemented in many countries and areas, especially in countries like the United States of America and Europe, where the World Health Organization's recommendations have almost been ignored. As of 16 March 2020, there were 86,429 confirmed cases and 3,388 deaths in 150 countries except China, including 13,874 new cases and 848 new deaths on March 16th only, and the number of countries with the first confirmed cases report reached seven on the day. However from global perspective, the COVID-19 epidemic is still in the early stage of the pandemic development, widespread community-based transmission has not yet occurred in most countries, and the global pandemic is still accelerating and there is still a long way to reach its peak.

In order to provide support to the prevent and control the global pandemic of COVID-19, this paper tries to analyze the strategies and measures of the prevention and control for the COVID-19 in the world.

1. Classification of the Strategies and Measures for the Prevention and Control of COVID-19

Taking a comprehensive view of the current international strategies and measures for the prevention and control of COVID-19, although there are differences in the specific measures in different countries, but according to the essential characteristics of the strategies and measures adopted, they can be simply classified into the following two categories.

The first category is the strategy and measures adopted by countries such as China, Singapore, Korea and Thailand, etc., which can be called "SARS-like prevention and control strategy and measures" , or Containment strategy, Blocking strategy, and hereafter will be called "SARS-like strategy" in this article .

The second category is the strategy and measures adopted by countries such as the United States of America, Japan, Italy, France and Switzerland, etc., which can be called "pandemic influenza prevention and control strategy and measures" , or mitigation strategy, and hereafter will be called the "Pandemic Flu-like strategy" in the article.

2. Differentiation and Analysis of the Differences between Two Kinds of Strategies and Measures

Through careful analysis and study of different national prevention and control strategies and measures based on their essential differences, the two types of prevention and control

strategies and measures are mainly different in the following areas.

(1) Different Prevention and Control Goals

The prevention and control goals of the two strategies are different. The prevention and control goals of the SARS-like strategy are to control the epidemic, contain the spread completely and eliminate the harm. While the prevention and control goals of Pandemic Flu-like strategy are to control the spread, slow down the epidemic, and reduce the overall harm.

(2) Different Arguments

SASRS-like strategists believe that the main route of transmission of COVID-19 is through close contact and droplet by symptomatic individuals, and active investigation and control through SARS-like prevention and control, the transmission of latent and incubation infections can be interrupted by additional measures, proactive control strategies and measures should be adopted. While Pandemic Flu-like strategists consider that it is almost impossible to completely detect and manage all the source of transmission of the new coronavirus, which infection exists in the latent and incubation period of transmission. The transmission of COVID-19, just like that of an pandemic influenza, can only be slowed down and cannot be completely interrupted. Since it cannot be blocked, all people will sooner or

later become infected, so it is better to adopt strategy and measures to slow its spread, and allow it to spread slowly and in a controlled manner until the population forms an adequate immune barrier or reach herd immunity, and then the intensity of the epidemic will be greatly reduced, making it a seasonal epidemic disease similar to seasonal influenza.

(3) Different Views on Cost-effectiveness

SARS-like strategists believe that, regardless the case-fatality rate of COVID-19 is high or low, since the virus can be effectively controlled and the transmission can be completely blocked by taking proactive prevention and control measures, so hard efforts should be made to minimize the incidence, severe cases and case fatality of the disease, it is worthwhile to pay a greater cost in the short term, and to avoid more significant overall health and socio-economic losses. While Pandemic Flu-like strategists argue that, about 80% of those infected with COVID-19 are mild cases, and the case fatality rate was only a slightly higher than that of the pandemic influenza, which much lower than that of SARS and MERS. At the same time, those infected with the COVID-19 has no specific medicine, and mild cases do not require hospitalization. So under the hypothesis that the transmission could not be interrupted, SARS-like prevention and control strategy and measures will cost too much, and the impact on normal social production and life and the loss for that are extremely heavy, so it is not worth of it, not in line with the

cost-effectiveness principle.

(4) The Key Prevention and Control Measures are Different under the Guidance of the Two Strategies

Because of the different objectives, arguments and cost-effectiveness views, the key prevention and control measures under the guidance of the two strategies are remarkably different.

1. Key Prevention and Control Measures under SARS-like Strategy

Under the SARS-like strategy, in order to stop transmission and reduce health impact, it is necessary to realize "Five Early" , that is, "Early Detection, Early Reporting, Early Investigation, Early Isolation and Early Treatment" , so as to realize the strict management of the source of infection, and to block transmission gradually.

"Early Detection" , that is by improving the awareness and sensitivity of medical staff, early detection of suspected cases, rapid tests and diagnosis should be taken, so as to promote timely and effective management of all patients, which are the most important source of infection for COVID-19.

"Early Reporting" , that is, suspected patients and confirmed

cases need to be reported to the health authority or disease control departments within a specified time, in order to start the investigation and response.

"Early Investigation", that is after receiving reports of confirmed patients, suspected patients or positive tested persons, the department of disease control and prevention needs to send out the epidemiologists to investigate the patients' exposure before the onset of illness and the persons getting contacted with him/her after getting ill, so as to find out the source of infection of the patient and all of the close contacts associated with him/her. Through in-depth "Early Investigation" to identify the transmission chain of each cases, it will be totally possible to achieve an overall identification and management of all possible patient-related infected persons.

"Early Isolation" , that is all confirmed cases should be treated in isolation, all suspected cases should be treated in isolation, and all close contacts should be placed under medical observation and isolation, or be quarantined. "Early Isolation" of confirmed and suspected cases would be effective in preventing transmission of the virus from COVID-19 patients to healthy individuals. "Early Isolation" of close contacts will help to detect new cases of infection including atypical mild cases at an early stage, as well as to ensure strict management of those with latent or incubation period infections, so that they could not spread the virus to other people. Through the single-room

isolation of the suspected patients and close contacts, it can effectively prevent the possible cross-infection between these isolated patients or quarantined people.

"Early Treatment", that is through the effective symptomatic treatment, support treatment and available anti-viral or traditional Chinese medicine treatment, efforts are made to prevent the progression of mild cases to severe or critical, and the severe cases to be given full care, all these efforts are trying to reduce case fatality. At the same time, through "Early Treatment" , it can also achieve the elimination of patients' status as a source of infection.

Through "Five Early" , and to achieve the full hospitalization of all the confirmed cases, suspected cases and positive tested persons, to achieve the full management or quarantine of close contacts, which are called in China "Due Hospitalization, Due Management", it will lead to the effective control of the further spread of the virus, and ultimately interruption of the virus transmission.

2. Key Measures under Pandemic Flu-like Strategy

Under the Pandemic Flu-like strategy, in order to achieve the goal of reducing health impact, the emphasis and the most critical measures are the treatment of severe cases. At the same time in order to avoid medical overload, if necessary,

appropriate measures will be taken to increase social distance. However, no emphasis are placed on the early detection of all cases, the isolation of mild cases, or the tracing and management of close contacts.

Treatment of Severe Cases , that is to give priority to the case of severe, or cases with underlying illnesses for hospital treatment, mainly through active symptomatic, support treatment, to reduce the mortality. At present, there is no specific drug for the treatment of COVID-19 virus, so under the strategy of Pandemic Flu, it is generally to advocate mild cases to be observed at home, if not showing any severe symptoms like short of breath.

Because of the lack of emphasis on early case detection, the tests for new coronavirus is generally not recommended for atypical, mild patients and the close contacts.

When the number of cases increases rapidly or too fast in a region, the number of severe cases exceeds the capacity of the medical institutions, or severe cases crowding out of medical resources, measures may be taken to increase social distance, such as the prohibition or reduction of large-scale gatherings, school suspension, work stoppage, and even declared a state of emergency or a curfew, etc. just like what are happening now rather popularly in the countries with such kind of strategy.

3. Other Common Measures to Prevent and Control

COVID-19

Based on the prevention and control practice of COVID-19 in various countries, other common prevention and control measures are as follows:

(1) Lockdown of cities, villages and roads, as well as closed management for institutions and communities.

(2) Suspension of work, school and production.

(3) Suspension of flights, ships, traffic, etc.

(4) Quarantine at Point of Entries, and traffic health check points.

(5) Mask wearing, hand hygiene, cough etiquette, etc.

(6) Disinfection measures.

All these measures are aimed either at controlling the flow of infectious sources, increasing social distance or protecting vulnerable populations in order to prevent or reduce the spread of the virus and reduce the incidence of the disease. These measures may be more or less adopted to prevent and control the epidemic of COVID-19 in both groups of strategic population, and at the same time, they may be different in each country according to the current epidemic situation, the concept of prevention and control, and cultural customs there. SARS-like strategy may pay more attention to and take more aggressive closure measures, such as in Wuhan, lockdown of the city was used to prevent further spread of new coronavirus infection, other types of closed management in other parts of

China are also taken to prevent infection from spreading out or coming in. while Pandemic Flu-like strategy may place more emphasis on more modest measures to increase social distance, such as fewer gatherings and school suspension. But all of these measures are complementary to the key measures of both types of strategies and can only help or facilitate faster and better outcomes for key interventions.

5. Brief analysis of prevention and control strategies and measures in some countries

(1) China's strategy and measures

China has adopted a SARS-like strategy, focusing on patient discovery and isolation, close contact investigation and strict management. In order to control the spread of infectious sources, the city of Wuhan, with a population of ten millions, was locked down. By adding fixed-point hospitals, building new isolation hospitals and building shelter hospitals, the problem of admission and treatment for huge number of patients in Wuhan was effectively solved, and the patients, the most important source of infection, were effectively under control. At the same time, through general mobilization throughout the country, other provinces and municipalities, while doing well their local prevention and control work, have provided adequate medical personnel, epidemiological investigators, rescue and protection equipment and facilities to Wuhan in the form of counterpart

support, the goal of stopping the spread of the virus has been basically or initially achieved, and the higher case fatality rate in the early stage of the epidemic has been effectively controlled.

The key to the control of epidemic situation in China lies in the effective management of infectious resources, and at the same time, through the lockdown of Wuhan City, the spread of the virus to outside areas has been effectively blocked, which is crucial to the epidemic control of other areas in China, and also contribute to the control of the epidemic in the World at that time period. However, there is almost no widespread community transmission outside of Wuhan, so the various closure measures in these areas should only play an facilitating role in the control of the spread of this disease, meanwhile, the enormous impact of these measures on the social production and life may have caused a large number of unnecessary losses to the national economy and social development.

(2) Singapore's strategy and measures

Although the Singapore government claims that the COVID-19 is just like a large influenza, in the specific prevention and control practice, it has focused on the detection and isolation of patients, and the follow-up investigation and management of close contacts. Therefore, in essence, the goal of prevention and control is to block the spread of the virus, the basic strategy and key measures are still similar to SARS prevention and control

strategy and measures.

(3) Republic of Korea's strategy and measures

The Republic of Korea is also implementing SARS-like prevention and control strategies and measures. After the epidemic rapidly increased and in the case of once-difficult admission of patients, although no drastic containment measures were taken, but the Republic of Korean government resisted huge pressure to increase the detection of suspected patients and close contacts, and their efforts were finally made to achieve the goal of managing all the patients and quarantine all the contacts, so the control results of the epidemic has already seen obviously, daily reported cases have fallen from a peak of more than 1,100 to the dozens now.

(4) Japan's strategy and measures

Japan has adopted a typical pandemic flu-like strategy, with the government making it clear in the early days that it would only encourage hospital treatment for severe cases and home treatment for mild cases, and would not encourage new coronavirus testing for asymptomatic people. But thanks to Japan's self discipline and high level of hygiene, the country has not seen the rapid increase in cases like what seen in European countries, making it one of the very unusual countries using the pandemic flu-like strategy. However, as its prevention and

control strategy is unlikely to stop the spread of the epidemic, the recent COVID-19 in Japan is still in the process of a sustained slow rise.

(5) Iran's strategy and measures

Iran's original intention was to adopt SARS-like prevention and control strategy and measures, to vigorously strengthen the detection of suspected patients, to make efforts to investigate and manage contacts, and to solve the problem of patient admission, but due to long-term economic sanctions, the basic capacity or social economic support is weak, it has not really done the "Due Hospitalization, Due Management", so Iran is not a complete SARS-like strategy country. As a result, although the number of cases has not continued to increase significantly recently, it has been in the peak phase of cases for a longer time, and the effect of future control depends on whether the hospitalization of cases can be effectively solved, and then to further strengthen the close contacts investigation and management.

(6) The United States of America's strategy and measures

The United States of America has a strong Pandemic Flu-like strategy, so it has been strictly limiting the new coronavirus test for suspected cases and encouraging patients with mild illness to stay at home. Earlier outbreaks there rose more slowly than

other countries when aggressive travel restrictions imposed by the United States of America on China, but because cases continue to spread slowly, the source of infection accumulate, new importation from Europe countries introduced, and more testing has recently been done, there has been a rapid increase in the number of cases and deaths. To this end, a number of states, and later on, the United States of America nationwide, have declared a state of emergency, and take a lot of measures to increase social distance.

(7) Italian strategy and measures

In spite of the lockdown imposed in the disease focus areas and even the final nationwide lockdown, and the relatively active testing of new coronavirus, Italy has emphasized the treatment of serious cases, home observation of mild cases was required, both in the focus areas and in other parts of the country. And at one point it was even announced that testing for mild cases would be reduced. So Italy's strategy and measures are closer to those of the Pandemic Flu, which is why Italy has surpassed South Korea and then Iran to become the country with the highest number of cases outside China. And because community transmission has not been effectively controlled, with the increase in the total number of patients, severe cases have emerged to cause medical resources run-off phenomenon, medical staff have to face selective treatment of the "severe cases", that is, priority is given to the treatment of severe cases

with longer "life expectancy" rather than those with advanced age and severe underlying illnesses.

(8) Strategy and measures of the United Kingdom and other European countries

The United Kingdom, as well as most European countries, are strong Pandemic Flu-like strategy, emphasizing that COVID-19 cannot be completely blocked, the treatment of severe cases is the main focus, and patients with mild cases require home observation, limiting new coronavirus testing in patients with mild illness. The United Kingdom, Switzerland, Sweden, and most other European countries, in face of the rapid rise in new cases of COVID-19, directly announced the abandonment of the detection of mild cases, and even said no longer announced the number of confirmed cases. The UK has even gone so far as to say publicly that it wants to natural immunize the population by giving it a 60 per cent or so infection rate, so it has tended to be conservative even in taking measures of increasing social distance, such as not actively enforcing school closures.

6. Analysis of the control effect of two kinds of strategies on COVID-19

(1) SARS-like strategy countries have achieved good results in controlling the epidemic situation

Countries and regions that adopted SARS-like strategies, whether the countries like China and Republic of Korea, where the COVID-19 epidemic was severe in the early stage, or Singapore, Thailand, Vietnam, Hong Kong SAR (China), etc. where the imported cases was the major problem, through actively adopted SARS-like prevention and control strategy and measures, the COVID-19 epidemic situation has been well controlled, even has realized successfully the elimination of local transmission. China, as the first country to find the COVID-19 epidemic this time, has experienced a high intensity and extensive community spread in Wuhan, but has successfully controlled the local spread by actively adopting SARS-like prevention and control strategy and measures, and is about to complete the interruption of local virus transmission. In the case of Republic of Korea, which experienced a sharp increase in the number of cases in the previous period and made it once the number of cases be second only to China, it insisted on the implementation of key measures and quickly reversed the epidemic. At present, the number of new cases has been successfully reduced to double digits, the control and containment of local transmission is within reach.

Countries that have adopted a SARS-like strategy have interrupted the chain of transmission of the virus because of the discovery of key sources of infection and the implementation of management measures. New cases have been effectively contained and the number of severe cases has been brought

under control accordingly, the crude case fatality rate of most other countries or regions except Wuhan, China is relatively low, while the case fatality rate is high in Wuhan due to the medical resources run-off once upon a time.

In addition, the SARS-like strategy countries, exported less cases to other countries. Although imported cases from China were detected in more than 20 countries around the world in the early days of the Wuhan outbreak, with proactive and even aggressive prevention and control measures, other countries has reported very few new cases of COVID-19 imported from China since February 2020.

(2) Pandemic flu-like strategy countries continue increase or even very rapidly

In countries with pandemic flu-like strategy, community transmission continues to occur as a result of a lack of comprehensive and effective management of the source of infection, the level of transmission or the varies of increase rate from country to country affected mainly by differences in the ability to treat cases in different countries, the compliance of the population to treatment at home, the strength and consciousness to increase social distance measures, and the early or late the start of the epidemic. The Italian epidemic continues to rise, the epidemic in vast majority of European countries and the United States of America are soaring in the recent past, and the

epidemic in Japan has been continuing to rise slowly.

With the spread of the disease and the increase in the number of cases in Italy, the number of severe cases has increased accordingly, which has exceeded the capacity of local medical institutions. Medical personnel are facing the dilemma of having to treat patients selectively, and the case fatality rate remains high, to become the world's highest crude case fatality rate country. It remains to be seen whether other countries with pandemic flu-like strategy will experience a similar run on severe cases.

In the case of widespread community transmission and severe epidemic of the virus in Italy, no strict and genuine lockdown was imposed on the severe epidemic area and the country, the epidemic continues to spread inside the focus area, from the focus area to other parts of Italy, and then Italy has continued to spread to Europe and other countries around the world. For this reason, Italy has been the biggest exporter of cases to other countries, and in some ways it has been a major source of the new global pandemic. At the same time, with the number of new cases rapidly rising in most European countries and the United States, these countries have also become an important source of recent cases importation to other countries and act as a booster of the global pandemic.

7. Analysis of the Relationship between the Two Strategies

and Suggestions for the Next Step Control Strategy

At present, the global pandemic is still in its early stage. So if the differences between the two strategies can be quickly resolved, and a global consensus, concerted action and robust joint measures can be reached and taken, among them the most important is that the SARS-like strategy could be promoted by all countries, it is still possible to influence and control the course of the global pandemic, and to halt the global spread of the new coronavirus.

(1) Analysis of the Relationship between the Two Types of Strategies

The fundamental differences between the two strategies are whether the new coronavirus can be completely contained, how to view the cost-effectiveness of prevention and control, and the understanding of containment measures.

A. The possibility of containment or blocking. Whether the new coronavirus can be completely blocked is now entirely possible. First, China, Singapore, Thailand, Vietnam and even the Republic of Korea's control practices have fully explained this point, the China's COVID-19 prevention and control field research report of World Health Organization also gave full recognition. Second, for the "leakage of infectious sources" caused by latent infectious, incubation period infectious and

atypical cases problem which are concerned about by Pandemic flu-strategists, it is entirely possible that these problems can be well solved through the measures of "Five Early" and "Due Hospitalization, Due management", which has also been proved in practice. The incubation infectious of COVID-19 is mainly at the end of the incubation period, and the rate of latent infection is low, it can realize the comprehensive detection and management of all atypical patients, latent infection and incubation period infection, thus effectively prevent the further spread of virus to other healthy people.

B. Cost-effectiveness. As long as people agree that new coronavirus transmission can be stopped, it will become very clear which of the two strategies is more cost-effective. The SARS-like strategy may control the incidence increase in a shorter time, block the spread of the virus, and greatly reduce the overall number of cases, severe cases and deaths, at the same time, it avoids the influence of social distance measures on social production and life for a much longer time. When look it at a global scale, based on a simple analysis of available data and extrapolation, it is much easy to see the cost-effectiveness and health benefits of the two strategies are not even comparable.

C. Understanding of the role and necessity of containment measures. According to the SARS-like strategy, it is necessary to take some measures to control the spread of COVID-19 virus

in the intensive community transmission area, which can reduce the pressure of prevention and control in other areas. As even at the peak of the outbreak in China, and because of domestic management measures for those at risk of infection, limited exportation to the rest of the world were recorded at only earlier stage, and no exportation to Africa. However, after the recent increase of the epidemic in Italy, more European countries and the United Sates of America, due to the adoption of a pandemic-influenza like strategy there, those who may have been infected in the country have not been effectively detected and managed, as a result, more than 20 countries in Africa alone have recently seen imported confirmed cases in a very short time period, and even in some African countries, such as Egypt, Algeria and Senegal, have already led to local transmission, which will be a very worrisome situation. It can be seen that the adoption of SARS-like strategy and measures in areas with widespread community transmission not only has a fundamental impact on the control of the epidemic situation in the country or the region, but also it has a great impact on the world pandemic control, especially on countries with poor capacity and resources, such as Africa, which the epidemic losses there will be incalculable.

It is clear from the comparison of key control measures across the two global strategies, whether in high-prevalence areas where widespread community-based transmission has already occurred, or in low-prevalence areas where only imported cases

or limited local transmission happened there, the key to control and contain the spread of new coronavirus lies in the implementation of "Five Early" and "Due Hospitalization, Due management". And the earlier it is implemented, the easier it is to implement, and the less costly it will be. In contrast, the later it is implemented, the harder it is to implement, and the more costly it will be. The development of the epidemic is mainly affected by the above-mentioned key measures, rather than the lockdown or social distance measures which are considered most difficult to replicate in Western and pandemic flu-like strategy countries. We need to emphasize that these lockdown or social distance measures are necessary only under certain circumstances like massive local transmission. In addition, all these measures only play an facilitating role in controlling the epidemic situation. Even without it, the time for control and containment may be last somehow longer, but if the key control measures be taken timely and effectively, similar containment effect should be able to achieve, just like what we have seen in Singapore and in the Republic of Korea. Therefore, all countries in the world, when take measures to strengthen the treatment of severe cases, they can adopt the SARS-like strategy further, i.e. to implement key control measures to achieve the "Five Early" and "Due hospitalization, Due management", it will effectively control the increase of disease incidence, and easily to reach the target of reduce case fatality rate, and ultimately contain the spread of new coronavirus. With such united efforts, we are still hopefully and able to interrupt the pandemic, to finally contain

or block the new coronavirus transmission, and to make great contribution to the benefit of people in each country, and to the benefit of people around the world.

(2) Recommendations for the control strategy of next step

At present, the COVID-19 global pandemic is still at an early stage, the vast majority of countries have not yet emerged widespread community-based transmission. However, we are now also in a critical period of time for the pandemic, which will be much more difficult to control once the pandemic evolves further and spreads widely in the community in many more countries and regions. Since the outbreak of COVID-19, a large number of disease characteristics and studies have shown that COVID-19 cannot be compared with pandemic influenza in terms of its harm to health and potential harm to social development. At the same time, the transmission of the new coronavirus can be totally contained or blocked, compared with the influenza pandemic, which is almost impossible to do so. Therefore, in the face of this unprecedented challenge to all mankind, as a community of mutual influence on the fate of mankind, countries around the world need to put aside political and ideological differences, and quickly unite to take SARS-like prevention and control strategy and measures, and to act immediately to help without hesitation those countries with highest disease burden now and the countries with the epidemic but without enough resources and capacity, while each country

should do best first to prevent and control the epidemic in their own countries, so that all countries can implement fully and as soon as possible the key measures of "Five Early" and "Due Hospitalization, Due management". Based on these, all countries and regions can take supplementary measures such as lockdown or other social distance measures, in adaptation to the local situation of epidemic and cultural custom etc. In this way, people should have full confidence to make this pandemic the first in the history to be controlled and finally contained.

【Written on 17 March 2020, in Zambia】

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Subject: Re:AW: The Comparison of the Strategies for the Prevention and Control of COVID-19 Eng Version 20200321

Dear Andreas,

I am glad that you are interested in the article. FYI, I would like to try to answer your questions here:

1. If there are just not the same capacities of staff/equipment/space that China has - for testing, contact tracing, isolation of mild cases - what would be the strategy?

Well, I don't think there is no way to do that, first, just like in Italy, I remember that Italian Government, they can mobilize 20,000 medical staff to support the response to the cases, so if the government realize what is the key for response, there will be some way to deal with it. Second, if a country couldn't have so many medical staff to deal with the patients, then one way may be to strictly lock down the highest intensive epidemic area while trying best to help them, so that other areas can have the capacity to implement key control measures to control the epidemic first, and then will be able to support the control in those intensive transmission area. Third, the country without enough capacity should be able to request to WHO and international community to provide necessary support.

2. What is wrong with shutting down the country for 2-4 weeks to decrease case numbers - and then continue with containment strategy on an level that is achievable? By "isolating" all, you also isolate mild cases, and prevent them from spreading the disease? Isn´t "lock down" a mayor strategy, and not just an additive for other approaches?

There is nothing wrong at all with the shutting down measures, but (1) we need to realize that the shutting down itself will not lead to change the disease transmission directly and effectively, if you couldn't in the same time have a good management of the infectious resources, i.e. the patients and their contacts. (2) 2-4 weeks seems long, but without the interruption of the transmission, how long will it needed, 2-4 weeks may be far from enough, the transmission will be surged again whenever you stop the measures, if the local transmission not interrupted at the same time. (3) Shutting down is a very proactive measures, it will needed in an area with wide local transmission, because in such

situation and areas, it's impossible to investigate well the transmission chain for each patients, so the infected possible people will have no way to be under control, and they go everywhere, and bring the virus to other parts of the Country, and to other parts of the World. But if the area or country has limited communal transmission, almost all potential infected people have already been under control, then it will be not necessary to take such action, although there is no harm to the control itself, but we need to balance the cost and effectiveness to have a better decision and policy.(4) In this regards, I would say the Lockdown or other similar social distance measures are important, but only the facilitating or additive measures for the control of this disease with mainly through close contact with the infected person.

So I would like to say to you and all, it will never be too late to take action to respond to this pandemic, but the right strategy and the key control measures are the most important.

Let's support WHO and take right strategy and right action now, to safe the people in your country, to safe the people around the world!

I sincerely ask you all to advocate your MOH, your government to change now, to act now, to take the right strategy and control measures right away.

Hope it's helpful. And because I think many other experts may have the similar questions, so I am sorry I will share the answer with all other GOARN members.

Best regards,

Daxin

From: "Jansen, Andreas" <JansenA@rki.de>
Date: 2020-03-23 07:09:52
To: "倪大新" <nidx@chinacdc.cn>

Subject: AW: The Comparison of the Strategies for the Prevention and Control of COVID-19 Eng Version 20200321>Dear Ni,
>Thanks a lot for your efforts. Your paper summarizes a lot of topics that are under discussion in Germany and other countries right now. However, there are two queries I have: 1. If there are just not the same capacities of staff/equipment/space that China has - for testing, contact tracing, isolation of mild cases - what would be the strategy? 2. What is wrong with shutting down the country for 2-4 weeks to decrease case numbers - and then continue with containment strategy on an level that is achievable? By "isolating" all, you also isolate mild cases, and prevent them from spreading the disease? Isn´t "lock down" a mayor strategy, and not just an additive for other approaches?
>Best regards,
>Andreas
>
>
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>Gesendet: Samstag, 21. März 2020 21:06
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>Betreff: The Comparison of the Strategies for the Prevention and Control of COVID-19 Eng Version 20200321

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>Dear GOARN experts and community,

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>I am sure you are all very busy with the response to COVID-19, and in the same time being worrisome and frustrating with the present pandemic situation, just like me, especially after I wrote the letter to you all on 29 February 2020, and the international community doesn't change much of the control practice in the past three weeks, so that the pandemic evolving so quickly and so fiercely.

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>But why is that? I am not so sure everyone knows what happens, why it happens? Even after the epidemic evolving so quickly. So I wrote an article on 17 March 2020 and published on China Daily on 19 March 2020.

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(https://cn.chinadaily.com.cn/a/202003/19/WS5e731e02a3107bb6b57a7913.html?from=timeline&isappinstalled=0)
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>
>As it is in Chinese, so I spend two more days and try my efforts to develop an English version, and would like to share with you here, for the sake of people's health, for those countries with high disease burden, and also for the countries with limited resources and capacity, like Zambia where I am now in.
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>Do hope you can read it carefully and will find it helpful.
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>Best regards,
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>Dr. Ni Daxin
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>Former GOARN Steering Committee Member
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From: 倪大新
Sent: Tue, 24 Mar 2020 12:56:30 +0800 (GMT+08:00)
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Subject: Re:AW: Re:AW: The Comparison of the Strategies for the Prevention and Control of COVID-19 Eng Version 20200321

Dear Andreas,

Thanks again. For the two points you raised below:

I think there´s still not enough international exchange and dialogue in a situation where no one knows "the true way forward"

So this is why I would like to stand out and write to GOARN community again and again, although I know may be only a few would like to listen to me. But if we all stand away, who else can be depend on? Can we all stand up and do something for this world as a professional?

The following scenario - we strongly protect risk groups (>60; comorbidities) by quarantine, and leave the rest of the population to infection

I would say under the situation of a widespread communal transmission area, this may be one of the options, but (1) you need to find a place to put all those elders and those with underlying diseases in an isolate place, to ensure they will not contact any outsides without strict PPE; (2) you need to isolate them there until the pandemic is contained or you can have an great vaccine to vaccinate them all; (3) otherwise you need to isolate them forever, because when ever the transmission is not interrupted and they are released, they will be still the high risk group, and will still have the high CFR, so then you just delay the infection and death for them.

Best regards,

Daxin

发件人："Jansen, Andreas" <JansenA@rki.de>

发送日期：2020-03-24 00:12:56
收件人："倪大新" <nidx@chinacdc.cn>
主题：AW: Re:AW: The Comparison of the Strategies for the Prevention and Control of COVID-19 Eng Version 20200321>Dear Daxin,
>Thanks; I really appreciate your comments, and I think there´s still not enough international exchange and dialogue in a situation where no one knows "the true way forward"; and - even more serious on the long term - a decrease in international solidarity while nationalistic voices get stronger. If not us as global health professionals, who else should stand up against this? If we don´t we will lose our all our integrity...
>One last question. The following scenario - we strongly protect risk groups (>60; comorbidities) by quarantine, and leave the rest of the population to infection. We continue business, daily live etc., so economic damages would be low. I have not seen a model, but I guess if quarantine works well, burden on the health care system could be decreased by 90-95% (compared to no measures). Measures would be in place (with decreasing enforcement, since increasing herd immunity would also protect risk groups) until a vaccine or specific therapy has been developed.
>What would be your argument against such a scenario?
>All the best,
>Andreas
>
>
>-----Ursprüngliche Nachricht-----
>Von: 倪大新 [mailto:nidx@chinacdc.cn]
>Gesendet: Montag, 23. März 2020 10:05
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>Betreff: Re:AW: The Comparison of the Strategies for the Prevention and Control of COVID-19 Eng Version 20200321
>
>Dear Andreas,
>
>I am glad that you are interested in the article. FYI, I would like to try to answer your questions here:
>
>1. If there are just not the same capacities of staff/equipment/space that China has - for testing, contact tracing, isolation of mild cases - what would be the strategy? Well, I don't think there is no way to do that, first, just like in Italy, I remember that Italian Government, they can mobilize 20,000 medical staff to support the response to the cases, so if the government realize what is the key for response, there will be some way to deal with it. Second, if a country couldn't have so many medical staff to deal with the patients, then one way may be to strictly lock down the highest intensive epidemic area while trying best to help them, so that other areas can have the capacity to implement key control measures to control the epidemic first, and then will be able to support the control in those intensive transmission area. Third, the country without enough capacity should be able to request to WHO and international

community to provide necessary support. 2. What is wrong with shutting down the country for 2-4 weeks to decrease case numbers - and then continue with containment strategy on an level that is achievable? By "isolating" all, you also isolate mild cases, and prevent them from spreading the disease? Isn´t "lock down" a mayor strategy, and not just an additive for other approaches?

>

>There is nothing wrong at all with the shutting down measures, but (1) we need to realize that the shutting down itself will not lead to change the disease transmission directly and effectively, if you couldn't in the same time have a good management of the infectious resources, i.e. the patients and their contacts. (2) 2-4 weeks seems long, but without the interruption of the transmission, how long will it needed, 2-4 weeks may be far from enough, the transmission will be surged again whenever you stop the measures, if the local transmission not interrupted at the same time. (3) Shutting down is a very proactive measures, it will needed in an area with wide local transmission, because in such situation and areas, it's impossible to investigate well the transmission chain for each patients, so the infected possible people will have no way to be under control, and they go everywhere, and bring the virus to other parts of the Country, and to other parts of the World. But if the area or country has limited communal transmission, almost all potential infected people have already been under control, then it will be not necessary to take such action, although there is no harm to the control itself, but we need to balance the cost and effectiveness to have a better decision and policy.(4) In this regards, I would say the Lockdown or other similar social distance measures are important, but only the facilitating or additive measures for the control of this disease with mainly through close contact with the infected person.

>

>So I would like to say to you and all, it will never be too late to take action to respond to this pandemic, but the right strategy and the key control measures are the most important.

>

>Let's support WHO and take right strategy and right action now, to safe the people in your country, to safe the people around the world!

>
>I sincerely ask you all to advocate your MOH, your government to change now, to act now, to take the right strategy and control measures right away.
>
>Hope it's helpful. And because I think many other experts may have the similar questions, so I am sorry I will share the answer with all other GOARN members.
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>Best regards,
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>Daxin
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>
>
>
>From: "Jansen, Andreas" <JansenA@rki.de>
>Date: 2020-03-23 07:09:52
>To: "倪大新" <nidx@chinacdc.cn>
>Subject: AW: The Comparison of the Strategies for the Prevention and Control of COVID-19 Eng Version 20200321>Dear Ni,
>>Thanks a lot for your efforts. Your paper summarizes a lot of topics that are under discussion in Germany and other countries right now. However, there are two queries I have: 1. If there are just not the same capacities of staff/equipment/space that China has - for testing, contact tracing, isolation of mild cases - what would be the strategy? 2. What is wrong with shutting down the country for 2-4 weeks to decrease case numbers - and then continue with containment strategy on an level that is achievable? By "isolating" all, you also isolate mild cases, and prevent them from spreading the disease? Isn´t "lock down" a mayor strategy, and not just an additive for other approaches?
>>Best regards,
>>Andreas

>>
>>
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>>Michel; YOTI, Zabulon; zenkevich_es@gsen.ru; zhangyp@chinacdc.cn;
>>ZIG-Assistenz; VonDobschuetz, Sophie (AGAH);
>>Wantanee.Kalpravidh@fao.org; BEJTULLAHU, Armand; DRURY, Patrick
>>Anthony; CASEY, Sean; JACQUERIOZ BAUSCH Frédérique; FROST, Melinda;
>>Naureen Naqvi; Donatella Massai; Benjamin SYME; Jonas GUTSCHKE; Naouar
>>LABIDI; ALICE CHEN; Maria Jasen; Aeschylus Arnold Silva; Sena Dzakuma;
>>Nicolae Voicu; GRIFFIN, Michael; CROSS, Caroline Marie; BAGUMAHO,
>>Simon; ZITOUN, Flavien,christian,séverin; Azziz-Baumgartner, Eduardo
>>(CDC/DDID/NCIRD/ID); TAPPERO, Jordan Williams; David Blazes; Jordan
>>Tappero; Leonidas Alexakis; Thiago XAVIER; Brödel, Sophie; James
>>Coltheart; creddy@taskforce.org; Mahmoud Kayed; Farah Massoud; Gail
>>Carson; Simeon Renoldner; SALMON, Sharon; CHREKI, Hanane; Sara Ferraz;
>>DEL RIO VILAS, Victor; PERERA, Wagawatta Liyanage Sugandhika Padmini;
>>PAVLIN, Boris; Bertrand Sudre; DJORDJEVIC, Irena; Namseon Beck;

>>SMALLWOOD, Catherine; ABUBAKAR, Abdinasir; Tanja Schuemer-Cross;
>>McFarland, Jeffrey (CDC/DDPHSIS/CGH/GID); CARTER, Lisa Louise; TAYYAB,
>>Muhammad; 'Brice de le Vingne'; Micaela SERAFINI; ARCHER, Brett;
>>KOLMER, Jessica; BALLER, April; Sarah Karmin; WHOLiaison.GVA@ifrc.org;
>>sreshamwalla@gmail.com; MCFARLAND, Jeffrey; BRENNAN, Richard John;
>>goarn; nidx@chinacd.ccn
>>Betreff: The Comparison of the Strategies for the Prevention and
>>Control of COVID-19 Eng Version 20200321
>>
>>Dear GOARN experts and community,
>>
>>
>>
>>I am sure you are all very busy with the response to COVID-19, and in the same time being worrisome and frustrating with the present pandemic situation, just like me, especially after I wrote the letter to you all on 29 February 2020, and the international community doesn't change much of the control practice in the past three weeks, so that the pandemic evolving so quickly and so fiercely.
>>
>>
>>
>>But why is that? I am not so sure everyone knows what happens, why it happens? Even after the epidemic evolving so quickly. So I wrote an article on 17 March 2020 and published on China Daily on 19 March 2020.
>>
>> (https://cn.chinadaily.com.cn/a/202003/19/WS5e731e02a3107bb6b57a7913.h
>> tml?from=timeline&isappinstalled=0)
>>
>>
>>
>>As it is in Chinese, so I spend two more days and try my efforts to develop an English version, and would like to share with you here, for the sake of people's health, for those countries with high disease burden, and also for the countries with limited resources and capacity, like Zambia where I am now in.

>>
>>
>>
>>Do hope you can read it carefully and will find it helpful.
>>
>>
>>
>>Best regards,
>>
>>
>>
>>Dr. Ni Daxin
>>
>>Former GOARN Steering Committee Member
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From: Dr VAN KERKHOVE, Maria
Sent: Sat, 11 Jan 2020 07:16:27 +0000
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Subject: Re: nCoV genome released

Thanks.

> On 11 Jan 2020, at 08:12, Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov> wrote:
>
> Thanks. I will inform folks at CDC.
>
> Best,
> Ray
>
> ---
>
> **From:** Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
> **Sent:** Saturday, January 11, 2020 2:10 AM
> **To:** Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
> **Subject:** Re: nCoV genome released
>
> Yes, available here- https://www.who.int/health-topics/coronavirus - and shared with our Regional office emergency directors last night. Can you let your IMST know?
>
> Thanks,
> Maria
>
> ---
>
> **From:** Ray Arthur <rca8@cdc.gov>
> **Date:** Saturday, 11 January 2020 at 08:08
> **To:** Maria Van Kerkhove <vankerkhovem@who.int>
> **Subject:** RE: nCoV genome released
>
> Maria, Has the guidance pack been posted? Thanks. Ray
>
> ---
>
> **From:** Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
> **Sent:** Saturday, January 11, 2020 1:50 AM
> **To:** Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; Gerber, Susan I. (CDC/DDID/NCIRD/DVD) <bhx1@cdc.gov>; Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
> **Subject:** Re: nCoV genome released
>
> Yes, this is the information we have as well.

From: Ray Arthur <rca8@cdc.gov>
Date: Saturday, 11 January 2020 at 07:47
To: Maria Van Kerkhove <vankerkhovem@who.int>, "bhx1@cdc. gov" <bhx1@cdc.gov>, Inger Damon <iad7@cdc.gov>
Subject: Re: nCoV genome released

Thanks Maria. I also saw that Wuhan posted another update.

Ray

Get Outlook for iOS

From: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Sent: Saturday, January 11, 2020 5:31:43 AM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; Gerber, Susan I. (CDC/DDID/NCIRD/DVD) <bhx1@cdc.gov>; Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Subject: nCoV genome released

http://virological.org/t/initial-genome-release-of-novel-coronavirus/319

From: Dr VAN KERKHOVE, Maria
Sent: Fri, 10 Jan 2020 21:00:08 +0000
To: Christensen, Bryan E. (CDC/DDID/NCEZID/DHQP)
Cc: BALLER, April;Park, Benjamin (CDC/DDID/NCEZID/DHQP);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);Fagan, Ryan (CDC/DDID/NCEZID/DHQP)
Subject: Re: novel coronavirus?

Dear Bryan,
Yes. We have developed interim guidance based on our understanding of the current situation and the hypothesis that there is the potential for H2H transmission. Our draft interim guidance, which will be updated as new information becomes available, will be posted online sometime tonight (barring posting delays).
We can share the document (and other interim guidance documents) with CDC.
Thanks,
Maria

> On 10 Jan 2020, at 21:57, Christensen, Bryan E. (CDC/DDID/NCEZID/DHQP) <iyl1@cdc.gov> wrote:
>
> Hi Maria,
> Thank you for the quick reply. I don't believe we crossed paths during my time at WHO for Ebola IPC last year. The IMS leadership wanted to know if WHO had any plans to develop an IPC interim guidance similar to the MERS-CoV IPC Interim Guidance (https://www.who.int/csr/disease/coronavirus_infections/ipc-mers-cov/en/).
>
> Thank you,
> Bryan
>
> ---
> *Bryan E. Christensen, PhD, MEPC*
> *CDR, USPHS*
> *Epidemiologist / Industrial Hygienist*
> *CDC/NCEZID/DHQP*
>
> ---
>
> **From:** Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
> **Sent:** Friday, January 10, 2020 3:40 PM
> **To:** BALLER, April <ballera@who.int>
> **Cc:** Park, Benjamin (CDC/DDID/NCEZID/DHQP) <bip5@cdc.gov>; Christensen, Bryan E. (CDC/DDID/NCEZID/DHQP) <iyl1@cdc.gov>; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
> **Subject:** Re: novel coronavirus?

Thanks April, hi Ben. Ray Arthur is here as the liaison between WHO and CDC and this event. We are in regular communication and he had informed us of your IMS.

Please let me know if you'd like further information.

Best
Maria

On 10 Jan 2020, at 21:31, BALLER, April <ballera@who.int> wrote:

Dear Ben

Good to hear from you, thanks for reaching out; am hereby copying in Dr Maria Van Kerkhove, WHO technical focal point for the nCoV situation in China.

Best wishes

Dr April Baller
Infection Prevention & Control
WHO Health Emergency (WHE) Programme
World Health Organization
Geneva, Switzerland
Tel/whatsapp: (b)(6)
ballera@who.int

Excuse any typos as sent from my iPhone

On 10 Jan 2020, at 21:08, Park, Benjamin (CDC/DDID/NCEZID/DHQP) <bip5@cdc.gov> wrote:

Hi April, is there a POC at WHO HQ for the coronavirus cluster in China? Some folks here were asking in case any more preparations are needed. Much appreciated!! -Ben

Benjamin J. Park, MD
Chief, International Infection Control Program
Office of the Director
Division of Healthcare Quality Promotion

U.S. Centers for Disease Control and Prevention
tel) +1-404-639-1619

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP)
Sent: Fri, 10 Jan 2020 14:45:52 +0000
To: Patel, Anita (CDC/DDID/NCIRD/OD);Helfand, Rita (CDC/DDID/NCEZID/OD);Gerber, Susan I. (CDC/DDID/NCIRD/DVD)
Cc: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Subject: CEPI call

Emailed Richard, Anita.

CEPI call: So far discussion is being led by Ana Maria, epi is same as what you outlined, discussion of the blueprint, etc.

SAC is asking to better understand human to human transmission, what is " known", which animals infected, etc.

CEPI does have coronavirus vaccines in development - has some in clinical trials

Ana Maria appears to want the R and D blueprint to run this.

Plotkin is asking what are the triggers to initiate vaccine development for " this" virus (see above)
CEPI would like sequence to consider Vaccine development
Inger K Damon MD PhD
Director, Division of High Consequence Pathogens and Pathology
NCEZID
CDC
From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Sent: Friday, January 10, 2020 4:31 PM
To: Patel, Anita (CDC/DDID/NCIRD/OD); Helfand, Rita (CDC/DDID/NCEZID/OD); Gerber, Susan I. (CDC/DDID/NCIRD/DVD)
Subject: Re: GCM

I don't know what their process is, Anita.
Best to ask Richard.
Happy to facilitate an introduction
Inger K Damon MD PhD
Director, Division of High Consequence Pathogens and Pathology
NCEZID
CDC
From: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Sent: Friday, January 10, 2020 4:30:17 PM
To: Helfand, Rita (CDC/DDID/NCEZID/OD) <rzh7@cdc.gov>; Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Subject: RE: GCM

Thanks Rita

Hi Inger,
we would like to have someone from the response also included on future advisory calls for novel coronavirus (b)(5)
(b)(5) (b)(5)

Best,
Anita

Anita Patel, PharmD, MS
Incident Manager
Novel Coronavirus 2020 Response
Centers for Disease Control and Prevention

Office: +1-404-639-2425
Mobile: (b)(6)
Email: apatel7@cdc.gov

From: Helfand, Rita (CDC/DDID/NCEZID/OD) <rzh7@cdc.gov>
Sent: Friday, January 10, 2020 9:25 AM
To: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Cc: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Helfand, Rita (CDC/DDID/NCEZID/OD) <rzh7@cdc.gov>
Subject: RE: GCM

Glad to hear it! We were wondering (copying Anita). Jeremy, AM, and Maria ran the call. I'm copying Anita so she can correct/weigh in. (on our side, it was me, Anita Patel, Steve Lindstrom, Sue Gerber, John Watson, Shah Roohi, and Ray in Geneva, who said AM was 'on')

Most of the epi wasn't anything new (59 cases, 15 samples w new coronavirus, 1 sequences but we don't have sequence), cases Dec 12-29 is last update. 7 severe. Market was closed 1/1.

They said there was a SAG meeting in which they discussed four lanes: (b)(5)
(b)(5) Basically it sounds like she wants to coordinate things in the 'usual' manner. (i.e., small groups to review and summarize/update whats to be done).

Your call will be on vaccine so I'll state that for now… they want to complete a list (b)(5) (b)(5) Richard Hatchett mentioned your call.

CDC offered to help w diagnostics when/if we all get a sequence, and they asked us to help with genetics protocols etc.

AM's proposals at the end:

(b)(5)

I gave them an update in AM and proposed (b)(5)

(b)(5)

Rita

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Sent: Friday, January 10, 2020 9:15 AM
To: Helfand, Rita (CDC/DDID/NCEZID/OD) <rzh7@cdc.gov>
Subject: GCM

Rita
Any updates from GCM meeting on new coronavirus? I am supposed to be on CEPI call in 20 minutes

Inger K Damon MD PhD
Director, Division of High Consequence Pathogens and Pathology
NCEZID
CDC

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP)
Sent: Fri, 10 Jan 2020 14:30:17 +0000
To: Helfand, Rita (CDC/DDID/NCEZID/OD)
Cc: Patel, Anita (CDC/DDID/NCIRD/OD);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Subject: Re: GCM

Had to focus on an Ebola call, so I am going to try to call back in to CEPI
Inger K Damon MD PhD
Director, Division of High Consequence Pathogens and Pathology
NCEZID
CDC
From: Helfand, Rita (CDC/DDID/NCEZID/OD) <rzh7@cdc.gov>
Sent: Friday, January 10, 2020 4:24:55 PM
To: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Cc: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Subject: RE: GCM

Adding Ray in case he has additional intel from Geneva.

From: Helfand, Rita (CDC/DDID/NCEZID/OD)
Sent: Friday, January 10, 2020 9:25 AM
To: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Cc: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Helfand, Rita (CDC/DDID/NCEZID/OD) <rzh7@cdc.gov>
Subject: RE: GCM

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Your call will be on vaccine so I'll state that for now… they want to complete a list

(b)(5)

(b)(5) Richard Hatchett mentioned your call.

CDC offered to help w diagnostics when/if we all get a sequence, and they asked us to help with genetics protocols etc.

AM's proposals at the end:

(b)(5)

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(b)(5)

Rita

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Sent: Friday, January 10, 2020 9:15 AM
To: Helfand, Rita (CDC/DDID/NCEZID/OD) <rzh7@cdc.gov>
Subject: GCM

Rita
Any updates from GCM meeting on new coronavirus? I am supposed to be on CEPI call in 20 minutes

Inger K Damon MD PhD
Director, Division of High Consequence Pathogens and Pathology
NCEZID
CDC

From: Dr VAN KERKHOVE, Maria
Sent: Wed, 8 Jan 2020 21:31:17 +0000
To: Gerber, Susan I. (CDC/DDID/NCIRD/DVD)
Cc: Lindstrom, Stephen (CDC/DDID/NCIRD/DVD);Thornburg, Natalie (CDC/DDID/NCIRD/DVD);Tong, Suxiang (Sue) (CDC/DDID/NCIRD/DVD);PERKINS, Mark;Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Subject: Contact info of CDC/ Lab focal points for Wuhan event

Many thanks Sue.
I'm copying in my reply Mark PERKINS who is leading the lab activities within our IMST. I'm the Health Ops lead.
For your information (Ray, in CC, have already informed you, we are drafting interim laboratory guidance for a novel coronavirus, and will reach out for input.
Thanks again,
Maria

> On 8 Jan 2020, at 22:23, Gerber, Susan I. (CDC/DDID/NCIRD/DVD) <bhx1@cdc.gov> wrote:
>
> Hi Maria,
>
> Hope you are well. CC'd here are our lab leads:
>
> Steve- respiratory diagnostics and sequencing
> Natalie- Immunology
> Sue T.- Pathogen discovery and works on coronavirus preparedness activities
>
> I am the surveillance and overall lab lead for the response.
>
> Thanks,
>
> S

From: Dale Fisher
Sent: Tue, 19 Nov 2019 13:37:45 +0000
To: Dr. Azharul Islam Khan;Daniel Bausch;María Alejandra Morales
Cc: Navarro-Colorado, Carlos (CDC unicef.org);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);China CDC Daxin;Dr S Antara AFENET;ECDC Josep;EMPHNET Dr Al Nsour;Rawan Araj;FALL, Ibrahima Soce;IP Senegal Amadou;Gail Carson;Myriam, MSF;NEBRASKA Ali Khan;NICD Janusz;NUS Dale;panu.saaristo@ifrc.org;PATHWEST, Paul;PHAC Elisabeth Gooding;Katie Carmichael;RKI Andreas Jansen;TULANE Lina Moses;DRURY, Patrick Anthony;goarn;BEJTULLAHU, Armand;CAYABYAB, Ramoncito;KIFF, Jeremy;ALLKAMPER, Sara;UMALI DALANGIN, Khristeen
Subject: RE: Webex meeting invitation: GOARN SCOM DEc 2019 Briefing

Thanks Azharul

From: Dr. Azharul Islam Khan <azharul@icddrb.org>
Sent: Tuesday, 19 November 2019 8:35 PM
To: Dale Fisher <mdcfda@nus.edu.sg>; Daniel Bausch <Daniel.Bausch@phe.gov.uk>; María Alejandra Morales (b)(6)
Cc: Carlos Navarro Colorado <cnavarrocolorado@unicef.org>; CDC, Ray Arthur <RArthur@cdc.gov>; China CDC Daxin <nidx@chinacdc.cn>; Dr S Antara AFENET <santara@afenet.net>; ECDC Josep <Josep.Jansa@ecdc.europa.eu>; EMPHNET Dr Al Nsour <executive.director@globalhealthdev.org>; Rawan Araj <raraj@globalhealthdev.org>; FALL, Ibrahima Soce <socef@who.int>; IP Senegal Amadou <asall@pasteur.sn>; Gail Carson <gail.carson@ndm.ox.ac.uk>; Myriam, MSF <Myriam.Henkens@msf.org>; NEBRASKA Ali Khan <ali.khan@unmc.edu>; NICD Janusz <januszp@nicd.ac.za>; NUS Dale <dale_andrew_fisher@nuhs.edu.sg>; panu.saaristo@ifrc.org; PATHWEST, Paul <pauleffler@gmail.com>; PHAC Elisabeth Gooding <elizabeth.gooding@canada.ca>; Katie Carmichael <Katie.Carmichael@phe.gov.uk>; RKI Andreas Jansen <jansena@rki.de>; TULANE Lina Moses <lmoses2@tulane.edu>; DRURY, Patrick Anthony <druryp@who.int>; goarn <goarn@who.int>; BEJTULLAHU, Armand <bejtullahua@who.int>; CAYABYAB, Ramoncito <cayabyabr@who.int>; CHRISTENSEN, Renee <rchristensen@who.int>; KIFF, Jeremy <kiffj@who.int>; KIM, Bryan <kimbr@who.int>; ALLKAMPER, Sara <allkampers@who.int>; UMALI DALANGIN, Khristeen <umalik@who.int>
Subject: RE: Webex meeting invitation: GOARN SCOM DEc 2019 Briefing

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Thank you Sameera and Dale. I could enter and heard the M&E presentation but things were pretty distorted. Sorry but forced to hang up. Will follow the meeting notes.

Best regards,

Dr. Azharul Islam Khan
Chief Physician and Head, Hospitals , Hospital Nutrition and Clinical Services Division

icddr,b

68 Shaheed Tajuddin Ahmed Sarani | Mohakhali | Dhaka 1212 | Bangladesh
| +880-2-9827001-10 , Ext: 2365 | azharul@icddrb.org
Website | Twitter | Facebook | Linkedin

Hospital Appeal - Support the world's largest diarrhoeal disease hospital

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From: Dale Fisher [mailto:mdcfda@nus.edu.sg]
Sent: Tuesday, November 19, 2019 7:28 PM
To: Daniel Bausch; María Alejandra Morales
Cc: Dr. Azharul Islam Khan; Carlos Navarro Colorado; CDC, Ray Arthur; China CDC Daxin; Dr S Antara AFENET; ECDC Josep; EMPHNET Dr Al Nsour; Rawan Araj; FALL, Ibrahima Soce; IP Senegal Amadou; Gail Carson; Myriam, MSF; NEBRASKA Ali Khan; NICD Janusz; NUS Dale; panu.saaristo@ifrc.org; PATHWEST, Paul; PHAC Elisabeth Gooding; Katie Carmichael; RKI Andreas Jansen; TULANE Lina Moses; DRURY, Patrick Anthony; goarn; BEJTULLAHU, Armand; CAYABYAB, Ramoncito; CHRISTENSEN, Renee; KIFF, Jeremy; KIM, Bryan; ALLKAMPER, Sara; UMALI DALANGIN, Khristeen
Subject: RE: Webex meeting invitation: GOARN SCOM DEc 2019 Briefing

We are talking now; its been a problem for a number of us but persistence worked. Please try a few more times as we just started. I took 20 mins to get in.

Surely we will share meeting notes and sorry about all the trouble. I know its frustrating ☺

From: Daniel Bausch <Daniel.Bausch@phe.gov.uk>
Sent: Tuesday, 19 November 2019 8:26 PM
To: María Alejandra Morales (b)(6)
Cc: AZHARUL Islam Khan (azharul@icddrb.org) <azharul@icddrb.org>; Carlos Navarro Colorado <cnavarrocolorado@unicef.org>; CDC, Ray Arthur <RArthur@cdc.gov>; China CDC Daxin <nidx@chinacdc.cn>; Dr S Antara AFENET <santara@afenet.net>; ECDC Josep <Josep.Jansa@ecdc.europa.eu>; EMPHNET Dr Al Nsour <executive.director@globalhealthdev.org>; Rawan Araj <raraj@globalhealthdev.org>; FALL, Ibrahima Soce <socef@who.int>; IP Senegal Amadou <asall@pasteur.sn>; Gail Carson <gail.carson@ndm.ox.ac.uk>; Myriam, MSF <Myriam.Henkens@msf.org>; NEBRASKA Ali Khan <ali.khan@unmc.edu>; NICD Janusz <januszp@nicd.ac.za>; NUS Dale <dale_andrew_fisher@nuhs.edu.sg>; panu.saaristo@ifrc.org; PATHWEST, Paul (b)(6); PHAC Elisabeth Gooding <elizabeth.gooding@canada.ca>; Katie Carmichael <Katie.Carmichael@phe.gov.uk>; RKI Andreas Jansen <jansena@rki.de>; TULANE Lina Moses <lmoses2@tulane.edu>; DRURY, Patrick Anthony <druryp@who.int>; goarn <goarn@who.int>; BEJTULLAHU, Armand <bejtullahua@who.int>; CAYABYAB, Ramoncito <cayabyabr@who.int>; CHRISTENSEN, Renee <rchristensen@who.int>; KIFF, Jeremy <kiffj@who.int>; KIM, Bryan <kimbr@who.int>; ALLKAMPER, Sara <allkampers@who.int>; UMALI DALANGIN, Khristeen <umalik@who.int>
Subject: Re: Webex meeting invitation: GOARN SCOM DEc 2019 Briefing

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Seem here.

D.

****

Professor Daniel G. Bausch, MD, MPH&TM
Director, UK Public Health Rapid Support Team-UK PHRST
Public Health England/London School of Hygiene and Tropical Medicine
London, UK
Email 1: Daniel.Bausch@phe.gov.uk
Email 2: Daniel.Bausch@lshtm.ac.uk
Office Phone: +44 207 654 8092
Cell Phone: (b)(6)
Skype: Daniel.Bausch@phe.gov.uk
****

On 19 Nov 2019, at 08:25, María Alejandra Morales (b)(6) wrote:

> Good Morning!
> I have been trying to connect today to the SCOM GOAR Teleconference since before 2:00 pm but it has not been possible for me. It is the first time that I have these inconveniences. I appreciate the help to solve them.
>
> It would be nice if you could share with me the information that has been discussed.
> Thanks!
>
> Best Regards!
> Alejandra
>
> Bqca. María Alejandra Morales
> Especialista en Bioquimica Clínica, orientación Virología.
> Directora Centro Colaborador OPS/OMS en Fiebres Hemorrágicas Virales y Arbovirus

Interventora INEVH "Dr. Julio I. Maiztegui"- ANLIS

TE: +54-2477-433044/420712 al 714 Int 200
FAX: +54-2477-433045
Calle Monteagudo Nº 2510- (2700) Pergamino, Argentina

El martes, 12 de noviembre de 2019 10:51:48 ART, goarn <goarn@who.int> escribió:

GOARN Operational Support Team invites you to join this Webex meeting.

Meeting number (access code): (b)(6)

Tuesday, November 19, 2019
2:00 pm | (UTC+01:00) Brussels, Copenhagen, Madrid, Paris | 1 hr

Join meeting

Join by phone

Tap to call in from a mobile device (attendees only)

(b)(6) Switzerland toll

USA/Canada toll

Global call-in numbers

Join from a video system or application

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****

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From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP)

Sent: Tue, 15 Oct 2019 13:13:37 +0000

To: Walke, Henry (CDC/DDID/NCEZID/DPEI);Helfand, Rita (CDC/DDID/NCEZID/OD);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);CDC IMS Chief of Staff -2;CDC IMS IM Ops Coordinator;Traicoff, Denise (CDC/DDPHSIS/CGH/GID);2018 Ebola Response (CDC);Fitter, David L. (CDC/DDPHSIS/CGH/GID);CDC IMS Ebola Response Training Capacity Dev Adv;Samuel, Anita (CDC/DDPHSIS/CGH/GID);CDC IMS Ebola Response Vaccine

Cc: Walldorf, Jenny A. (CDC/DDPHSIS/CGH/GID);Hyde, Terri (CDC/DDPHSIS/CGH/GID);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);Wilson, Katie (CDC/DDID/NCEZID/DHQP);Rodriguez, Lucinda (Lucy) (CDC/DDID/NCHHSTP/DHPIRS);Christensen, Bryan E. (CDC/DDID/NCEZID/DHQP);Chung, Winnie (CDC/DDNID/NCBDDD/DHDD);Gathany, Nancy C. (CDC/DDPHSIS/CGH/DGHP);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Dennison, Cori (CDC/DDID/NCEZID/DHQP);Cossaboom, Caitlin (CDC/DDID/NCEZID/DHCPP);Williams, Tanya (CDC/DDNID/NCCDPHP/DRH);Herzig, Carolyn (CDC/DDID/NCEZID/DHQP);Bruce, Sherrie (CDC/DDID/NCEZID/DPEI);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Nunn, Matthew (CDC/DDPHSIS/CPR/DEO);Zendt, Mackenzie (CDC/DDPHSIS/CPR/DEO)

Subject: IM / MCCM meeting

I may not be able to call in

Am at the BARDA industry day

Spoke with Gary. Unclear when Azar will want to be briefed on ramping up therapeutic production.

Gary will slides in advance

Will need to brief R3 to give the CDC perspective

Also, costs associated with research Merck vaccine relabeling to be discussed with Azar, and a memo on costs is being developed by BARDA.

Inger

Inger K Damon MD PhD

Director, Division of High Consequence Pathogens and Pathology

NCEZID

CDC

From: Walke, Henry (CDC/DDID/NCEZID/DPEI)

Sent: Monday, June 17, 2019 8:45:05 AM

To: Walke, Henry (CDC/DDID/NCEZID/DPEI) <hfw3@cdc.gov>; Helfand, Rita (CDC/DDID/NCEZID/OD) <rzh7@cdc.gov>; Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>; Christie, Athalia (CDC/DDPHSIS/CGH/OD) <akc9@cdc.gov>; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; CDC IMS Chief of Staff -2 <eocchiefofstaff2@cdc.gov>; CDC IMS IM Ops Coordinator <eocimopscoord@cdc.gov>; Traicoff, Denise (CDC/DDPHSIS/CGH/GID) <dnt1@cdc.gov>; 2018 Ebola Response (CDC) <eocevent240@cdc.gov>; Fitter, David L. (CDC/DDPHSIS/CGH/GID) <vid3@cdc.gov>; CDC IMS Ebola Response Training Capacity Dev Adv <eocevent200@cdc.gov>; Samuel, Anita (CDC/DDPHSIS/CGH/GID) <kyp8@cdc.gov>; CDC IMS Ebola Response Vaccine <eocevent285@cdc.gov>

Cc: Walldorf, Jenny A. (CDC/DDPHSIS/CGH/GID) <igf4@cdc.gov>; Hyde, Terri (CDC/DDPHSIS/CGH/GID) <tkh4@cdc.gov>; Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP) <stn1@cdc.gov>; Wilson, Katie (CDC/DDID/NCEZID/DHQP) <vvd6@cdc.gov>; Rodriguez, Lucinda (Lucy) (CDC/DDID/NCHHSTP/DHPIRS) <gwz8@cdc.gov>; Christensen, Bryan E. (CDC/DDID/NCEZID/DHQP) <iyl1@cdc.gov>; Chung, Winnie (CDC/DDNID/NCBDDD/DHDD) <ihx9@cdc.gov>; Gathany, Nancy C. (CDC/DDPHSIS/CGH/DGHP) <ntc1@cdc.gov>; Beach, Michael J. (CDC/DDID/NCEZID/DFWED) <mjb3@cdc.gov>; Dennison, Cori (CDC/DDID/NCEZID/DHQP) <ovj4@cdc.gov>; Cossaboom, Caitlin (CDC/DDID/NCEZID/DHCPP) <nrm9@cdc.gov>; Williams, Tanya (CDC/DDNID/NCCDPHP/DRH) <ewp9@cdc.gov>; Herzig, Carolyn (CDC/DDID/NCEZID/DHQP) <nqw6@cdc.gov>; Bruce, Sherrie (CDC/DDID/NCEZID/DPEI) <smb3@cdc.gov>; Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO) <dmz0@cdc.gov>; Nunn, Matthew (CDC/DDPHSIS/CPR/DEO) <ieb9@cdc.gov>; Zendt, Mackenzie (CDC/DDPHSIS/CPR/DEO) <LBQ8@cdc.gov>

Subject: IM / MCCM meeting

When: Tuesday, October 15, 2019 11:00 AM-12:00 PM.

Where: ECR and bridgeline (b)(6) / passcode (b)(6)

Meeting in ECR

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP)
Sent: Thu, 3 Sep 2020 19:06:33 +0000
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Subject: Re: 3 September GOARN Weekly Ops Call Notes/Slides

A bit of a flail, but we got a few things in

Trying to track the source of the WHO numbers – from what we have seen (we see Tshuapa province surveillance) the numbers are far lower – that's why I deferred to INRB/DLM/DRC.
Get Outlook for iOS

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Sent: Thursday, September 3, 2020 3:02:27 PM
To: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Subject: RE: 3 September GOARN Weekly Ops Call Notes/Slides

Excellent. It was good that you and Jenni were on the call to report on CDC's activities.

Ray

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Sent: Thursday, September 3, 2020 2:50 PM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Subject: RE: 3 September GOARN Weekly Ops Call Notes/Slides

Andrea is reaching out to Rosamund

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Sent: Thursday, September 3, 2020 2:39 PM
To: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP) <ogq2@cdc.gov>; Armstrong, Gregory (CDC/DDID/NCEZID/OD) <gca3@cdc.gov>; Beach, Michael J. (CDC/DDID/NCEZID/DFWED) <mjb3@cdc.gov>; Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP) <nqx1@cdc.gov>; Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID) <iyk3@cdc.gov>; Bresee, Joseph (CDC/DDID/NCIRD/ID) <jsb6@cdc.gov>; Bunga, Sudhir (CDC state.gov) <BungaS@state.gov>; Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM) <gdn9@cdc.gov>; Christie, Athalia (CDC/DDPHSIS/CGH/OD) <akc9@cdc.gov>; Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP) <kvc6@cdc.gov>; Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID) <bid5@cdc.gov>; Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>; Dawood, Fatimah S. (CDC/DDID/NCIRD/ID) <hgj0@cdc.gov>; Doshi, Reena H. (CDC/DDPHSIS/CGH/GID) <HQO3@cdc.gov>; CDC IMS Incident Manager -2 <eocim2@cdc.gov>; Farag, Noha (CDC/DDPHSIS/CGH/GID) <iym0@cdc.gov>; Fitter, David L. (CDC/DDPHSIS/CGH/GID) <vid3@cdc.gov>; Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>; GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>; Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED) <ihq5@cdc.gov>; Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID) <wkz8@cdc.gov>; Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP) <iwh2@cdc.gov>; Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID) <esp3@cdc.gov>; Hakim, Avi (CDC/DDPHSIS/CGH/DGHT) <hxv8@cdc.gov>; Hansen, Donda L. (CDC/DDPHSIS/CGH/OD) <xcb1@cdc.gov>; Hazim, Carmen Emily (CDC/DDID/NCEZID/DHQP) <yoe0@cdc.gov>; Helfand, Rita (CDC/DDID/NCEZID/OD) <rzh7@cdc.gov>; Henao, Olga (CDC/DDPHSIS/CGH/DGHP) <dot8@cdc.gov>;

Hicks, Elizabeth (NIH/NINDS) [E] <elizabeth.hicks2@nih.gov>; Hyde, Terri (CDC/DDPHSIS/CGH/GID) <tkh4@cdc.gov>; Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP) <rik9@cdc.gov>; Klena, John D. (CDC/DDID/NCEZID/DHCPP) <irc4@cdc.gov>; Knight, Nancy (CDC/DDPHSIS/CGH/DGHP) <fma2@cdc.gov>; Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP) <izj9@cdc.gov>; Lessa, Fernanda (CDC/DDID/NCEZID/DHQP) <dta3@cdc.gov>; Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM) <bxm5@cdc.gov>; Marston, Hilary (NIH/NIAID) [E] <hilary.marston@nih.gov>; McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID) <dme8@cdc.gov>; McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD) <xdf4@cdc.gov>; McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP) <fzh7@cdc.gov>; Mirza, Sara (CDC/DDID/NCIRD/DBD) <zjk4@cdc.gov>; Montandon, Michele (CDC/DDPHSIS/CGH/DGHT) <nkf3@cdc.gov>; Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP) <ztq9@cdc.gov>; Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP) <rlm8@cdc.gov>; Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID) <apm8@cdc.gov>; Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP) <jjn6@cdc.gov>; Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT) <lbn9@cdc.gov>; Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP) <stn1@cdc.gov>; OConnor, John (CDC/DDID/NCEZID/OD) <jpo2@cdc.gov>; Park, Benjamin (CDC/DDID/NCEZID/DHQP) <bip5@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Pesik, Nicki (CDC/DDID/NCEZID/OD) <ndp9@cdc.gov>; Prue, Christine (CDC/DDID/NCEZID/OD) <cep9@cdc.gov>; Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD) <pgr4@cdc.gov>; Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ) <snr2@cdc.gov>; Rotz, Lisa (CDC/DDID/NCEZID/DGMQ) <ler8@cdc.gov>; Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO) <dmz0@cdc.gov>; Shoemaker, Trevor (CDC/DDID/NCEZID/DHCPP) <tis8@cdc.gov>; Simonds, R. J. (CDC/DDPHSIS/CGH/OD) <rxs5@cdc.gov>; Smith, Rachel M. (CDC/DDID/NCEZID/DHQP) <vih9@cdc.gov>; Soeters, Heidi (CDC/DDPHSIS/CGH/GID) <hzx8@cdc.gov>; Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID) <yxo2@cdc.gov>; Spath (CDC) <Spath@cdc.gov>; Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP) <ccs8@cdc.gov>; Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD) <vhi9@cdc.gov>; Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT) <icf4@cdc.gov>; Whitmer, Shannon (CDC/DDID/NCEZID/DHCPP) <evk3@cdc.gov>; Williams, Seymour (CDC/DDPHSIS/CGH/DGHP) <sjw9@cdc.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>
Subject: FW: 3 September GOARN Weekly Ops Call Notes/Slides

Thanks Puneet.

The monkeypox-DRC event was a last minute addition to the agenda.

Ray

From: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP) <ogq2@cdc.gov>
Sent: Thursday, September 3, 2020 9:56 AM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>
Subject: 3 September GOARN Weekly Ops Call Notes/Slides

Hi Ray and team,

Attached are the 08:00 EDT/ 14:00 CET GOARN Ops call notes (includes all presentations), DRC EVD Data Pack, and other presentations from today.

EVD Équateur Province, DRC

- Epi Update: See attached DRC EVD Data pack for information on detailed activities.
- As of 2 September, 110 cases (104 confirmed, 6 probable), 47 deaths, 48 survivors, 36 health areas (HA) and 11 HZs
- Ongoing activities and challenges
    - After two weeks with little to no activity, need to remain cautious while interpreting surveillance data and apparent absence of cases
    - Slow increase in number of alerts; continued low proportion of community deaths reported
    - Strengthening of data collection, management and analysis
        - Deployment of senior epidemiologist and data managers (GOARN/ CDC); will be meeting with WHO and field teams on 3 September.

MPX, DRC

- In 2020, until 23 August: 3,722 suspected cases including 146 deaths (CFR 3.9%) were reported in 113 HZs in 16 provinces
- Highest number of suspected cases reported in provinces of Sankuru (886), Mai-Ndombe (793), Equateur (526), Mongala (496), and Tshuapa (431).
- Mai-Ndombe Province, Inongo HZ is most concerning; 65% of the cases with a high CFR around 10%
- Main concern is the rise of CFR, is it reporting bias or due to increased virulence of the pathogen?

COVID-19

- WHO COVID-19 Situation Update – see attached.
- Secondary Attack Rate of COVID-19: a systematic review and meta-analysis – see attached.
    - 62 studies containing 138 data entries (transmission events) * from 11 countries were included for meta-analysis.
    - Despite notable heterogeneity between settings and countries, results consistently supported a higher Secondary Attack Rate (SAR) within household settings and settings with close and prolonged interpersonal encounters, and differences in SAR based on case symptomatology.
    - Such findings are important to further adapt and orient public health control measures to manage and reduce SARS-CoV-2 transmission.

Regards,
Puneet Anantharam



Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)

Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road NE, Mailstop D68
Atlanta, GA 30333

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP)
Sent: Wed, 2 Sep 2020 12:44:57 +0000
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Subject: RE: Mike Ryan's assistant

Thank you, Ray.

Inger

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Sent: Wednesday, September 2, 2020 8:22 AM
To: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Subject: RE: Mike Ryan's assistant

Inger,

Christine Y. Fares
faresc@who.int
+41 22 791 2126 (O)
(b)(6) (M)

Mike is currently on (b)(6) in (b)(6) and returns to the office on 14 Sept. I don't know if Christine is currently on (b)(6)

Best,
Ray

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Sent: Wednesday, September 2, 2020 4:42 AM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Subject: Mike Ryan's assistant

Ray – could you send me the name of/email for Mike's assistant again? Trying to catch up on my IDweek duties.

Thank you,,,,

Inger

From: Dale Fisher
Sent: Tue, 25 Aug 2020 04:42:27 +0000
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);Gail Carson
Cc: Pat Drury (druryp@who.int)
Subject: RE: GOARN to identify team investigating the origins of SARS-CoV-2

Thanks Ray; news to me!

Good news I hope and not a poisoned chalice!

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Sent: Tuesday, 25 August, 2020 12:04 AM
To: Gail Carson <gail.carson@ndm.ox.ac.uk>
Cc: Dale Fisher <mdcfda@nus.edu.sg>; Pat Drury (druryp@who.int) <druryp@who.int>
Subject: RE: GOARN to identify team investigating the origins of SARS-CoV-2

- External Email -

This time with the correct address for Gail.

Ray

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Monday, August 24, 2020 11:54 AM
To: Dale Fisher <mdcfda@nus.edu.sg>; gail.thomson@hpa.org.uk; Pat Drury (druryp@who.int) <druryp@who.int>
Subject: GOARN to identify team investigating the origins of SARS-CoV-2

Dear Dale and Gail,

Pat was on (b)(6) last week so he and you may not be aware of what was announced at last week's regular Thurs. briefing in Geneva of Member States.

The ToR for the international investigation are final. Phase I will focus on epidemiologic studies to trace initial COVID-19 cases and preliminary environmental and animal studies. Phase II will include in-depth human and animal studies based on the results of Phase I. WHO informed Member States it plans to use GOARN to identify experts for the investigation team.

As details re: selection process for the expert team become available, please inform the SCOM. Thanks.

Best,
Ray

Ray R. Arthur, PhD
Lead, Global Disease Detection Operations Center
Emergency Response and Recovery Branch

Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention

1600 Clifton Road, NE
MS: H21-9
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rarthur@cdc.gov

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From: Dale Fisher
Sent: Tue, 18 Aug 2020 03:23:38 +0000
To: Myriam Henkens;azharul@icddrb.org;Navarro-Colorado, Carlos (CDC unicef.org);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);lmoses2@tulane.edu;jansena@rki.de;panu.saaristo@ifrc.org;Gwendolen EAMER;daniel.bausch@phe.gov.uk;raraj@globalhealthdev.org;(b)(6)elizabeth.gooding @canada.ca;Josep.Jansa@ecdc.europa.eu;(b)(6)ar;januszp@nicd.ac.za;e xecutive.director@globalhealthdev.org;asall@pasteur.sn;ali.khan@unmc.edu;pnguku@afenet.net;zhan gyp@chinacdc.cn
Cc: gail.carson@ndm.ox.ac.uk;yotiza@who.int;SALMON, Sharon;storozhenkoo@who.int;vicarian@paho.org;aldighsy@paho.org;DEL RIO VILAS, Victor;DRURY, Patrick Anthony;SURI, Sameera;ebuliva@who.int;Ryan, Michael (CDC who.int);Dr VAN KERKHOVE, Maria;SURI, Sameera;AZE, Jean-christophe
Subject: RE: lancet correspondence

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31760-8/fulltext?rss=yes

I hope you all liked the way this has turned out. All consenting authors are in the supplementary material on a pdf link.

Thanks all. We got there!

Dale

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From: Dale Fisher
Sent: Wed, 5 Aug 2020 03:15:18 +0000
To: Navarro-Colorado, Carlos (CDC unicef.org);DRURY, Patrick Anthony;Gooding, Elizabeth (PHAC/ASPC);Myriam Henkens;María Alejandra Morales;azharul@icddrb.org;Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);lmoses2@tulane.edu;panu.saaristo@ifrc.org;Gwendolen EAMER;daniel.bausch@phe.gov.uk;raraj@globalhealthdev.org (b)(6) Josep.Jansa@ecdc.europa.eu;januszp@nicd.ac.za;executive.director@globalhealthdev.org;asall@pasteur.sn;ali.khan@unmc.edu;pnguku@afenet.net;zhangyp@chinacdc.cn;Jerome Pfaffmann
Cc: SURI, Sameera;goarn
Subject: RE: Your Letter to The Lancet: 20tl15056
Attachments: lancet correspondence_scom 200804.docx

The final list is looking like this……will submit soon

Carlos; what is your last name? we seem to have UNICEF now. I am ok if you will be sharing the spot.

Thanks all for staying connected in the next day or two. If you become authors may need signature. I don't know

---

From: Carlos Navarro Colorado <cnavarrocolorado@unicef.org>
Sent: Wednesday, 5 August 2020 7:20 AM
To: Dale Fisher <mdcfda@nus.edu.sg>; DRURY, Patrick Anthony <druryp@who.int>; Gooding, Elizabeth (PHAC/ASPC) <elizabeth.gooding@canada.ca>; Myriam Henkens <Myriam.Henkens@msf.org>; María Alejandra Morales (b)(6) azharul@icddrb.org; RArthur@cdc.gov; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; lmoses2@tulane.edu; panu.saaristo@ifrc.org; Gwendolen EAMER <gwen.eamer@ifrc.org>; daniel.bausch@phe.gov.uk; raraj@globalhealthdev.org; (b)(6) ; Josep.Jansa@ecdc.europa.eu; januszp@nicd.ac.za; executive.director@globalhealthdev.org; asall@pasteur.sn; ali.khan@unmc.edu; pnguku@afenet.net; zhangyp@chinacdc.cn; Jerome Pfaffmann <jpfaffmann@unicef.org>
Cc: SURI, Sameera <suris@who.int>; goarn <goarn@who.int>
Subject: RE: Your Letter to The Lancet: 20tl15056

- External Email -

Hi Dale, Also fine with article and authorship from UNICEF's side,

Best,
carlos

From: Dale Fisher <mdcfda@nus.edu.sg>
Sent: Tuesday, August 4, 2020 9:29 AM
To: DRURY, Patrick Anthony <druryp@who.int>; Gooding, Elizabeth (PHAC/ASPC)

<elizabeth.gooding@canada.ca>; Myriam Henkens <Myriam.Henkens@msf.org>; María Alejandra Morales (b)(6) azharul@icddrb.org; Carlos Navarro Colorado <cnavarrocolorado@unicef.org>; RArthur@cdc.gov; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; lmoses2@tulane.edu; panu.saaristo@ifrc.org; Gwendolen EAMER <gwen.eamer@ifrc.org>; daniel.bausch@phe.gov.uk; raraj@globalhealthdev.org; (b)(6) Josep.Jansa@ecdc.europa.eu; januszp@nicd.ac.za; executive.director@globalhealthdev.org; asall@pasteur.sn; ali.khan@unmc.edu; pnguku@afenet.net; zhangyp@chinacdc.cn; Jerome Pfaffmann <jpfaffmann@unicef.org>
Cc: SURI, Sameera <suris@who.int>; goarn <goarn@who.int>
Subject: FW: Your Letter to The Lancet: 20tl15056

Dear all;

The letter is accepted and we have a hyper urgent response time.

I welcome any feedback before Gail and I do our best!

Ray and Panu have elected to stay off although were personally very supportive. Despite phone calls and messages and email I haven't connected with Amadou, Zhang from CCDC or Simon from Afenet

Therefore of the 21 SCOM we have 2 authoring, 13 appendix, 3 abstaining and 3 missing in action.

There seems to make an option to make everyone indexed in PUBMED. So please feedback. I will do this unless anyone says no. I think its all in or all out.

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Comments on the final text and the authorship stuff. I will spell out all the organisations for lancet tomorrow but I wanted to get this to you know before I sleep.

Dan I have lost your disclaimer. Is it critical?

Thanks all and sorry to be rush but it is what it is!!

Dale

From: Gomersall, Bethany (ELS-LOW) <bethany.gomersall@lancet.com>
Sent: Tuesday, 4 August 2020 6:20 PM
To: Dale Fisher <mdcfda@nus.edu.sg>
Subject: Your Letter to The Lancet: 20tl15056

- External Email -

Thank you for your Correspondence, which has now been subedited. Please find a PDF proof attached. I would be grateful if you could read it through, make any necessary corrections by annotating the PDF, and return your corrections to me by **05/08/2020, 11: 30 am (UK time)**. Please let me know immediately if this deadline is not feasible.

We edit all manuscripts to avoid repetition, enhance readability, reduce length, and achieve consistency with house style. I have explained some changes in the text (marked **[A:]**), and included some requests for information. Where wording has been changed, please do not revert to your original wording. Rather, please try to clarify the meaning if the sense of your text has been altered.

Please provide a PDF listing the GOARN steering committee members as this will be published as an appendix. If you would like the committee members to be indexed on PubMed, please provide a table in Word listing first and surnames in two separate columns.

Please confirm receipt of this email and do not hesitate to contact me via email if you have any queries.

I look forward to hearing from you.

Kind Regards,

Bethany.

Bethany Gomersall
Assistant Editor | THE LANCET

Email: bethany.gomersall@lancet.com
125 London Wall, London EC2Y 5AS
www.thelancet.com



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First name	Family name	First affiliation	Second affiliation
Mohannad	Al Nsour	The Eastern Mediterranean Public Health Network (EMPHNET)	
Daniel	Bausch	Public Health England	London School of Hygiene & Tropical Medicine London, UK
Paul	Effler	University of Western Australia, Australia	
Elizabeth	Gooding	Public Health Agency of Canada	
Myriam	Henkens	Medecins Sans Frontieres	
Andreas	Jansen	Robert Koch Institute, Germany	
Ali	Khan	University of Nebraska, USA	
María Alejandra	Morales	Instituto Nacional de Enfermedades Virales Humanas (INEVH), Argentina	
Lina	Moses	Tulane School of Public Health & Tropical Medicine, USA	
Carlos	Navarro	UNICEF	
Janusz	Paweska	National Institute for Communicable Diseases, South Africa	
Jerome	Pfaffmann	UNICEF	

The UK Public Health Rapid Support Team is funded by the United Kingdom Department of Health and Social Care. The views expressed in this publication are those of the authors and not necessarily those of the National Health System, the National Institute for Health Research, or the Department of Health and Social Care.

From: Dale Fisher
Sent: Tue, 4 Aug 2020 13:29:22 +0000
To: DRURY, Patrick Anthony;Gooding, Elizabeth (PHAC/ASPC);Myriam Henkens;María Alejandra Morales;azharul@icddrb.org;Navarro-Colorado, Carlos (CDC unicef.org);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);lmoses2@tulane.edu;panu.saaristo@ifrc.org;Gwendolen EAMER;daniel.bausch@phe.gov.uk;raraj@globalhealthdev.org;(b)(6)Josep.Jansa@ecdc.europa.eu;januszp@nicd.ac.za;executive.director@globalhealthdev.org;asall@pasteur.sn;ali.khan@unmc.edu;pnguku@afenet.net;zhangyp@chinacdc.cn;Jerome Pfaffmann
Cc: SURI, Sameera;goarn
Subject: FW: Your Letter to The Lancet: 20tl15056
Attachments: 20tl15056corr_author_layout_proof.pdf, lancet correspondence_scom 200804.docx

Dear all;

The letter is accepted and we have a hyper urgent response time.

I welcome any feedback before Gail and I do our best!

Ray and Panu have elected to stay off although were personally very supportive. Despite phone calls and messages and email I haven't connected with Amadou, Zhang from CCDC or Simon from Afenet

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Assistant Editor | THE LANCET

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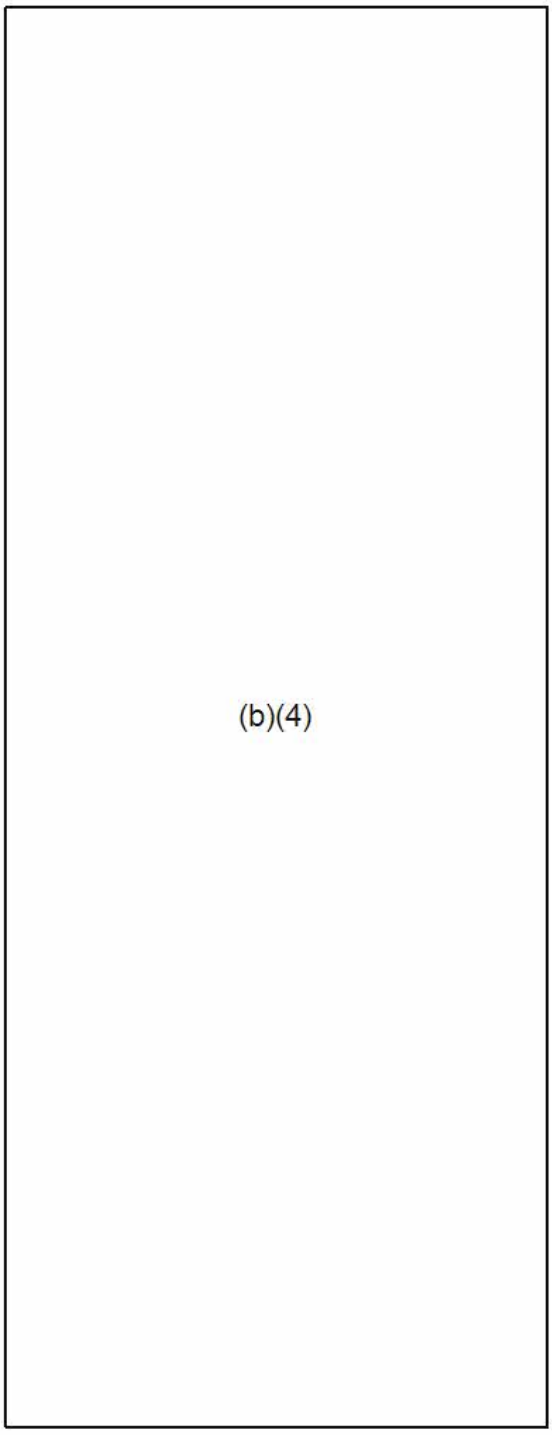
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20tl15056

[A: Please provide a short, enticing title]

(b)(4)


(b)(4)

(b)(4)

From: Dale Fisher
Sent: Thu, 23 Jul 2020 06:55:25 +0000
To: DRURY, Patrick Anthony;Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);FALL, Ibrahima Soce;Ryan, Michael (CDC who.int)
Cc: Gail Carson;KABIR, Sophia;NAHATABA, Brenda Lydia Watera;SURI, Sameera;UMALI DALANGIN, Khristeen;goarn
Subject: RE: [EXT] BMJ Opinion

Wow; we were named.

I am submitting our letter now

From: DRURY, Patrick Anthony <druryp@who.int>
Sent: Thursday, 23 July 2020 5:06 AM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; FALL, Ibrahima Soce <socef@who.int>; RYAN, Michael J. <ryanm@who.int>
Cc: Dale Fisher <mdcfda@nus.edu.sg>; Gail Carson <gail.carson@ndm.ox.ac.uk>; KABIR, Sophia <kabirso@who.int>; NAHATABA, Brenda Lydia Watera <nahatabab@who.int>; SURI, Sameera <suris@who.int>; UMALI DALANGIN, Khristeen <umalik@who.int>; goarn <goarn@who.int>
Subject: RE: [EXT] BMJ Opinion

- External Email -

Many thanks Ray. Has seen media coverage of the earlier David Cameron stuff, but not this.
Copied to Mike and Soce for information.
best, Pat

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Sent: 22 July 2020 20:27
To: DRURY, Patrick Anthony <druryp@who.int>; Dale Fisher <mdcfda@nus.edu.sg>
Subject: [EXT] BMJ Opinion

Pat/Dale,

I assume that you have seen this. https://blogs.bmj.com/bmj/2020/07/21/we-should-strengthen-existing-institutions-rather-than-create-a-new-international-body-for-virus-surveillance/?utm_campaign=shareaholic&utm_medium=twitter&utm_source=socialnetwork

Best,
Ray

Ray R. Arthur, PhD
Lead, Global Disease Detection Operations Center

Emergency Response and Recovery Branch

Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention

1600 Clifton Road, NE
MS: H21-9
Atlanta, GA 30329
Phone: 404-639-3855
Mobile: (b)(6)
rarthur@cdc.gov

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From: Dale Fisher
Sent: Wed, 22 Jul 2020 01:34:57 +0000
To: Josep Jansa;azharul@icddrb.org;Navarro-Colorado, Carlos (CDC unicef.org);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);lmoses2@tulane.edu;jansena@rki.de;panu.saaristo@ifrc.org;Gwendolen EAMER;daniel.bausch@phe.gov.uk;Myriam.Henkens@msf.org;raraj@globalhealthdev.org;(b)(6) (b)(6) elizabeth.gooding@canada.ca;(b)(6) januszp@nicd.ac.za;executive.director@globalhealthdev.org;asall@pasteur.sn;ali.khan@unmc.edu;pnguku@afenet.net;zhangyp@chinacdc.cn
Cc: gail.carson@ndm.ox.ac.uk;yotiza@who.int;SALMON, Sharon;storozhenkoo@who.int;vicarian@paho.org;aldighsy@paho.org;DEL RIO VILAS, Victor;DRURY, Patrick Anthony;SURI, Sameera;ebuliva@who.int
Subject: RE: lancet correspondence

Thanks Josep

From: Josep Jansa <Josep.Jansa@ecdc.europa.eu>
Sent: Wednesday, 22 July 2020 4:46 AM
To: Dale Fisher <mdcfda@nus.edu.sg>; azharul@icddrb.org; cnavarrocolorado@unicef.org; RArthur@cdc.gov; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; lmoses2@tulane.edu; jansena@rki.de; panu.saaristo@ifrc.org; Gwendolen EAMER <gwen.eamer@ifrc.org>; daniel.bausch@phe.gov.uk; Myriam.Henkens@msf.org; raraj@globalhealthdev.org; (b)(6) elizabeth.gooding@canada.ca; (b)(6) januszp@nicd.ac.za; executive.director@globalhealthdev.org; asall@pasteur.sn; ali.khan@unmc.edu; pnguku@afenet.net; zhangyp@chinacdc.cn
Cc: gail.carson@ndm.ox.ac.uk; yotiza@who.int; SALMON, Sharon <salmons@who.int>; storozhenkoo@who.int; vicarian@paho.org; aldighsy@paho.org; DEL RIO VILAS, Victor <delriov@who.int>; DRURY, Patrick Anthony <druryp@who.int>; SURI, Sameera <suris@who.int>; ebuliva@who.int
Subject: RE: lancet correspondence

- External Email -

Dear Dale and dear colleagues
I'm fine with the letter as it is and agree with its submission to the Lancet and to contribute as part of the GOARN SC
Thank you for the initiative
Kind regards

Josep

Josep Jansa
MD, PhD

Principal Expert Emergency Preparedness and Response/ Group Leader Response and Emergency Operations

Emergency Preparedness and Response Support, PHF

Phone +46 (0)8 58 60 1030
Josep.Jansa@ecdc.europa.eu

European Centre for Disease Prevention and Control (ECDC)

Gustav III:s boulevard 40, 169 73 Solna, Sweden

Phone +46 (0)8 58 60 10 00 / Fax +46 (0)8 58 60 10 01

www.ecdc.europa.eu

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From: Dale Fisher [mailto:mdcfda@nus.edu.sg]
Sent: 16 July 2020 06:51
To: azharul@icddrb.org; cnavarrocolorado@unicef.org; RArthur@cdc.gov; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; lmoses2@tulane.edu; jansena@rki.de; panu.saaristo@ifrc.org; Gwendolen EAMER <gwen.eamer@ifrc.org>; daniel.bausch@phe.gov.uk; Myriam.Henkens@msf.org; raraj@globalhealthdev.org; (b)(6) elizabeth.gooding@canada.ca; Josep Jansa <Josep.Jansa@ecdc.europa.eu>; (b)(6) januszp@nicd.ac.za; executive.director@globalhealthdev.org; asall@pasteur.sn; ali.khan@unmc.edu; pnguku@afenet.net; zhangyp@chinacdc.cn
Cc: gail.carson@ndm.ox.ac.uk; yotiza@who.int; SALMON, Sharon <salmons@who.int>; storozhenkoo@who.int; vicarian@paho.org; aldighsy@paho.org; DEL RIO VILAS, Victor <delriov@who.int>; DRURY, Patrick Anthony <druryp@who.int>; SURI, Sameera <suris@who.int>; ebuliva@who.int
Subject: lancet correspondence

Dear all;

As discussed at the most recent virtual SCOM meeting we have drafted a letter. We feel an entry point could be correspondence in Lancet in a response to a recent editorial (attached)
Please read the 250 word response. Feel free to suggest on track changes any changes you think of.
I also need to know if you can put your name and organisation to this if we are allowed to list all SCOM members

If possible please turn this around in the next 24-48 hrs. The letter is short and we have to submit within 2 weeks of the original article.

Thanks all

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From: Dale Fisher
Sent: Tue, 21 Jul 2020 12:17:26 +0000
To: Mohannad Al-Nsour
Cc: Dale Fisher;Gooding, Elizabeth (PHAC/ASPC);Guest508 Guest508;María Alejandra Morales;azharul@icddrb.org;Navarro-Colorado, Carlos (CDC unicef.org);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);lmoses2@tulane.edu;jansena@rki.de;panu.saaristo@ifrc.org;Gwen Eamer;daniel.bausch@phe.gov.uk;Rawan Araj;(b)(6);Josep.Jansa@ecdc.europa.eu;januszp@nicd.ac.za;asall@pasteur.sn;Ali khan;Patric Nguku;zhangyp@chinacdc.cn;Jerome Pfaffmann;RKI Andreas Jansen;gail.carson@ndm.ox.ac.uk;Pat Drury;Sameera Suri;Ryan, Michael (CDC who.int);FALL, Ibrahima Soce;David Nabarro
Subject: RE: lancet correspondence urgent deadline

Thanks Mohanned, much appreciated

On 21 Jul 2020 20:09, Mohannad Al-Nsour <executive.director@globalhealthdev.org> wrote:

- External Email -

Dear Dale

Thank you for your and colleagues effort that highly appreciated in this critical situation of COVID-19 pandemic.

I went through the content and I am fine with. I have no additional comments or input. I agree to the context of the letter and agree to submit to Lancet. Please feel free to add my name (Mohannad Al Nsour , EMPHNET) to this letter, noting I support whatever decision is made as regards the authorship.

Thank you once again

Best regards

Mohannad

Mohannad Al Nsour, MD, MSc, PhD
Executive Director
The Eastern Mediterranean Public Health Network (EMPHNET)
Tel.: +962 6 551 9962 | Fax: +962 6 551 9963
Mob.: (b)(6)
Tel U.S.: 202-241-6515
Email: Executive.director@emphnet.net
Website: www.emphnet.net

EMPHNET
The Eastern Mediterranean Public Health Network

From: Dale Fisher <mdcfda@nus.edu.sg>
Sent: Sunday, July 19, 2020 3:46 PM
To: Gooding, Elizabeth (PHAC/ASPC) <elizabeth.gooding@canada.ca>; Guest508 Guest508 <myriam.henkens@msf.org>; María Alejandra Morales (b)(6) azharul@icddrb.org; Guest187 Guest187 <cnavarrocolorado@unicef.org>; RArthur@cdc.gov; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; lmoses2@tulane.edu; jansena@rki.de; panu.saaristo@ifrc.org; Gwen Eamer <gwen.eamer@ifrc.org>; daniel.bausch@phe.gov.uk; Rawan Araj <raraj@globalhealthdev.org> (b)(6) Josep.Jansa@ecdc.europa.eu; januszp@nicd.ac.za; Mohannad Al-Nsour <executive.director@globalhealthdev.org>; asall@pasteur.sn; Ali khan <Ali.khan@unmc.edu>; Patric Nguku <pnguku@afenet.net>; zhangyp@chinacdc.cn; Jerome Pfaffmann <jpfaffmann@unicef.org>; RKI Andreas Jansen <jansena@rki.de>
Cc: gail.carson@ndm.ox.ac.uk; Pat Drury <druryp@who.int>; Sameera Suri <suris@who.int>; ryanm@who.int; FALL, Ibrahima Soce <socef@who.int>; David Nabarro <david@4sd.info>
Subject: RE: lancet correspondence urgent deadline

Dear all; please disregard the previous attachment and see the latest. David Nabarro has shaped this very nicely with the same content.

Thanks all

Please respond

From: Dale Fisher
Sent: Sunday, 19 July 2020 6:10 PM
To: Gooding, Elizabeth (PHAC/ASPC) <elizabeth.gooding@canada.ca>; Myriam Henkens <Myriam.Henkens@msf.org>; María Alejandra Morales (b)(6) azharul@icddrb.org; cnavarrocolorado@unicef.org; RArthur@cdc.gov; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; lmoses2@tulane.edu; jansena@rki.de; panu.saaristo@ifrc.org; Gwendolen EAMER <gwen.eamer@ifrc.org>; daniel.bausch@phe.gov.uk; raraj@globalhealthdev.org; (b)(6) Josep.Jansa@ecdc.europa.eu; januszp@nicd.ac.za; executive.director@globalhealthdev.org; asall@pasteur.sn; ali.khan@unmc.edu; pnguku@afenet.net; zhangyp@chinacdc.cn; Jerome Pfaffmann <jpfaffmann@unicef.org>
Cc: gail.carson@ndm.ox.ac.uk; DRURY, Patrick Anthony <druryp@who.int>; SURI, Sameera <suris@who.int>; ryanm@who.int; FALL, Ibrahima Soce <socef@who.int>
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I wish to thank Gail Carson, Ray Arthur Elizabeth Gooding, Myriam Henkins, Ali Khan, María Alejandra Morales, Lina Moses, Janusz T. Paweska, Jerome Pfaffmann & Carlos Navarro Colorado.

I really need to hear from Amadou, Azharul, Dan, Panu or Gwen, Josep, mohanned or Rawan, Paul E, Patrick Nguku, Yanping Zhang, Andreas,

I will need to submit in the next few days and am still negotiating whether this can be submitted as a group. I also wonder if we can submit with only half of SCOM involved. For sure we can't put a name or organisation without approval. I don't expect to have WHO employees mentioned.

Please can I get some responses from all.

1. sign off on the "final" version or more changes
2. support for whatever authorship decision is made
3. for the half that haven't responded please also state whether we can add your name and affiliation as listed in the attached.
4. everyone can we submit without full 20 member sign off?

Thanks to everyone and please all answer. I am worried this will amount to nothing. We have to submit this week as there is a 2 week response deadline.

This time adding Soce and Mike for any viewpoints please. Hopefully the Lancet correspondence attached is self explanatory. Let me know what you think?

Thanks

Dale

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From: Dale Fisher
Sent: Mon, 20 Jul 2020 01:34:39 +0000
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Subject: RE: lancet correspondence urgent deadline

Thanks Ray; got it

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Sent: Monday, 20 July 2020 3:15 AM
To: Dale Fisher <mdcfda@nus.edu.sg>
Subject: RE: lancet correspondence urgent deadline

- External Email -

Dear Dale,

Final draft looks great. While I strongly support publication, I have been advised (b)(5)
(b)(5)
(b)(5)

The US and particularly CDC are living in tough times.

Best,
Ray

From: Dale Fishe (b)(6)
Sent: Sunday, July 19, 2020 8:46 AM
To: Gooding, Elizabeth (PHAC/ASPC) <elizabeth.gooding@canada.ca>; Myriam Henkens <Myriam.Henkens@msf.org>; María Alejandra Morales <n (b)(6) azharul@icddrb.org; Navarro-Colorado, Carlos (CDC unicef.org) <cnavarrocolorado@unicef.org>; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; lmoses2@tulane.edu; jansena@rki.de; panu.saaristo@ifrc.org; Gwendolen EAMER <gwen.eamer@ifrc.org>; daniel.bausch@phe.gov.uk; raraj@globalhealthdev.org; (b)(6) Josep.Jansa@ecdc.europa.eu; januszp@nicd.ac.za; executive.director@globalhealthdev.org; asall@pasteur.sn; ali.khan@unmc.edu; pnguku@afenet.net; zhangyp@chinacdc.cn; Jerome Pfaffmann <jpfaffmann@unicef.org>; RKI Andreas Jansen <jansena@rki.de>
Cc: gail.carson@ndm.ox.ac.uk; DRURY, Patrick Anthony <druryp@who.int>; SURI, Sameera <suris@who.int>; Ryan, Michael (CDC who.int) <ryanm@who.int>; FALL, Ibrahima Soce <socef@who.int>; David Nabarro <david@4sd.info>
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Cc: gail.carson@ndm.ox.ac.uk; DRURY, Patrick Anthony <druryp@who.int>; SURI, Sameera <suris@who.int>; ryanm@who.int; FALL, Ibrahima Soce <socef@who.int>
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Thanks

Dale

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From: Dale Fisher
Sent: Sun, 19 Jul 2020 12:46:23 +0000
To: Gooding, Elizabeth (PHAC/ASPC);Myriam Henkens;María Alejandra Morales;azharul@icddrb.org;Navarro-Colorado, Carlos (CDC unicef.org);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);lmoses2@tulane.edu;jansena@rki.de;panu.saaristo@ifrc.org;Gwendolen EAMER;daniel.bausch@phe.gov.uk;raraj@globalhealthdev.org;(b)(6);Josep.Jansa@ecdc.europa.eu;januszp@nicd.ac.za;executive.director@globalhealthdev.org;asall@pasteur.sn;ali.khan@unmc.edu;pnguku@afenet.net;zhangyp@chinacdc.cn;Jerome Pfaffmann;RKI Andreas Jansen
Cc: gail.carson@ndm.ox.ac.uk;DRURY, Patrick Anthony;SURI, Sameera;Ryan, Michael (CDC who.int);FALL, Ibrahima Soce;David Nabarro
Subject: RE: lancet correspondence urgent deadline
Attachments: lancet correspondence 200719_late.docx

Dear all; please disregard the previous attachment and see the latest. David Nabarro has shaped this very nicely with the same content.

Thanks all

Please respond

From: Dale Fisher
Sent: Sunday, 19 July 2020 6:10 PM
To: Gooding, Elizabeth (PHAC/ASPC) <elizabeth.gooding@canada.ca>; Myriam Henkens <Myriam.Henkens@msf.org>; María Alejandra Morales (b)(6) azharul@icddrb.org; cnavarrocolorado@unicef.org; RArthur@cdc.gov; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; lmoses2@tulane.edu; jansena@rki.de; panu.saaristo@ifrc.org; Gwendolen EAMER <gwen.eamer@ifrc.org>; daniel.bausch@phe.gov.uk; raraj@globalhealthdev.org; (b)(6) Josep.Jansa@ecdc.europa.eu; januszp@nicd.ac.za; executive.director@globalhealthdev.org; asall@pasteur.sn; ali.khan@unmc.edu; pnguku@afenet.net; zhangyp@chinacdc.cn; Jerome Pfaffmann <jpfaffmann@unicef.org>
Cc: gail.carson@ndm.ox.ac.uk; DRURY, Patrick Anthony <druryp@who.int>; SURI, Sameera <suris@who.int>; ryanm@who.int; FALL, Ibrahima Soce <socef@who.int>
Subject: lancet correspondence urgent deadline

Dear all; I attach the latest version. it's a few words over still but I think ok. Certainly we can't add more without something coming off at 263 words. I have really tried to capture all the sentiments expressed. They were fabulous.

I wish to thank Gail Carson, Ray Arthur Elizabeth Gooding, Myriam Henkins, Ali Khan, María Alejandra Morales, Lina Moses, Janusz T. Paweska, Jerome Pfaffmann & Carlos Navarro Colorado.

I really need to hear from Amadou, Azharul, Dan, Panu or Gwen, Josep, mohanned or Rawan, Paul E, Patrick Nguku, Yanping Zhang, Andreas,

I will need to submit in the next few days and am still negotiating whether this can be submitted as a group. I also wonder if we can submit with only half of SCOM involved. For sure we can't put a name or organisation without approval. I don't expect to have WHO employees mentioned.

Please can I get some responses from all.

1. sign off on the "final" version or more changes
2. support for whatever authorship decision is made
3. for the half that haven't responded please also state whether we can add your name and affiliation as listed in the attached.
4. everyone can we submit without full 20 member sign off?

Thanks to everyone and please all answer. I am worried this will amount to nothing. We have to submit this week as there is a 2 week response deadline.

This time adding Soce and Mike for any viewpoints please. Hopefully the Lancet correspondence attached is self explanatory. Let me know what you think?

Thanks

Dale

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- Correspondence letters are not usually peer reviewed (we rarely publish original research in this section), but the journal might invite replies from the authors of the original publication, or pass on letters to these authors
- Only one table or figure is permitted, and there should be no more than five references and five authors
- All accepted letters are edited, and proofs will be sent out to authors before publication
- Some letters might be chosen for online-only publication

Correspondence

(b)(4)

(b)(4)

From: Dale Fisher
Sent: Sun, 19 Jul 2020 10:10:23 +0000
To: Gooding, Elizabeth (PHAC/ASPC);Myriam Henkens;María Alejandra Morales;azharul@icddrb.org;Navarro-Colorado, Carlos (CDC unicef.org);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);lmoses2@tulane.edu;jansena@rki.de;panu.saaristo@ifrc.org;Gwendolen EAMER;daniel.bausch@phe.gov.uk;raraj@globalhealthdev.org (b)(6) Josep.Jansa@ecdc.europa.eu;januszp@nicd.ac.za;executive.director@globalhealthdev.org;asall@pasteur.sn;ali.khan@unmc.edu;pnguku@afenet.net;zhangyp@chinacdc.cn;Jerome Pfaffmann
Cc: gail.carson@ndm.ox.ac.uk;DRURY, Patrick Anthony;SURI, Sameera;Ryan, Michael (CDC who.int);FALL, Ibrahima Soce
Subject: lancet correspondence urgent deadline
Attachments: lancet correspondence 200719.docx

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1. sign off on the "final" version or more changes
2. support for whatever authorship decision is made
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Thanks

Dale

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- Only one table or figure is permitted, and there should be no more than five references and five authors
- All accepted letters are edited, and proofs will be sent out to authors before publication
- Some letters might be chosen for online-only publication

Correspondence

(b)(4)

(b)(4)

From: Dale Fisher
Sent: Thu, 16 Jul 2020 04:50:43 +0000
To: azharul@icddrb.org;Navarro-Colorado, Carlos (CDC unicef.org);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);lmoses2@tulane.edu;jansena@rki.de;panu.saaristo@ifrc.org;Gwendolen EAMER;daniel.bausch@phe.gov.uk;Myriam.Henkens@msf.org;raraj@globalhealthdev.org;pauleffler@gmail.com;elizabeth.gooding@canada.ca;Josep.Jansa@ecdc.europa.eu;(b)(5) (b)(5) januszp@nicd.ac.za;executive.director@globalhealthdev.org;asall@pasteur.sn;ali.khan@unmc.edu;pnguku@afenet.net;zhangyp@chinacdc.cn
Cc: gail.carson@ndm.ox.ac.uk;yotiza@who.int;SALMON, Sharon;storozhenkoo@who.int;vicarian@paho.org;aldighsy@paho.org;DEL RIO VILAS, Victor;DRURY, Patrick Anthony;SURI, Sameera;ebuliva@who.int
Subject: lancet correspondence
Attachments: the worst is yet to come.pdf, lancet correspondence 200716.docx

Dear all;

As discussed at the most recent virtual SCOM meeting we have drafted a letter. We feel an entry point could be correspondence in Lancet in a response to a recent editorial (attached)
Please read the 250 word response. Feel free to suggest on track changes any changes you think of.
I also need to know if you can put your name and organisation to this if we are allowed to list all SCOM members

If possible please turn this around in the next 24-48 hrs. The letter is short and we have to submit within 2 weeks of the original article.

Thanks all

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COVID-19: the worst may be yet to come



Imaginima/Getty Images

As much of western Europe begins to ease countrywide lockdowns, globally the pandemic may still be in its infancy, with more than 160 000 new cases reported each day since June 25. Individual countries count cases differently, so direct comparisons are difficult, but the numbers illustrate a worrying pattern. At a subnational level the picture is nuanced, with local hotspots, but at a country level the picture is clear—the world is facing a worsening multipolar pandemic.

The USA, Brazil, and India each logged more than 100 000 new cases from June 26 to July 3. But the pandemic also rages in Russia, forming a belt of infection that tracks through central Asia and into the Middle East and the Indian subcontinent. Increasing COVID-19 cases in South Africa mean that the pandemic has a strong foothold in sub-Saharan Africa, which is particularly alarming as parts of Africa consider resuming internal air travel later this month. Despite President Trump's July 4 claims that "99% of cases are harmless" and of a "strategy that is moving along well", the USA has the most new cases worldwide—53 213 on July 4, and a total of 128 481 deaths, almost a quarter of the total deaths globally. These beacons of infection show the fragility of any progress.

During the first days of July, 2020, Kazakhstan recorded the second highest number of new cases within Europe after Russia. Reporting in the largely authoritarian central Asian states has been unreliable. Turkmenistan has yet to report a single case of COVID-19 and Tajikistan has yet to provide breakdowns to WHO. Regardless, the health and economic outlook for the region is bleak. These countries have some of the highest ratios of out-of-pocket health-care spending to total health expenditure in the world, with women in particular having very poor access to health care, further obscuring the true numbers of COVID-19 cases. At the beginning of the pandemic, 2·7 million to 4·2 million central Asian labour migrant workers were estimated to be residing in Russia. Many remain stranded in areas with a high infection risk, meaning reintroduction of the virus might become a problem after the initial wave.

At the end of June, the Eastern Mediterranean region reached 1 million cases of COVID-19. Iran, Pakistan, and Saudi Arabia continue to report the highest number of infections. Most countries grapple with the challenging balance of suppressing the virus while trying to prevent the estimated 66% of the population who are either classified as poor or vulnerable to poverty being pushed into further destitution. The Gulf states are outliers. Saudi Arabia has implemented an essentially unlimited budget, expanding intensive care unit bed capacity and opening hundreds of so-called fever clinics to allow free access for patients with symptoms, and health-care workers are being retrained virtually. Meanwhile, neighbouring Iraq is struggling with oxygen shortages and Yemen faces the human catastrophe of COVID-19 in an unstable conflict zone.

In India, after relaxation of a 3-month lockdown, cases are surging. Maharashtra, Delhi, and Gujarat are among the worst hit states, with the army needed to help overwhelmed health-care centres. But some of the larger Indian states have yet to witness a substantial rise in COVID-19 cases, so the country is braced for further rapid transmission of the virus. Unfortunately, although the lockdown bought time, it was not used effectively to increase capacity in the health-care system in India. There has not been a systematic restructuring of medical provision or redeployment of health-care staff. With less than eight doctors per 10 000 population, using these resources efficiently will be crucial in the coming months.

In Central and South America, Brazil steals the headlines for the highest number of COVID-19 cases, but Mexico, Columbia, Peru, Chile, and Argentina also have cases in the thousands, forming a clear pattern of transmission across Latin America. A letter published in *The Lancet* describes the Pan American Health Organization as on the brink of closure because of member states' non-payment. Never has a coordinating regional health body been more important.

Two seroprevalence studies from Spain and Geneva published in *The Lancet* reveal an estimated seroprevalence of 5% nationally (10% in urban areas) and 10·8%, respectively. Even if antibodies confer immunity, most of the global population remains susceptible to SARS-CoV-2. 5 months after WHO declared the SARS-CoV-2 outbreak a global health emergency, the virus continues to beat a concerning and complex path. For much of the globe, the worst may be yet to come. ■ *The Lancet*

For more on **COVID-19 numbers** see https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports

For more on the **COVID-19 response in central Asia** see http://www.oecd.org/coronavirus/policy-responses/covid-19-crisis-response-in-central-asia-5305f172/

For more on the **Pan American Health Organization** see **Correspondence** *Lancet* 2020; published online July 2. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31489-6/fulltext

For more on **seroprevalence in Spain** see **Articles** *Lancet* 2020; published online July 6. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31483-5/fulltext

For more on **seroprevalence in Geneva** see **Articles** *Lancet* 2020; published online June 11. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31304-0/fulltext

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- Correspondence letters are not usually peer reviewed (we rarely publish original research in this section), but the journal might invite replies from the authors of the original publication, or pass on letters to these authors
- Only one table or figure is permitted, and there should be no more than five references and five authors
- All accepted letters are edited, and proofs will be sent out to authors before publication
- Some letters might be chosen for online-only publication

Correspondence

(b)(4)

Word count: 230

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP)
Sent: Mon, 13 Jan 2020 07:47:14 +0000
To: Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Subject: Re: (b)(5)

Ray knows the language of GOARN contracts and can help assess equivalency (if that is a word)
Inger
Inger K Damon MD PhD
Director, Division of High Consequence Pathogens and Pathology
NCEZID
CDC

From: Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID) <bid5@cdc.gov>
Sent: Monday, January 13, 2020 8:01:44 AM
To: Beach, Michael J. (CDC/DDID/NCEZID/DFWED) <mjb3@cdc.gov>; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Subject: (b)(5)

Hi all,
Simone from UNICEF asked me (b)(5)
(b)(5) I said I would check with you but imagine it would. It would be a big lift for her and that's why she wants to check before starting the process. Can someone verify this is acceptable and then I can send an official request to her.
Thanks,
Ben
Please excuse any autocorrect awkwardness.

From: Dr VAN KERKHOVE, Maria
Sent: Thu, 16 Jan 2020 21:56:09 +0000
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);Lindstrom, Stephen (CDC/DDID/NCIRD/DVD);PERKINS, Mark
Subject: Re: Summary of Outcomes - Wuhan, China

Thanks Ray

On 16.01.20, 22:53, "Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)" <rca8@cdc.gov> wrote:

Forwarding in the event you have not already seen this message from Japan.

Ray

-----Original Message-----
From: 杉原 淳(sugihara-jun) <sugihara-jun@mhlw.go.jp>
Sent: Thursday, January 16, 2020 6:56 AM
To: Menard4, Philippe (PHAC/ASPC) <philippe.menard4@canada.ca>; Gibbons, Tracy (PHAC/ASPC) <tracy.gibbons@canada.ca>; Bikinas, Mallory (PHAC/ASPC) <Mallory.Bikinas@canada.ca>; wolfgang.philipp@ec.europa.eu; agnes-marta.molnar@ec.europa.eu; coralie.giese@sante.gouv.fr; Schwoerer, Antione (CDC sante.gouv.fr) <antoine.schwoerer@sante.gouv.fr>; juliane.knop@bmg.bund.de; f.maraglino@sanita.it; Ricardo.Cortes@salud.gob.mx; Alejandro.Svarch@salud.gob.mx; Dafne.ruiz@salud.gob.mx; kevin.dodds@dhsc.gov.uk; rosa.manning@dhsc.gov.uk; Moudy, Robin (OS/ASPR/SPPR) <Robin.Moudy@hhs.gov>; Fernandez, Jose (OS/OGA) <Jose.Fernandez@hhs.gov>; Weinberger, Collin (OS/OGA) (CTR) <Collin.Weinberger@hhs.gov>; Ayala, Ana (OS/ASPR/SPPR) <Ana.Ayala@hhs.gov>; DOLEA, Carmen Mihaela <doleac@who.int>; david.russell@hpa.org.uk; Sokolowski, Danny (HC/SC) <danny.sokolowski@canada.ca>; HerzogC@rki.de; saito.t.aa@niph.go.jp; Chandrasekera, Ruvani (OS/ASPR/SPPR) <Ruvani.Chandrasekera@hhs.gov>; Gilmour, Matthew (PHAC/ASPC) <matthew.gilmour@canada.ca>; antonino.dicaro@inmi.it; Kuschak, Theodore (PHAC/ASPC) <theodore.kuschak@canada.ca>; Coleman, Norman (NIH/NCI) [E] <ccoleman@mail.nih.gov>; Tewell, Adam (OS/ASPR/SPPR) <Adam.Tewell@hhs.gov>; Jonathan.VanTam@dhsc.gov.uk; Greene, Carolyn M. (CDC/DDID/NCIRD/ID) <cqg4@cdc.gov>; Smith, Sharon E (PHAC/ASPC) <sharone.smith@canada.ca>; Paddle, Lisa (PHAC/ASPC) <lisa.paddle@canada.ca>; Kotowski, Laura (PHAC/ASPC) <laura.kotowski@canada.ca>; Henry, Erin (PHAC/ASPC) <erine.henry@canada.ca>; Newland, Matthew (OS/ASPR/BARDA) <Matthew.Newland@hhs.gov>; Davis, Anika L <DavisAL1@state.gov>; Costello, Kelly E <CostelloKE@state.gov>; Pennock, Jennifer (PHAC/ASPC) <jennifer.pennock@canada.ca>; Seedorff, Jennifer E <SeedorffJE@state.gov>; Stroud, Crystal (PHAC/ASPC) <crystal.stroud@canada.ca>; Rizzo Caterina <caterina1.rizzo@opbg.net>; Cavanagh, Cheryl <cheryl.cavanagh@dhsc.gov.uk>; Stirling, Rob (PHAC/ASPC) <rob.stirling@canada.ca>; Charos, Gina (PHAC/ASPC) <gina.charos@canada.ca>; Donis, Ruben (OS/ASPR/BARDA) <Ruben.Donis@hhs.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>; 上戸賢(kamido-satoshi.g30) <kamido-satoshi.g30@mhlw.go.jp>; Bancej, Christina (PHAC/ASPC) <christina.bancej@canada.ca>; Meyer, Heidi <Heidi.Meyer@pei.de>; Haas, Walter <HaasW@rki.de>; Hennigar, David (PHAC/ASPC) <david.hennigar@canada.ca>; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; Hercik, Christine (CDC/DDPHSIS/CGH/DGHP) <ocg5@cdc.gov>; Schulz-Weidhaas, Claudia <Schulz-WeidhaasC@rki.de>; Laura Woodward <Laura.Woodward@phe.gov.uk>; John Simpson <John.Simpson@phe.gov.uk>; Carty, Paula (PHAC/ASPC) <paula.carty@canada.ca>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; Pasi Penttinen <Pasi.Penttinen@ecdc.europa.eu>; Gregg, William (Joe) (CDC/DDID/NCIRD/OD) <hie6@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Coggeshall, Kira (CDC/DDPHSIS/CGH/DGHP) <dot9@cdc.gov>; DRURY, Patrick Anthony <druryp@who.int>; Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>; Hellam, Rebecca (PHAC/ASPC) <rebecca.hellam@canada.ca>; Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ) <snr2@cdc.gov>; Cornelia Adlhoch <Cornelia.Adlhoch@ecdc.europa.eu>; Irma L ? pez Mart ? nez <irma.lopez@salud.gob.mx>; Rita Flores Le ? n <(b)(6) Hiram Olivera Diaz <hiram.olivera@salud.gob.mx>

Subject: RE: Summary of Outcomes - Wuhan, China

Dear colleagues,

Currently, we are currently working on IHR EIS posting with WHO and I assume it would take some time to complete posting.
Meanwhile, we will share our draft EIS posting, methodology we used to detect nCoV and sequence data.
We request you to use these information CONFIDENTIAL, as usual.

Best regards,

Jun

Jun Sugihara, MD, MPH, DTM&H
Lead, IHR National Focal Point of Japan
Coordinator for International Health Emergency Management Office of Public Health Emergency Preparedness and Response Health Science Division, Minister's Secretariat Ministry of Health, Labour and Welfare Government of Japan
1-2-2 Kasumigaseki, Chiyoda-ku, Tokyo 100-8916 Japan
TEL +81-3-5253-1111 (Ext 3821)
DIRECT +81-3-3595-2171
FAX +81-3-3503-0183
EMAIL sugihara-jun@mhlw.go.jp

-----Original Message-----
From: 杉原 淳(sugihara-jun)
Sent: Thursday, January 16, 2020 12:54 PM
Subject: RE: Summary of Outcomes - Wuhan, China

Dear colleagues,

As you may know, we've detected a case of pneumonia traveled to Wuhan, China, and identified 2019-nCoV by sequencing of the PCR product.

We will post the details on the IHR EIS website soon, but here are the preliminary information:

The case is a resident of Kanagawa Prefecture, Japan.
He traveled to Wuhan, China during western new year holidays and developed fever on January 6th.

We've detected the case by our Unidentified Serious Infectious Illness surveillance on January 14th and the throat swab was tested positive for 2019-nCoV on January 15th.

Here are the details of the case
1. Age: 30s
2. Gender: Male
3. Residence: Kanagawa Prefecture, Japan
4. Clinical History:

Jan 3- developed fever
Jan 6 traveled back to Japan from Wuhan, China
visited a local clinic
Jan 10 hospitalized due to pneumonia
Jan 15 discharged from hospital

Based on a report from the case, he did not visited Huanan Seafood Market.
He had a contact with a patient of pneumonia of unknown etiology.

Epidemiologic investigation is ongoing.

Best regards,

Jun

-----Original Message-----
From: fssadmin@mhlw.go.jp <fssadmin@mhlw.go.jp> On Behalf Of Menard4, Philippe (PHAC/ASPC)
Sent: Wednesday, January 15, 2020 1:01 AM
Subject: Summary of Outcomes - Wuhan, China

Dear Colleagues,

Please find attached the Summary of Outcomes from yesterday's GHSI teleconference regarding the novel coronavirus in Wuhan, China.

We ask delegates to kindly review the contents and provide any changes that may have been improperly recorded by 16 January 2020.

As well, on behalf of our colleagues from the European Commission, please find below the link to the ECDC's threat assessment:
https://www.ecdc.europa.eu/en/publications-data/pneumonia-cases-possibly-associated-novel-coronavirus-wuhan-china

Please do not hesitate to contact us should you have any questions or concerns.

Best,

Phil

Phil Menard
GHSI Secretariat

From: Dr VAN KERKHOVE, Maria
Sent: Mon, 20 Jan 2020 06:36:21 +0000
To: Adeel Ajwad Butt;DIAZ, Janet Victoria
Cc: YaeJean Kim;Tawee Chotpitayasunondh;(SPmig) Peter Horby;David SC Hui, Prof. (MEDT);jakedunning;John Marshall;高占成;Yaseen Arabi, (b)(6) Adhikari;Robert Fowler;Uyeki, Timothy M. (CDC/DDID/NCIRD/ID);Srinivas Murthy;Naoki Shimizu;dubin98;Frederick G Hayden, fgh;Charles Gomersall, AIC;peabodyr;Paula Lister;j k baillie;habdely;沈银忠;Gail Carson;caobin1999;Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);Gerber, Susan I. (CDC/DDID/NCIRD/DVD);Ijaz, Kashef (CDC/DDPHSIS/CGH/DGHP);OTSU, Satoko;GREIN, Thomas;Ryan, Michael (CDC who.int);PFEIFER, Dina;NORRIS, Susan;KATO, Masaya;toledojoa;BALLER, April;MAHJOUR, Jaouad;BRIAND, Sylvie;SHINDO, Nahoko;BROWN, Richard
Subject: RE: TC Clinical management nCoV respiratory : 16 January 13hr : Call-in DETAILS

Dear Adeel,

Thank you for your message. We have been releasing information through our Disease outbreak news, but your point is well taken. We will discuss and get back to you.

Thank you for your support,
Maria

Maria D Van Kerkhove, PhD

Head ai Emerging Diseases and Zoonoses Unit, MERS-CoV Technical Lead
Global Infectious Hazards Preparedness • Health Emergencies Program
World Health Organization • Geneva Switzerland

Mobile: (b)(6) Office: +41 22 79 11817 • Email: vankerkhovem@who.int
http://who.int/emergencies/mers-cov/en/

From: Adeel Ajwad Butt <aabutt@hamad.qa>
Sent: Monday, 20 January, 2020 07:32
To: DIAZ, Janet Victoria <diazj@who.int>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Cc: YaeJean Kim <yaejeankim@skku.edu>; Tawee Chotpitayasunondh <ctawee@health.moph.go.th>; (SPmig) Peter Horby <peter.horby@ndm.ox.ac.uk>; David SC Hui, Prof. (MEDT) <dschui@cuhk.edu.hk>; jakedunning <jakedunning@doctors.org.uk>; John Marshall <marshallj@smh.ca>; 高占成 <gaozhancheng5446@163.com>; Yaseen Arabi, (b)(6) (b)(6) Neill Adhikari <neill.adhikari@sunnybrook.ca>; Robert Fowler <rob.fowler@sunnybrook.ca>; Timothy M. Uyeki <tmu0@cdc.gov>; Srinivas Murthy <srinivas.murthy@cw.bc.ca>; Naoki Shimizu <naoki_shimizu@mac.com>; dubin98 <(b)(6); Frederick G Hayden, fgh <fgh@virginia.edu>; Charles Gomersall, AIC <gomersall@cuhk.edu.hk>; peabodyr <peabodyr@who.int>; Paula Lister <Paula.Lister@health.qld.gov.au>; j k baillie

<j.k.baillie@ed.ac.uk>; habdely (b)(6) 沈银忠 <shenyinzhong@shphc.org.cn>; Gail Carson <gail.carson@ndm.ox.ac.uk>; caobin1999 <(b)(6); rca8@cdc.gov; bhx1 <bhx1@cdc.gov>; Kashef Ijaz, CDC/DDPHSIS/CGH/DGHP <kil6@cdc.gov>; OTSU, Satoko <otsus@who.int>; GREIN, Thomas <greint@who.int>; RYAN, Michael J. <ryanm@who.int>; PFEIFER, Dina <pfeiferd@who.int>; NORRIS, Susan <norriss@who.int>; KATO, Masaya <katom@who.int>; toledojoa <toledojoa@paho.org>; BALLER, April <ballera@who.int>; MAHJOUR, Jaouad <mahjourj@who.int>; BRIAND, Sylvie <briands@who.int>; SHINDO, Nahoko <shindon@who.int>; BROWN, Richard <brownr@who.int>
Subject: RE: TC Clinical management nCoV respiratory : 16 January 13hr : Call-in DETAILS

This is becoming more alarming by the day.

Can WHO team share a cumulative case tally on a regular basis? Like a table with number, origin, location of diagnosis, disease severity, etc.?

Best regards,

Adeel Ajwad Butt, MD, MS, FACP, FIDSA
Professor of Medicine, and Professor of Healthcare Policy and Research
Weill Cornell Medical College
Vice Chair, Department of Medicine
Director, Clinical Epidemiology Research Unit
Hamad Medical Corporation

Office: +974 4439 6283

From: DIAZ, Janet Victoria [mailto:diazj@who.int]
Sent: Monday, 20 January, 2020 9:14 AM
To: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Cc: YaeJean Kim <yaejeankim@skku.edu>; Tawee Chotpitayasunondh <ctawee@health.moph.go.th>; (SPmig) Peter Horby <peter.horby@ndm.ox.ac.uk>; David SC Hui, Prof. (MEDT) <dschui@cuhk.edu.hk>; jakedunning <jakedunning@doctors.org.uk>; John Marshall <marshallj@smh.ca>; 高占成 <gaozhancheng5446@163.com>; Yaseen Arabi, (b)(6) (b)(6) Neill Adhikari <neill.adhikari@sunnybrook.ca>; Robert Fowler <rob.fowler@sunnybrook.ca>; Timothy M. Uyeki <tmu0@cdc.gov>; Srinivas Murthy <srinivas.murthy@cw.bc.ca>; Naoki Shimizu <naoki_shimizu@mac.com>; dubin98 <(b)(6) Frederick G Hayden, fgh <fgh@virginia.edu>; Charles Gomersall, AIC <gomersall@cuhk.edu.hk>; peabodyr <peabodyr@who.int>; Paula Lister <Paula.Lister@health.qld.gov.au>; j k baillie <j.k.baillie@ed.ac.uk>; habdely (b)(6) 沈银忠 <shenyinzhong@shphc.org.cn>; Gail Carson <gail.carson@ndm.ox.ac.uk>; caobin1999 (b)(6) rca8@cdc.gov; Adeel Ajwad Butt <aabutt@hamad.qa>; bhx1 <bhx1@cdc.gov>; Kashef Ijaz, CDC/DDPHSIS/CGH/DGHP <kil6@cdc.gov>; OTSU, Satoko <otsus@who.int>; GREIN, Thomas <greint@who.int>; RYAN, Michael J. <ryanm@who.int>; PFEIFER, Dina <pfeiferd@who.int>; NORRIS, Susan <norriss@who.int>; KATO, Masaya <katom@who.int>; toledojoa

<toledojoa@paho.org>; BALLER, April <ballera@who.int>; MAHJOUR, Jaouad <mahjourj@who.int>; BRIAND, Sylvie <briands@who.int>; SHINDO, Nahoko <shindon@who.int>; BROWN, Richard <brownr@who.int>
Subject: Re: TC Clinical management nCoV respiratory : 16 January 13hr : Call-in DETAILS

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هذه الرسالة وارده من مصدر خارجي وقد تكون بريد عشوائي او تصيّد احتيالي، لذا يجب التعامل مع هذه الرسالة بحذر. تفادى الضغط على الروابط أو الملفات المرفقة ما لم تتأكد انها من مصدر موثوق وأن المحتوى آمن. في حالة استلام رسالة مشبوهة استخدم أيقونة "Report Phishing" على شريط تطبيق مايكروسوفت اوت لوك للإبلاغ عنها وطردها من صندوق البريد الوارد.

Thank you Yae Jean.

We will plan our clinical TC tomorrow
Hope you will be able to attend.

Warm regards

Janet

Sent from my iPhone

> On 20 Jan 2020, at 05:51, Dr VAN KERKHOVE, Maria <vankerkhovem@who.int> wrote:
>
> Thank you YeaJean. We look forward to more information through official reporting.
>
> Best wishes.
> Maria
>
> > On 20 Jan 2020, at 04:46, YaeJean Kim <yaejeankim@skku.edu> wrote:
> >
> > Dear All,
> >
> > We have the first case in Korea confirmed today.
> > A Chinese woman from Wuhan city. She was having a fever and cough and was isolated at the airport.
> >
> > As you may already know, in China, they have new cases in Beijing and Shenzhen.

YaeJean

Yae-Jean Kim, MD, PhD

Professor
Division of Infectious Diseases and Immunodeficiency
Department of Pediatrics,
Samsung Medical Center,
Sungkyunkwan University School of Medicine,
81 Irwon-ro, Gangnam-gu,
Seoul, 06351
South Korea
yaejeankim@skku.edu

On Sat, Jan 18, 2020 at 4:12 PM Tawee Chotpitayasunondh <ctawee@health.moph.go.th> wrote:

> Dear Peter
> Yes exactly,Thailand is managing to have viral culture.
> Tawee

จาก: "SPmig" <peter.horby@ndm.ox.ac.uk>
ถึง: "Tawee Chotpitayasunondh" <ctawee@health.moph.go.th>
สำเนา: "Janet DIAZ" <diazj@who.int>, "David SC Hui, Prof. (MEDT)" <dschui@cuhk.edu.hk>, "jakedunning" <jakedunning@doctors.org.uk>, "John Marshall" <marshallj@smh.ca>, "高占成" <gaozhancheng5446@163.com>, "Yaseen Arabi, (b)(6) (b)(6) "Neill Adhikari" <neill.adhikari@sunnybrook.ca>, "Robert Fowler" <rob.fowler@sunnybrook.ca>, "Timothy M. Uyeki" <tmu0@cdc.gov>, "Srinivas Murthy" <Srinivas.Murthy@cw.bc.ca>, "Naoki Shimizu" <naoki_shimizu@mac.com>, "dubin98" (b)(6), "Frederick G Hayden, fgh" <fgh@virginia.edu>, "yaejeankim" <yaejeankim@skku.edu>, "Charles Gomersall, AIC"

<gomersall@cuhk.edu.hk>, "peabodyr" <peabodyr@who.int>, "Paula Lister" <Paula.Lister@health.qld.gov.au>, "j k baillie" <j.k.baillie@ed.ac.uk>, "habdely" (b)(6)>, "沈银忠" <shenyinzhong@shphc.org.cn>, "Gail Carson" <gail.carson@ndm.ox.ac.uk>, "caobin1999" (b)(6)>, "rca8" <rca8@cdc.gov>, "aabutt" <aabutt@hamad.qa>, "bhx1" <bhx1@cdc.gov>, "Kashef Ijaz, CDC/DDPHSIS/CGH/DGHP" <kil6@cdc.gov>, "Satoko OTSU" <otsus@who.int>, "Dr VAN KERKHOVE, Maria" <vankerkhovem@who.int>, "Thomas GREIN" <greint@who.int>, "Michael J. RYAN" <ryanm@who.int>, "Dina PFEIFER" <pfeiferd@who.int>, "Susan NORRIS" <norriss@who.int>, "Masaya KATO" <katom@who.int>, "toledojoa" <toledojoa@paho.org>, "April BALLER" <ballera@who.int>, "Jaouad MAHJOUR" <mahjourj@who.int>, "Sylvie BRIAND" <briands@who.int>, "Nahoko SHINDO" <shindon@who.int>, "Richard BROWN" <brownr@who.int>

ส่งแล้ว: ศุกร์, 17 มกราคม, 2020 4:59:40 PM

เรื่อง: Re: TC Clinical management nCoV respiratory : 16 January 13hr : Call-in DETAILS

Dear Tawee,

Has Thailand managed to isolate the virus?
Access to live virus will be extremely important for investigation of binding, pathogenesis, transmissibility, validation of assays etc etc etc. This should be done by multiple labs in parallel as a global health initiative.
I do not think we will be getting live virus from other sources at this time, so Thailand could play a crucial role here.

Best wishes

Peter

> On 17 Jan 2020, at 04:32, Tawee Chotpitayasunondh <ctawee@health.moph.go.th> wrote:

Dear Janet and All Expert
Very sorry in unable to join TC yesterday due to my busy meeting at Ministry. This morning we had announced the SECOND CONFIRMED CASE OF nCoV 2019. A (b)(year-old woman from Wuhan had landed at BKK airport on 13 Jan and thermoscan had shown fever 38 C with only sore throat. She was hospitalized and test show sequencing matching with nCoV.
The patient had cough and mild tachypnea ,CXR show minimal pneumonia. The condition is quite stable and mild. The big worry is she had NO HISTORY of visiting any market or contact with any wild animal.
I hope every countries should raise the system to surveillance this new disease especially area with Chinese tourists destination.
Regards
Tawee
----- ข้อความต้นฉบับ -----
จาก: DIAZ, Janet Victoria <diazj@who.int>
ถึง: David SC Hui, Prof. (MEDT) <dschui@cuhk.edu.hk>, jakedunning@doctors.org.uk, Marshall, John <marshallj@smh.ca>, 高占成 (gaozhancheng5446@163.com) <gaozhancheng5446@163.com>, Yaseen Arabi (b)(6) (b)(6) Adhikari, Neill <neill.adhikari@sunnybrook.ca>, Fowler, Robert <rob.fowler@sunnybrook.ca>, Timothy M. Uyeki <tmu0@cdc.gov>, Murthy, Srinivas <Srinivas.Murthy@cw.bc.ca>, Naoki Shimizu <naoki_shimizu@mac.com>, (b)(6) Hayden, Frederick G (fgh) <fgh@virginia.edu>, yaejeankim@skku.edu, Charles Gomersall (AIC) <gomersall@cuhk.edu.hk>, peabodyr@who.int, Paula Lister <Paula.Lister@health.qld.gov.au>, j k baillie <j.k.baillie@ed.ac.uk>, (b)(6) , 沈银忠 <shenyinzhong@shphc.org.cn>, (SPmig) Peter Horby <peter.horby@ndm.ox.ac.uk>, Gail Carson <gail.carson@ndm.ox.ac.uk>, (b)(6) 8@cdc.gov, aabutt@hamad.qa, bhx1@cdc.gov, Marshall, John <marshallj@smh.ca>, ctawee@health.moph.go.th, Ijaz, Kashef (CDC/DDPHSIS/CGH/DGHP) <kil6@cdc.gov>
สำเนา: OTSU, Satoko <otsus@who.int>, Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>, GREIN, Thomas <greint@who.int>, RYAN, Michael J. <ryanm@who.int>, PFEIFER, Dina <pfeiferd@who.int>, NORRIS, Susan <norriss@who.int>, KATO, Masaya <katom@who.int>, toledojoa <toledojoa@paho.org>, BALLER, April <ballera@who.int>, MAHJOUR, Jaouad <mahjourj@who.int>, BRIAND, Sylvie <briands@who.int>, SHINDO, Nahoko <shindon@who.int>, BROWN, Richard <brownr@who.int>

ส่งแล้ว: Thu, 16 Jan 2020 16:42:36 +0700 (ICT)
เรื่อง: Re: TC Clinical management nCoV respiratory : 16 January 13hr : Call-in DETAILS

A useful link for today's call.

https://flutrackers.com/forum/forum/the-pandemic-discussion-forum/822041-discussion-thread-viral-pneumonia-outbreak-in-wuhan-china/page2

Warm regards,

Janet

From: DIAZ, Janet Victoria <diazj@who.int>
Sent: 15 January 2020 16:39
To: David SC Hui, Prof. (MEDT) <dschui@cuhk.edu.hk>; jakedunning@doctors.org.uk <jakedunning@doctors.org.uk>; Marshall, John <marshallj@smh.ca>; 高占成 (gaozhancheng5446@163.com) <gaozhancheng5446@163.com>; Yaseen Arabi (b)(6) (b)(6) Adhikari, Neill <neill.adhikari@sunnybrook.ca>; Fowler, Robert <rob.fowler@sunnybrook.ca>; Timothy M. Uyeki <tmu0@cdc.gov>; Murthy, Srinivas <Srinivas.Murthy@cw.bc.ca>; Naoki Shimizu <naoki_shimizu@mac.com>; (b)(6) (b)(6) ; Hayden, Frederick G (fgh) <fgh@virginia.edu>; yaejeankim@skku.edu <yaejeankim@skku.edu>; Charles Gomersall (AIC) <gomersall@cuhk.edu.hk>; peabodyr@who.int <peabodyr@who.int>; Paula.Lister@health.qld.gov.au <Paula.Lister@health.qld.gov.au>; j.k.baillie@ed.ac.uk <j.k.baillie@ed.ac.uk>; (b)(6) (b)(6) 沈银忠 <shenyinzhong@shphc.org.cn>; (SPmig) Peter Horby <peter.horby@ndm.ox.ac.uk>; Gail Carson <gail.carson@ndm.ox.ac.uk>; (b)(6) <(b)(6)>; rca8@cdc.gov <rca8@cdc.gov>; aabutt@hamad.qa <aabutt@hamad.qa>; bhx1@cdc.gov <bhx1@cdc.gov>; Marshall, John <marshallj@smh.ca>; ctawee@health.moph.go.th <ctawee@health.moph.go.th>; Ijaz, Kashef (CDC/DDPHSIS/CGH/DGHP) <kil6@cdc.gov>
Cc: OTSU, Satoko <otsus@who.int>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; GREIN, Thomas <greint@who.int>; RYAN, Michael J. <ryanm@who.int>; PFEIFER, Dina <pfeiferd@who.int>; NORRIS, Susan <norriss@who.int>; KATO, Masaya <katom@who.int>; toledojoa <toledojoa@paho.org>; BALLER, April <ballera@who.int>; MAHJOUR, Jaouad <mahjourj@who.int>; BRIAND, Sylvie <briands@who.int>; SHINDO, Nahoko <shindon@who.int>; BROWN, Richard

<brownr@who.int>
Subject: Re: TC Clinical management nCoV respiratory : 16 January 13hr : Call-in DETAILS

nCoV clinical expert group
Hosted by Janet Victoria DIAZ

Thursday, Jan 16, 2020 1:00 pm | 1 hour | (UTC+01:00) Brussels, Copenhagen, Madrid, Paris
Meeting number: (b)(6)
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Join by video system
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Join by phone
(b)(6) SWITZERLAND Toll
(b)(6) US Toll
Access code: (b)(6)

From: DIAZ, Janet Victoria <diazj@who.int>
Sent: 15 January 2020 14:31
To: David SC Hui, Prof. (MEDT) <dschui@cuhk.edu.hk>; jakedunning@doctors.org.uk <jakedunning@doctors.org.uk>; Marshall, John <marshallj@smh.ca>; 高占成 (gaozhancheng5446@163.com) <gaozhancheng5446@163.com>; Yaseen Arabi (b)(6) (b)(6) Adhikari, Neill <neill.adhikari@sunnybrook.ca>; Fowler, Robert <rob.fowler@sunnybrook.ca>; Timothy M. Uyeki <tmu0@cdc.gov>; Murthy, Srinivas <Srinivas.Murthy@cw.bc.ca>; Naoki Shimizu <naoki_shimizu@mac.com> (b)(6) <(b)(6)>; Hayden, Frederick G (fgh) <fgh@virginia.edu>; yaejeankim@skku.edu <yaejeankim@skku.edu>; Charles Gomersall (AIC) <gomersall@cuhk.edu.hk>; peabodyr@who.int <peabodyr@who.int>; Paula.Lister@health.qld.gov.au <Paula.Lister@health.qld.gov.au>; j.k.baillie@ed.ac.uk <j.k.baillie@ed.ac.uk> (b)(6) (b)(6) >; 沈银忠 <shenyinzhong@shphc.org.cn>; (SPmig) Peter Horby <peter.horby@ndm.ox.ac.uk>; Gail Carson <gail.carson@ndm.ox.ac.uk>; (b)(6) (b)(6) rca8@cdc.gov <rca8@cdc.gov>; aabutt@hamad.qa <aabutt@hamad.qa>; bhx1@cdc.gov <bhx1@cdc.gov>; Marshall, John <marshallj@smh.ca>; ctawee@health.moph.go.th <ctawee@health.moph.go.th>

Cc: OTSU, Satoko <otsus@who.int>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; GREIN, Thomas <greint@who.int>; RYAN, Michael J. <ryanm@who.int>; PFEIFER, Dina <pfeiferd@who.int>; NORRIS, Susan <norriss@who.int>; KATO, Masaya <katom@who.int>; toledojoa <toledojoa@paho.org>; BALLER, April <ballera@who.int>; MAHJOUR, Jaouad <mahjourj@who.int>; BRIAND, Sylvie <briands@who.int>; SHINDO, Nahoko <shindon@who.int>; BROWN, Richard <brownr@who.int>
Subject: TC Clinical management nCoV respiratory : 16 January 13hr

Dear colleagues,

I hope this email finds you well. We will convene our 2nd TC for clinicians on clinical care of nCoV patients. We want to thanks you all for participating in last week's TC.

Please see link to the rapid clinical guide posted on the WHO website: https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2
Clinical management of severe acute respiratory infection when novel coronavirus (nCoV) infection is suspected<https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2>
Clinical management of severe acute respiratory infection when Novel coronavirus (nCoV) infection is suspected: Interim Guidance 5 tract (LRT) clearance of MERS-CoV.22 Given lack of effectiveness and possible harm, routine corticosteroids should be avoided unless they are indicated for another reason.
www.who.int

Agenda for TC:

1. Introductions: new members.
2. Updates from China: clinical case updates from China experience
   * mild cases: are there GI symptoms, typical URI?
   * severe diseases: interventions used
3. Review technical issues:
   * lower respiratory sampling: review again risks of sputum induction vs BAL (non intubated patients).
   * COP diagnosis and corticosteroids treatment
   * Severe ARDS treatment--
4. Update on implementation of modified Sprint-SARI-protocol for nCoV.
5. AOB

Warm regards,

Janet

* *new members please send COIs.
https://www.who.int/about/declaration-of-interests/en/

_____
From: DIAZ, Janet Victoria <diazj@who.int>
Sent: 10 January 2020 12:55
To: David SC Hui, Prof. (MEDT) <dschui@cuhk.edu.hk>; jakedunning@doctors.org.uk <jakedunning@doctors.org.uk>
Cc: 高占成 <gaozhancheng5446@163.com>; Yaseen Arabi (b)(6) Adhikari, Neill <neill.adhikari@sunnybrook.ca>; Fowler, Robert <rob.fowler@sunnybrook.ca>; Murthy, Srinivas <Srinivas.Murthy@cw.bc.ca>; Timothy M. Uyeki <tmu0@cdc.gov>; Naoki Shimizu <naoki_shimizu@mac.com>; Hayden, Frederick G (fgh) <fgh@virginia.edu>; yaejeankim@skku.edu <yaejeankim@skku.edu>; (b)(6) (b)(6) ; Charles Gomersall (AIC) <gomersall@cuhk.edu.hk>; Richard Pebody <richard.pebody@phe.gov.uk>; Paula.Lister@health.qld.gov.au <Paula.Lister@health.qld.gov.au>; j.k.baillie@ed.ac.uk <j.k.baillie@ed.ac.uk>; (b)(6) <habdely@gmail.com>; shenyinzhong@shphc.org.cn <shenyinzhong@shphc.org.cn>; (SPmig) Peter Horby <peter.horby@ndm.ox.ac.uk>; Gail Carson <gail.carson@ndm.ox.ac.uk>; (b)(6) <ca (b)(6) ; rca8@cdc.gov<rca8@cdc.gov>; aabutt@hamad.qa <aabutt@hamad.qa>; bhx1@cdc.gov <bhx1@cdc.gov>; OTSU, Satoko <otsus@who.int>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; GREIN, Thomas <greint@who.int>; RYAN, Michael J. <ryanm@who.int>; PFEIFER, Dina <pfeiferd@who.int>; NORRIS, Susan <norriss@who.int>; KATO, Masaya <katom@who.int>; toledojoa <toledojoa@paho.org>; BALLER, April <ballera@who.int>; MAHJOUR, Jaouad <mahjourj@who.int>; BRIAND, Sylvie <briands@who.int>; SHINDO, Nahoko <shindon@who.int>
Subject: Re: Webex meeting scheduled: TC Clinical management nCOV respiratory .

Dear David,

Many thanks for the very important information. I remember the older studies, so this is great that improved technology on better interfaces has reduced dispersion.

Warm regards,

Janet

From: David SC Hui, Prof. (MEDT) <dschui@cuhk.edu.hk>
Sent: 10 January 2020 12:50
To: DIAZ, Janet Victoria <diazj@who.int>; jakedunning@doctors.org.uk <jakedunning@doctors.org.uk>
Cc: 高占成 <gaozhancheng5446@163.com>; Yaseen Arabi <(b)(6)>; Adhikari, Neill <neill.adhikari@sunnybrook.ca>; Fowler, Robert <rob.fowler@sunnybrook.ca>; Murthy, Srinivas <Srinivas.Murthy@cw.bc.ca>; Timothy M. Uyeki <tmu0@cdc.gov>; Naoki Shimizu <naoki_shimizu@mac.com>; Hayden, Frederick G (fgh) <fgh@virginia.edu>; yaejeankim@skku.edu <yaejeankim@skku.edu>; (b)(6) (b)(6) ; Charles Gomersall (AIC) <gomersall@cuhk.edu.hk>; Richard Pebody <richard.pebody@phe.gov.uk>; Paula.Lister@health.qld.gov.au <Paula.Lister@health.qld.gov.au>; j.k.baillie@ed.ac.uk <j.k.baillie@ed.ac.uk> (b)(6) <(b)(6) (b)(6) >; shenyinzhong@shphc.org.cn <shenyinzhong@shphc.org.cn>; (SPmig) Peter Horby <peter.horby@ndm.ox.ac.uk>; Gail Carson <gail.carson@ndm.ox.ac.uk>; (b)(6) <ca (b)(6) >; rca8@cdc.gov<rca8@cdc.gov>; aabutt@hamad.qa <aabutt@hamad.qa>; bhx1@cdc.gov <bhx1@cdc.gov>; OTSU, Satoko <otsus@who.int>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; GREIN, Thomas <greint@who.int>; RYAN, Michael J. <ryanm@who.int>; PFEIFER, Dina <pfeiferd@who.int>; NORRIS, Susan <norriss@who.int>; KATO, Masaya <katom@who.int>; toledojoa <toledojoa@paho.org>; BALLER, April <ballera@who.int>; MAHJOUR, Jaouad <mahjourj@who.int>; BRIAND, Sylvie <briands@who.int>; SHINDO, Nahoko <shindon@who.int>
Subject: RE: Webex meeting scheduled: TC Clinical management nCOV respiratory .

Dear Janet,

The information from Jake is the same media interview of the same person.

In the previous version of the MERS treatment guide, I proposed to add non invasive ventilation (NIV) as an aerosol generating procedure based on my previous study of the older models of NIV masks (Respironics Image 3 and Comfortfull 2) showing extensive contamination of the

hospital negative pressure isolation room esp at higher inspiratory pressure (Chest 2009).

However, the manufacturers have subsequently improved the exhalation port design and further work has shown that NIV via the helmets (Chest 2015), newer masks such as Respironics or ResMed nasal pillows (up to 332mm) and ResMed Quattro oronasal mask (negligible leakage) is very safe with very limited exhaled air dispersion inside the hospital negative pressure room (ERJ 2019).

High flow nasal cannula (HFNC) with humidified air even up to 60L/min has been shown to have very limited exhaled air dispersion (172mm if good fit vs 620mm if loose fit) (ERJ 2019) while Charles Gomerall and my ICU colleagues have shown with culture plate that HFNC was not associated with increased air or contact surface contamination by either Gram-negative bacteria or total bacteria, suggesting that additional infection control measures are not required (J Hosp Infect 2019).

Thus HFNC with humidification and NIV via the new generation of masks only require droplet and contact precautions. I have attached the 4 references here.

Regards,

David

From: DIAZ, Janet Victoria <diazj@who.int>
Sent: Friday, 10 January 2020 5:59 pm
To: jakedunning@doctors.org.uk
Cc: David SC Hui, Prof. (MEDT) <dschui@cuhk.edu.hk>; 高占成 <gaozhancheng5446@163.com>; Yaseen Arabi (b)(6) Adhikari, Neill <neill.adhikari@sunnybrook.ca>; Fowler, Robert <rob.fowler@sunnybrook.ca>; Murthy, Srinivas <Srinivas.Murthy@cw.bc.ca>; Timothy M. Uyeki <tmu0@cdc.gov>; Naoki Shimizu <naoki_shimizu@mac.com>; Hayden, Frederick G (fgh) <fgh@virginia.edu>; yaejeankim@skku.edu; dubin98@gmail.com; Charles Gomersall (AIC) <gomersall@cuhk.edu.hk>; Richard Pebody <richard.pebody@phe.gov.uk>; Paula.Lister@health.qld.gov.au; j.k.baillie@ed.ac.uk; habdely@gmail.com; shenyinzhong@shphc.org.cn; (SPmig) Peter Horby

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Subject: Re: Webex meeting scheduled: TC Clinical management nCOV respiratory .

Thanks Jake for this information.

Warm regards,

Janet

From: jakedunning@doctors.org.uk<mailto:jakedunning@doctors.org.uk> <jakedunning@doctors.org.uk<mailto:jakedunning@doctors.org.uk>>
Sent: 10 January 2020 10:50
To: DIAZ, Janet Victoria <diazj@who.int<mailto:diazj@who.int>>
Cc: David SC Hui, Prof. (MEDT) <dschui@cuhk.edu.hk<mailto:dschui@cuhk.edu.hk>>; 高占成 <gaozhancheng5446@163.com<mailto:gaozhancheng5446@163.com>>; Yaseen Arabi (b)(6) m>>; Adhikari, Neill <neill.adhikari@sunnybrook.ca<mailto:neill.adhikari@sunnybrook.ca>>; Fowler, Robert <rob.fowler@sunnybrook.ca<mailto:rob.fowler@sunnybrook.ca>>; Murthy, Srinivas <Srinivas.Murthy@cw.bc.ca<mailto:Srinivas.Murthy@cw.bc.ca>>; Timothy M. Uyeki <tmu0@cdc.gov<mailto:tmu0@cdc.gov>>; Naoki Shimizu <naoki_shimizu@mac.com<mailto:naoki_shimizu@mac.com>>; Hayden, Frederick G (fgh) <fgh@virginia.edu<mailto:fgh@virginia.edu>>; yaejeankim@skku.edu<mailto:yaejeankim@skku.edu> <yaejeankim@skku.edu<mailto:yaejeankim@skku.edu>>; (b)(6) mailto (b)(6) <mailto (b)(6) >;

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From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP)
Sent: Thu, 23 Jan 2020 11:53:40 +0000
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Subject: Re: CHANGE OF DATE: GOARN Weekly Ops call: 2020-01-23

Thanks, Ray!
Get Outlook for iOS
From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Sent: Thursday, January 23, 2020 6:47:12 AM
To: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Greene, Carolyn M. (CDC/DDID/NCIRD/ID) <cqg4@cdc.gov>; Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; Bensyl, Diana M. (CDC/DDPHSIS/CGH/DGHP) <zqg6@cdc.gov>; Blanton, Jesse (CDC/DDID/NCEZID/DGMQ) <asi5@cdc.gov>; Bunga, Sudhir (CDC state.gov) <BungaS@state.gov>; Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP) <kvc6@cdc.gov>; Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID) <bid5@cdc.gov>; Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>; CDC IMS Incident Manager -2 <eocim2@cdc.gov>; Ewetola, Raimi (CDC/DDPHSIS/CGH/DGHT) <hcx6@cdc.gov>; GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>; Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED) <ihq5@cdc.gov>; Helfand, Rita (CDC/DDID/NCEZID/OD) <rzh7@cdc.gov>; Hyde, Terri (CDC/DDPHSIS/CGH/GID) <tkh4@cdc.gov>; Klena, John D. (CDC/DDID/NCEZID/DHCPP) <irc4@cdc.gov>; Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP) <izj9@cdc.gov>; Macdonald, Gene (CDC/DDPHSIS/CGH/DGHT) <fuu5@cdc.gov>; McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP) <fzh7@cdc.gov>; Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP) <jjn6@cdc.gov>; Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT) <lbn9@cdc.gov>; Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP) <stn1@cdc.gov>; OConnor, John (CDC/DDID/NCEZID/OD) <jpo2@cdc.gov>; Park, Benjamin (CDC/DDID/NCEZID/DHQP) <bip5@cdc.gov>; Pesik, Nicki (CDC/DDID/NCEZID/OD) <ndp9@cdc.gov>; Prue, Christine (CDC/DDID/NCEZID/OD) <cep9@cdc.gov>; Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD) <pgr4@cdc.gov>; Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ) <snr2@cdc.gov>; Rotz, Lisa (CDC/DDID/NCEZID/DGMQ) <ler8@cdc.gov>; Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO) <dmz0@cdc.gov>; Smith, Rachel M. (CDC/DDID/NCEZID/DHQP) <vih9@cdc.gov>; Spath (CDC) <Spath@cdc.gov>; Thomas, Peter (CDC/DDPHSIS/CGH/DGHP) <pbt7@cdc.gov>; Walke, Henry (CDC/DDID/NCEZID/DPEI) <hfw3@cdc.gov>
Subject: FW: CHANGE OF DATE: GOARN Weekly Ops call: 2020-01-23

Due to a second day of deliberations by the IHR EC on whether 2019-nCoV constitutes a PHEIC, the weekly GOARN Ops call has moved to Friday 24 Jan. The call will be a 08:00 EST.

Thanks.
Ray

Dear All,
Due to competing priorities, the GOARN Operational Call is exceptionally **rescheduled for tomorrow, 24 January 2020 at the same time- 1400-1500 Geneva.** The agenda and dial in instructions remain the same.
We thank you all for your support and understanding.
Best

Sameera

Agenda:

- EVD, DRC
  - Find daily WHO Situation updates posted on the Knowledge Platform (*Operations* > *Ebola Virus Disease, Democratic Republic of the Congo (North Kivu), 2018* > Updates (on the right side))
- Novel Coronavirus (nCoV), China
- AoB

Please see below dial-in details:
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- *Mute your microphone* unless *speaking.*

GOARN Operational Support Team

Global Outbreak Alert and Response Network (GOARN)
Division of Emergency Response (WRE)
WHO Health Emergencies Programme (WHE)
World Health Organization
Avenue Appia 20
1211 Geneva 27, Switzerland

E-mail: goarn@who.int

From: goarn
Sent: Thursday, January 23, 2020 9:38 AM
To: SHOC <shoc@who.int>; emergencypmo <emergencypmo@who.int>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; DEGAIL CHABRAT, Marie Amélie <degailm@who.int>; Alexandre.JULLY@ec.europa.eu; jpfaffmann@unicef.org; claire_beck@wvi.org; Axelle.Ronsse@brussels.msf.org; mainaa@unhcr.org; trina.helderman@medair.org; CAYABYAB, Ramoncito <cayabyabr@who.int>; hgk4@cdc.gov; ahmedz@africa-union.org; MerawiA@africa-union.org; BenjaminD@africa-union.org; T-Drake@dfid.gov.uk; C-Watts@dfid.gov.uk; KIFF, Jeremy <kiffj@who.int>; L.Baxter@savethechildren.org.uk; Anja.Wolz@brussels.msf.org; goarn@santepubliquefrance.fr; msff-nord-kivu-coepidemio@paris.msf.org; Emina@necsi-global.org; iameda@unicef.org; philippe.belanger@canada.ca; kathleen.laberge@canada.ca; francois-william.tremblay@canada.ca; (b)(6) m.marrana@oie.int; Lsauer2@jhmi.edu; LEGAND, Anais <leganda@who.int>; Emmanuel.GRELLETY@epicentre.msf.org;

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(b)(6)

Cc: goarn <goarn@who.int>

Subject: GENTLE REMINDER: GOARN Weekly Ops call: 2020-01-23

Dear Colleagues,

Please see attached for your update the latest Coronavirus Sitrep. We look forward to having you with us on the call today and welcome all partners involved in this response to feed into the discussion at the meeting with an update on their institutional involvement in the ongoing outbreak.

The Knowledge platform is being updated with relevant information regarding the ongoing outbreaks and we welcome your contribution as a GOARN partner ensure that the network is updated and engaged.
Best
Sameera

-----Original Appointment-----
From: goarn
Sent: Tuesday, January 21, 2020 5:03 PM
To: SHOC; emergencypmo; Dr VAN KERKHOVE, Maria; DEGAIL CHABRAT, Marie Amélie; Alexandre.JULLY@ec.europa.eu; jpfaffmann@unicef.org; claire_beck@wvi.org; Axelle.Ronsse@brussels.msf.org; mainaa@unhcr.org; trina.helderman@medair.org; CAYABYAB, Ramoncito; hgk4@cdc.gov; ahmedz@africa-union.org; MerawiA@africa-union.org; BenjaminD@africa-union.org; T-Drake@dfid.gov.uk; C-Watts@dfid.gov.uk; KIFF, Jeremy; L.Baxter@savethechildren.org.uk; Anja.Wolz@brussels.msf.org; goarn@santepubliquefrance.fr; msff-nord-kivu-coepidemio@paris.msf.org; Emina@necsi-global.org; iameda@unicef.org; philippe.belanger@canada.ca; kathleen.laberge@canada.ca; francois-william.tremblay@canada.ca; (b)(6) m.marrana@oie.int; Lsauer2@jhmi.edu; LEGAND, Anais; Emmanuel.GRELLETY@epicentre.msf.org; n.hellman@savethechildren.org.uk; e.diggle@savethechildren.org.uk; jlee106@korea.kr; boneil@samaritan.org; smedcalf@unmc.edu; allison.prather@care.org; nathalie.imbault@cepi.net; celine.gurry@cepi.net; gwen.eamer@ifrc.org; KRETSINGER, Katrina; kola.jinadu@ncdc.gov.ng; KIM, Bryan; Josep.jansa@ecdc.europa.eu; Ali.khan@unmc.edu; daniel.bausch@lshtm.ac.uk; cohuabunwo@afenet.net; executive.director@emphnet.net; azharul@icddrb.org; elizabeth.gooding@canada.ca; lmoses2@tulane.edu; gfontana@unicef.org; Anne-Marie.pegg@paris.msf.org; Pascale.LISSOUBA@epicentre.msf.org; FRIGO, Mara; HARRIS, Margaret Ann; Vittoria.DiStefano@fao.org; Maria.Romano@fao.org; Lionel.Gbaguidi@fao.org; CASTILLA ECHENIQUE, Jorge; LINDMEIER, Christian; dot9@cdc.gov; ALEXANDROVA EZERSKA, Lidia; (b)(6) kleung@iom.int; MINELLI, Elisabetta; desk.urgence@paris.msf.org; rkamadjeu@unicef.org; INIG@rki.de; hwest@iom.int; Jansen, Andreas; emanuele.capobianco@ifrc.org; aziao@unicef.org; AHLUWALIA, Indu; Evelyn.DEPOORTERE@ec.europa.eu; vicarian@paho.org; FOLEFACK TENGOMO, Gervais Leon; ZIG-Assistenz@rki.de; SALIO, Flavio; PAPOWITZ, Heather Eve; ALLAIN IOOS, Sophie; AF RGO/WHE EMO; AF RGO/OUTBREAK AFRO; DIAZ, Janet Victoria; kerriganm@nicd.ac.za; awimmer@iom.int; marii@unicef.org; k.hamilton@oie.int; rekpini@unicef.org; AROlogistics; raraj@globalhealthdev.org; cnavarrocolorado@unicef.org; YAO, N'da Konan Michel; FORMENTY, Pierre B.h.; BALDE, Thierno; eoc@ecdc.europa.eu; olivier.lepolain@phe.gov.uk; olaolu.aderinola@ncdc.gov.ng; rapid.deployments@phe.gov.uk; VAN DE WEERDT, Reinhilde; panu.saaristo@ifrc.org; RYAN, Michael J.; PESIGAN, Arturo; peter.horby@ndm.ox.ac.uk; QUEYRAS, Guillaume; SLATTERY, Raphael James; Daniel.Bausch@phe.gov.uk; ROSEWELL, Alexander Edmund; support@ecdc.europa.eu; lee.lior@canada.ca; HAROUNA DJINGAREY, Mamoudou; ROVIRA VILAPLANA, Jose; ALI AHMED, Yahaya; tina.endericks@phe.gov.uk; DOULL, Linda; PENDERGAST, Scott Douglas; LEECH, Louise Jocelyn; GRAAFF,

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Cc: goarn
Subject: GOARN Weekly Ops call: 2020-01-23
When: Thursday, January 23, 2020 2:00 PM-3:00 PM (UTC+01:00) Brussels, Copenhagen, Madrid, Paris.
Where: Upper SHOC / WebEx

Dear colleagues,

You are kindly invited to the GOARN Weekly Operations Call on **Thursday, 23 January 2020** at **14:00 – 15:00 (Geneva time).**

Agenda:

- EVD, DRC
    - Find daily WHO Situation updates posted on the Knowledge Platform (*Operations* > *Ebola Virus Disease, Democratic Republic of the Congo (North Kivu), 2018* > Updates (on the right side))
- Novel Coronavirus (nCoV), China
- AoB

Please see below dial-in details:
IMPORTANT: All participants must enter full name and institution name when joining the WebEx call.

Click here to join the meeting by Webex
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- *Mute your microphone* unless *speaking.*

GOARN Operational Support Team

Global Outbreak Alert and Response Network (GOARN)
Division of Emergency Response (WRE)
WHO Health Emergencies Programme (WHE)
World Health Organization
Avenue Appia 20
1211 Geneva 27, Switzerland

E-mail: goarn@who.int

NOTE: Please note that this WebEx service allows audio and other information sent during the session to be recorded. By joining this session, you automatically consent to such recordings. If you do not consent to being recorded, discuss your concerns with the host or do not join the session. The recording is used for the purpose of minutes.

From: Dale Fisher
Sent: Fri, 17 Apr 2020 11:54:33 +0000
To: AZHARUL Islam Khan;Navarro-Colorado, Carlos (CDC unicef.org);Arthur, Ray (CDC/DDPHSIS/CGH/DGHP);Dr S Antara AFENET;Dr Yanping Zhang CHINA CDC;ECDC Josep;EMPHNET Dr Al Nsour;FALL, Ibrahima Soce;INEVH Alejandra;IP Senegal Amadou;Myriam, MSF;NEBRASKA Ali Khan;NICD Janusz;panu.saaristo@ifrc.org;PATHWEST, Paul;PHAC Elisabeth Gooding;PHE Dan;RKI Andreas Jansen;TULANE Lina Moses
Cc: SURI, Sameera;DRURY, Patrick Anthony;Gail Carson;Ryan, Michael (CDC who.int);GREIN, Thomas;MAHJOUR, Jaouad;Bruce Aylward (aylwardb@who.int);KABIR, Sophia;SALMON, Sharon;kasait@who.int;AL-SHORBAJI, Farah
Subject: GOARN SCOM meeting next Wednesday

Dear SCOM Colleagues

In light of the little distraction we have at the moment in the form of the COVID-19 Pandemic (and the obvious travel restrictions) we will not be having a face-to-face meeting of the GOARN steering committee this June.

Following discussion with Gail, Pat and the whole OST, we will need to go virtual. We are thinking to host a teleconference each month for 2 hours to discuss issues related to the COVID 19 response that have implications for the activities of GOARN. All development and operations of the network are focused primarily on strengthening the response to the Pandemic, and maintaining capacity to respond rapidly to any new acute events (for example the new cases of EVD reported in DRC this Easter weekend).

We will communicate the invitation and draft agenda shortly, but want to provide an early heads up and request you to block **2-4 pm (Geneva) on Wednesday the 22th of April 2020**, for the first conference call of the GOARN Steering Committee.
On this first meeting we plan is to ask each SCOM member to present/ talk for 3-4 mins

I request you to come to the meeting with feedback on the following three questions:

1. Main gaps or concerns you or your institution has
2. Role for GOARN to address delivering these gaps and priorities.
3. How you (and your institution) can help other partners with the experience you currently have in this response?

If you wish to share some slides please send to Sam 24 hrs prior so that she can collate

The minutes of the meeting will be recorded and made available to the wider network as an update from the SCOM. This a way to better understand how all network partners can contribute most efficiently.

I hope you agree with this strategy and we look forward to your participation next Wednesday

Thanks

Dale

Important: This email is confidential and may be privileged. If you are not the intended recipient, please delete it and notify us immediately; you should not copy or use it for any purpose, nor disclose its contents to any other person. Thank you.

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP)
Sent: Thu, 23 Apr 2020 12:53:58 +0000
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Subject: RE: GOARN Weekly Ops Call

Thank you!

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Sent: Thursday, April 23, 2020 8:54 AM
To: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Subject: RE: GOARN Weekly Ops Call

Inger, Yes, will send when available. Ray

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Sent: Thursday, April 23, 2020 8:41 AM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Subject: RE: GOARN Weekly Ops Call

If someone is compiling a series of screenshots/notes in GDD Ops for the GOARN call, could you share? I am on a different (somewhat worthless) conference call for the GHSI BioWG

-----Original Appointment-----
From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov> **On Behalf Of** goarn
Sent: Thursday, April 23, 2020 8:06 AM
To: Armstrong, Gregory (CDC/DDID/NCEZID/OD); Beach, Michael J. (CDC/DDID/NCEZID/DFWED); Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP); Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID); Bresee, Joseph (CDC/DDID/NCIRD/ID); Bunga, Sudhir (CDC state.gov); Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP); Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID); Damon, Inger K. (CDC/DDID/NCEZID/DHCPP); Dawood, Fatimah S. (CDC/DDID/NCIRD/ID); CDC IMS Incident Manager -2; Fitter, David L. (CDC/DDPHSIS/CGH/GID); Fox, LeAnne M. (CDC/DDID/NCIRD/DBD); GDD-OUTBREAK (CDC); Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED); Greene, Carolyn M. (CDC/DDID/NCIRD/ID); Helfand, Rita (CDC/DDID/NCEZID/OD); Henao, Olga (CDC/DDPHSIS/CGH/DGHP); Hyde, Terri (CDC/DDPHSIS/CGH/GID); Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP); Klena, John D. (CDC/DDID/NCEZID/DHCPP); Knight, Nancy (CDC/DDPHSIS/CGH/DGHP); Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP); Lessa, Fernanda (CDC/DDID/NCEZID/DHQP); Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM); McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID); McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP); Mirza, Sara (CDC/DDID/NCIRD/DBD); Montandon, Michele (CDC/DDPHSIS/CGH/DGHT); Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP); Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP); Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT); Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP); OConnor, John (CDC/DDID/NCEZID/OD); Park, Benjamin (CDC/DDID/NCEZID/DHQP); Patel, Anita (CDC/DDID/NCIRD/OD); Pesik, Nicki (CDC/DDID/NCEZID/OD); Prue, Christine (CDC/DDID/NCEZID/OD); Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD); Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ); Rotz, Lisa (CDC/DDID/NCEZID/DGMQ); Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO); Simonds, R. J. (CDC/DDPHSIS/CGH/OD); Smith, Rachel M. (CDC/DDID/NCEZID/DHQP); Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID); Spath (CDC)

Subject: FW: GOARN Weekly Ops Call
When: Thursday, April 23, 2020 2:00 PM-3:00 PM (UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna.
Where: Zoom details below
Importance: High

-----Original Appointment-----
From: goarn <goarn@who.int>
Sent: Tuesday, March 31, 2020 5:46 AM
To: goarn; DEL RIO VILAS, Victor; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP); Moresky, Rachel T. (rtm2102@cumc.columbia.edu)
Subject: GOARN Weekly Ops Call
When: Thursday, April 23, 2020 2:00 PM-3:00 PM (UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna.
Where: Zoom details below

Dear Colleague,

Good afternoon, we are updating the meeting invites for the GOARN Weekly Ops call for Cyber security purposes.

Please see updated zoom meeting invites below.

Thank you for your understanding.

GOARN OST

GOARN Operational Support Team is inviting you to a scheduled Zoom meeting.

Topic: GOARN Weekly Ops Call
Agenda:

1. EVD
2. COVID-19
3. AOB

Time: Apr 23, 2020 02:00 PM Amsterdam, Berlin, Rome, Stockholm, Vienna

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From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP)
Sent: Thu, 14 May 2020 12:11:29 +0000
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Subject: RE: Weekly Ops Call

I do not have the invite

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Sent: Thursday, May 14, 2020 8:06 AM
To: Armstrong, Gregory (CDC/DDID/NCEZID/OD) <gca3@cdc.gov>; Beach, Michael J. (CDC/DDID/NCEZID/DFWED) <mjb3@cdc.gov>; Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP) <nqx1@cdc.gov>; Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID) <iyk3@cdc.gov>; Bresee, Joseph (CDC/DDID/NCIRD/ID) <jsb6@cdc.gov>; Bunga, Sudhir (CDC state.gov) <BungaS@state.gov>; Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP) <kvc6@cdc.gov>; Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID) <bid5@cdc.gov>; Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>; Dawood, Fatimah S. (CDC/DDID/NCIRD/ID) <hgj0@cdc.gov>; CDC IMS Incident Manager -2 <eocim2@cdc.gov>; Fitter, David L. (CDC/DDPHSIS/CGH/GID) <vid3@cdc.gov>; Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>; GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>; Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED) <ihq5@cdc.gov>; Greene, Carolyn M. (CDC/DDID/NCIRD/ID) <cqg4@cdc.gov>; Helfand, Rita (CDC/DDID/NCEZID/OD) <rzh7@cdc.gov>; Henao, Olga (CDC/DDPHSIS/CGH/DGHP) <dot8@cdc.gov>; Hyde, Terri (CDC/DDPHSIS/CGH/GID) <tkh4@cdc.gov>; Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP) <rik9@cdc.gov>; Klena, John D. (CDC/DDID/NCEZID/DHCPP) <irc4@cdc.gov>; Knight, Nancy (CDC/DDPHSIS/CGH/DGHP) <fma2@cdc.gov>; Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP) <izj9@cdc.gov>; Lessa, Fernanda (CDC/DDID/NCEZID/DHQP) <dta3@cdc.gov>; Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM) <bxm5@cdc.gov>; McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID) <dme8@cdc.gov>; McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP) <fzh7@cdc.gov>; Mirza, Sara (CDC/DDID/NCIRD/DBD) <zjk4@cdc.gov>; Montandon, Michele (CDC/DDPHSIS/CGH/DGHT) <nkf3@cdc.gov>; Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP) <rlm8@cdc.gov>; Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP) <jjn6@cdc.gov>; Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT) <lbn9@cdc.gov>; Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP) <stn1@cdc.gov>; OConnor, John (CDC/DDID/NCEZID/OD) <jpo2@cdc.gov>; Park, Benjamin (CDC/DDID/NCEZID/DHQP) <bip5@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Pesik, Nicki (CDC/DDID/NCEZID/OD) <ndp9@cdc.gov>; Prue, Christine (CDC/DDID/NCEZID/OD) <cep9@cdc.gov>; Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD) <pgr4@cdc.gov>; Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ) <snr2@cdc.gov>; Rotz, Lisa (CDC/DDID/NCEZID/DGMQ) <ler8@cdc.gov>; Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO) <dmz0@cdc.gov>; Simonds, R. J. (CDC/DDPHSIS/CGH/OD) <rxs5@cdc.gov>; Smith, Rachel M. (CDC/DDID/NCEZID/DHQP) <vih9@cdc.gov>; Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID) <yxo2@cdc.gov>; Spath (CDC) <Spath@cdc.gov>
Subject: Weekly Ops Call
Importance: High

If you had trouble connecting, Geneva just suggested trying again. Ray

Ray R. Arthur, PhD
Lead, Global Disease Detection Operations Center
Emergency Response and Recovery Branch

Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention

1600 Clifton Road, NE
MS: H21-9
Atlanta, GA 30329
Phone: 404-639-3855
Mobile: (b)(6)
rarthur@cdc.gov

From: AYLWARD, Raymond Bruce J.
Sent: Sun, 16 Feb 2020 17:04:25 +0000
To: Chikwe Ihekweazu
Cc: GALEA, Gauden;Alexander SEMENOV (b)(6) ;Clifford LANE (cliff.lane@nih.gov);Dale FISHER (mdcfda@nus.edu.sg);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);gmleung;LEE Jong-Koo (docmohw@snu.ac.kr);Dr VAN KERKHOVE, Maria;Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Tim ECKMANNS (EckmannsT@rki.de);Zhou, Weigong (CDC/DDID/NCIRD/ID);Zhou, Weigong (CDC/DDID/NCIRD/ID);XING, Jun;PANG, Xinxin;DRURY, Patrick Anthony
Subject: Re: Welcome to the WHO-CHN Joint Mission

Welcome Chikwe!
So glad you've made it and we can benefit from your experience.
We've had a great first day (night actually)
Just finished 4+ hours with all of the Ministries involved in the response Task Force and had a 2 hour VC with Wuhan.
Very impressive and many insights already.
Look forward to catching up tomorrow.
Bruce

> On 17 Feb 2020, at 00:59, Chikwe Ihekweazu <chikwe.ihekweazu@ncdc.gov.ng> wrote:
>
> Thanks.
> Arrived about an hour ago.
> See you in the morning.
> Chikwe
> **From:** PANG, Xinxin <pangx@who.int>
> **Sent:** Monday, February 17, 2020 12:15:18 AM
> **To:** GALEA, Gauden <galeag@who.int>; AYLWARD, Raymond Bruce J. <aylwardb@who.int>; Alexander SEMENOV (b)(6) (b)(6) >; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; gmleung <gmleung@hku.hk>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; Weigong ZHOU (waz6@cdc.gov) <waz6@cdc.gov>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; XING, Jun <xingj@who.int>
> **Cc:** DRURY, Patrick Anthony <druryp@who.int>
> **Subject:** 回复 ：Welcome to the WHO-CHN Joint Mission

Dear Joint Mission members,

We just received the tentative agenda for Monday Feb 17:

8:20, travel from hotel to Ditan Hospital
9:00, to visit Ditan Hospital
Time TBC, to visit Anzhen Community Health Center
12:30, travel to China CDC
Time TBC, lunch at China CDC
Time TBC, discussion at China CDC

NHC will provide more info when it's available.

With regards,
Xinxin

-------- 原始邮件 --------
发件人： "GALEA, Gauden" <galeag@who.int>
日期： 2020年2月15日周六 16:47
收件人： "AYLWARD, Raymond Bruce J." <aylwardb@who.int>, "Alexander SEMENOV (b)(6)" <(b)(6)>, "Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng)" <chikwe.ihekweazu@ncdc.gov.ng>, "Clifford LANE (cliff.lane@nih.gov)" <cliff.lane@nih.gov>, "Dale FISHER (mdcfda@nus.edu.sg)" <mdcfda@nus.edu.sg>, "Dr Hitoshi TAKAHASHI (takajin@nih.go.jp)" <takajin@nih.go.jp>, gmleung <gmleung@hku.hk>, "LEE Jong-Koo (docmohw@snu.ac.kr)" <docmohw@snu.ac.kr>, "Dr VAN KERKHOVE, Maria" <vankerkhovem@who.int>, "Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru)" <natalia-pshenichnaya@yandex.ru>, "Tim ECKMANNS (EckmannsT@rki.de)" <EckmannsT@rki.de>, "Weigong ZHOU (waz6@cdc.gov)" <waz6@cdc.gov>, "Weigong ZHOU (wzhou@cdc.gov)" <wzhou@cdc.gov>, "XING, Jun" <xingj@who.int>
抄送： "GALEA, Gauden" <galeag@who.int>, "DRURY, Patrick Anthony" <druryp@who.int>, "PANG, Xinxin" <pangx@who.int>
主 题： RE: Welcome to the WHO-CHN Joint Mission
Dear Joint Mission members,

Further to Bruce's message of last evening, I am very pleased to welcome you to Beijing.

As Bruce informed you, we will have a meeting of the international team members from 11:00 hr - 15:00 hr at our WHO China Office tomorrow, Sunday 16 February. Our colleagues Maria and Jun will meet you in the lobby of the Holiday Inn Express at 10:45 so that you can walk over to our office together.

During the meeting we will provide you with a briefing folder that includes relevant administrative, epidemiologic and technical information, as well as a thumb drive with electronic versions of the same materials.

As we will serve a light lunch around 12:30hr, please let Xinxin know if you have any food allergies or strong preferences in that regard.

Finally, please be aware that our hosts, the National Health Commission (NHC), will be arranging all of our subsequent group transportation while you are in Beijing and during field visits.

I look forward to meeting you tomorrow.

With best regards,

Gauden GALEA
WHO Representative to China
Beijing

From: AYLWARD, Raymond Bruce J.
Sent: Saturday, February 15, 2020 2:26 AM
To: Alexander SEMENOV ([redacted] <[redacted]
Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; gmleung <gmleung@hku.hk>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; Weigong ZHOU (waz6@cdc.gov) <waz6@cdc.gov>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; XING, Jun <xingj@who.int>
Cc: GALEA, Gauden <galeag@who.int>; DRURY, Patrick Anthony <druryp@who.int>
Subject: Welcome to the WHO-CHN Joint Mission
Importance: High

Dear Members of the Joint Mission,

Thank you all so much for your enthusiasm to participate in the forthcoming WHO-CHN Joint Mission on COVID-19.

I am also very grateful for your understanding and patience as key details of this Mission were worked out.

I am delighted that most of you are already scheduled to arrive either tomorrow (Saturday) or by mid-day Sunday. This should give us time for an initial 'pre-meeting' on Sunday afternoon at the WHO China office, which is a short walk from our hotel.

Over the past 3 days, myself and the other members of the Advance Team (Dr Maria van Kerkhove & Dr Jun Xing of WHO) have been working with national authorities here in Beijing to finalize the Mission objectives, workstreams, method of work and baseline information/data requests (please see attached 1-page summary of our draft ToRs).

Although the programme is still being finalized, we expect the formal Mission to start on Sunday evening with an in-depth workshop from 7-11 pm with our national Team counterparts and senior government officials from key Ministries involved in this COVID-19 response. Following a day of site visits here in Beijing there is a tentative plan for 3 days of field visits prior to our regrouping to consolidate findings.

A number of these details are still evolving, however, and will be finalized over the next 24 hours.

I understand that our very capable WHO teams in Geneva and here in Beijing have been communicating with each of you regarding your flights, airport pick-up and hotel accommodations. To facilitate our joint work and communications, we will also circulate a consolidated list of our names, affiliations, emails and cellphones by mid-day tomorrow (Saturday, 15 Feb).

You are in very good hands with our logistics teams, however please do not hesitate to contact me directly if I can be of assistance in advance of your arrival.

With very best regards,

Bruce

Bruce AYLWARD (WHO/Geneva)
Team Leader, WHO-China Joint Mission on COVID-19
Email: aylwardb@who.int
Mobile: (b)(6) (international)

From: AYLWARD, Raymond Bruce J.
Sent: Mon, 17 Feb 2020 15:07:14 +0000
To: Zhou, Weigong (CDC/DDID/NCIRD/ID);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: FW: Viral shedding data
Attachments: NEJM Letter to the Editor_rev2.docx

Can you have a look – this is pre-pub. B

From: Gabriel Leung <gmleung@hku.hk>
Sent: Sunday, February 16, 2020 23:58
To: AYLWARD, Raymond Bruce J. <aylwardb@who.int>
Subject: Viral shedding data

The viral shedding data from Guangdong you are looking for

Gabriel M Leung 梁卓偉
Dean of Medicine
Helen and Francis Zimmern Professor in Population Health

T +852 3917 9210 | F +852 2818 7562
6/F, William MW Mong Block, 21 Sassoon Road, Pokfulam, Hong Kong


HKU Med LKS Faculty of Medicine
The University of Hong Kong
香港大學李嘉誠醫學院

(b)(4)

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(b)(4)

From: Dale Fisher
Sent: Wed, 19 Feb 2020 14:49:16 +0000
To: XING, Jun;Chikwe Ihekweazu;Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);Zhou, Weigong (CDC/DDID/NCIRD/ID);(SPmig) LEI ZHOU;wufan@shmu.edu.cn (b)(6) jiangtao_l@263.net
Subject: RE: Wuhan draft questions
Attachments: Wuhan HCW questions 11pm.docx

I will send this off to Bruce in 15 mins

Any comments and changes welcomed.

From: XING, Jun <xingj@who.int>
Sent: Wednesday, 19 February 2020 10:46 PM
To: Chikwe Ihekweazu <chikwe.ihekweazu@ncdc.gov.ng>; Dale Fisher <mdcfda@nus.edu.sg>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>; wufan@shmu.edu.cn; (b)(6) jiangtao_l@263.net
Subject: RE: Wuhan draft questions

- External Email -

Please do. Thanks.

From: Chikwe Ihekweazu <chikwe.ihekweazu@ncdc.gov.ng>
Sent: Wednesday, February 19, 2020 3:44 PM
To: Dale Fisher <mdcfda@nus.edu.sg>; XING, Jun <xingj@who.int>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>; wufan@shmu.edu.cn; (b)(6) jiangtao_l@263.net
Subject: Re: Wuhan draft questions

No further comments from me.

Chikwe

From: Dale Fisher <mdcfda@nus.edu.sg>
Date: Wednesday, 19 February 2020 at 22:40
To: "XING, Jun" <xingj@who.int>, Chikwe Ihekweazu <chikwe.ihekweazu@ncdc.gov.ng>,

"Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru)" <natalia-pshenichnaya@yandex.ru>, "Dr Hitoshi TAKAHASHI (takajin@nih.go.jp)" <takajin@nih.go.jp>, "Weigong ZHOU (wzhou@cdc.gov)" <wzhou@cdc.gov>, "(SPmig) LEI ZHOU" <zhoulei@chinacdc.cn>, "wufan@shmu.edu.cn" <wufan@shmu.edu.cn>, (b)(6) (b)(6) "jiangtao_l@263.net" <jiangtao_l@263.net>
Subject: RE: Wuhan draft questions

I am waiting for your collated comments. Shall I just revise and circulate……I only had 4 hrs sleep last night so can't go much longer. If you have no comments I will just do it, circulate and then send to Bruce 15 mins later….ok everyone ?

From: XING, Jun <xingj@who.int>
Sent: Wednesday, 19 February 2020 10:30 PM
To: Dale Fisher <mdcfda@nus.edu.sg>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>; wufan@shmu.edu.cn; (b)(6) jiangtao_l@263.net
Subject: RE: Wuhan draft questions

- External Email -

I guess people are waiting for the revised version…

From: Dale Fisher <mdcfda@nus.edu.sg>
Sent: Wednesday, February 19, 2020 3:25 PM
To: XING, Jun <xingj@who.int>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>; wufan@shmu.edu.cn; (b)(6) jiangtao_l@263.net
Subject: RE: Wuhan draft questions

Is anything coming…..i would like to sleep ☺

From: XING, Jun <xingj@who.int>
Sent: Wednesday, 19 February 2020 9:20 PM
To: Dale Fisher <mdcfda@nus.edu.sg>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>;

wufan@shmu.edu.cn; (b)(6) jiangtao_l@263.net
Subject: RE: Wuhan draft questions

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Here is the full list of Chinese experts (adding Dr Lin). Thanks.

From: XING, Jun
Sent: Wednesday, February 19, 2020 2:12 PM
To: 'Dale Fisher' <mdcfda@nus.edu.sg>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; 'zhoulei@chinacdc.cn' <zhoulei@chinacdc.cn>; 'wufan@shmu.edu.cn' <wufan@shmu.edu.cn>; (b)(6) (b)(6)
Subject: RE: Wuhan draft questions

Hi Dale,
As discussed, I have added emails of the Chinese experts above (still missing Dr Lin though). Please use this group for the next version of the questions. Thanks.
Best regards,
Jun

From: Dale Fisher <mdcfda@nus.edu.sg>
Sent: Wednesday, February 19, 2020 11:12 AM
To: Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; XING, Jun <xingj@who.int>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>
Subject: Wuhan draft questions

Evening all;

Here is my first attempt…a starting point

Jun; please share

thanks

Dale Fisher

Important: This email is confidential and may be privileged. If you are not the intended recipient, please delete it and notify us immediately; you should not copy or use it for any purpose, nor disclose its contents to any other person. Thank you.

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(b)(5)

(b)(5)

From: Dale Fisher
Sent: Wed, 19 Feb 2020 15:42:33 +0000
To: takajin@niid.go.jp;Zhou, Weigong (CDC/DDID/NCIRD/ID)
Cc: XING, Jun;Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);(SPmig) LEI ZHOU;wufan@shmu.edu.cn (b)(6) jiangtao_l@263.net
Subject: RE: Wuhan draft questions

Ok got them thanks

-----Original Message-----
From: takajin@niid.go.jp <takajin@niid.go.jp>
Sent: Wednesday, 19 February 2020 11:05 PM
To: Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>
Cc: Dale Fisher <mdcfda@nus.edu.sg>; XING, Jun <xingj@who.int>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>; wufan@shmu.edu.cn; (b)(6) jiangtao_l@263.net
Subject: Re: Wuhan draft questions

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Sorry to late.
I add questions related to diagnosis.

Thanks,
Hitoshi

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> Yes, please do.
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> Subject: RE: Wuhan draft questions
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> I am waiting for your collated comments. Shall I just revise and circulate……I only had 4 hrs sleep last night so can't go much longer. If you have no comments I will just do it, circulate and then send to Bruce

15 mins later….ok everyone ?
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ng>)
ng><chikwe.ihekweazu@ncdc.gov.ng<mailto:chikwe.ihekweazu@ncdc.gov.ng>>;
 Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru<mailto:natalia-
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(b)(6) <mailto (b)(6) ; jiangtao_l@263.net<mailto:
(b)(6) >
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'wufan@shmu.edu.cn' <wufan@shmu.edu.cn< mailto:wufan@shmu.edu.cn>>; (b)(6)
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> Sent: Wednesday, February 19, 2020 11:12 AM
> To: Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng<mailto:chikwe.
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(takajin@nih.go.jp<mailto:takajin@nih.go.jp>) <takajin@nih.go.jp<mailto:
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Weigong ZHOU (wzhou@cdc.gov<mailto:wzhou@cdc.gov>) <wzhou@cdc.gov<mailto:
wzhou@cdc.gov>>
> Subject: Wuhan draft questions
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> Evening all;
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> Here is my first attempt…a starting point
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>
> Jun; please share
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>
>
> thanks
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> Dale Fisher
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> Important: This email is confidential and may be privileged. If you
are not the intended recipient, please delete it and notify us immediately; you should not copy or use it for any
purpose, nor disclose its contents to any other person. Thank you.
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> _____
> This email has been scanned by the Symantec Email Security.cloud
service.
> For more information please visit http://www.symanteccloud.com

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From: Dale Fisher
Sent: Wed, 19 Feb 2020 16:05:19 +0000
To: Bruce Aylward (aylwardb@who.int)
Cc: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: RE: questions for the Wuhan TC
Attachments: Wuhan HCW questions 11pm.docx

Sorry Bruce; use this some more late offerings

From: Dale Fisher
Sent: Wednesday, 19 February 2020 11:57 PM
To: Bruce Aylward (aylwardb@who.int) <aylwardb@who.int>
Cc: Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>
Subject: questions for the Wuhan TC

Hi Bruce

Acting on a draft of questions the 10 of us met tonight and after some edits came up with the attached. They are a contribution not a finished product. Please combine with our Guangzhou half and then create a question sheet to your liking to send on.
I don't understand them all as I wrote verbatim to properly capture what some were saying

Please use them to inform the questions you send on.

Dale

Important: This email is confidential and may be privileged. If you are not the intended recipient, please delete it and notify us immediately; you should not copy or use it for any purpose, nor disclose its contents to any other person. Thank you.

(b)(5)

(b)(5)

From: Dale Fisher
Sent: Wed, 19 Feb 2020 16:09:37 +0000
To: Natalia Pshenichnaya;takajin@niid.go.jp
Cc: Zhou, Weigong (CDC/DDID/NCIRD/ID);XING, Jun;Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);(SPmig) LEI ZHOU;wufan@shmu.edu.cn; (b)(6) jiangtao_l@263.net
Subject: RE: Wuhan draft questions

Got it

From: Natalia Pshenichnaya <natalia-pshenichnaya@yandex.ru>
Sent: Wednesday, 19 February 2020 11:14 PM
To: takajin@niid.go.jp
Cc: Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Dale Fisher <mdcfda@nus.edu.sg>; XING, Jun <xingj@who.int>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>; wufan@shmu.edu.cn; (b)(6) jiangtao_l@263.net
Subject: Re: Wuhan draft questions

- External Email -

Hi, all.
I added a couple questions/comments

Best,
Natalia

19 февр. 2020 г., в 18:05, <takajin@niid.go.jp> <takajin@niid.go.jp> написал(а):

Sorry to late.
I add questions related to diagnosis.

Thanks,
Hitoshi

----- Original Message -----
> Yes, please do.
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> Weigong
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>
> As discussed, I have added emails of the Chinese experts above (still
missing Dr Lin though). Please use this group for the next version of
the questions. Thanks.
>
> Best regards,
>
> Jun
>
>
>
> From: Dale Fisher <mdcfda@nus.edu.sg<mailto:mdcfda@nus.edu.sg>>
> Sent: Wednesday, February 19, 2020 11:12 AM
> To: Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng<mailto:chikwe.
ihekweazu@ncdc.gov.ng>) <chikwe.ihekweazu@ncdc.gov.ng<mailto:chikwe.
ihekweazu@ncdc.gov.ng>>; Natalia PSHENICHNAYA (natalia-pshenichnaya@
yandex.ru<mailto:natalia-pshenichnaya@yandex.ru>) <natalia-pshenichnaya@
yandex.ru<mailto:natalia-pshenichnaya@yandex.ru>>; Dr Hitoshi TAKAHASHI
(takajin@nih.go.jp<mailto:takajin@nih.go.jp>) <takajin@nih.go.jp<mailto:
takajin@nih.go.jp>>; XING, Jun <xingj@who.int<mailto:xingj@who.int>>;
Weigong ZHOU (wzhou@cdc.gov<mailto:wzhou@cdc.gov>) <wzhou@cdc.gov<mailto:
wzhou@cdc.gov>>
> Subject: Wuhan draft questions
>
>
>
> Evening all;
>
>
>
> Here is my first attempt…a starting point
>
>
>

> Jun; please share
>
>
>
> thanks
>
>
>
> Dale Fisher
>
>
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> _____
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> Important: This email is confidential and may be privileged. If you
are not the intended recipient, please delete it and notify us
immediately; you should not copy or use it for any purpose, nor disclose
its contents to any other person. Thank you.
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>
> _____
> This email has been scanned by the Symantec Email Security.cloud
service.
> For more information please visit http://www.symanteccloud.com
> _____
>
<Wuhan HCW questions 11pm_ht.docx>

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From: Dale Fisher
Sent: Fri, 21 Feb 2020 11:46:48 +0000
To: DRURY, Patrick Anthony;chikwe.ihekweazu@ncdc.gov.ng;(b)(6);takajin@nih.go.jp;docmohw@snu.ac.kr;Zhou, Weigong (CDC/DDID/NCIRD/ID);Zhou, Weigong (CDC/DDID/NCIRD/ID);cliff.lane@nih.gov;natalia-pshenichnaya@yandex.ru;EckmannsT@rki.de
Cc: AYLWARD, Raymond Bruce J.;XING, Jun;Dr VAN KERKHOVE, Maria;PANG, Xinxin;GALEA, Gauden;AL-SHORBAJI, Farah;UMALI DALANGIN, Khristeen;HAN, Mansuk Daniel;GREIN, Thomas;MAHAMUD, Abdi Rahman
Subject: RE: WHO/GOARN: China mission - changes to return flights

Thanks Pat, Khris, WPRO, CO and all!

We can feel the support…….logistics are very smooth allowing us to get on with the work. Its been great

Regards

Dale

From: DRURY, Patrick Anthony <druryp@who.int>
Sent: Friday, 21 February 2020 7:20 PM
To: Dale Fisher <mdcfda@nus.edu.sg>; chikwe.ihekweazu@ncdc.gov.ng; (b)(6) takajin@nih.go.jp; docmohw@snu.ac.kr; wzhou@cdc.gov; waz6@cdc.gov; cliff.lane@nih.gov; natalia-pshenichnaya@yandex.ru; EckmannsT@rki.de
Cc: AYLWARD, Raymond Bruce J. <aylwardb@who.int>; XING, Jun <xingj@who.int>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; PANG, Xinxin <pangx@who.int>; GALEA, Gauden <galeag@who.int>; AL-SHORBAJI, Farah <alshorbajif@who.int>; UMALI DALANGIN, Khristeen <umalik@who.int>; HAN, Mansuk Daniel <mhan@who.int>; GREIN, Thomas <greint@who.int>; MAHAMUD, Abdi Rahman <mahamuda@who.int>
Subject: WHO/GOARN: China mission - changes to return flights

- External Email -

Dear colleagues,

We have received news from Bruce and WHO country team on the latest changes, the Wuhan deployment, and current planning on the final wrap up.

Khris and the HR/Travel team at HQ and WPRO are working on the changes, and rescheduling travel/flights.

Thanks for your continuing commitment and support.

best wishes,

Pat
Pat Drury
Deputy Incident Manager – COVID-19
Global Outbreak Alert and Response Network (GOARN)
WHO Health Emergency Preparedness and Response
+41 79 3089807
druryp@who.int

Important: This email is confidential and may be privileged. If you are not the intended recipient, please delete it and notify us immediately; you should not copy or use it for any purpose, nor disclose its contents to any other person. Thank you.

From: Eckmanns, Tim
Sent: Fri, 21 Feb 2020 13:56:42 +0000
To: GALEA, Gauden;DRURY, Patrick Anthony;mdcfda@nus.edu.sg;chikwe.ihekweazu@ncdc.gov.ng;(b)(6)akajin@nih.go.jp;docmohw@snu.ac.kr;Zhou, Weigong (CDC/DDID/NCIRD/ID);Zhou, Weigong (CDC/DDID/NCIRD/ID);cliff.lane@nih.gov;natalia-pshenichnaya@yandex.ru
Cc: AYLWARD, Raymond Bruce J.;XING, Jun;Dr VAN KERKHOVE, Maria;PANG, Xinxin;AL-SHORBAJI, Farah;UMALI DALANGIN, Khristeen;HAN, Mansuk Daniel;GREIN, Thomas;MAHAMUD, Abdi Rahman
Subject: AW: WHO/GOARN: China mission - changes to return flights

Thank you all of you,
Like allways I feel very sipported
Tim

Gesendet von meinem BlackBerry 10-Smartphone.
Von: GALEA, Gauden
Gesendet: Freitag, 21. Februar 2020 20:14
An: DRURY, Patrick Anthony; mdcfda@nus.edu.sg; chikwe.ihekweazu@ncdc.gov.ng; (b)(6) takajin@nih.go.jp; docmohw@snu.ac.kr; wzhou@cdc.gov; waz6@cdc.gov; cliff.lane@nih.gov; natalia-pshenichnaya@yandex.ru; Eckmanns, Tim
Cc: AYLWARD, Raymond Bruce J.; XING, Jun; Dr VAN KERKHOVE, Maria; PANG, Xinxin; AL-SHORBAJI, Farah; UMALI DALANGIN, Khristeen; HAN, Mansuk Daniel; GREIN, Thomas; MAHAMUD, Abdi Rahman
Betreff: Re: WHO/GOARN: China mission - changes to return flights

Thanks to all from the China side too. Having you dealing with this really frees up the space to focus on the Wuhan component.

Warmly

~ Gauden

~~~
Gauden Galea ??,WHO Representative for China
Office: +86.10.6532-7189, x. 81218 Mobile: (b)(6)

From: "DRURY, Patrick Anthony" <druryp@who.int>
Date: Friday, 21 February 2020 at 19:20
To: "mdcfda@nus.edu.sg" <mdcfda@nus.edu.sg>, "chikwe.ihekweazu@ncdc.gov.ng" <chikwe.ihekweazu@ncdc.gov.ng>, "alexvsemenov@gmail.com" (b)(6) "takajin@nih.go.jp" <takajin@nih.go.jp>, "docmohw@snu.ac.kr" <docmohw@snu.ac.kr>, "wzhou@cdc.gov" <wzhou@cdc.gov>, "waz6@cdc.gov" <waz6@cdc.gov>, "cliff.lane@nih.gov" <cliff.lane@nih.gov>, "natalia-pshenichnaya@yandex.ru" <natalia-pshenichnaya@yandex.ru>, "EckmannsT@rki.de" <EckmannsT@rki.de>
Cc: "Raymond Bruce Aylward," <aylwardb@who.int>, XING <xingj@who.int>, "Maria Van Kerkhove," <vankerkhovem@who.int>, Xinxin Pang <pangx@who.int>, "Gauden (??) Galea" <galeag@who.int>, "AL-SHORBAJI, Farah" <alshorbajif@who.int>, "UMALI DALANGIN, Khristeen" <umalik@who.int>, "HAN,
~~~

Mansuk Daniel" <mhan@who.int>, "GREIN, Thomas" <greint@who.int>, "MAHAMUD, Abdi Rahman" <mahamuda@who.int>
Subject: WHO/GOARN: China mission - changes to return flights

Dear colleagues,

We have received news from Bruce and WHO country team on the latest changes, the Wuhan deployment, and current planning on the final wrap up.

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Thanks for your continuing commitment and support.

best wishes,

Pat
Pat Drury
Deputy Incident Manager - COVID-19
Global Outbreak Alert and Response Network (GOARN)
WHO Health Emergency Preparedness and Response
+41 79 3089807
druryp@who.int

From: Dr VAN KERKHOVE, Maria
Sent: Fri, 21 Feb 2020 17:16:31 +0000
To: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: Re: Knowledge gaps version 4

Thanks - received

From: "Zhou, Weigong (CDC/DDID/NCIRD/ID)" <waz6@cdc.gov>
Date: Friday, 21 February 2020 at 17:27
To: Maria Van Kerkhove <vankerkhovem@who.int>
Subject: Knowledge gaps version 4

please see the paragraph you requested in the beginning of this version.

thanks,
Weigong

From: Office of the Director-General
Sent: Fri, 21 Feb 2020 17:22:35 +0000
To: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Cc: SCHWARTLANDER, Bernhard F.;etiennec;DRURY, Patrick Anthony;genevausmission@state.gov;CarsonTL@state.gov
Subject: Letter from the Director-General of the World Health Organization
Attachments: USA Dr Zhou.pdf

Dear Dr Zhou,

Please find attached a letter from the Director-General of the World Health Organization for your kind attention.

Best regards,

Office of the Director-General
World Health Organization

World Health Organization

20, AVENUE APPIA – CH-1211 GENEVA 27 – SWITZERLAND – TEL CENTRAL +41 22 791 2111 – FAX CENTRAL +41 22 791 3111 – WWW.WHO.INT

Tel. direct: +41 22 791
Fax direct: +41 22 791
E-mail :

In reply please refer to:

Your reference:

Dr Weidong Zhou
Influenza Division
National Center for Immunization and Respiratory Diseases
US Centers for Disease Control and Prevention
Etats-Unis d'Amérique

21 February 2020

Dear Dr Zhou,

I would like to thank you for your willingness to participate as an expert in the World Health Organization (WHO)-led, joint international technical mission to the People's Republic of China to support response operations for the COVID-19 outbreak. Your involvement in this mission to date, conducted under the framework of the Global Outbreak Alert and Response Network (GOARN), has been invaluable.

The efforts of the expert team thus far, and the analyses and information being examined, will be critical in informing response efforts nationally, regionally and globally. As the work of the expert team continues, I am requesting the extension of your participation in this joint mission until Tuesday, 25 February 2020, in order for the final report, analyses and recommendations of the expert team to be concluded.

Thank you for contributing your extensive skills and experience to this mission, to date, and WHO looks forward to your confirmation of the extension of the mission. WHO also conveys its appreciation to your host institution for supporting your participation in this mission until its conclusion.

In conjunction with relevant authorities from the People's Republic of China, the GOARN Secretariat is on standby to support and facilitate your arrangements, and will follow-up with you directly in short course with additional details.

I would like to thank you very much for your engagement in this important work, and for your time and consideration.

Yours sincerely,



Dr Tedros Adhanom Ghebreyesus
Director-General

cc: The Director, Office of Global Health Affairs, Department of Health and Human Services, Washington, D.C.
Permanent Mission of the United States of America to the United Nations Office and other International Organizations at Geneva

From: Dr VAN KERKHOVE, Maria
Sent: Sat, 22 Feb 2020 01:45:36 +0000
To: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: Re: Knowledge gaps version 5

Well received, thanks.

From: "Zhou, Weigong (CDC/DDID/NCIRD/ID)" <waz6@cdc.gov>
Date: Saturday, 22 February 2020 at 02:41
To: Maria Van Kerkhove <vankerkhovem@who.int>
Subject: Knowledge gaps version 5

sorry, updated again.

Thanks,
Weigong

From: Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>
Sent: Friday, February 21, 2020 11:27 AM
To: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Subject: Knowledge gaps version 4

please see the paragraph you requested in the beginning of this version.

thanks,
Weigong

From: Dr VAN KERKHOVE, Maria
Sent: Sat, 22 Feb 2020 08:56:57 +0000
To: Alexander SEMENOV (b)(6) Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Clifford LANE (cliff.lane@nih.gov);Dale FISHER (mdcfda@nus.edu.sg);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);gmleung;LEE Jong-Koo (docmohw@snu.ac.kr);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Tim ECKMANNS (EckmannsT@rki.de);Zhou, Weigong (CDC/DDID/NCIRD/ID);Zhou, Weigong (CDC/DDID/NCIRD/ID);XING, Jun
Cc: AYLWARD, Raymond Bruce J.
Subject: Draft report 22 Feb 1654 version
Attachments: WHO-China Joint Mission - DRAFT REPORT V1.1.docx

Dear colleagues,

Thank you for the tremendous work in drafting this together with our colleagues from China. It was a fascinating and productive day. Jun, can you please share this word document with Chinese colleagues?

As discussed, please use this version to update your technical sections (the narrative) adding in the discussed recommended text/tables/stats/figures. Please also revise your technical recommendations.

I look forward to receiving your updated versions by 2200 tonight.

Thank you!

Maria

Draft outline v1

WHO-China Joint Mission on COVID-19
Draft Report

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From: Dr VAN KERKHOVE, Maria
Sent: Sat, 22 Feb 2020 14:59:58 +0000
To: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: Re: updated knowledge gaps

Thanks – well received

From: "Zhou, Weigong (CDC/DDID/NCIRD/ID)" <waz6@cdc.gov>
Date: Saturday, 22 February 2020 at 15:37
To: Maria Van Kerkhove <vankerkhovem@who.int>
Subject: updated knowledge gaps

I updated the knowledge gaps in Annex B on page 24 -26 with track change.

thanks,
Weiogng

From: AYLWARD, Raymond Bruce J.
Sent: Sat, 22 Feb 2020 18:22:20 +0000
To: Dr VAN KERKHOVE, Maria;Dale Fisher
Cc: Zhou, Weigong (CDC/DDID/NCIRD/ID);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: REVISED ASSESSMENT ETC.
Attachments: Report - ASSESSMENT & MAJOR RECS 22Feb2020 Rev2.docx
Importance: High

Hey Rockstars both….

Attached is a revised version of the *Assessment, Major Conclusions and Major Recommendations*.

Big points:

- **Preamble on the China Response:** in an excellent and encouraging discussion with Dr Liang on the train we agreed that the best way to ensure we meet China's need for a strong assessment of its response and where it plans to go next, would be to add a (b)(5) (b)(5) Please have a look at and test my proposed language with the group. I tested an earlier version with Tim and Chikwe who were very keen on it but recommended I dial it back a bit for a public audience and at least hint to shortcomings. Re any edits on this section, it is the opinion of the Internationals that matter most here (b)(5) (b)(5) I will check this with Dr Liang tomorrow.

- **Subsection on Major Conclusions:** to accommodate the above, I have relabeled the 4 subsequent points as a subsection called 'Major Conclusions'.

- **Proposed Edits from This Afternoon:** I have included most. Those that I didn't are intentional. I did a heap of other edits and rewrites to tighten the language and fix recs.

- **Still to be Done:** I just ran out of gas and left placeholders for 3 little recs in a final section call 'For the International community'. This has to be very carefully worded…. It can be popped in even on Monday if needed. I'll try to have a look over lunch tomorrow (oops – today).

- **Question:** I was not clear today if Wang Bin wanted to dump the 'For the public' section or just drop bits of it. As I was unclear – and the language was kind of crap – I cleaned it up anyway. I had understood yesterday that they recommended this section(??). I can live with either.

Sorry to be so late!

Bruce

PS – have cc'd Weigong as I think he asked to be cc'd on the electronic as I was dashing out the door…

From: Dr VAN KERKHOVE, Maria
Sent: Saturday, February 22, 2020 15:28
To: Dale Fisher <mdcfda@nus.edu.sg>
Cc: AYLWARD, Raymond Bruce J. <aylwardb@who.int>
Subject: Re: Draft report 22 Feb 1654 version

Rockstar Dale… thank you. We will likely slash some sections tomorrow, but great to see this all together.

Thanks again,
Maria

From: Dale Fisher <mdcfda@nus.edu.sg>
Date: Saturday, 22 February 2020 at 15:25
To: Maria Van Kerkhove <vankerkhovem@who.int>
Cc: "AYLWARD, Raymond Bruce J." <aylwardb@who.int>
Subject: RE: Draft report 22 Feb 1654 version

Here Maria;

My team was to review and send tracked changes tonight……I guess they were happy ☺

I think this gives all you want and its about double the length. In addition I slashed some of the rubbish (yay)

Use this as you want and do tell me if I can help in any way

Cheers

Dale

From: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Sent: Saturday, 22 February 2020 4:57 PM
To: Alexander SEMENOV ([redacted] <[redacted]>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Dale Fisher <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; gmleung <gmleung@hku.hk>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; Weigong ZHOU (waz6@cdc.gov) <waz6@cdc.gov>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; XING, Jun <xingj@who.int>
Cc: AYLWARD, Raymond Bruce J. <aylwardb@who.int>
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- External Email -

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3rd DRAFT – 23 February 2020

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(b)(4)

From: Dr VAN KERKHOVE, Maria
Sent: Sat, 22 Feb 2020 23:43:10 +0000
To: AYLWARD, Raymond Bruce J.;Dale Fisher
Cc: Zhou, Weigong (CDC/DDID/NCIRD/ID);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: Re: REVISED ASSESSMENT ETC.
Attachments: Report - ASSESSMENT & MAJOR RECS 22Feb2020 Rev2_MVK.docx

Hi Bruce,

Looks really good. I made some v minor edits to be consistent with our nomenclature (we don't use nCoV anymore and added influenza instead of flu). None of the content is changed but took away 2 qualifiers in 2 sentences. I do think its balanced and fair and reflects our discussions.

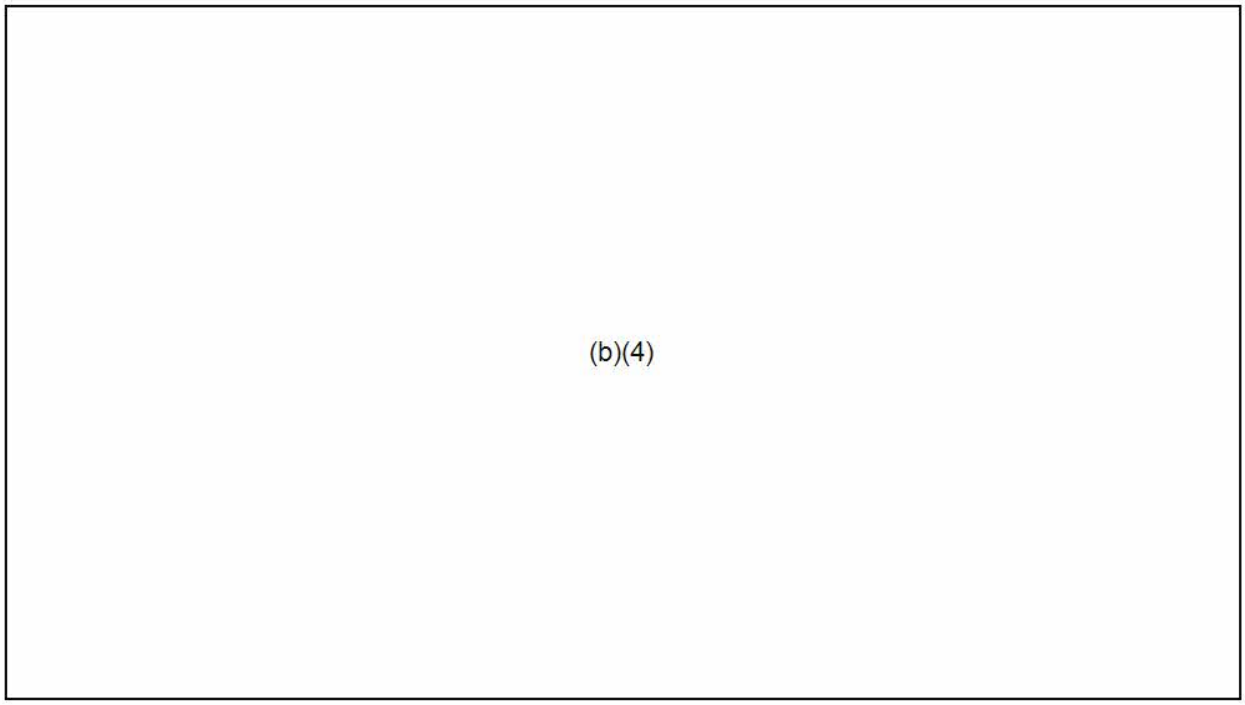
Thanks

From: "AYLWARD, Raymond Bruce J." <aylwardb@who.int>
Date: Saturday, 22 February 2020 at 19:22
To: Maria Van Kerkhove <vankerkhovem@who.int>, Dale Fisher <mdcfda@nus.edu.sg>
Cc: "Weigong ZHOU (waz6@cdc.gov)" <waz6@cdc.gov>, "Weigong ZHOU (wzhou@cdc.gov)" <wzhou@cdc.gov>
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(b)(4)

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Cc: AYLWARD, Raymond Bruce J. <aylwardb@who.int>
Subject: Draft report 22 Feb 1654 version

- External Email -

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Maria

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From: Dr VAN KERKHOVE, Maria
Sent: Sun, 23 Feb 2020 01:34:01 +0000
To: Alexander SEMENOV [(b)(6)];Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Clifford LANE (cliff.lane@nih.gov);Dale FISHER (mdcfda@nus.edu.sg);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);gmleung;LEE Jong-Koo (docmohw@snu.ac.kr);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Tim ECKMANNS (EckmannsT@rki.de);Zhou, Weigong (CDC/DDID/NCIRD/ID);Zhou, Weigong (CDC/DDID/NCIRD/ID);XING, Jun
Cc: AYLWARD, Raymond Bruce J.
Subject: Re: Draft report 22 Feb 1654 version
Attachments: WHO-China Joint Mission - DRAFT REPORT V2.3.docx

Dear colleagues,

Use this version to review for the next hour. Any changed need to be in track changes.

Thanks,
Maria

From: Maria Van Kerkhove <vankerkhovem@who.int>
Date: Saturday, 22 February 2020 at 09:56
To: "Alexander SEMENOV ([(b)(6)]" <[(b)(4)]>, "chikwe.ihekweazu@ncdc.gov.ng" <chikwe.ihekweazu@ncdc.gov.ng>, "Clifford LANE (cliff.lane@nih.gov)" <cliff.lane@nih.gov>, Dale Fisher <mdcfda@nus.edu.sg>, "Dr Hitoshi TAKAHASHI (takajin@nih.go.jp)" <takajin@nih.go.jp>, Gabriel Leung <gmleung@hku.hk>, "LEE Jong-Koo (docmohw@snu.ac.kr)" <docmohw@snu.ac.kr>, "Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru)" <natalia-pshenichnaya@yandex.ru>, "eckmannst@rki.de" <EckmannsT@rki.de>, "Weigong ZHOU (waz6@cdc.gov)" <waz6@cdc.gov>, "Weigong ZHOU (wzhou@cdc.gov)" <wzhou@cdc.gov>, "XING, Jun" <xingj@who.int>
Cc: "AYLWARD, Raymond Bruce J." <aylwardb@who.int>
Subject: Draft report 22 Feb 1654 version

Dear colleagues,

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I look forward to receiving your updated versions by 2200 tonight.

Thank you!

Maria

Draft report 2.2

WHO-China Joint Mission on COVID-19
Draft Report

Executive summary

(to add- largely from existing txt from intro/assessment/major findings)

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From: Dr VAN KERKHOVE, Maria
Sent: Sun, 23 Feb 2020 02:42:32 +0000
To: AYLWARD, Raymond Bruce J.
Cc: Dale Fisher;Zhou, Weigong (CDC/DDID/NCIRD/ID);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: Re: REVISED ASSESSMENT ETC.

Agreed, and I'm revising – this is the COVID-19 virus, as has been agreed to by WHO… I'll make these changes throughout. China agrees with this as well.

From: "AYLWARD, Raymond Bruce J." <aylwardb@who.int>
Date: Sunday, 23 February 2020 at 03:37
To: Maria Van Kerkhove <vankerkhovem@who.int>
Cc: Dale Fisher <mdcfda@nus.edu.sg>, "Weigong ZHOU (waz6@cdc.gov)" <waz6@cdc.gov>, "Weigong ZHOU (wzhou@cdc.gov)" <wzhou@cdc.gov>
Subject: Re: REVISED ASSESSMENT ETC.

Yes but definitely do not use SARS-COV2 - I'm not signing anything with that in it. I prefer we use nCoV - intentional.

I'm not going to be part of that mess.

> On 23 Feb 2020, at 07:43, Dr VAN KERKHOVE, Maria <vankerkhovem@who.int> wrote:
>
> Hi Bruce,
>
> Looks really good. I made some v minor edits to be consistent with our nomenclature (we don't use nCoV anymore and added influenza instead of flu). None of the content is changed but took away 2 qualifiers in 2 sentences. I do think its balanced and fair and reflects our discussions.
>
> Thanks
>
> ---
>
> **From:** "AYLWARD, Raymond Bruce J." <aylwardb@who.int>
> **Date:** Saturday, 22 February 2020 at 19:22
> **To:** Maria Van Kerkhove <vankerkhovem@who.int>, Dale Fisher <mdcfda@nus.edu.sg>
> **Cc:** "Weigong ZHOU (waz6@cdc.gov)" <waz6@cdc.gov>, "Weigong ZHOU (wzhou@cdc.gov)" <wzhou@cdc.gov>
> **Subject:** REVISED ASSESSMENT ETC.
>
> Hey Rockstars both….

Attached is a revised version of the *Assessment, Major Conclusions and Major Recommendations*.

Big points:

(b)(4)

Sorry to be so late!

Bruce

PS – have cc'd Weigong as I think he asked to be cc'd on the electronic as I was dashing out the door…

From: Dr VAN KERKHOVE, Maria
Sent: Saturday, February 22, 2020 15:28
To: Dale Fisher <mdcfda@nus.edu.sg>
Cc: AYLWARD, Raymond Bruce J. <aylwardb@who.int>
Subject: Re: Draft report 22 Feb 1654 version

Rockstar Dale… thank you. We will likely slash some sections tomorrow, but great to see this all together.

Thanks again,
Maria

From: Dale Fisher <mdcfda@nus.edu.sg>
Date: Saturday, 22 February 2020 at 15:25
To: Maria Van Kerkhove <vankerkhovem@who.int>
Cc: "AYLWARD, Raymond Bruce J." <aylwardb@who.int>
Subject: RE: Draft report 22 Feb 1654 version

Here Maria;

My team was to review and send tracked changes tonight……I guess they were happy ☺

I think this gives all you want and its about double the length. In addition I slashed some of the rubbish (yay)

Use this as you want and do tell me if I can help in any way

Cheers

Dale

From: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Sent: Saturday, 22 February 2020 4:57 PM
To: Alexander SEMENOV ([redacted] <[redacted]>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Dale Fisher <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; gmleung <gmleung@hku.hk>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; Weigong ZHOU (waz6@cdc.gov) <waz6@cdc.gov>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; XING, Jun <xingj@who.int>
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- External Email -

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Maria

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<Report - ASSESSMENT & MAJOR RECS 22Feb2020 Rev2_MVK.docx>

From: Dr VAN KERKHOVE, Maria
Sent: Sun, 23 Feb 2020 02:55:08 +0000
To: AYLWARD, Raymond Bruce J.
Cc: Dale Fisher;Zhou, Weigong (CDC/DDID/NCIRD/ID);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: Re: REVISED ASSESSMENT ETC.

Hi Bruce,
We are in complete agreement. We will NOT be using SARS-CoV-2 in this report and will use the Novel Coronavirus (COVID-19) throughput. I want us to be consistent with using COVID-19 throughout the mission report as this is consistent with all of WHO reporting- in WHO press, information products, technical guidance, letters to Ma, etc.
We really should not introduce another term "nCoV" because there will be another novel Coronavirus ("nCoV") in the future.
You can have a look when I send you the next version. I'm editing quite heavily.

> On 23 Feb 2020, at 10:46, AYLWARD, Raymond Bruce J. <aylwardb@who.int> wrote:
>
> Maria - I thought about nomenclature a bit more.
> given all the translation problems and deep history of this country with SARS, I want us to be really really clear.
> I'd like that we either use 'the novel Coronavirus' everywhere or 'the COVID virus' or - preferably - add a disclaimer footnote the 1st time we use nCoV that explains that while 'the Joint Mission understands that this nomenclature has been superseded by SARS-COV2, however the term nCoV is used here to ensure absolute clarity given this country's unique history with both diseases and viruses.'
> B
>
> > On 23 Feb 2020, at 10:37, AYLWARD, Raymond Bruce J. <aylwardb@who.int> wrote:
> >
> > Yes but definitely do not use SARS-COV2 - I'm not signing anything with that in it. I prefer we use nCoV - intentional.
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Thanks

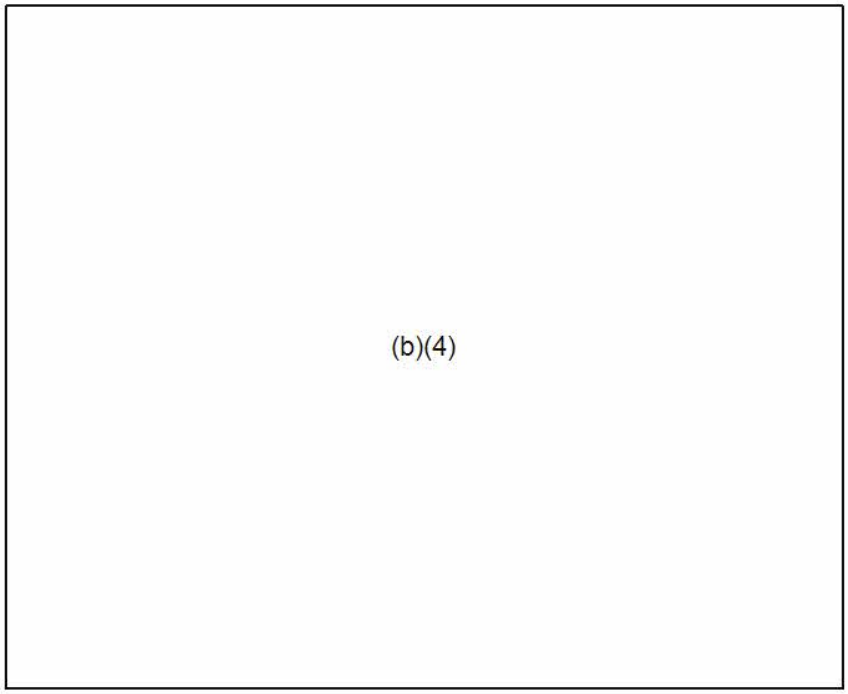
From: "AYLWARD, Raymond Bruce J." <aylwardb@who.int>
Date: Saturday, 22 February 2020 at 19:22
To: Maria Van Kerkhove <vankerkhovem@who.int>, Dale Fisher <mdcfda@nus.edu.sg>
Cc: "Weigong ZHOU (waz6@cdc.gov)" <waz6@cdc.gov>, "Weigong ZHOU (wzhou@cdc.gov)" <wzhou@cdc.gov>
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Big points:

(b)(4)



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Bruce

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To: Dale Fisher <mdcfda@nus.edu.sg>
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Use this as you want and do tell me if I can help in any way

Cheers

Dale

From: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Sent: Saturday, 22 February 2020 4:57 PM
To: Alexander SEMENOV (alexvsemenov@gmail.com) [(b)(6)]; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Dale Fisher <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; gmleung <gmleung@hku.hk>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; Weigong ZHOU (waz6@cdc.gov) <waz6@cdc.gov>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; XING, Jun <xingj@who.int>
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<Report - ASSESSMENT & MAJOR RECS 22Feb2020 Rev2_MVK.docx>

From: Dale Fisher
Sent: Sun, 23 Feb 2020 03:45:53 +0000
To: Zhou, Weigong (CDC/DDID/NCIRD/ID);AYLWARD, Raymond Bruce J.;Dr VAN KERKHOVE, Maria
Subject: RE: REVISED ASSESSMENT ETC.
Attachments: Report - ASSESSMENT MAJOR RECS 22Feb2020 Rev2_MVK-df.docx

Here are mine; I added on to Maria's

I wonder about the word non pharmaceutical

Makes it sound like we are usually pharmaceutical

Lots of tweaks for your consideration and a few additions for the clinical needs

---

From: Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>
Sent: Sunday, 23 February 2020 11:39 AM
To: AYLWARD, Raymond Bruce J. <aylwardb@who.int>; Dale Fisher <mdcfda@nus.edu.sg>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Subject: Re: REVISED ASSESSMENT ETC.

- External Email -

Hi Bruce,

It looks great! Please see my edits in the attached.

Thanks,
Weigong

Pleas

From: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Sent: Saturday, February 22, 2020 6:43 PM
To: AYLWARD, Raymond Bruce J. <aylwardb@who.int>; Dale Fisher <mdcfda@nus.edu.sg>
Cc: Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>
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Cc: "Weigong ZHOU (waz6@cdc.gov)" <waz6@cdc.gov>, "Weigong ZHOU (wzhou@cdc.gov)" <wzhou@cdc.gov>
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From: Dr VAN KERKHOVE, Maria
Sent: Sun, 23 Feb 2020 06:18:03 +0000
To: ZENG, Lishan;WANG, Can;LEE, Chin-kei;SCANO, Fabio;mdcfda@nus.edu.sg;cliff.lane@nih.gov;docmohw@snu.ac.kr;natalia-pshenichnaya@yandex.ru;(b)(6);takajin@nih.go.jp;XING, Jun;Zhou, Weigong (CDC/DDID/NCIRD/ID);alywardb@who.int;EckmannsT@rki.de;chikwe.ihekweazu@ncdc.gov.ng
Cc: zlslisa@126.com;FU, Xijuan
Subject: Re: Travel plan on Feb 24 onward

Hi Lisa,

Thank you very much. If you have our travel plans, could you kindly ask that for the hotel to arrange travel to the airport for us – we can pay on our own, but arranging this would be really appreciated (at least from my side!).

Thanks in advance,
Maria

From: "ZENG, Lishan" <lzeng@who.int>
Date: Sunday, 23 February 2020 at 06:54
To: "WANG, Can" <wangca@who.int>, "LEE, Chin-kei" <LeeC@who.int>, "SCANO, Fabio" <scanof@who.int>, Dale Fisher <mdcfda@nus.edu.sg>, "cliff.lane@nih.gov" <cliff.lane@nih.gov>, "docmohw@snu.ac.kr" <docmohw@snu.ac.kr>, "natalia-pshenichnaya@yandex.ru" <natalia-pshenichnaya@yandex.ru>, (b)(6) <(b)(6)>, "takajin@nih.go.jp" <takajin@nih.go.jp>, Maria Van Kerkhove <vankerkhovem@who.int>, "XING, Jun" <xingj@who.int>, "wzhou@cdc.gov" <wzhou@cdc.gov>, "alywardb@who.int" <alywardb@who.int>, "eckmannst@rki.de" <EckmannsT@rki.de>, "chikwe.ihekweazu@ncdc.gov.ng" <chikwe.ihekweazu@ncdc.gov.ng>
Cc: (b)(6), "FU, Xijuan" <fux@who.int>
Subject: Travel plan on Feb 24 onward

Dear all,
Meeting on Feb 24 starts at 8am.

I'd like to provide information on your travel arrangement.

For those who will go to Beijing on Feb 24 (ie. Bruce, Fabio, CK, Can and Lisa):
Bring your luggage to be checked and passport/ID card to the meeting room in the morning. I'll collect and hand them to the NHC staff to do check-ins in advance to save time.

For those who will not go to Beijing and fly out from Guangzhou:

1. For the transport to airport: It was arranged for you to travel in Beijing to the airport, according to the initial plan. As the plan has changed and you'll fly out from Guangzhou instead, transport to the airport is thus not provided by the authority. Please make your own arrangement, for example, inquire the concierge/front desk.

2. For hotel check-out, credit card is fine. You don't need cash for that.

If you have other questions, please feel free to contact me. Many thanks.

Cheers,
Lisa
Translator of China Office

From: Dr VAN KERKHOVE, Maria
Sent: Mon, 24 Feb 2020 05:49:30 +0000
To: Alexander SEMENOV (b)(6);Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Clifford LANE (cliff.lane@nih.gov);Dale FISHER (mdcfda@nus.edu.sg);AYLWARD, Raymond Bruce J.;Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);gmleung;LEE Jong-Koo (docmohw@snu.ac.kr);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Tim ECKMANNS (EckmannsT@rki.de);Zhou, Weigong (CDC/DDID/NCIRD/ID);Zhou, Weigong (CDC/DDID/NCIRD/ID);XING, Jun
Cc: (b)(6);GALEA, Gauden;LEE, Chin-kei;SCANO, Fabio
Subject: Thank you and safe travels

Dear Colleagues,

(Resending so Bruce has all of your emails again ☺) but sending again our thanks again for sharing your experiences, your professionalism and your time. Its been wonderful to learn from all of you and an honor to be on a team with you and our Chinese colleagues.

We also wanted to remind you not to speak publicly about the mission ahead of the press conference tonight and before press tomorrow in Geneva. A reminder to, if you do speak publicly, please reinforce the major findings we agreed upon together and share your impressions, and please do not share unpublished data learned during the mission.

We will share with you any press releases/statements that come from the group (they will come from the report).

Safe travels home and we will be in touch with final touches to the report.

Maria

Maria D Van Kerkhove, PhD
Head Emerging Diseases and Zoonoses Unit and MERS-CoV Technical Lead
Global Infectious Hazards Preparedness · Health Emergencies Program
World Health Organization · Geneva Switzerland

Mobile: (b)(6) Office: +41 22 79 11817 · Email: vankerkhovem@who.int
http://who.int/emergencies/mers-cov/en/

From: Dale Fisher
Sent: Wed, 26 Feb 2020 11:13:53 +0000
To: Eckmanns, Tim;AYLWARD, Raymond Bruce J.;Dr VAN KERKHOVE, Maria
Cc: gmleung;Alexander SEMENOV (b)(6);Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Clifford LANE (cliff.lane@nih.gov);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);LEE Jong-Koo (docmohw@snu.ac.kr);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Zhou, Weigong (CDC/DDID/NCIRD/ID);Zhou, Weigong (CDC/DDID/NCIRD/ID);XING, Jun;mvankerkhove@gmail.com;GALEA, Gauden;LEE, Chin-kei;SCANO, Fabio
Subject: RE: Thank you and safe travels

Dear all

What a 10 days! It was my pleasure to work with you all. I thought of some downtime when I got back.....no.... Talks, interviews, meetings, stuff to write/read, clinical, research, policy.... so much. The 16 hour days won't stop for a while. Look forward to future reunions!!

Dale

-----Original Message-----
From: Eckmanns, Tim <EckmannsT@rki.de>
Sent: Wednesday, 26 February 2020 7:08 PM
To: AYLWARD, Raymond Bruce J. <aylwardb@who.int>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Cc: gmleung <gmleung@hku.hk>; Alexander SEMENOV (b)(6) (b)(6); Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Dale Fisher <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Weigong ZHOU (waz6@cdc.gov) <waz6@cdc.gov>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; XING, Jun <xingj@who.int> (b)(6) GALEA, Gauden <galeag@who.int>; LEE, Chin-kei <LeeC@who.int>; SCANO, Fabio <scanof@who.int>
Subject: AW: Thank you and safe travels

- External Email -

Dear All,
I arrived healthy in Germany.

It was a very intensive and interesting time, thank you to all of you.

A lot to do everywhere, good luck.

I hope the report will come soon.

Best regards
Tim

-----Ursprüngliche Nachricht-----
Von: AYLWARD, Raymond Bruce J. [mailto:aylwardb@who.int]
Gesendet: Montag, 24. Februar 2020 10:24
An: Dr VAN KERKHOVE, Maria

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Betreff: Re: Thank you and safe travels

Dear all

Further to Maria's note, I believe that Dr Tedros and Minister Ma would like to have the opportunity to read the report before anyone comments to much on it publicly. We will probably do a press brief tomorrow afternoon Geneva time if all goes well with travel.

May I take this opportunity to again express my sincere appreciation to each and everyone of you for the tremendous and expert team work over the past 10 days.

Sincerely

Bruce

> On 24 Feb 2020, at 16:23, Dr VAN KERKHOVE, Maria <vankerkhovem@who.int> wrote:
>
> Dear colleagues, please also do not share the report until it is (Final) and public.
>
> Best,
> Maria
>
>> On 24 Feb 2020, at 15:55, Gabriel Leung <gmleung@hku.hk> wrote:
>>

Important: This email is confidential and may be privileged. If you are not the intended recipient, please delete it and notify us immediately; you should not copy or use it for any purpose, nor disclose its contents to any other person. Thank you.

From: AYLWARD, Raymond Bruce J.
Sent: Wed, 26 Feb 2020 23:04:27 +0000
To: GHEBREYESUS, Tedros Adhanom
Cc: KASAI, Takeshi;liangwn@nhc.gov.c (b)(6) SEMENOV (b)(6) Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Clifford LANE (cliff.lane@nih.gov);Zhou, Weigong (CDC/DDID/NCIRD/ID);Dale FISHER (mdcfda@nus.edu.sg);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);LEE Jong-Koo (docmohw@snu.ac.kr);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Tim ECKMANNS (EckmannsT@rki.de);XING, Jun;gmleung;Dr VAN KERKHOVE, Maria;Ryan, Michael (CDC who.int);SCHWARTLANDER, Bernhard F.
Subject: Final Report: WHO-China Joint Mission on COVID-19
Attachments: WHO-China Joint Mission on COVID-19 - FINAL REPORT 26Feb2020.pdf
Importance: High

Dear Dr Tedros,

On behalf of the entire team, it is my honor to share with you the attached ***Report of the WHO-China Joint Mission on COVID-19***.

In submitting this final version of the report, I would like to extend my tremendous gratitude to my Co-Lead Dr LIANG Wannian (copied), whose deep experience and wisdom were crucial as we distilled our vast findings into the overall assessment and major recommendations.

You will be aware that Dr Liang and I have had the opportunity to present the findings and recommendations of this report to the Honorable Minister of Health, Dr MA Xiaowei, while in Wuhan on 23 February.

I must also thank our Deputy Team Leader Dr WANG Bin and our international team members, all of whom are also copied on this note. I would like to extend a further and very special thank you to our team members from China who gave so tirelessly and generously of their vast knowledge of the unfolding outbreak in China as well as their specific areas of technical expertise.

Dr Tedros, this was truly a Joint Mission, with national and international team members working closely together throughout, and particularly to consolidate their respective sections of this report in the final days of the Mission. Please know that the attached findings and recommendations reflect the collective opinion of the entire team, all of whom have been closely engaged in its writing and finalization.

We share a common hope that the findings contained herein can help inform the global work you are leading to stem the ongoing international spread of COVID-19.

Regards

Bruce

Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19)

16-24 February 2020

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I. The Mission

Goal and Objectives

The overall goal of the Joint Mission was to rapidly inform national (China) and international planning on next steps in the response to the ongoing outbreak of the novel coronavirus disease (COVID-19) and on next steps in readiness and preparedness for geographic areas not yet affected.

The major objectives of the Joint Mission were as follows:

- To enhance understanding of the evolving COVID-19 outbreak in China and the nature and impact of ongoing containment measures;
- To share knowledge on COVID-19 response and preparedness measures being implemented in countries affected by or at risk of importations of COVID-19;
- To generate recommendations for adjusting COVID-19 containment and response measures in China and internationally; and
- To establish priorities for a collaborative programme of work, research and development to address critical gaps in knowledge and response and readiness tools and activities.

Members & Method of Work

The Joint Mission consisted of 25 national and international experts from China, Germany, Japan, Korea, Nigeria, Russia, Singapore, the United States of America and the World Health Organization. The Joint Mission was headed by Dr Bruce Aylward of the World Health Organization and Dr Wannian Liang of the People's Republic of China. The full list of members and their affiliations is available in Annex A.

The Joint Mission was implemented over a 9-day period from 16-24 February 2020. The schedule of work is available in Annex B.

The Joint Mission began with a detailed workshop with representatives of all of the principal ministries that are leading and/or contributing to the response in China through the National Prevention and Control Task Force. A series of in-depth meetings were then conducted with national level institutions responsible for the management, implementation and evaluation of the response, particularly the National Health Commission and the China Centers for Disease Control and Prevention (China CDC). To gain first-hand knowledge on the field level implementation and impact of the national and local response strategy, under a range of epidemiologic and provincial contexts, visits were conducted to Beijing Municipality and the provinces of Sichuan (Chengdu), Guangdong (Guangzhou, Shenzhen) and Hubei (Wuhan). The field visits included community centers and health clinics, country/district hospitals, COVID-19 designated hospitals, transportations hubs (air, rail, road), a wet market, pharmaceutical and personal protective equipment (PPE) stocks warehouses, research institutions, provincial health commissions, and local Centers for Disease Control (provincial and prefecture). During these visits, the team had detailed

discussion and consultations with Provincial Governors, municipal Mayors, their emergency operations teams, senior scientists, frontline clinical, public health and community workers, and community neighbourhood administrators. The Joint Mission concluded with working sessions to consolidate findings, generate conclusions and propose suggested actions.

To achieve its goal, the Joint Mission gave particular focus to addressing key questions related to the natural history and severity of COVID-19, the transmission dynamics of the COVID-19 virus in different settings, and the impact of ongoing response measures in areas of high (community level), moderate (clusters) and low (sporadic cases or no cases) transmission.

The final report of the Joint Mission was submitted on 26 February 2020.

II. Major findings

The major findings are described in five sections: the virus, the outbreak, transmission dynamics, disease progression and severity, and knowledge gaps. More detailed descriptions of technical findings are provided in Annex C.

The virus

On 30 December 2019, three bronchoalveolar lavage samples were collected from a patient with pneumonia of unknown etiology – a surveillance definition established following the SARS outbreak of 2002-2003 – in Wuhan Jinyintan Hospital. Real-time PCR (RT-PCR) assays on these samples were positive for pan-Betacoronavirus. Using Illumina and nanopore sequencing, the whole genome sequences of the virus were acquired. Bioinformatic analyses indicated that the virus had features typical of the coronavirus family and belonged to the Betacoronavirus 2B lineage. Alignment of the full-length genome sequence of the COVID-19 virus and other available genomes of Betacoronavirus showed the closest relationship was with the bat SARS-like coronavirus strain BatCov RaTG13, identity 96%.

Virus isolation was conducted with various cell lines, such as human airway epithelial cells, Vero E6, and Huh-7. Cytopathic effects (CPE) were observed 96 hours after inoculation. Typical crown-like particles were observed under transmission electron microscope (TEM) with negative staining. The cellular infectivity of the isolated viruses could be completely neutralized by the sera collected from convalescent patients. Transgenic human ACE2 mice and Rhesus monkey intranasally challenged by this virus isolate induced multifocal pneumonia with interstitial hyperplasia. The COVID-19 virus was subsequently detected and isolated in the lung and intestinal tissues of the challenged animals.

Whole genome sequencing analysis of 104 strains of the COVID-19 virus isolated from patients in different localities with symptom onset between the end of December 2019 and mid-February 2020 showed 99.9% homology, without significant mutation (Figure 1).

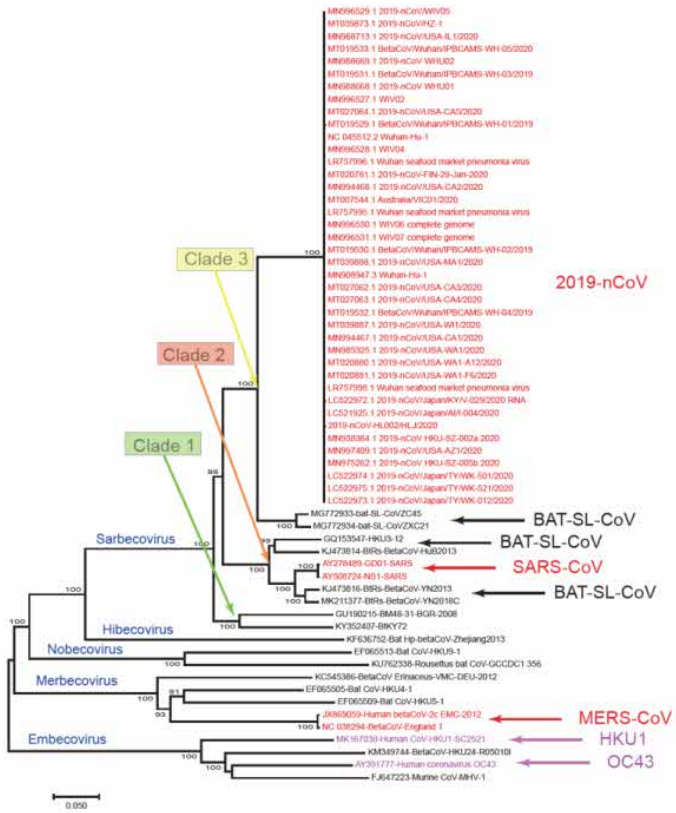


Figure 1. Phylogenetic analysis of the COVID-19 virus and its closely related reference genomes

Note: COVID-19 virus is referred to as 2019-nCoV in the figure, the interim virus name WHO announced early in the outbreak.

Post-mortem samples from a 50-year old male patient from Wuhan were taken from the lung, liver, and heart. Histological examination showed bilateral diffuse alveolar damage with cellular fibromyxoid exudates. The right lung showed evident desquamation of pneumocytes and hyaline membrane formation, indicating acute respiratory distress syndrome (ARDS). Lung tissue also displayed cellular fibromyxoid, exudates desquamation of pneumocystis and pulmonary oedema. Interstitial mononuclear inflammatory infiltrates, dominated by lymphocytes, were seen in both lungs. Multinucleated syncytial cells with atypical enlarged pneumocytes characterized by large nuclei, amphophilic granular cytoplasm, and prominent nucleoli were identified in the intra-alveolar spaces, showing viral cytopathic-like changes. No obvious intranuclear or intracytoplasmic viral inclusions were identified.

The outbreak

As of 20 February 2020, a cumulative total of 75,465 COVID-19 cases were reported in China. Reported cases are based on the National Reporting System (NRS) between the National and Provincial Health Commissions. The NRS issues daily reports of newly recorded confirmed cases, deaths, suspected cases, and contacts. A daily report is provided by each province at 0300hr in which they report cases from the previous day.

The epidemic curves presented in Figures 2 and 3 are generated using China's National Infectious Disease Information System (IDIS), which requires each COVID-19 case to be reported electronically by the responsible doctor as soon as a case has been diagnosed. It includes cases that are reported as asymptomatic and data are updated in real time. Individual case reporting forms are downloaded after 2400hr daily. Epidemiologic curves for Wuhan, Hubei (outside of Wuhan), China (outside Hubei) and China by symptom onset are provided in Figure 2.

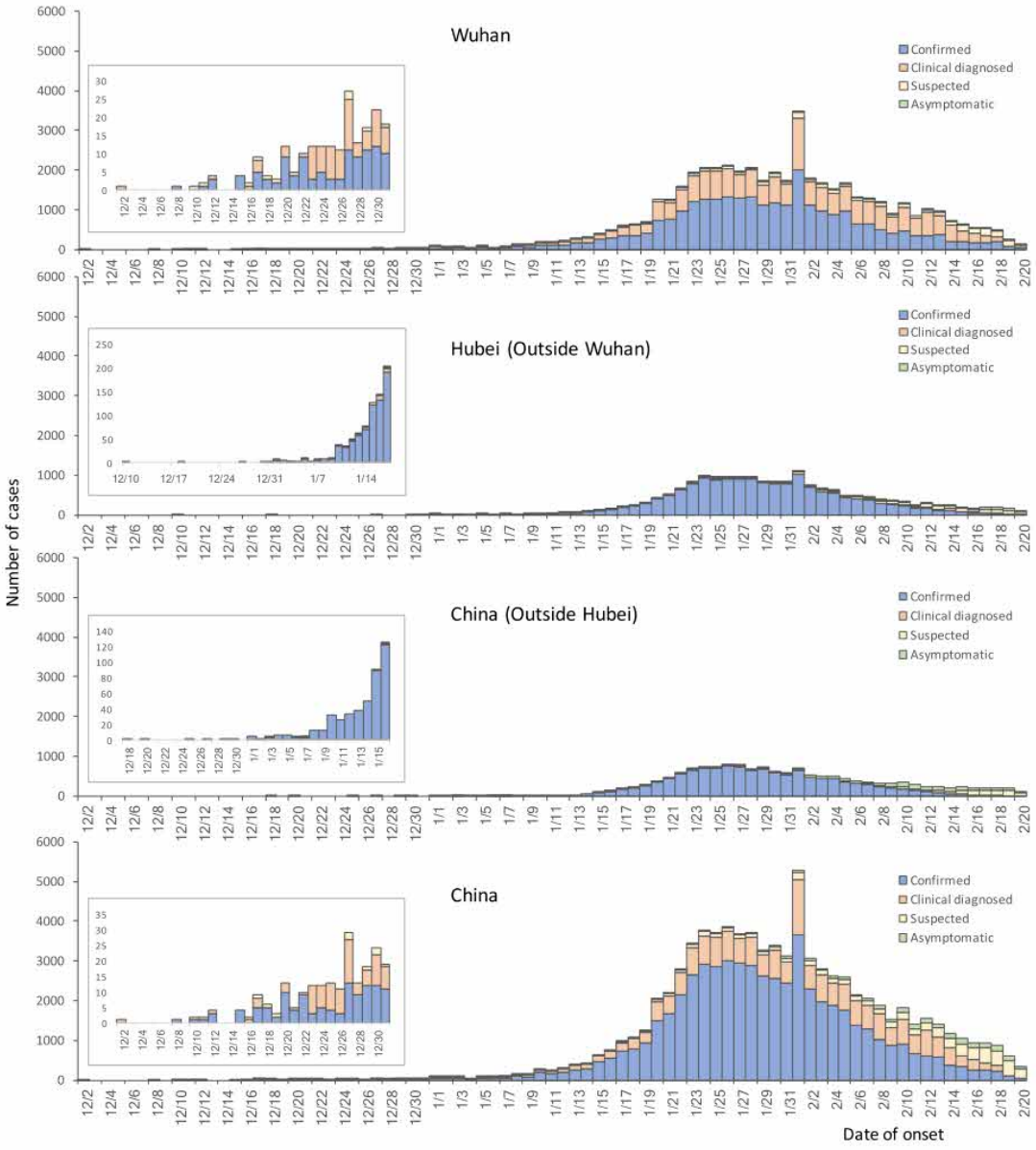


Figure 2 Epidemiologic curve of COVID-19 laboratory confirmed cases, by date of onset of illness, reported in China, as of 20 February 2020

Figure 3 presents epidemic curves of laboratory-confirmed cases, by symptom onset and separately by date of report, at 5, 12, and 20 February 2020. Figures 2 and 3 illustrate that

the epidemic rapidly grew from 10-22 January, reported cases peaked and plateaued between 23 January and 27 January, and have been steadily declining since then, apart from the spike that was reported on 1 February (note: at a major hospital in Wuhan, fever clinic patients fell from a peak of 500/day in late January to average 50/day since mid-February).

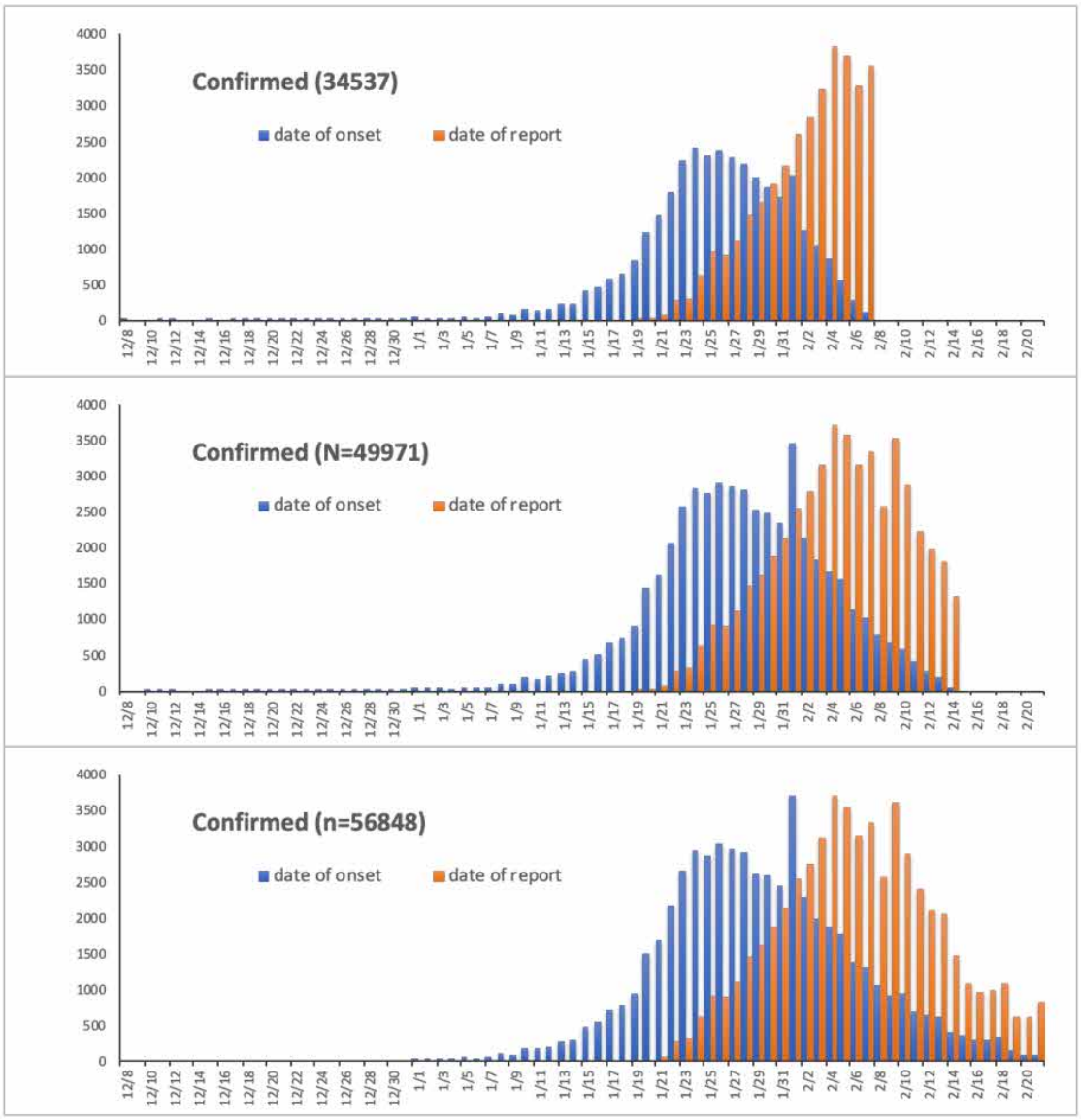


Figure 3. Epidemic curves by symptom onset and date of report as of 5 February (top panel), 12 February (middle panel) and 20 February 2020 (lower panel) for laboratory confirmed COVID-19 cases for all of China

Based on these epidemic curves, the published literature, and our on-site visits in Wuhan (Hubei), Guangdong (Shenzhen and Guangzhou), Sichuan (Chengdu), and Beijing, the Joint Mission team has made the following epidemiological observations:

Demographic characteristics

Among 55,924 laboratory confirmed cases reported as of 20 February 2020, the median age is 51 years (range 2 days-100 years old; IQR 39-63 years old) with the majority of cases (77.8%) aged between 30–69 years. Among reported cases, 51.1% are male, 77.0% are from Hubei and 21.6% are farmers or laborers by occupation.

Zoonotic origins

COVID-19 is a zoonotic virus. From phylogenetics analyses undertaken with available full genome sequences, bats appear to be the reservoir of COVID-19 virus, but the intermediate host(s) has not yet been identified. However, three important areas of work are already underway in China to inform our understanding of the zoonotic origin of this outbreak. These include early investigations of cases with symptom onset in Wuhan throughout December 2019, environmental sampling from the Huanan Wholesale Seafood Market and other area markets, and the collection of detailed records on the source and type of wildlife species sold at the Huanan market and the destination of those animals after the market was closed.

Routes of transmission

COVID-19 is transmitted via droplets and fomites during close unprotected contact between an infector and infectee. Airborne spread has not been reported for COVID-19 and it is not believed to be a major driver of transmission based on available evidence; however, it can be envisaged if certain aerosol-generating procedures are conducted in health care facilities. Fecal shedding has been demonstrated from some patients, and viable virus has been identified in a limited number of case reports. However, the fecal-oral route does not appear to be a driver of COVID-19 transmission; its role and significance for COVID-19 remains to be determined. Viral shedding is discussed in the Technical Findings (Annex C).

Household transmission

In China, human-to-human transmission of the COVID-19 virus is largely occurring in families. The Joint Mission received detailed information from the investigation of clusters and some household transmission studies, which are ongoing in a number of Provinces. Among 344 clusters involving 1308 cases (out of a total 1836 cases reported) in Guangdong Province and Sichuan Province, most clusters (78%-85%) have occurred in families. Household transmission studies are currently underway, but preliminary studies ongoing in Guangdong estimate the secondary attack rate in households ranges from 3-10%.

Contact Tracing

China has a policy of meticulous case and contact identification for COVID-19. For example, in Wuhan more than 1800 teams of epidemiologists, with a minimum of 5 people/team, are tracing tens of thousands of contacts a day. Contact follow up is painstaking, with a high percentage of identified close contacts completing medical observation. Between 1% and 5% of contacts were subsequently laboratory confirmed cases of COVID-19, depending on location. For example:

- As of 17 February, in Shenzhen City, among 2842 identified close contacts, 2842 (100%) were traced and 2240 (72%) have completed medical observation. Among the close contacts, 88 (2.8%) were found to be infected with COVID-19.

- As of 17 February, in Sichuan Province, among 25493 identified close contacts, 25347 (99%) were traced and 23178 (91%) have completed medical observation. Among the close contacts, 0.9% were found to be infected with COVID-19.
- As of 20 February, in Guangdong Province, among 9939 identified close contacts, 9939 (100%) were traced and 7765 (78%) have completed medical observation. Among the close contacts, 479 (4.8%) were found to be infected with COVID-19.

Testing at fever clinics and from routine ILI/SARI surveillance

The Joint Mission systematically enquired about testing for COVID-19 from routine respiratory disease surveillance systems to explore if COVID-19 is circulating more broadly and undetected in the community in China. These systems could include RT-PCR testing of COVID-19 virus in influenza-like-illness (ILI) and severe acute respiratory infection (SARI) surveillance systems, as well as testing of results among all visitors to fever clinics.

In Wuhan, COVID-19 testing of ILI samples (20 per week) in November and December 2019 and in the first two weeks of January 2020 found no positive results in the 2019 samples, 1 adult positive in the first week of January, and 3 adults positive in the second week of January; all children tested were negative for COVID-19 although a number were positive for influenza. In Guangdong, from 1-14 January, only 1 of more than 15000 ILI/SARI samples tested positive for the COVID-19 virus. In one hospital in Beijing, there were no COVID-19 positive samples among 1910 collected from 28 January 2019 to 13 February 2020. In a hospital in Shenzhen, 0/40 ILI samples were positive for COVID-19.

Within the fever clinics in Guangdong, the percentage of samples that tested positive for the COVID-19 virus has decreased over time from a peak of 0.47% positive on 30 January to 0.02% on 16 February. Overall in Guangdong, 0.14% of approximately 320,000 fever clinic screenings were positive for COVID-19.

Susceptibility

As COVID-19 is a newly identified pathogen, there is no known pre-existing immunity in humans. Based on the epidemiologic characteristics observed so far in China, everyone is assumed to be susceptible, although there may be risk factors increasing susceptibility to infection. This requires further study, as well as to know whether there is neutralising immunity after infection.

The transmission dynamics

Inferring from Figures 2 and 3, and based on our observations at the national and provincial/municipal levels during the Joint Mission, we summarize and interpret the transmission dynamics of COVID-19 thus far. It is important to note that transmission dynamics of any outbreak are inherently contextual. For COVID-19, we observe four major types of transmission dynamics during the epidemic growth phase and in the post-control period, and highlight what is known about transmission in children, as follows:

Transmission in Wuhan

Early cases identified in Wuhan are believed to be have acquired infection from a zoonotic source as many reported visiting or working in the Huanan Wholesale Seafood Market. As of 25 February, an animal source has not yet been identified.

At some point early in the outbreak, some cases generated human-to-human transmission chains that seeded the subsequent community outbreak prior to the implementation of the comprehensive control measures that were rolled out in Wuhan. The dynamics likely approximated mass action and radiated from Wuhan to other parts of Hubei province and China, which explains a relatively high R_0 of 2-2.5.

The *cordon sanitaire* around Wuhan and neighboring municipalities imposed since 23 January 2020 has effectively prevented further exportation of infected individuals to the rest of the country.

Transmission in Hubei, other than Wuhan

In the prefectures immediately adjoining Wuhan (Xiaogan, Huanggang, Jingzhou and Ezhou), transmission is less intense. For other prefectures, due to fewer transport links and human mobility flows with Wuhan, the dynamics are more closely aligned with those observed in the other areas of the country. Within Hubei, the implementation of control measures (including social distancing) has reduced the community force of infection, resulting in the progressively lower incident reported case counts.

Transmission in China outside of Hubei

Given Wuhan's transport hub status and population movement during the Chinese New Year (chunyun), infected individuals quickly spread throughout the country, and were particularly concentrated in cities with the highest volume of traffic with Wuhan. Some of these imported seeds generated limited human-to-human transmission chains at their destination.

Given the Wuhan/Hubei experience, a comprehensive set of interventions, including aggressive case and contact identification, isolation and management and extreme social distancing, have been implemented to interrupt the chains of transmission nationwide. To date, most of the recorded cases were imported from or had direct links to Wuhan/Hubei. Community transmission has been very limited. Most locally generated cases have been clustered, the majority of which have occurred in households, as summarized above.

Of note, the highly clustered nature of local transmission may explain a relatively high R_0 (2-2.5) in the absence of interventions and low confirmed case counts with intense quarantine and social distancing measures.

Special settings

We note that instances of transmission have occurred within health care settings prisons and other closed settings. At the present time, it is not clear what role these settings and groups play in transmission. However, they do not appear to be major drivers of the overall epidemic dynamics. Specifically, we note:

(a) **Transmission in health care settings and among health care workers (HCW)** – The Joint Mission discussed nosocomial infection in all locations visited during the Mission. As of 20 February 2020, there were 2,055 COVID-19 laboratory-confirmed cases reported among HCW from 476 hospitals across China. The majority of HCW cases (88%) were reported from Hubei.

Remarkably, more than 40,000 HCW have been deployed from other areas of China to support the response in Wuhan. Notwithstanding discrete and limited instances of nosocomial outbreaks (e.g. a nosocomial outbreak involving 15 HCW in Wuhan), transmission within health care settings and amongst health care workers does not appear to be a major transmission feature of COVID-19 in China. The Joint Mission learned that, among the HCW infections, most were identified early in the outbreak in Wuhan when supplies and experience with the new disease was lower. Additionally, investigations among HCW suggest that many may have been infected within the household rather than in a health care setting. Outside of Hubei, health care worker infections have been less frequent (i.e. 246 of the total 2055 HCW cases). When exposure was investigated in these limited cases, the exposure for most was reported to have been traced back to a confirmed case in a household.

The Joint Team noted that attention to the prevention of infection in health care workers is of paramount importance in China. Surveillance among health care workers identified factors early in the outbreak that placed HCW at higher risk of infection, and this information has been used to modify policies to improve protection of HCW.

(b) **Transmission in closed settings** – There have been reports of COVID-19 transmission in prisons (Hubei, Shandong, and Zhejiang, China), hospitals (as above) and in a long-term living facility. The close proximity and contact among people in these settings and the potential for environmental contamination are important factors, which could amplify transmission. Transmission in these settings warrants further study.

Children

Data on individuals aged 18 years old and under suggest that there is a relatively low attack rate in this age group (2.4% of all reported cases). Within Wuhan, among testing of ILI samples, no children were positive in November and December of 2019 and in the first two weeks of January 2020. From available data, and in the absence of results from serologic studies, it is not possible to determine the extent of infection among children, what role children play in transmission, whether children are less susceptible or if they present differently clinically (i.e. generally milder presentations). The Joint Mission learned that infected children have largely been identified through contact tracing in households of adults. Of note, people interviewed by the Joint Mission Team could not recall episodes in which transmission occurred from a child to an adult.

The signs, symptoms, disease progression and severity

Symptoms of COVID-19 are non-specific and the disease presentation can range from no symptoms (asymptomatic) to severe pneumonia and death. As of 20 February 2020 and

based on 55924 laboratory confirmed cases, typical **signs and symptoms** include: fever (87.9%), dry cough (67.7%), fatigue (38.1%), sputum production (33.4%), shortness of breath (18.6%), sore throat (13.9%), headache (13.6%), myalgia or arthralgia (14.8%), chills (11.4%), nausea or vomiting (5.0%), nasal congestion (4.8%), diarrhea (3.7%), and hemoptysis (0.9%), and conjunctival congestion (0.8%).

People with COVID-19 generally develop signs and symptoms, including mild respiratory symptoms and fever, on an average of 5-6 days after infection (mean incubation period 5-6 days, range 1-14 days).

Most people infected with COVID-19 virus have mild disease and recover. The median age of reported cases is 47.0 years (IQR, 35.0 to 58.0). Approximately 80% of laboratory confirmed patients have had **mild to moderate disease**, which includes non-pneumonia and pneumonia cases, 13.8% have **severe disease** classified as dyspnea, respiratory frequency ≥30/minute, blood oxygen saturation ≤93%, PaO2/FiO2 ratio <300, and/or lung infiltrates >50% of the lung field within 24-48 hours) and 6.1% are **critical** (respiratory failure, septic shock, and/or multiple organ dysfunction/failure). **Asymptomatic infection** has been reported, but the majority of the relatively rare cases who are asymptomatic on the date of identification/report went on to develop disease. The proportion of truly asymptomatic infections is unclear but appears to be relatively rare and does not appear to be a major driver of transmission.

Individuals at **highest risk** for severe disease and death include people aged over 60 years and those with underlying conditions such as hypertension, diabetes, cardiovascular disease, chronic respiratory disease and cancer. Disease in **children** appears to be relatively rare and mild with approximately 2.4% of the total reported cases reported amongst individuals aged under 19 years. A very small proportion of those aged under 19 years have developed severe (2.5%) or critical disease (0.2%).

As of 20 February, 2114 of the 55,924 laboratory confirmed cases have died (**crude fatality ratio** [CFR[1]] 3.8%) (note: at least some of whom were identified using a case definition that included pulmonary disease). The overall CFR varies by location and intensity of transmission (i.e. 5.8% in Wuhan vs. 0.7% in other areas in China). In China, the overall CFR was higher in the early stages of the outbreak (17.3% for cases with symptom onset from 1-10 January) and has reduced over time to 0.7% for patients with symptom onset after 1 February (Figure 4). The Joint Mission noted that the standard of care has evolved over the course of the outbreak.

Mortality increases with age, with the highest mortality among people over 80 years of age (CFR 21.9%). The CFR is higher among males compared to females (4.7% vs. 2.8%). By occupation, patients who reported being retirees had the highest CFR at 8.9%. While patients who reported no comorbid conditions had a CFR of 1.4%, patients with comorbid conditions had much higher rates: 13.2% for those with cardiovascular disease, 9.2% for diabetes, 8.4% for hypertension, 8.0% for chronic respiratory disease, and 7.6% for cancer.

[1] The Joint Mission acknowledges the known challenges and biases of reporting crude CFR early in an epidemic.

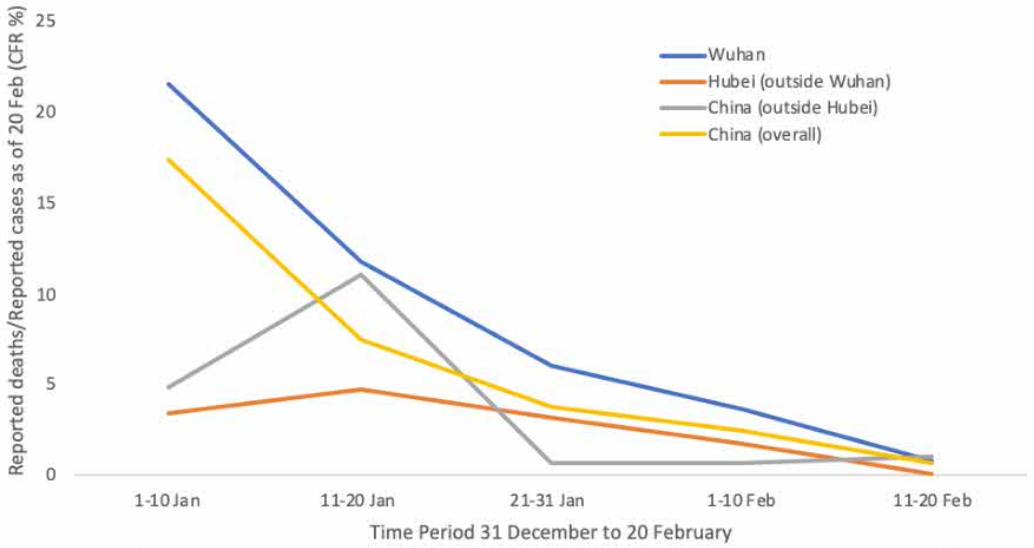


Figure 4 Case fatality ratio (reported deaths among total cases) for COVID-19 in China over time and by location, as of 20 February 2020

Data on the **progression of disease** is available from a limited number of reported hospitalized cases (Figure 5). Based on available information, the median time from symptom onset to laboratory confirmation nationally decreased from 12 days (range 8-18 days) in early January to 3 days (1-7) by early February 2020, and in Wuhan from 15 days (10-21) to 5 days (3-9), respectively. This has allowed for earlier case and contact identification, isolation and treatment.

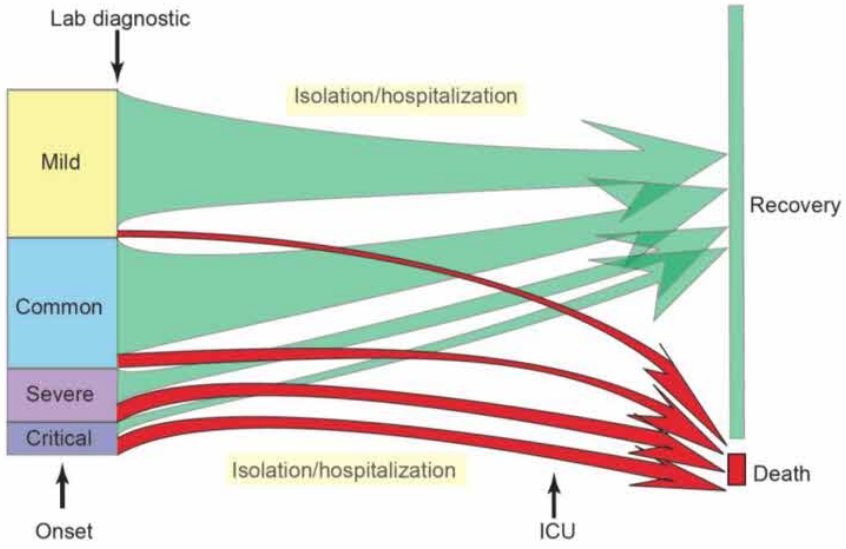


Figure 5. Pattern of disease progression for COVID-19 in China

Note: the relative size of the boxes for disease severity and outcome reflect the proportion of cases reported as of 20 February 2020. The size of the arrows indicates the proportion of cases who recovered or died. Disease definitions are described above. "Common" refers to the moderate cases which have a mild form of pneumonia.

Using available preliminary data, the median time from onset to clinical recovery for mild cases is approximately 2 weeks and is 3-6 weeks for patients with severe or critical disease.

Preliminary data suggests that the time period from onset to the development of severe disease, including hypoxia, is 1 week. Among patients who have died, the time from symptom onset to outcome ranges from 2-8 weeks.

An increasing number of patients have **recovered**; as of 20 February, 18264 (24%) reported cases have recovered. Encouragingly, a report on 20 February from the Guangdong CDC suggests that of 125 severe cases identified in Guangdong, 33 (26.4%) have recovered and been released from hospital, and 58 (46.4%) had improved and were reclassified as having mild/moderate disease (i.e. + milder pneumonia). Among severe cases reported to date, 13.4% have died. Early identification of cases and contacts allows for earlier treatment.

The China response

Upon the detection of a cluster of pneumonia cases of unknown etiology in Wuhan, the CPC Central Committee and the State Council launched the national emergency response. A **Central Leadership Group for Epidemic Response** and the **Joint Prevention and Control Mechanism** of the State Council were established. General Secretary Xi Jinping personally directed and deployed the prevention and control work and requested that the prevention and control of the COVID-19 outbreak be the top priority of government at all levels. Prime Minister Li Keqiang headed the Central Leading Group for Epidemic Response and went to Wuhan to inspect and coordinate the prevention and control work of relevant departments and provinces (autonomous regions and municipalities) across the country. Vice Premier Sun Chunlan, who has been working on the frontlines in Wuhan, has led and coordinated the frontline prevention and control of the outbreak.

The prevention and control measures have been implemented rapidly, from the early stages in Wuhan and other key areas of Hubei, to the current overall national epidemic. It has been undertaken in **three main phases**, with two important events defining those phases. First, COVID-19 was included in the statutory report of Class B infectious diseases and border health quarantine infectious diseases on 20 January 2020, which marked the transition from the initial partial control approach to the comprehensive adoption of various control measures in accordance with the law. The second event was the State Council's issuing, on 8 February 2020, of The Notice on Orderly Resuming Production and Resuming Production in Enterprises, which indicated that China's national epidemic control work had entered a stage of overall epidemic prevention and control together with the restoration of normal social and economic operations.

The first stage

During the early stage of the outbreak, the main strategy focused on preventing the exportation of cases from Wuhan and other priority areas of Hubei Province, and preventing the importation of cases by other provinces; the overall aim was to control the source of infection, block transmission and prevent further spread. The response mechanism was initiated with multi-sectoral involvement in joint prevention and control measures. Wet markets were closed, and efforts were made to identify the zoonotic source. Information on the epidemic was notified to WHO on 3 January, and whole genome sequences of the COVID-19 virus were shared with WHO on 10 January. Protocols for COVID-19 diagnosis and treatment, surveillance, epidemiological investigation, management of close contacts, and laboratory testing were formulated, and relevant surveillance activities and epidemiological

investigations conducted. Diagnostic testing kits were developed, and wildlife and live poultry markets were placed under strict supervision and control measures.

The second stage

During the second stage of the outbreak, the main strategy was to reduce the intensity of the epidemic and to slow down the increase in cases. In Wuhan and other priority areas of Hubei Province, the focus was on actively treating patients, reducing deaths, and preventing exportations. In other provinces, the focus was on preventing importations, curbing the spread of the disease and implementing joint prevention and control measures. Nationally, wildlife markets were closed and wildlife captive-breeding facilities were cordoned off. On 20 January, COVID-19 was included in the notifiable report of Class B infectious diseases and border health quarantine infectious diseases, with temperature checks, health care declarations, and quarantine against COVID-19 instituted at transportation depots in accordance with the law. On 23 January, Wuhan implemented strict traffic restrictions. The protocols for diagnosis, treatment and epidemic prevention and control were improved; case isolation and treatment were strengthened.

Measures were taken to ensure that all cases were treated, and close contacts were isolated and put under medical observation. Other measures implemented included the extension of the Spring Festival holiday, traffic controls, and the control of transportation capacity to reduce the movement of people; mass gathering activities were also cancelled. Information about the epidemic and prevention and control measures was regularly released. Public risk communications and health education were strengthened; allocation of medical supplies was coordinated, new hospitals were built, reserve beds were used and relevant premises were repurposed to ensure that all cases could be treated; efforts were made to maintain a stable supply of commodities and their prices to ensure the smooth operation of society.

The third stage

The third stage of the outbreak focused on reducing clusters of cases, thoroughly controlling the epidemic, and striking a balance between epidemic prevention and control, sustainable economic and social development, the unified command, standardized guidance, and scientific evidence-based policy implementation. For Wuhan and other priority areas of Hubei Province, the focus was on patient treatment and the interruption of transmission, with an emphasis on concrete steps to fully implement relevant measures for the testing, admitting and treating of all patients. A risk-based prevention and control approach was adopted with differentiated prevention and control measures for different regions of the country and provinces. Relevant measures were strengthened in the areas of epidemiological investigation, case management and epidemic prevention in high-risk public places.

New technologies were applied such as the use of big data and artificial intelligence (AI) to strengthen contact tracing and the management of priority populations. Relevant health insurance policies were promulgated on "health insurance payment, off-site settlement, and financial compensation". All provinces provided support to Wuhan and priority areas in Hubei Province in an effort to quickly curb the spread of the disease and provide timely clinical treatment. Pre-school preparation was improved, and work resumed in phases and batches. Health and welfare services were provided to returning workers in a targeted and ‘one-stop’ manner. Normal social operations are being restored in a stepwise fashion;

knowledge about disease prevention is being popularized to improve public health literacy and skills; and a comprehensive program of emergency scientific research is being carried out to develop diagnostics, therapeutics and vaccines, delineate the spectrum of the disease, and identify the source of the virus.

Knowledge gaps

Since the start of the COVID-19 outbreak, there have been extensive attempts to better understand the virus and the disease in China. It is remarkable how much knowledge about a new virus has been gained in such a short time. However, as with all new diseases, and only 7 weeks after this outbreak began, key knowledge gaps remain. Annex D summarizes the key unknowns in a number of areas including the source of infection, pathogenesis and virulence of the virus, transmissibility, risk factors for infection and disease progression, surveillance, diagnostics, clinical management of severe and critically ill patients, and the effectiveness of prevention and control measures. The timely filling of these knowledge gaps is imperative to enhance control strategies.

III. Assessment

The Joint Mission drew four major conclusions from its work in China and four major conclusions from its knowledge of the broader global response to COVID-19. Recommendations are offered in five major areas to inform the ongoing response globally and in China.

The China Response & Next Steps

1. **In the face of a previously unknown virus, China has rolled out perhaps the most ambitious, agile and aggressive disease containment effort in history. The strategy that underpinned this containment effort was initially a national approach that promoted universal temperature monitoring and hand washing. However, as the outbreak evolved, and knowledge was gained, a science and risk-based approach was taken to tailor implementation. Specific containment measures were adjusted to the provincial, county and even community context, the capacity of the setting, and the nature of novel coronavirus transmission there.**

   While the fundamental principles of this strategy have been consistent since its launch, there has been constant refinement of specific aspects to incorporate new knowledge on the novel coronavirus, the COVID-19 disease, and COVID-19 containment, as rapidly as that knowledge has emerged. The remarkable speed with which Chinese scientists and public health experts isolated the causative virus, established diagnostic tools, and determined key transmission parameters, such as the route of spread and incubation period, provided the vital evidence base for China's strategy, gaining invaluable time for the response.

   As striking, has been the uncompromising rigor of strategy application that proved to be a hallmark in every setting and context where it was examined. There has also been a

relentless focus on improving key performance indicators, for example constantly enhancing the speed of case detection, isolation and early treatment. The implementation of these containment measures has been supported and enabled by the innovative and aggressive use of cutting edge technologies, from shifting to online medical platforms for routine care and schooling, to the use of 5G platforms to support rural response operations.

2. **Achieving China's exceptional coverage with and adherence to these containment measures has only been possible due to the deep commitment of the Chinese people to collective action in the face of this common threat. At a community level this is reflected in the remarkable solidarity of provinces and cities in support of the most vulnerable populations and communities. Despite ongoing outbreaks in their own areas, Governors and Mayors have continued to send thousands of health care workers and tons of vital PPE supplies into Hubei province and Wuhan city.**

   At the individual level, the Chinese people have reacted to this outbreak with courage and conviction. They have accepted and adhered to the starkest of containment measures – whether the suspension of public gatherings, the month-long 'stay at home' advisories or prohibitions on travel. Throughout an intensive 9-days of site visits across China, in frank discussions from the level of local community mobilizers and frontline health care providers to top scientists, Governors and Mayors, the Joint Mission was struck by the sincerity and dedication that each brings to this COVID-19 response.

3. **China's bold approach to contain the rapid spread of this new respiratory pathogen has changed the course of a rapidly escalating and deadly epidemic. A particularly compelling statistic is that on the first day of the advance team's work there were 2478 newly confirmed cases of COVID-19 reported in China. Two weeks later, on the final day of this Mission, China reported 409 newly confirmed cases. This decline in COVID-19 cases across China is real.**

   Several sources of data support this conclusion, including the steep decline in fever clinic visits, the opening up of treatment beds as cured patients are discharged, and the challenges to recruiting new patients for clinical trials. Based on a comparison of crude attack rates across provinces, the Joint Mission estimates that this truly all-of-Government and all-of-society approach that has been taken in China has averted or at least delayed hundreds of thousands of COVID-19 cases in the country. By extension, the reduction that has been achieved in the force of COVID-19 infection in China has also played a significant role in protecting the global community and creating a stronger first line of defense against international spread. Containing this outbreak, however, has come at great cost and sacrifice by China and its people, in both human and material terms.

   While the scale and impact of China's COVID-19 operation has been remarkable, it has also highlighted areas for improvement in public health emergency response capacity. These include overcoming any obstacles to act immediately on early alerts, to massively scale-up capacity for isolation and care, to optimize the protection of frontline health

care workers in all settings, to enhance collaborative action on priority gaps in knowledge and tools, and to more clearly communicate key data and developments internationally.

4. **China is already, and rightfully, working to bolster its economy, reopen its schools and return to a more normal semblance of its society, even as it works to contain the remaining chains of COVID-19 transmission. Appropriately, a science-based, risk-informed and phased approach is being taken, with a clear recognition and readiness of the need to immediately react to any new COVID-19 cases or clusters as key elements of the containment strategy are lifted.**

   Despite the declining case numbers, across China every province, city and community visited is urgently escalating their investments in acute care beds and public health capacity. It is crucial that this continues. Fifty thousand infected COVID-19 patient are still under treatment, across the country. However, the Joint Mission has come to understand the substantial knowledge, experience and capacities that China has rapidly built during this crisis. Consequently, it endorses China's working assumption that in most provinces and municipalities it should soon be possible to manage a resurgence in COVID-19 cases, using even more tailored and sustainable approaches that are anchored in very rapid case detection, instant activation of key containment activities, direct oversight by top leadership, and broad community engagement.

   As China works to resume a more normal level of societal and economic activity, it is essential that the world recognizes and reacts positively to the rapidly changing, and decreasing, risk of COVID-19 in the country. China's rapid return to full connectivity with the world, and to full productivity and economic output, is vital to China and to the world. The world urgently needs access to China's experience in responding to COVID-19, as well as the material goods it brings to the global response. It is even more urgent now, with escalating COVID-19 outbreaks outside of China, to constantly reassess any restrictions on travel and/or trade to China that go beyond the recommendations of the IHR Emergency Committee on COVID-19.

The Global Response & Next Steps

1. **The COVID-19 virus is a new pathogen that is highly contagious, can spread quickly, and must be considered capable of causing enormous health, economic and societal impacts in any setting. It is not SARS and it is not influenza. Building scenarios and strategies only on the basis of well-known pathogens risks failing to exploit all possible measures to slow transmission of the COVID-19 virus, reduce disease and save lives.**

   COVID-19 is not SARS and it is not influenza. It is a new virus with its own characteristics. For example, COVID-19 transmission in children appears to be limited compared with influenza, while the clinical picture differs from SARS. Such differences, while based on limited data, may be playing a role in the apparent efficacy of rigorously applied non-pharmaceutical, public health measures to interrupt chains of human-to-human transmission in a range of settings in China. The COVID-19 virus is unique among

human coronaviruses in its combination of high transmissibility, substantial fatal outcomes in some high-risk groups, and ability to cause huge societal and economic disruption. For planning purposes, it must be assumed that the global population is susceptible to this virus. As the animal origin of the COVID-19 virus is unknown at present, the risk of reintroduction into previously infected areas must be constantly considered.

The novel nature, and our continuously evolving understanding, of this coronavirus demands a tremendous agility in our capacity to rapidly adapt and change our readiness and response planning as has been done continually in China. This is an extraordinary feat for a country of 1.4 billion people.

2. **China's uncompromising and rigorous use of non-pharmaceutical measures to contain transmission of the COVID-19 virus in multiple settings provides vital lessons for the global response. This rather unique and unprecedented public health response in China reversed the escalating cases in both Hubei, where there has been widespread community transmission, and in the importation provinces, where family clusters appear to have driven the outbreak.**

   Although the timing of the outbreak in China has been relatively similar across the country, transmission chains were established in a wide diversity of settings, from mega-cities in the north and south of the country, to remote communities. However, the rapid adaptation and tailoring of China's strategy demonstrated that containment can be adapted and successfully operationalized in a wide range of settings.

   China's experience strongly supports the efficacy and effectiveness of anchoring COVID-19 readiness and rapid response plans in a thorough assessment of local risks and of utilizing a differentiated risk-based containment strategy to manage the outbreak in areas with no cases vs. sporadic cases vs. clusters of cases vs. community-level transmission. Such a strategy is essential for ensuring a sustainable approach while minimizing the socio-economic impact.

3. **Much of the global community is not yet ready, in mindset and materially, to implement the measures that have been employed to contain COVID-19 in China. These are the only measures that are currently proven to interrupt or minimize transmission chains in humans. Fundamental to these measures is extremely proactive surveillance to immediately detect cases, very rapid diagnosis and immediate case isolation, rigorous tracking and quarantine of close contacts, and an exceptionally high degree of population understanding and acceptance of these measures.**

   Achieving the high quality of implementation needed to be successful with such measures requires an unusual and unprecedented speed of decision-making by top leaders, operational thoroughness by public health systems, and engagement of society. Given the damage that can be caused by uncontrolled, community-level transmission of this virus, such an approach is warranted to save lives and to gain the weeks and months

needed for the testing of therapeutics and vaccine development. Furthermore, as the majority of new cases outside of China are currently occurring in high and middle-income countries, a rigorous commitment to slowing transmission in such settings with non-pharmaceutical measures is vital to achieving a second line of defense to protect low income countries that have weaker health systems and coping capacities.

The time that can be gained through the full application of these measures – even if just days or weeks – can be invaluable in ultimately reducing COVID-19 illness and deaths. This is apparent in the huge increase in knowledge, approaches and even tools that has taken place in just the 7 weeks since this virus was discovered through the rapid scientific work that has been done in China.

4. **The time gained by rigorously applying COVID-19 containment measures must be used more effectively to urgently enhance global readiness and rapidly develop the specific tools that are needed to ultimately stop this virus.**

   COVID-19 is spreading with astonishing speed; COVID-19 outbreaks in any setting have very serious consequences; and there is now strong evidence that non-pharmaceutical interventions can reduce and even interrupt transmission. Concerningly, global and national preparedness planning is often ambivalent about such interventions. However, to reduce COVID-19 illness and death, near-term readiness planning must embrace the large-scale implementation of high-quality, non-pharmaceutical public health measures. These measures must fully incorporate immediate case detection and isolation, rigorous close contact tracing and monitoring/quarantine, and direct population/community engagement.

   A huge array of COVID-19 studies, scientific research projects and product R&D efforts are ongoing in China and globally. This is essential and to be encouraged and supported. However, such a large number of projects and products needs to be prioritized. Without prioritizing, this risks compromising the concentration of attention and resources and collaboration required to cut timelines by precious weeks and months. While progress has been made, the urgency of the COVID-19 situation supports an even more ruthless prioritization of research in the areas of diagnostics, therapeutics and vaccines.

   Similarly, there is a long list of proposed studies on the origins of COVID-19, the natural history of the disease, and the virus's transmission dynamics. However, the urgency of responding to cases and saving lives makes it difficult for policy makers to consider and act on such comprehensive lists. This can be addressed by balancing studies with the immediate public health and clinical needs of the response. Studies can be prioritized in terms of the largest knowledge gaps that can be most rapidly addressed to have greatest immediate impact on response operations and patient management. This suggests prioritizing studies to identify risk factors for transmission in households, institutions and the community; convenience sampling for this virus in the population using existing surveillance systems; age-stratified sero-epidemiologic surveys; the analysis of clinical case series; and cluster investigations.

IV. Major Recommendations

For China

1. Maintain an appropriate level of emergency management protocols, depending on the assessed risk in each area and recognizing the real risk of new cases and clusters of COVID-19 as economic activity resumes, movement restrictions are lifted, and schools reopen;

2. Carefully monitor the phased lifting of the current restrictions on movement and public gatherings, beginning with the return of workers and migrant labor, followed by the eventual reopening of schools and lifting other measures;

3. Further strengthen the readiness of emergency management mechanisms, public health institutions (e.g. CDCs), medical facilities, and community engagement mechanisms to ensure sustained capacity to immediately launch containment activities in response to any resurgence in cases;

4. Prioritize research that rapidly informs response and risk management decisions, particularly household and health care facility studies, age-stratified sero-epidemiologic surveys and rigorous investigation of the animal-human interface; establish a centralized research program to fast-track the most promising rapid diagnostics and serologic assays, the testing of potential antivirals and vaccine candidates, and Chinese engagement in selected multi-country trials; and

5. As the country with the greatest knowledge on COVID-19, further enhance the systematic and real-time sharing of epidemiologic data, clinical results and experience to inform the global response.

For countries with imported cases and/or outbreaks of COVID-19

1. Immediately activate the highest level of national Response Management protocols to ensure the all-of-government and all-of-society approach needed to contain COVID-19 with non-pharmaceutical public health measures;

2. Prioritize active, exhaustive case finding and immediate testing and isolation, painstaking contact tracing and rigorous quarantine of close contacts;

3. Fully educate the general public on the seriousness of COVID-19 and their role in preventing its spread;

4. Immediately expand surveillance to detect COVID-19 transmission chains, by testing all patients with atypical pneumonias, conducting screening in some patients with upper respiratory illnesses and/or recent COVID-19 exposure, and adding testing for the COVID-19 virus to existing surveillance systems (e.g. systems for influenza-like-illness and SARI); and

5. Conduct multi-sector scenario planning and simulations for the deployment of even more stringent measures to interrupt transmission chains as needed (e.g. the suspension of large-scale gatherings and the closure of schools and workplaces).

For uninfected countries

1. Prepare to immediately activate the highest level of emergency response mechanisms to trigger the all-of-government and all-of society approach that is essential for early containment of a COVID-19 outbreak;

2. Rapidly test national preparedness plans in light of new knowledge on the effectiveness of non-pharmaceutical measures against COVID-19; incorporate rapid detection, largescale case isolation and respiratory support capacities, and rigorous contact tracing and management in national COVID-19 readiness and response plans and capacities;

3. Immediately enhance surveillance for COVID-19 as rapid detection is crucial to containing spread; consider testing all patients with atypical pneumonia for the COVID-19 virus, and adding testing for the virus to existing influenza surveillance systems;

4. Begin now to enforce rigorous application of infection prevention and control measures in all healthcare facilities, especially in emergency departments and outpatient clinics, as this is where COVID-19 will enter the health system; and

5. Rapidly assess the general population's understanding of COVID-19, adjust national health promotion materials and activities accordingly, and engage clinical champions to communicate with the media.

For the public

1. Recognize that COVID-19 is a new and concerning disease, but that outbreaks can managed with the right response and that the vast majority of infected people will recover;

2. Begin now to adopt and rigorously practice the most important preventive measures for COVID-19 by frequent hand washing and always covering your mouth and nose when sneezing or coughing;

3. Continually update yourself on COVID-19 and its signs and symptoms (i.e. fever and dry cough), because the strategies and response activities will constantly improve as new information on this disease is accumulating every day; and

4. Be prepared to actively support a response to COVID-19 in a variety of ways, including the adoption of more stringent 'social distancing' practices and helping the high-risk elderly population.

For the international community

1. Recognize that true solidarity and collaboration is essential between nations to tackle the common threat that COVID-19 represents and operationalize this principle;

2. Rapidly share information as required under the International Health Regulations (IHR) including detailed information about imported cases to facilitate contact tracing and inform containment measures that span countries;

3. Recognize the rapidly changing risk profile of COVID-19 affected countries and continually monitor outbreak trends and control capacities to reassess and and all 'additional health measures' that significantly interfere with international travel and trade.

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Annexes

A. WHO-China Joint Mission Members

Bruce AYLWARD	Team Lead WHO-China Joint Mission on COVID-19, Senior Advisor to the Director-General, World Health Organization, Geneva, Switzerland
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Zhongze WU	Director, Compliance and Enforcement Division, Department of Wildlife Conservation, National Forestry and Grassland Administration
Zunyou WU	Chief Epidemiologist, Chinese Center for Disease Control and Prevention
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Weigong ZHOU	Medical Officer, Influenza Division, National Center for Immunization and Respiratory Diseases, US Centers for Disease Control and Prevention, Atlanta, United States
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Lei ZHOU	Chief and Researcher, Branch for Emerging Infectious Disease, Public Health Emergency Center, Chinese Center for Disease Control and Prevention

B. Summary Agenda of the Mission

Dates	Location	Activities
10-15 February 2020 (Advance Team)	Beijing	Advance Team and WHO Country team meetings with national counterparts and institutions
16 February 2020	Beijing	Meeting with the full international team for briefing at the WHO Country office
	Beijing	Workshop at the National Health Commission (NHC) with relevant departments of the Joint Prevention and Control Mechanism of the State Council
17 February 2020	Beijing	Site visit to Beijing Ditan Hospital
	Beijing	Site visit to Anhuali community and health service station, Anzhen street, Chaoyang District, Beijing
	Beijing	Workshop with Chinese Center for Disease Control and Prevention
18 February 2020 (Guangdong Team)	Shenzhen, Guangdong	Shenzhen customs at the airport
	Shenzhen, Guangdong	Shenzhen No.3 People's Hospital
	Shenzhen, Guangdong	Shenzhen Center for Disease Control and Prevention
	Shenzhen, Guangdong	Meeting at Tencent
19 February 2020 (Guangdong Team)	Shenzhen, Guangdong	Qiaoxiang community
	Shenzhen to Guangzhou	Visit to Futian High-speed Train Station, and travel to Guangzhou by train
	Guangzhou	Guangzhou Panyu Sanatorium
	Guangzhou	Guangdong Laboratory of Regenerative Medicine and Health
	Guangzhou	Guangzhou Tiyudongzhihui wet market
	Guangzhou	First Workshop with The People's government of Guangdong Province
20 February 2020 (Guangdong Team)	Guangzhou	Guangdong Provincial Center for Disease Control and Prevention
	Guangzhou	Renmin road campus of Guangzhou Women and Children Medical Center
	Guangzhou	The second Workshop with The People's government of Guangdong Province
18 February 2020 (Sichuan Team)	Beijing to Chengdu	
	Sichuan	Site visit to Chengdu Shuangliu International Airport
		Meeting with the Governor of Sichuan Provincial People's Government
		Site visit to Yong'an Township Central hospital with fever clinic
		Site visit to home community of Yong'an township
19 February 2020 (Sichuan Team)		Symposium with provincial and municipal authorities
		Sichuan Center for Disease Control and Prevention
		Site visit to West China Hospital- Designated COVID-19 hospital
20 February 2020 (Sichuan Team)		Site visit to Chengdu Women and Children's hospital
		Site visit to Pharmaceutical Logistics center
		Site visit to East Chengdu railway station

		Site visit to Chengdu Public Health Clinical Centre- Designated COVID 19 hospital
Sichuan and Guangdong teams reconvene in Guangzhou		
21-24 February 2020		Analyze major findings; Meetings of the WHO-China Joint mission to finalize the report
Feb 22 (Wuhan Team)	Guangzhou to Wuhan	Select team members only
23 February (Wuhan Team)		Site visit to Guanggu Campus of Wuhan Tongji Hospital
		Site visit to Mobile Cabin Hospital in Wuhan Sports Center
		Workshop with relevant departments of the Joint Prevention and Control Mechanism of Hubei Province
		Feedback Meeting with Minister Ma, NHC at the Wuhan Conference Center
24 February 2020	Guangzhou to Beijing	Finalize report, WHO-Joint Press conference in Beijing

C. Detailed Technical Findings

Response management, case and contact management, risk communication and community engagement

The response structures in China were rapidly put in place according to existing emergency plans and aligned from the top to the bottom. This was replicated at the four levels of government (national provincial, prefecture and county/district).

Organizational structure and response mechanism

Response activation at the national level: COVID-19 prevention and control mechanisms were initiated immediately after the outbreak was declared and nine working groups were set up to coordinate the response: a) Coordination b) Epidemic prevention and control c) Medical treatment d) Research e) Public communication f) Foreign affairs g) Medical material support h) Life maintenance supplies and i) Social stability. Each working group has a ministerial level leader. Emergency response laws and regulations for the emergency response to public health emergencies, prevention and control of infectious diseases have been developed or updated to guide the response.

Response activation in provinces: Each province set up a similar structure to manage the outbreak. The response is organized at the levels of national, provincial, prefecture, county/district and the community. By 29 January, all provinces across China had launched the highest level of response for major public health emergencies.

Response Strategy

A clear strategy was developed, and goals were well articulated and communicated across the entire response architecture. This strategy was rapidly adapted and adjusted to the outbreak, both in terms of the epidemiological situation over time and in different parts of the country.

The epidemiological situation has been used to define location into four areas:

- In areas without cases, the strategy in these areas is to "strictly prevent introduction". This includes quarantine arrangements in transportation hubs, monitoring for temperature changes, strengthening of triage arrangements, use of fever clinics, and ensuring normal economic and social operations.
- In areas with sporadic cases, the strategy is focused on "reducing importation, stopping transmission and providing appropriate treatment".
- In areas with community clusters, the strategy is focussed on "stopping transmission, preventing exportation, and strengthening treatment".
- In areas with community transmission, the strictest prevention and control strategies are being implemented, the entry and exit of people from these areas has been stopped and public health and medical treatment measures are comprehensively strengthened.

Main control measures implemented in China

The main control measures implemented in China are as follows and are illustrated in Figures 6A-6D, representing the national level response and examples of the response at the Provincial and municipal levels:

Monitoring and reporting: COVID-19 was included in the statutory reporting of infectious diseases on 20 January and plans were formulated to strengthen diagnosis, monitoring, and reporting.

Strengthening ports of entry and quarantine: The Customs Department launched the emergency plan for public health emergencies at ports across the country and restarted the health declaration card system for entry and exit into cities as well as strict monitoring of the temperature of entry and exit passengers.

Treatment: For severe or critical patients, the principle of "Four Concentrations" was implemented: i.e. concentrating patients, medical experts, resources and treatment into special centres. All cities and districts transformed relevant hospitals, increased the number of designated hospitals, dispatched medical staff, and set up expert groups for consultation, so as to minimise mortality of severe patients. Medical resources from all over China have been mobilized to support the medical treatment of patients in Wuhan.

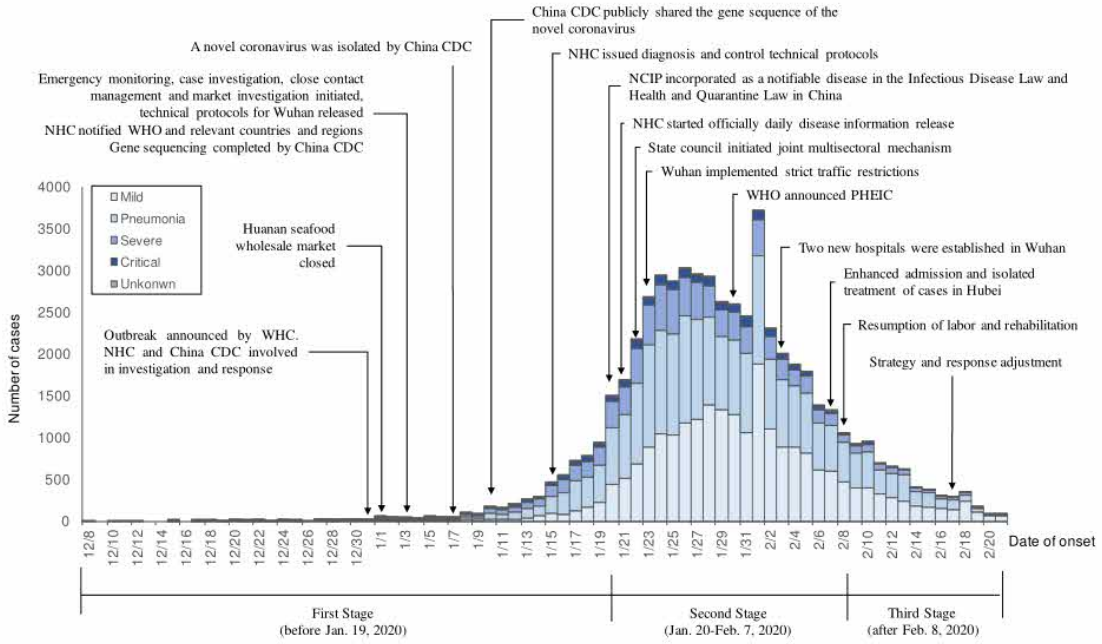
Epidemiological investigation and close contact management: Strong epidemiological investigations are being carried out for cases, clusters, and contacts to identify the source of infection and implement targeted control measures, such as contact tracing.

Social distancing: At the national level: the State Council extended the Spring Festival holiday in 2020, all parts of the country actively cancelled or suspended activities like sport events, cinema, theatre, and schools and colleges in all parts of the country postponed re-opening after the holiday. Enterprises and institutions have staggered their return to work. Transportation Departments setup thousands of health and quarantine stations in national service areas, and in entrances and exits for passengers at stations. Hubei Province adopted the most stringent traffic control measures, such as suspension of urban public transport, including subway, ferry and long-distance passenger transport. Every citizen has to wear a mask in public. Home support mechanisms were established. As a consequence of all of these measures, public life is very reduced.

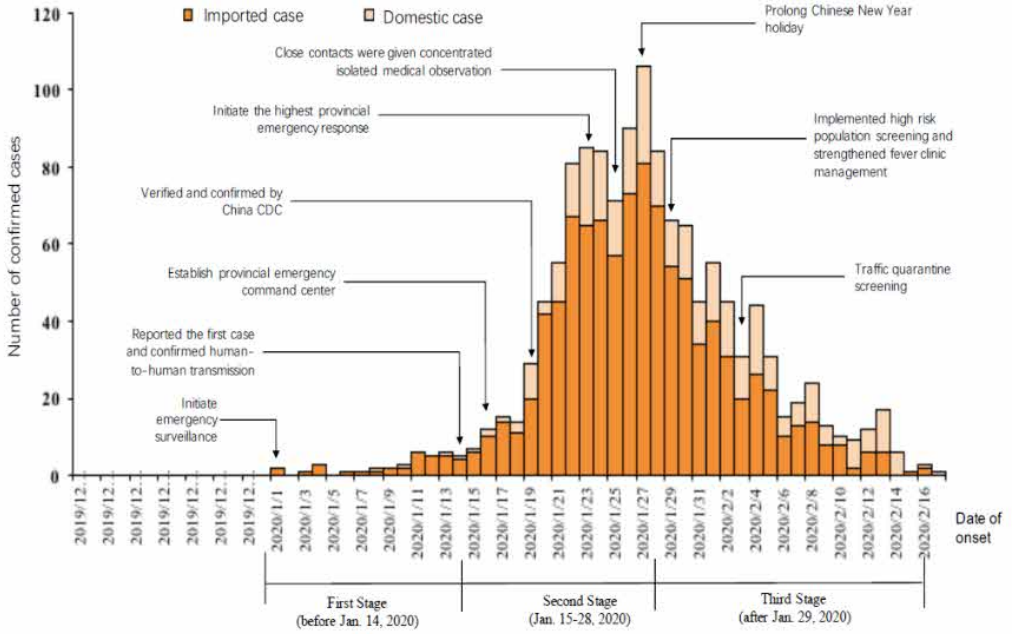
Funding and material support: Payment of health insurance was taken over by the state, as well as the work to improve accessibility and affordability of medical materials, provide personal protection materials, and ensure basic living materials for affected people.

Emergency material support: The government restored production and expanded production capacity, organized key enterprises that have already started to exceed current production capacity, supported local enterprises to expand imports, and used cross-border e-commerce platforms and enterprises to help import medical materials and improve the ability to guarantee supplies.

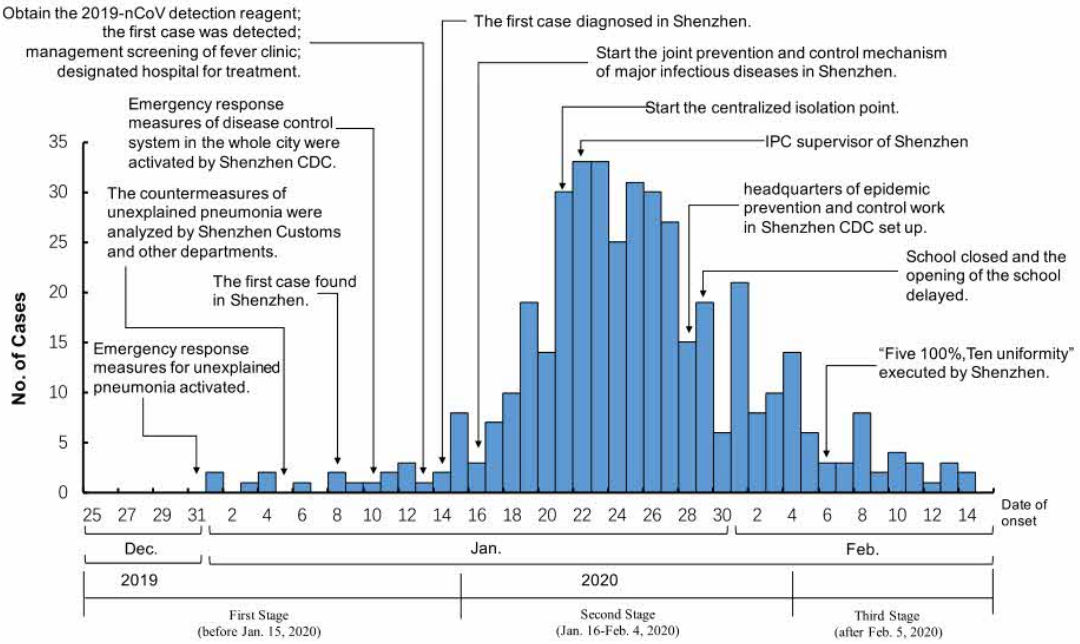
A


China CDC publicly shared the gene sequence of the novel coronavirus
A novel coronavirus was isolated by China CDC
NHC issued diagnosis and control technical protocols
Emergency monitoring, case investigation, close contact management and market investigation initiated, technical protocols for Wuhan released
NHC notified WHO and relevant countries and regions
Gene sequencing completed by China CDC
NCIP incorporated as a notifiable disease in the Infectious Disease Law and Health and Quarantine Law in China
NHC started officially daily disease information release
State council initiated joint multisectoral mechanism
Wuhan implemented strict traffic restrictions
WHO announced PHEIC
Mild
Pneumonia
Severe
Critical
Unkonwn
Huanan seafood wholesale market closed
Two new hospitals were established in Wuhan
Enhanced admission and isolated treatment of cases in Hubei
Outbreak announced by WHC. NHC and China CDC involved in investigation and response
Resumption of labor and rehabilitation
Strategy and response adjustment
Number of cases
Date of onset
First Stage (before Jan. 19, 2020)
Second Stage (Jan. 20-Feb. 7, 2020)
Third Stage (after Feb. 8, 2020)

B


Imported case
Domestic case
Prolong Chinese New Year holiday
Close contacts were given concentrated isolated medical observation
Initiate the highest provincial emergency response
Implemented high risk population screening and strengthened fever clinic management
Verified and confirmed by China CDC
Establish provincial emergency command center
Traffic quarantine screening
Reported the first case and confirmed human-to-human transmission
Initiate emergency surveillance
Number of confirmed cases
Date of onset
First Stage (before Jan. 14, 2020)
Second Stage (Jan. 15-28, 2020)
Third Stage (after Jan. 29, 2020)

C



D

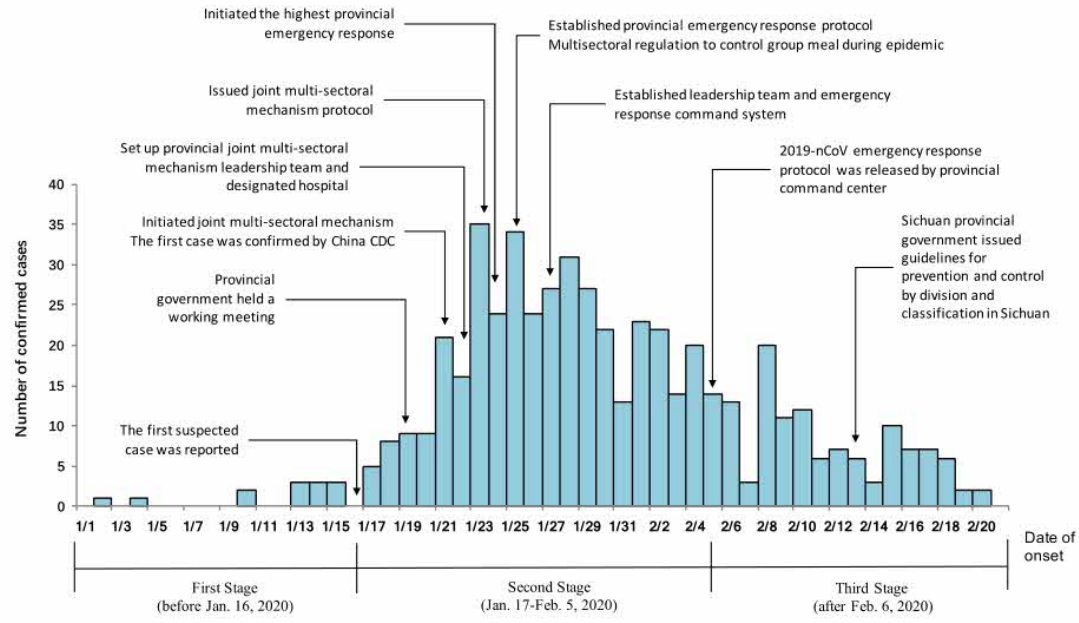


Figure 6. COVID-19 epidemic curves and major intervention measures in China as implemented at a) the national level b) in Guangdong province, c) in Shenzhen municipality and d) in Sichuan province

Risk communications (information release, public and media communications)

International and interregional cooperation and information sharing: From 3 January 2020, information on COVID-19 cases has been reported to WHO daily. Full genome sequences of the new virus were shared with WHO and the international community immediately after the pathogen was identified on 7 January. On 10 January, an expert group involving Hong Kong, Macao and Taiwanese technical experts and a World Health Organization team was invited to visit Wuhan. A set of nucleic acid primers and probes for PCR detection for COVID-19 was released on 21 January.

Daily updates: The National Health Commission announces the epidemic situation every day and holds daily press conferences to respond to emerging issues. The government also frequently invites experts to share scientific knowledge on COVID-19 and to address public concerns.

Psychological care: This is provided to patients and the public. Governments at all levels, NGOs and all sectors of society developed guidelines for emergency psychological crisis intervention and guidelines for public psychological self-support and counselling. A hotline for mental health services has been established for the public.

IT platform: China has capitalized on the use of technology, big data and AI for COVID-19 preparedness, readiness and response. Authoritative and reliable information, medical guidance, access to online services, provision of educational tools and remote work tools have been developed in and used across China. These services have increased accessibility to health services, reduced misinformation and minimized the impact of fake news.

Social mobilization and community engagement

Civil society organizations (community centers and public health centers) have been mobilized to support prevention and response activities. The community has largely accepted the prevention and control measures and is fully participating in the management of self-isolation and enhancement of public compliance. Community volunteers are organized to support self-isolation and help isolated residents at home to solve practical life difficulties. Measures were taken to limit the movement of the population through home-based support. Up to now, outside of Hubei, 30 provinces have registered and managed more than 5 million people coming from Wuhan.

Clinical case management and infection prevention and control

The main **signs and symptoms** of COVID-19 include fever, dry cough, fatigue, sputum production, shortness of breath, myalgia or arthralgia, sore throat, and headache. Nausea or vomiting has been reported in a small percentage of patients (5%). On 14 February, China CDC described the clinical features, outcomes, laboratory and radiologic findings of 44 672 laboratory-confirmed cases. Only 965 (2.2%) were under 20 years of age and there is just one recorded death (0.1%) in this age group. Most patients (77.8%) were aged 30 to 69 years. Patients aged over 80 years had a CFR of 14.8%. The CFR was highest in those with

comorbidities including cardiovascular, diabetes, chronic respiratory disease, hypertension and cancer.

As opposed to Influenza A(H1N1)pdm09, **pregnant women** do not appear to be at higher risk of severe disease. In an investigation of 147 pregnant women (64 confirmed, 82 suspected and 1 asymptomatic), 8% had severe disease and 1% were critical.

Severe cases are defined as tachypnoea (≧30 breaths/ min) or oxygen saturation ≤93% at rest, or PaO2/FIO2 <300 mmHg. **Critical cases** are defined as respiratory failure requiring mechanical ventilation, shock or other organ failure that requires intensive care. About a quarter of severe and critical cases require mechanical ventilation while the remaining 75% require only oxygen supplementation.

China has a principle of **early identification**, early isolation, early diagnosis and early treatment. Early identification of suspect cases is critical to containment efforts and occurs via a process of temperature screening and questioning at entrances to many institutions, communities, travel venues (airports, train stations) and hospitals. Many hospitals have fever clinics that were established and maintained since the SARS outbreak. In China, laboratory tests were originally requested according to the case definitions, which included an epidemiological link to Hubei or other confirmed cases. However, more recently, a more **liberal clinical testing regim**en allows clinicians to test with a low index of suspicion.

Suspect cases are isolated in normal pressure single rooms, wear a surgical mask (for source control). Staff in China wear a cap, eye protection, n95 masks, gown and gloves (single use only). In Wuhan it is necessary for most suspects to be cohorted in a normal pressure isolation ward. Staff wear PPE continuously, changing it only when they leave the ward.

PCR test results are returned the same day. If positive, patients are transported to designated hospitals (including negative pressure ambulances in some cities). All patients, including the mild and asymptomatic, with a positive test are admitted. The designated hospitals are known and are strategically placed with at least one per district/county. Positive cases are cohorted by gender. Negative tested patients are managed based on clinical needs. All patients are evaluated with a respiratory multiplex to look for other diagnoses. This can add to the reassurance that a negative COVID-19 test reflects a lack of infection with COVID-19. In Hubei Province, approximately 5-25% of COVID-19 cases were co-infected with influenza viruses.

In Wuhan, there are 45 **designated hospitals**, 6 of which are designated for critical patients, and 39 for severe patients and/or any patients >65 years old. There are an additional 10 temporary hospitals reconstructed from gymnasium and exhibition centers, which are for mild patients. Other surge measures undertaken in Wuhan include two new temporary hospitals with 2600 beds, plus many makeshift hospitals to increase bed capacity. Bed capacity within Wuhan has increased to >50,000.

Patients are treated according to the **National Clinical guidelines** (edition 6) released by the China National Health Commission (NHC). There are no specific antiviral or immune modulating agents proven (or recommended) to improve outcomes. All patients are monitored by regular pulse oximetry. The guidelines include supportive care by clinical

category (mild, moderate, severe and critical), as well as the role of investigational treatments such as chloroquine, phosphate, lopinavir/ritonavir, alpha interferon, ribavirin, arbidol. The application of intubation/invasive ventilation and ECMO in critically ill patients can improve survival. The Joint Mission Team was told of ECMO use in four patients at one hospital with one death and three who appeared to be improving. Clearly, though ECMO is very resource consumptive, any health system would need to carefully weigh the benefits. There is widespread use of Traditional Chinese Medicines (TCM), for which the affects must be fully evaluated.

Patients with COVID-19 are not permitted **visitors**. Staff use coveralls, masks, eye cover, and gloves, removing PPE only when they leave the ward.

Patients are discharged after clinical recovery (afebrile >3 days, resolution of symptoms and radiologic improvement) and 2 negative PCR tests taken 24 hours apart. Upon discharge, they are asked to minimise family and social contact and to wear a mask. There are expectations of clinical trial results within a matter of weeks, which will see further opportunities for treatment.

There are guidelines for **elderly care** specifically targeting prevention in individuals and introduction of COVID-19 to nursing homes.

Training programmes by video conference nationally are scaled up to inform staff of best practice and to ensure PPE usage. **Clinical champions** are created to disperse knowledge and provide local expertise.

Maintenance of usual healthcare activities is maintained by hospital zoning (e.g. clean/contaminated sections of the healthcare facility).

Laboratory, diagnostics and virology

The virus found to cause COVID-19 was initially isolated from a clinical sample on 7 January. It is notable that within weeks following the identification of the virus, a series of reliable and sensitive **diagnostic tools** were developed and deployed. On 16 January, the first RT-PCR assays for COVID-19 were distributed to Hubei. Real-time PCR kits were distributed to all the provinces on 19 January and were provided to Hong Kong SAR and Macao SAR on 21 January. Information regarding viral sequences and PCR primers and probes was shared with WHO and the international community by China CDC on 12 January 2020. To facilitate product development and research on the new virus, COVID-19 virus sequences were uploaded to the GISAID Database by China.

By 23 February, there were 10 kits for detection of COVID-19 approved in China by the NMPA, including 6 RT-PCR kits, 1 isothermal amplification kit, 1 virus sequencing product and 2 colloidal gold antibody detection kits. Several other tests are entered in the emergency approval procedure. Currently, there are at least 6 local producers of PCR test kits approved by NMPA. Overall, producers have the capacity to produce and distribute as many as 1,650,000 tests/week.

Specimens from both the upper respiratory tract (URT; nasopharyngeal and oropharyngeal) and lower respiratory tract (LRT; expectorated sputum, endotracheal aspirate, or bronchoalveolar lavage) are collected for COVID-19 testing by PCR.

COVID-19 virus has been detected in respiratory, fecal and blood specimens. According to preliminary data from Guangzhou CDC as of 20 February, virus can initially be detected in upper respiratory samples 1-2 days prior to symptom onset and persist for 7-12 days in moderate cases and up to 2 weeks in severe cases. Viral RNA has been detected in feces in up to 30% of patients from day 5 following onset of symptoms and has been noted for up to 4-5 weeks in moderate cases. However, it is not clear whether this correlates with the presence of infectious virus. While live virus has been cultured from stool in some cases, the role of fecal-oral transmission is not yet well understood. COVID-19 has been isolated from the clinical specimens using human airway epithelial cells, Vero E6 and Huh-7 cell lines.

Serological diagnostics are rapidly being developed but are not yet widely used. Joint Mission members met with local research teams at the China CDC, Guangzhou Regenerative Medicine and Health Guangdong Laboratory. The teams reported on the development of tests for IgM, IgG and IgM+IgG using rapid test platforms utilizing chemiluminiscence. ELISA assays are also under development.

Research & Development

The government of China has initiated a series of major emergency research programs on virus genomics, antivirals, traditional Chinese medicines, clinical trials, vaccines, diagnostics and animal models. Research includes fundamental basic research and human subjects research. For the purpose of this report, human studies are limited to those involving IRB approval and informed consent. Other forms of human subjects investigations are included in the sections on epidemiology in this report. Well-focused, robust research conducted in the setting of an outbreak has the potential of saving many lives by identifying the most effective ways to prevent, diagnose and treat disease.

Since the COVID-19 virus has a genome identity of 96% to a bat SARS-like coronavirus and 85%-92% to a pangolin SARS-like coronavirus, an animal source for COVID-19 is highly likely. This was corroborated by the high number of RT-PCR positive environmental samples taken from the Huanan Seafood Market in Wuhan.

At least 8 **nucleic acid-based methods** for direct detection of COVID-19 and two colloidal gold antibody detection kits have been approved in China by the NMPA. Several other tests are close to approval. It will be important to compare the sensitivities and specificities of these and future serologic tests. Development of rapid and accurate **point-of-care tests** which perform well in field settings are especially useful if the test can be incorporated into presently commercially available multiplex respiratory virus panels. This would markedly improve early detection and isolation of infected patients and, by extension, identification of contacts. **Rapid IgM and IgG antibody testing** are also important ways to facilitate early diagnosis. Standard serologic testing can be used for retrospective diagnoses in the context of serosurveys that help better understand the full spectrum of COVID-19 infection.

A variety of **repurposed drugs and investigational drugs** have been identified. Screening NMPA approved drug libraries and other chemical libraries have identified novel agents. Hundreds of clinical trials involving remdesivir, chloroquine, favipiravir, chloroquine, convalescent plasma, TCM and other interventions are planned or underway. Rapid completion of the most important of these studies is critical to identifying truly effective therapies. However, evaluation of investigational agents requires adequately powered, randomized, controlled trials with realistic eligibility criteria and appropriate stratification of patients. It is important for there to be a degree of coordination between those conducting studies within and beyond China.

The development of a safe and effective **vaccine** for this highly communicable respiratory virus is an important epidemic control measure. Recombinant protein, mRNA, DNA, inactivated whole virus and recombinant adenovirus vaccines are being developed and some are now entering animal studies. Vaccine safety is of prime concern in the area of coronavirus infection in view of the past experience of disease enhancement by inactivated whole virus measles vaccine and similar reports in animal experiments with SARS coronavirus vaccines. It will be important that these vaccine candidates rapidly move into appropriate clinical trials.

The ideal **animal model** for studying routes of virus transmission, pathogenesis, antiviral therapy, vaccine and immune responses has yet to be found. The ACE2 transgenic mouse model and macaque model are already used in research laboratories. Systematically addressing which models can accurately mimic human infection is required.

There is a global rush for masks, hand hygiene products and other personal protective equipment. The relative importance of **non-pharmaceutical control measures** including masks, hand hygiene, and social distancing require further research to quantify their impact.

There are distinct patterns of intra-familial transmission of COVID-19. It is unclear whether or not there are host factors, including genetic factors, that influence susceptibility or disease course. COVID-19 has a varied clinical course and a precise description of that course is not available. In addition, the long-term consequences of COVID-19 are unknown. An observational cohort study of patients with COVID-19 enrolled from the time of diagnosis (with appropriate controls) could provide in-depth information about clinical, virologic and immunologic characteristics of COVID-19. Table 1 summarizes priority research areas with immediate to longer term goals.

Table 1 Priority research areas with immediate, intermediate and longer-term goals

Immediate Goals	Intermediate Goals	Long-term goals
Diagnostics: RNA assays, antibody & antigen assays, point of care dx	Diagnostics: Multiplex diagnostic platforms	Diagnostics: Prognostic markers
Therapeutics: Remdesivir, favipiravir, chloroquine, plasma, TCM	Therapeutics: intravenous immunoglobulin (IVIg)	Therapeutics: Innovative approaches (CRISPR-CAS; RNAi; Cell-based; positive hits from library screening)
Vaccines: Development of animal models	Vaccines: mRNA candidates and candidate viral vectors	Vaccines: inactivated candidates and subunit candidates

D. Knowledge Gaps

Knowledge gaps and key questions to be answered to guide control strategies include:

Source of infection

- Animal origin and natural reservoir of the virus
- Human-animal interface of the original event
- Early cases whose exposure could not be identified

The pathogenesis and virulence evolution of the virus

Transmission dynamics

- Modes of Transmission:
    - Role of aerosol transmission in non-health care settings
    - Role of fecal-oral transmission
- Viral shedding in various periods of the clinical course in different biological samples (i.e. upper and lower respiratory tract, saliva, faeces, urine)
    - Before symptom onset and among asymptomatic cases
    - During the symptomatic period
    - After the symptomatic period / during clinical recovery

Risk factors for infection

- Behavioral and socio-economic risk factors for infection in
    - Households / institutions
    - the Community
- Risk factors for asymptomatic infection
- Risk factors for nosocomial infection
    - among health care workers
    - among patients

Surveillance and monitoring

- Monitoring community transmission through existing
    - ILI surveillance
    - SARI surveillance
- The outbreak trend and intervention dynamics
    - Basic reproduction numbers in various stages of the epidemic
    - The epidemic's relation to seasonality

Laboratory and diagnostics

- Sensitivity and specificity of different nucleic acid (PCR, NAATs and rapid tests), antibody and antigen tests
- Post-infection antibody titers and the duration of protection
- Sero-prevalence among
    - Health care workers
    - General population
    - Children

Clinical management of severe and critically ill patients

- Value of ECMO in the management of critically ill patients
- Best practice using mechanical ventilation in the management of critically ill patients
- Re-evaluation of the role of steroids in the management of severe and critically ill patients
- Identification of factors associated with successful clinical management and outcome
- Determination of the effectiveness of Traditional Chinese Medicines (TCM)
- Determination the effectiveness of additional investigational treatment options (e.g. intravenous immunoglobulin/IVIg, convalescent plasma)

Prevention and control measures

- Key epidemic indicators that inform evidence-based control strategy decision making and adjustments
- Effectiveness of infection prevention and control (IPC) measures in various health care settings
- Effectiveness of entry and exit screening
- Effectiveness of the public health control measures and their socio-economic impact
    - Restriction of movement
    - Social distancing
    - School and workplace closures
    - Wearing mask in general public
    - Mandatory quarantine
    - Voluntary quarantine with active surveillance

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E. Operational & Technical Recommendations

Operational/programmatic recommendations

- Reassess risk and capacities based on different stages of the outbreak; approve different measures during the different phases of the response; assess different stages of the response; reach a balance between response and social development
- Initiate a timely scientific evidence based, efficient and flexible joint multi-sectoral mechanism, which is driven by strong government leadership

Technical recommendations

Epidemiology and transmission

- Continue enhanced surveillance across the country through existing respiratory disease systems, including ILI, SARI or pneumonia surveillance systems
- Prioritize early investigations, including household transmission studies, age-stratified sero-epidemiologic surveys including children, case-control studies, cluster investigations, and serologic studies in health care workers

Severity

- Continue to share information on patient management, disease progression and factors leading to severe disease and favorable outcomes
- Review and analyze the possible factors associated with the disease severity, which may include:
    - natural history studies to better understand disease progression in mild, severe and fatal patients
    - medical chart reviews about disease severity among vulnerable groups, (e.g. those with underlying conditions, older age groups, pregnant women and children) to develop appropriate standards of care
    - evaluation of factors leading to favorable outcomes (e.g. early identification and care)

Clinical care and infection prevention and control

- Suspect patients who have not yet been tested should be isolated in single normal pressure rooms; Cohorting of positive cases is acceptable
- Physicians and all health care workers need to maintain a high level of clinical alert for COVID-19
- For affected countries, standardize training for clinical care and IPC and scale with the development of local (e.g. district level) experts
- Ensure concurrent testing for other viral pathogens to support a negative COVID-19 test
- Ensure maintenance of usual and essential services during the outbreak

- Ensure processes are in place for infection prevention among the most vulnerable, including the elderly
- Ensure readiness to provide clinical care and to meet IPC needs, including:
    a. anticipated respiratory support requirements (e.g. pulse oximeters, oxygen, and invasive support where appropriate)
    b. national guidelines for clinical care and IPC, revised for COVID-19
    c. nationally standardised trainings for disease understanding and PPE use for HCWs
    d. community engagement
    e. PPE and Medication stockpiles
    f. early identification protocols; triage, temperature screening, holding bays (triage, including pulse oximetry)
    g. treatment protocols including designated facilities, patient transportation
    h. enhanced uptake of influenza and pneumococcal vaccine according to national guidelines
    i. laboratory testing
    j. rapid response teams

Laboratory and virology

- Continue to perform whole genome analysis of COVID-19 viruses isolated from different times and places, to evaluate virus evolution
- Conduct pathogenesis studies using biopsy/post-mortem specimens of COVID-19 patients or infected animal models
- Evaluate available nucleic acid PCR diagnostics
- Rapidly develop and evaluate rapid/point-of-care diagnostics and serologic assays
- Conduct further study to interpret the result of positive COVID-19 RNA detection in feces in patients recovering from COVID-19
- Enhance international cooperation, especially in terms of biosafety and information sharing for increased understanding of the COVID-19 virus and traceability of the virus
- Consider monitoring proinflammatory cytokines via multiplex assays to predict the development of “cytokine storm”

Research and development

- Additional effort should be made to find the animal source, including the natural reservoir and any intermediate amplification host, to prevent any new epidemic foci or resurgence of similar epidemics

- Efforts should be made to consistently evaluate existing and future diagnostic tests for detection of COVID-19 using a harmonized set of standards for laboratory tests and a biorepository that can be used for evaluating these tests
- Consider the establishment of a centralized research program in China to oversee that portfolio and ensure the most promising research (vaccines, treatments, pathogenesis) are adequately supported and studied first; program staff dedicated to the clinical research would work at the clinical research site(s) to decrease the research workload of the clinicians at the site
- Consider including one or more sites within China in the ongoing and future multi-center, international trials; Chinese investigators should be actively engaged in international trials
- Continue to develop additional animal models, making every effort to ensure these mimic human infection and virus transmission as closely as possible
- Conduct studies to determine which of the commonly used forms of PPE are most effective in controlling the spread of COVID-19

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Cc: Dr VAN KERKHOVE, Maria;XING, Jun;MINHAS, Raman;POOLE, Marcia;STERN, Gabriella;DRURY, Patrick Anthony;SCHWARTLANDER, Bernhard F.
Subject: NEXT STEPS- Release of the Final Report: WHO-China Joint Mission on COVID-19
Importance: High

Dear Joint Mission colleagues,

I enjoyed all of the emails of the last days knowing you've each arrived home (and continue to be healthy!)

To update you on plans for the release of the Joint Mission Report:

- There were a couple of small changes needed to the English version to reflect Chinese translation (e.g. footnotes for COVID-19 as in China they use 'novel coronavirus pneumonia'; titles of some Chinese colleagues, etc). We have also agreed to remove the references section and just have a line that simply says references are available on request. Otherwise it would have been too complicated and slow to sort out which we keep/leave.

- **China and WHO have also agreed in principle to simultaneously release the FINAL FINAL document at 0900hr Geneva time tomorrow, 28 February 2020.**

- I have just sent the slightly edited version back to China which they will review and finalize the translation of overnight. I will then send you the 'final final' version first thing in the morning!

Thanks for your patience and with warmest regards from a chilly Geneva,

Bruce

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To: GHEBREYESUS, Tedros Adhanom <drtedros@who.int>
Cc: KASAI, Takeshi <kasait@who.int>; 'liangwn@nhc.gov.cn' <liangwn@nhc.gov.cn>; [redacted] Alexander SEMENOV [redacted] <[redacted]>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; 'Zhou, Weigong (CDC/DDID/NCIRD/ID)' <waz6@cdc.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia

PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; RYAN, Michael J. <ryanm@who.int>; SCHWARTLANDER, Bernhard F. <schwartlanderb@who.int>
Subject: Final Report: WHO-China Joint Mission on COVID-19
Importance: High

Dear Dr Tedros,

On behalf of the entire team, it is my honor to share with you the attached ***Report of the WHO-China Joint Mission on COVID-19***.

In submitting this final version of the report, I would like to extend my tremendous gratitude to my Co-Lead Dr LIANG Wannian (copied), whose deep experience and wisdom were crucial as we distilled our vast findings into the overall assessment and major recommendations.

You will be aware that Dr Liang and I have had the opportunity to present the findings and recommendations of this report to the Honorable Minister of Health, Dr MA Xiaowei, while in Wuhan on 23 February.

I must also thank our Deputy Team Leader Dr WANG Bin and our international team members, all of whom are also copied on this note. I would like to extend a further and very special thank you to our team members from China who gave so tirelessly and generously of their vast knowledge of the unfolding outbreak in China as well as their specific areas of technical expertise.

Dr Tedros, this was truly a Joint Mission, with national and international team members working closely together throughout, and particularly to consolidate their respective sections of this report in the final days of the Mission. Please know that the attached findings and recommendations reflect the collective opinion of the entire team, all of whom have been closely engaged in its writing and finalization.

We share a common hope that the findings contained herein can help inform the global work you are leading to stem the ongoing international spread of COVID-19.

Regards

Bruce

From: AYLWARD, Raymond Bruce J.
Sent: Fri, 28 Feb 2020 09:21:45 +0000
To: GHEBREYESUS, Tedros Adhanom
Cc: KASAI, (b)(6) angwn@nhc.gov.cn;liangwn@nhc.gov.cn;wan (b)(6) ;LI Juan (lijuan@nhc.gov.cn);zhangyang@nhc.gov.cn;Alexander SEMENOV (b)(6));Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Clifford LANE (cliff.lane@nih.gov);Zhou, Weigong (CDC/DDID/NCIRD/ID);Dale FISHER (mdcfda@nus.edu.sg);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);LEE Jong-Koo (docmohw@snu.ac.kr);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Tim ECKMANNS (EckmannsT@rki.de);XING, Jun;gmleung;Dr VAN KERKHOVE, Maria;Ryan, Michael (CDC who.int);SCHWARTLANDER, Bernhard F.;MINHAS, Raman;SNIDER, Paige Anne;ALEXANDER, Nyka;STERN, Gabriella
Subject: FOR PUBLIC RELEASE: WHO-China Joint Mission on COVID-19
Attachments: WHO-China Joint Mission on COVID-19 - FINAL REPORT 28Feb2020.pdf
Importance: High

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Subject: NEW - FOR PUBLIC RELEASE: WHO-China Joint Mission on COVID-19
Attachments: WHO-China Joint Mission on COVID-19 - FINAL REPORT 1100hr 28Feb2020.pdf
Importance: High

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<sniderp@who.int>; ALEXANDER, Nyka <alexandern@who.int>; STERN, Gabriella <sterng@who.int>
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Importance: High

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Sent: Sun, 1 Mar 2020 18:26:35 +0000
To: Alexander SEMENOV ([redacted]Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Clifford LANE (cliff.lane@nih.gov);Zhou, Weigong (CDC/DDID/NCIRD/ID);Dale FISHER (mdcfda@nus.edu.sg);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);LEE Jong-Koo (docmohw@snu.ac.kr);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Tim ECKMANNS (EckmannsT@rki.de);XING, Jun;gmleung
Cc: Dr VAN KERKHOVE, Maria;Zunyou Wu;(SPmig) LEI ZHOU[redacted];liangwn@nhc.gov.cn[redacted]
Subject: Materials: WHO-China Joint Mission on COVID-19

Dear International Members of the Joint Mission,

I trust (hope!) that everyone remains in good health as you approach Day 7 since your departures from China.[redacted]thanks to the good care of our Chinese hosts).

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I'm writing tonight to share with you three things:

1. the official **Chinese version of the Joint Mission report** that WHO received from the National Health Commission and which will be posted on our site;

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With very best regards to all,

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Subject: NEW - FOR PUBLIC RELEASE: WHO-China Joint Mission on COVID-19
Importance: High

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Subject: FOR PUBLIC RELEASE: WHO-China Joint Mission on COVID-19
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Cc: Dr VAN KERKHOVE, Maria;Zunyou Wu;(SPmig) LEI (b)(6)
Subject: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19
Attachments: Joint Mission REPORT Chinese VERSION 29Feb2020.pdf, COVID Joint Mission Findings - at 29Feb2020.pptx
Importance: High

Dear International Members of the Joint Mission,

Clearly I need to get more sleep! Maria just pointed out that I had forgotten to send the attachments – please find the message/attachments again here:

I trust (hope!) that everyone remains in good health as you approach Day 7 since your departures from China. I have now had a 2nd test here in Geneva and am – of course – negative (thanks to the good care of our Chinese hosts).

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中国-世界卫生组织
新型冠状病毒肺炎（COVID-19）
联合考察报告

2020 年 2 月 16-24 日

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一、考察组

（一）目标和目的

联合考察组的总体目标是迅速就中国及国际社会如何进一步应对新冠肺炎[1]（COVID-19）疫情提供信息，并为尚未受疫情影响的国家和地区如何做好应对准备提出意见。

联合考察组的主要目的如下：

- 进一步了解中国新冠肺炎疫情形势和采取的各项防控措施所取得的效果；
- 与各国分享受新冠肺炎疫情影响国家或存在输入风险国家为应对疫情进行的准备及防控经验；
- 为中国和其它国家遏制新冠肺炎疫情、调整应对措施等提出建议；
- 针对疫情防控相关的知识、应对及防范工具等关键局限领域，确定下一步工作和研发的合作优先事项。

（二）成员组成和工作方法

联合考察组由来自中国、德国、日本、韩国、尼日利亚、俄罗斯、新加坡、美国和世界卫生组织的 25 名中外专家组成。 联合考察组外方组长为世界卫生组织的布鲁斯·艾尔沃德（Bruce Aylward）博士，中方组长为梁万年博士。联合考察组成员及其所属机构名单见附件 1。此次联合考察组于 2020 年 2 月 16 日至 24 日在华开展考察调研，为期 9 天。工

[1] [1] 在本报告中文版中，使用中国官方公告的“新冠肺炎”一词指“2019 冠状病毒病”（COVID-19）。

作日程详见附件 2。

联合考察组首先在中国国家卫生健康委与中国国务院应对新型冠状病毒感染的肺炎疫情联防联控工作机制的牵头和参与的主要部门负责同志举行了座谈会，各部门全面、详细地介绍了疫情防控工作情况。之后，联合考察组与国家卫生健康委和中国疾病预防控制中心（中国 CDC）等负责疫情应对管理、实施和评估的国家级机构召开了一系列更加深入的技术交流会议。为实地了解国家应对策略的现场实施情况及效果，经双方协商一致，联合考察组对北京、四川（成都）、广东（广州、深圳）和湖北（武汉）等省市进行了实地考察和调研。考察地点包括街道、社区中心、社区卫生服务中心、县/区级医院、新冠肺炎定点医院、交通枢纽（航空、铁路、公路）、农贸市场、药品及个人防护物资储备仓库、研究机构、省级卫生健康委和省市级疾控中心等。期间，联合考察组与省、市政府领导、应急响应团队、资深科学家、一线临床医务人员和公共卫生人员及社区工作者、社区街道行政人员等进行了详细讨论和交流。考察结束后，联合考察组专家进行了内部讨论，归纳考察发现和结论，提出下一步应对建议。

为实现工作目标，联合考察组尤其重视以下重要问题：新冠肺炎疾病自然史及严重程度、病毒在不同情形下的传播动力学特点、以及目前在高风险地区（发生社区传播地区）、

中风险地区（出现聚集性病例地区）和低风险地区（仅有散发病例或无病例地区）所采取的防控措施的效果等。

本报告的内容以联合考察组对中央和地方政府报告的梳理、与国家级和地方级专家对防控措施的讨论、以及现场考察的所见所闻为基础。图表制作采用了现场考察中收集的信息和数据并经过相关机构同意。本报告中任何已在杂志中公开发表的信息，均有参考文献备查。

联合考察报告于 2020 年 2 月 28 日提交。

二、主要发现

主要发现分为六个方面：病毒，疫情暴发，传播动力学，疾病进程和严重性，中国的应对措施，以及知识局限。更多详细的技术发现请见附件 3。

（一）病毒

2019 年 12 月 30 日，从武汉金银潭医院不明原因肺炎（2002-2003 年 SARS 暴发之后制定的一种监测定义）患者中采集了 3 份支气管肺泡灌洗液样本。对样本进行泛 β-冠状病毒实时荧光定量 RT-PCR 检测后，结果显示冠状病毒核酸阳性。利用 Illumina 二代测序和 nanopore 三代测序技术，获得了病毒的全基因组序列。生物信息学分析表明，新型冠状病毒（nCoV-19）具有冠状病毒家族的典型特征，属于 β -冠状病毒。对 nCoV-19 的全基因组序列和已有的其他 β-冠状病毒的全基因组序列进行一致性比对后显示，该病毒与蝙蝠携

带的 SARS 样冠状病毒 RaTG13 株全基因组亲缘关系最近，同源性为 96%。

利用人呼吸道上皮细胞、Vero E6、Huh-7 等不同细胞系进行了病毒分离。接种后 96 小时观察到细胞病变效应（CPE）。负染后在透射电子显微镜（TEM）下能观察到典型的冠状颗粒。从恢复期患者中采集的血清可以完全中和分离病毒的细胞感染性。转人 ACE2 基因小鼠和恒河猴经鼻感染该病毒后，可诱发多灶性肺炎伴间质增生。随后可在受试动物的肺和肠道组织中检测并分离出该新型冠状病毒。

对 2019 年 12 月底至 2020 年 2 月中旬在不同地点采集的患者标本中分离出的 104 株 COVID-19 病毒株，进行了全基因组测序分析，结果显示它们具有 99.9%的同源性，无明显基因突变（图 1）。

对武汉市一名 50 岁男性患者的肺、肝和心脏等尸检标本的组织学检查显示，弥漫性肺泡损伤伴细胞纤维粘液样渗出。肺部显示有肺细胞剥脱和透明膜形成，提示有急性呼吸窘迫综合征（ARDS）。肺组织也显示细胞纤维粘液样渗出、肺细胞剥脱和肺水肿。双肺均可见以淋巴细胞为主的单个核细胞间质炎性浸润。肺泡内可见以大细胞核、双染颗粒的细胞质和核仁突出为特征的非典型肺细胞膨胀的多核合胞细胞，提示病毒导致的细胞病变。未见明显的核内或胞浆内病毒包涵体。

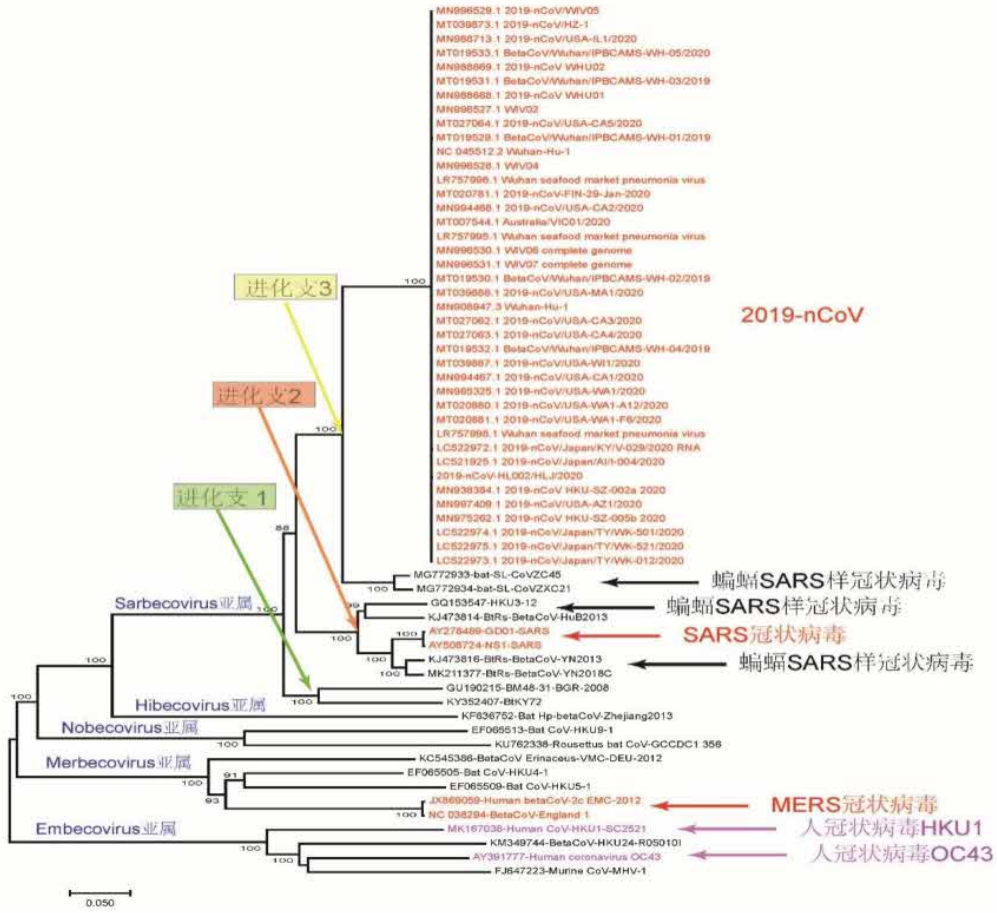


图 1. 新冠肺炎病毒和 β-冠状病毒代表株系统发生树分析

注：新冠肺炎（COVID-19）病毒在图中称为 2019-nCoV，是世卫组织在疫情暴发初期宣布的病毒暂用名。

（二）疫情暴发

截至 2 月 20 日，中国全国累计报告新冠肺炎病例 75465 例。该病例数据是通过国家卫健委和省卫健委之间的全国报告系统（NRS）进行上报的。该 NRS 报告系统每天发布新确诊病例、死亡病例、疑似病例和密切接触者的人数。各省在凌晨 3 点报告前一天的病例数。

图 2 和图 3 的流行曲线是利用全国法定传染病报告系统（IDIS）数据生成的。该系统要求每个新冠肺炎病例诊断后，负责医生要通过该系统进行网络直报。无症状感染者也通过该系统进行报告。病例的信息也在该系统里实时更新。病例个案信息每天 24 点后下载用于分析。图 2 显示了武汉、湖北（除武汉以外）、全国（除湖北以外）以及全中国病例发病时间流行曲线。

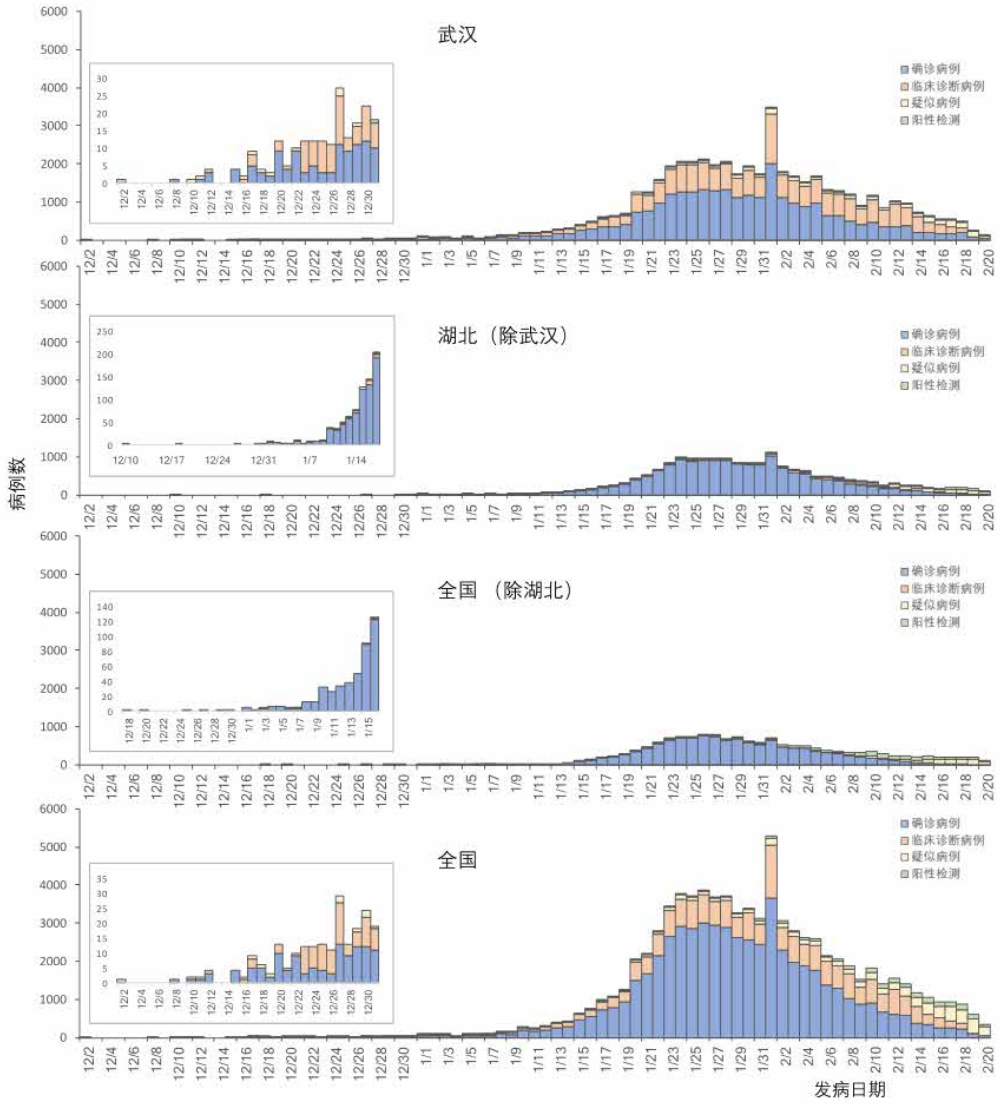


图 2 中国新冠肺炎实验室确诊病例发病时间曲线，截至 2 月 20 日

图 3 为实验室确诊病例按发病日期和报告日期绘制的曲线图，截止日期分别为 2 月 5 日、12 日和 20 日。图 2 和图 3 显示了病例数在 1 月 10 日至 22 日期间迅速增加，1 月 23 日至 27 日报告病例达到高峰并趋于平缓，此后保持了稳步下降的趋势，只有 2 月 1 日例外出现高峰。（举例：在武汉

一家大型综合医院，发热门诊就诊人数从 1 月下旬高峰期的 500 人/天降至 2 月中旬平均 50 人/天）

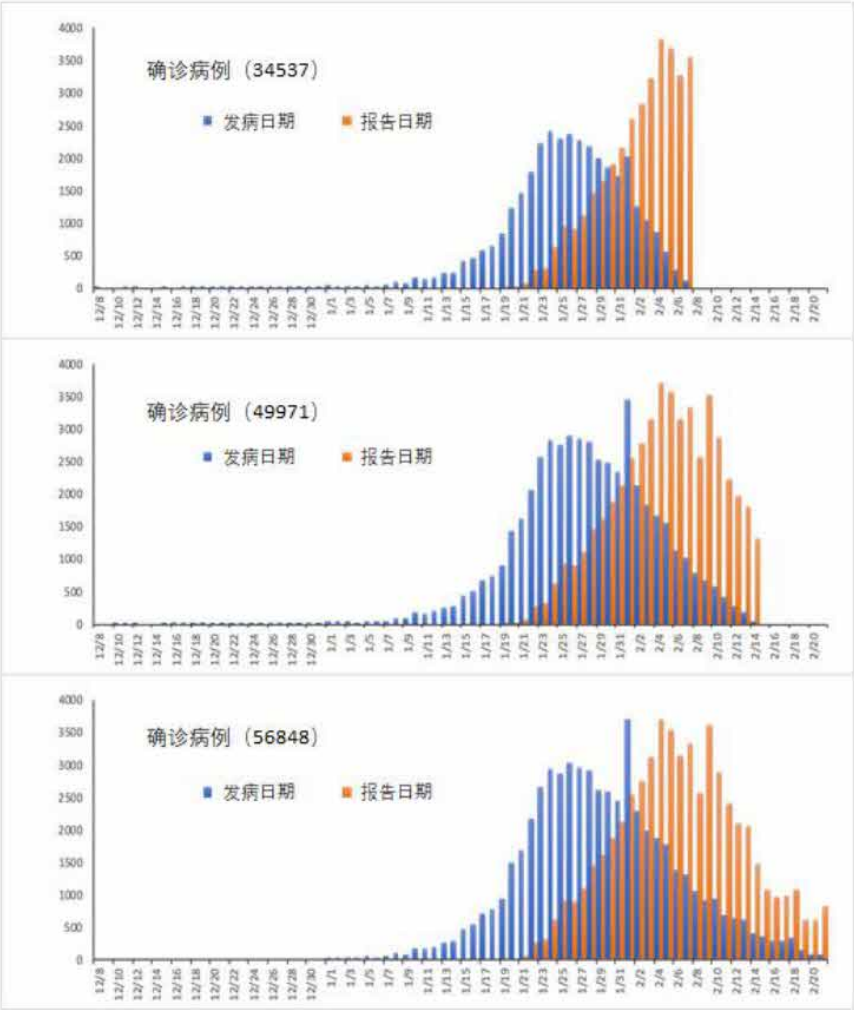


图 3. 2020 年 2 月 5 日（上）、12 日（中）和 20 日（下）中国全国实验室确诊病例流行曲线，按发病日期和报告日期。

根据上述流行曲线、已发表文献以及本次湖北武汉、广东（深圳和广州）、四川（成都）和北京的现场考察，考察

组得到以下流行病学考察结果：

1.人口学特征

截至 2 月 20 日，在报告的 55,924 例实验室确诊病例中，年龄中位数为 51 岁（年龄范围 2 天-100 岁；四分位间距 39-63 岁），大多数病例（77.8%）介于 30–69 岁之间。其中，51.1%为男性，来自湖北的病例占 77%，农民或体力劳动者占 21.6%。

2.动物溯源

新冠肺炎病毒是一种动物源性病毒。目前的全基因组基因序列系统进化分析结果显示，蝙蝠似乎是该病毒的宿主，但中间宿主尚未查明。而中国已经在此次疫情动物溯源的三个重要领域开展工作：对武汉 2019 年 12 月发病病例开展早期调查；对华南海鲜批发市场及其他市场进行环境采样；对华南海鲜批发市场售卖的野生动物的来源和种类以及市场关闭后这些动物的去向开展详细调查。

3.传播途径

新冠肺炎在无防护下通过飞沫和密切接触在感染者和被感染者之间发生传播。尚无新冠肺炎空气传播的报告，且根据现有证据，也不认为空气传播是主要传播方式。但在医疗机构中或可存在因医疗操作产生气溶胶而发生空气传播的可能。粪便排毒已在一些患者中得到证实，少数病例粪便中还发现了活病毒，但根据现有证据，粪-口传播似乎并不是

新冠肺炎传播的主要传播方式，其在新冠肺炎病毒传播中的地位和作用仍待明确。排毒相关内容详见“技术发现”（附件3）。

4.家庭传播

在中国，新冠肺炎的人际传播主要在家庭中发生。联合考察组从聚集性病例调查和一些家庭传播案例研究中获得了一些省份家庭成员间持续传播的详细信息。广东和四川省报告的 344 起聚集性病例中共涉及 1308 例病例（两省总病例数为 1836 例），其中大多数（78%-85%）聚集性病例发生在家庭成员中。家庭成员内传播的研究正在进行中，但广东的初步研究结果估计家庭成员二代续发率约为 3-10%。

5.密切接触者追踪

中国采取了坚决果断的措施对新冠肺炎病例和密切接触者进行确认和追踪。例如，武汉有超过 1800 个流行病学调查小组，每组至少 5 人，每天对成千上万的密切接触者进行追踪。正是通过艰苦卓绝的工作，使得确认的密切接触者中绝大多数都被追踪到并完成了医学观察。1%-5%的密切接触者后来被实验室诊断为新冠肺炎病例。例如：

截至 2 月 17 日，在深圳市 2842 名已确认的密切接触者中，已追踪到 2842 人（100%），其中 2240 人（72%）结束了医学观察。在密切接触者中，88 人（2.8%）后来被确认感染了新型冠状病毒。

截至 2 月 17 日，在四川省 25493 名已确认的密切接触者中，已追踪到 25347 人（99%），其中 23178 人（91%）结束了医学观察。在密切接触者中，0.9%的人后来被确认感染了新型冠状病毒。

截至 2 月 20 日，在广东省 9939 名已确认的密切接触者中，已追踪到 9939 人（100%），其中 7765 人（78%）结束了医学观察。在密切接触者中，479 人（4.8%）后来被确认感染了新型冠状病毒。

6.在发热门诊和常规流感样病例（ILI）和严重急性呼吸道感染（SARI）监测中进行检测

联合考察组系统询问了在中国常规呼吸道疾病监测系统中针对新冠肺炎进行检测的情况，包括对流感样病例（ILI）和严重急性呼吸道感染（SARI）监测样本进行 RT-PCR 检测，以及对发热门诊患者进行检测的结果，以了解新冠肺炎是否存在社区传播且未被发现的情况。

武汉对 2019 年 11 月和 12 月以及 2020 年 1 月前 2 周的 ILI 标本进行了新冠肺炎检测（每周 20 个）后发现，2019 年的样本未见阳性结果，1 月第一周有 1 个成人标本为阳性，1 月第二周有 3 个成人标本为阳性；所有儿童标本新冠肺炎检测均为阴性，有些为流感阳性。在广东，1 月 1 日至 14 日期间，在 15000 多例 ILI 或 SARI 标本中，只有一例新冠病毒检测阳性。在北京的一家医院，从 2019 年 1 月 28 日至 2020

年 2 月 13 日收集的 1910 份标本中没有发现一例阳性。在深圳的一家医院，40 例 ILI 样本中也无新冠病毒检测阳性。

广东省发热门诊新冠病毒检测阳性率随时间的推移有所下降，1 月 30 日为 0.47%，2 月 16 日降至 0.02%。总体而言，广东省约 32 万次发热门诊筛查检测中，新冠病毒检测阳性率仅为 0.14%。

7.易感性

由于新冠肺炎病毒是一种新发现的病原体，人群普遍缺乏免疫力。根据目前在中国观察到的流行病学特征，几乎人人易感，尽管可能存在易感性增加的危险因素，但还需要进一步研究，明确感染后是否具有免疫力。

（三）传播动力学

根据图 2 和 3 以及根据我们在国家和省/市级的联合考察的观察结果，总结和解释了新冠肺炎迄今为止的传播动力学。任何疫情暴发的传播动力学本质上都是与具体情境有关，了解这点很重要。对于新冠肺炎，我们分析了在流行增长期到控制措施实施后的时间段内观察到的四种主要的传播模式，并突出了对儿童传播的了解，如下所示：

1.武汉传播模式

在武汉发现的早期病例被认为是通过动物传染到人的途径感染，因为许多人报告有华南海鲜批发市场暴露史。截至 2 月 25 日，尚未查明动物来源。

在疫情早期的某个时点，部分病例间产生了人际传播，导致随后在一系列控制措施实施前发生了社区暴发并首先在武汉扩散开，再随着大规模人口流动，从武汉进一步辐射到湖北省和中国其他大部分地区，从而解释了高达 2-2.5 的传播系数（R_0 值）。

自 2020 年 1 月 23 日起在武汉及周边城市采取的严格管控措施有效地阻止了感染者向全国其他地区的进一步输出。

2.湖北除武汉以外的传播模式

在紧邻武汉的地区（孝感、黄冈、荆州和鄂州），传播程度低于武汉。对于该省其他地区，由于交通管制后与武汉的交通联系不紧密，且人流不畅，其动力学与全国其他地区的动力学更为接近。在湖北省内，一系列控制措施（包括控制社交距离）降低了社区传播，从而减少发病。

3.中国除湖北以外的传播模式

由于武汉的交通枢纽地位和春节期间的人口流动（春运），感染者迅速流向全国各地，尤其是集中在与武汉交通往来最为密切的城市。其中一些输入病例在目的地城市导致了有限的人际传播。

根据武汉/湖北的经验，实施的一系列综合防控措施，包括早发现病例、追踪密切接触者、隔离和管理以及尽可能地增大社交距离，在全国范围内阻断了病毒传播。到目前为止，绝大多数病例是来自武汉或湖北或与之有直接联系。社区传

播非常有限。如前所述，大多数本地病例都来自于聚集性病例，其中大部分发生在家庭中。

综上，病毒输入一个地区后，如不加干预，会很容易引起当地发生聚集性病例，进而导致相对较高的 R_0（2-2.5），但如采取严格隔离和增大社交距离的控制措施，可以有效减少发病。

4.特殊场所

我们注意到医疗机构、监狱和其他封闭场所也发生了疫情。但是，目前还不清楚这些场所和人群在传播中的作用。但它们似乎并不是疫情扩散的主要驱动因素。具体地说：

医疗机构医务人员感染——联合考察组讨论了所考察的所有地点的院感情况。截至 2020 年 2 月 20 日，全国 476 家医院报告了 2055 起医务人员感染新冠肺炎实验室确诊病例，大多数（88%）来自湖北。

值得注意的是，中国已从湖北以外地区派遣逾 4 万多名医务人员驰援武汉。尽管存在散在的少数医院暴发（例如，武汉一家医院有 15 名医务人员感染），但医疗机构医务人员感染并不是新冠肺炎在中国的主要传播特征。联合考察组获悉，大多数医务人员感染是发生在武汉疫情暴发早期，当时应对这种新疾病的物资和经验较为缺乏。此外，流调显示，许多医务人员病例可能是在家庭内而非医院感染的。湖北以外地区的医务人员感染很少见（246 例，全国医务人员感染

总数 2055 例),流调显示大多数病例有家庭确诊病例暴露史。

联合考察组还注意到，中国一直非常重视医务人员的感染预防。医务人员监测数据显示，疫情早期感染风险最高，这些信息已经用于修订完善政策，提高医务人员感染防护。

封闭场所疫情——据报告，以下场所发生了新冠肺炎传播：监狱（中国湖北、山东、浙江）、医院（如前所述）等。人们在这些环境中的密切接触和潜在的环境污染是传播的重要因素。在这些场所中的传播情况仍需进一步研究。

5.儿童

数据表明 18 岁及以下人群的罹患率相对较低（占所有报告病例的 2.4%）。在武汉，对 2019 年 11 月、12 月和 2020 年 1 月前两周的流感样病例进行检测，未发现有儿童新冠病毒检测呈阳性。根据现有数据，在没有血清学研究结果的情况下，无法确定儿童感染状况以及儿童在传播中所起的作用，无法回答儿童是否较不易感或他们的临床表现是否不同（即通常轻症）等问题。联合考察组获悉，儿童病例多是通过追踪成人病例家庭密切接触者的时候发现的。值得注意的是，接受联合考察组访谈的人未发现有儿童传染成人的情况。

（四）症状、体征、疾病进程和严重程度

新冠肺炎的症状是非特异性的，从无症状到重症肺炎和死亡不等。截至 2020 年 2 月 20 日 55924 例实验室确诊病例

中，典型症状和体征包括发热（87.9%）、干咳（67.7%）、乏力（38.1%）、咳痰（33.4%）、气短（18.6%）、咽痛（13.9%）、头痛（13.6%）、肌痛或关节痛（14.8%）、寒战（11.4%）、恶心或呕吐（5.0%）、鼻塞（4.8%）、腹泻（3.7%）、咯血（0.9%）和结膜充血（0.8%）。

新冠肺炎患者通常在感染后平均 5-6 天(平均潜伏期 5-6 天，范围 1-14 天）出现轻度呼吸道症状和发热等症状。

多数感染新冠肺炎病毒的患者为轻症并可痊愈。约 80%的实验室确诊病例为轻症和普通型，包括无肺炎或肺炎患者，13.8%的患者为重症，存在呼吸困难、呼吸频率≥30 次/分钟、血氧饱和度≤93%、动脉血氧分压/吸入氧浓度比<300 和/或 24-48 小时内肺部浸润> 50%，6.1%的患者为危重型(呼吸衰竭、脓毒性休克和/或多器官功能障碍/衰竭)。已有无症状感染的报告，但多数在报告时无症状的病例随后会出现症状。真正的无症状感染者的比例尚不明确，但相对较罕见，也不是传播的主要驱动因素。

重症和死亡高危人群为年龄 60 岁以上，以及患有高血压、糖尿病、心血管疾病、慢性呼吸道疾病和癌症等基础性疾病者。儿童病例似乎很少且病情较轻，19 岁以下病例约占总报告病例的 2.4%。极少数 19 岁以下病例发展为重症（2.5%）或危重症（0.2%）。

截至 2 月 20 日，55924 例实验室确诊病例中有 2114 例

死亡（粗病死率[CFR[2]]为 3.8%）（注：其中包含部分由临床诊断病例转成的确诊病例）。粗病死率因地区和传播强度而异（武汉 5.8%，中国其他地区 0.7%）。在中国，疫情暴发早期的粗病死率较高（1 月 1 日至 10 日间发病的病例，粗病死率为 17.3%）；随着时间推移，2 月 1 日之后发病病例的粗病死率降至 0.7%（图 4）。联合考察组注意到医疗服务水平在疫情进展过程中发生了变化。

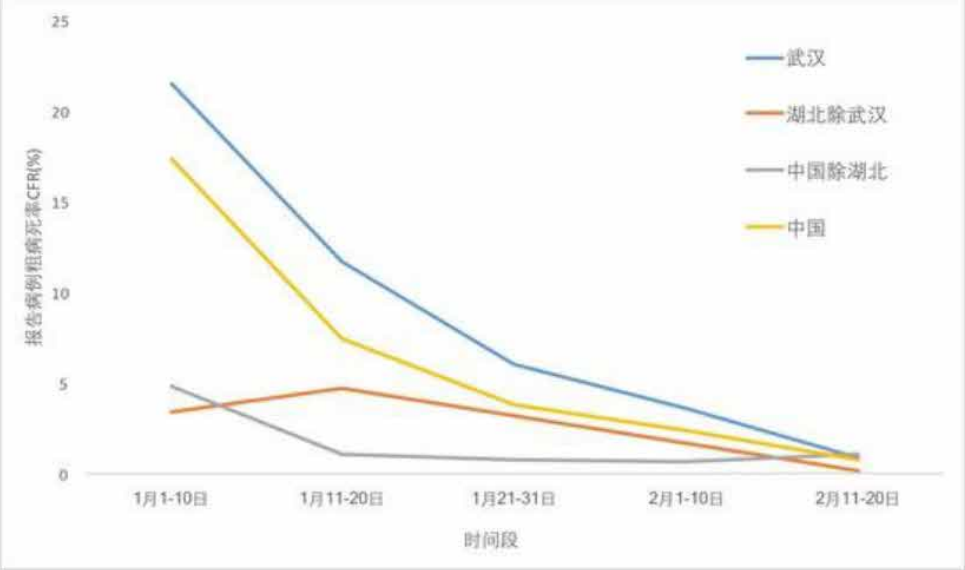


图 4 中国新冠肺炎病死率（总病例中报告的死亡人数)不同地点随时间的变化图，截至 2020 年 2 月 20 日

病死率随年龄增长而增加，80 岁以上者病死率最高（21.9%）。男性病死率高于女性（分别为 4.7%和 2.8%）。退休人员在各职业人群中病死率最高，为 8.9%。无合并症的患者病死率为 1.4%，有合并症的患者病死率显著增高（合并心

[2] 联合考察组认识到在疫情早期报告粗病死率存在普遍公认的问题和偏倚。

血管疾病患者为 13.2%，糖尿病为 9.2%，高血压为 8.4%，慢性呼吸道疾病为 8.0%，癌症为 7.6%）。

疾病进程数据来自数量有限的报告住院病例（图 5）。根据现有数据，从全国来看，从发病到实验室确诊的中位时间从 2020 年 1 月初的 12 天(8-18 天)缩短到 2 月初的 3 天(1-7 天)。在武汉，则分别为 15 天（10-21 天）和 5 天（3-9 天）。这有助于更早地发现、隔离和治疗病例，以及确认、追踪密切接触者。

根据可用的初步数据，从发病到临床痊愈的中位时间，轻症约为 2 周，重症或危重症约为 3-6 周。初步数据表明，从起病到进展为出现缺氧等重症的时间为 1 周。死亡患者中，发病到死亡的时间范围为 2-8 周。

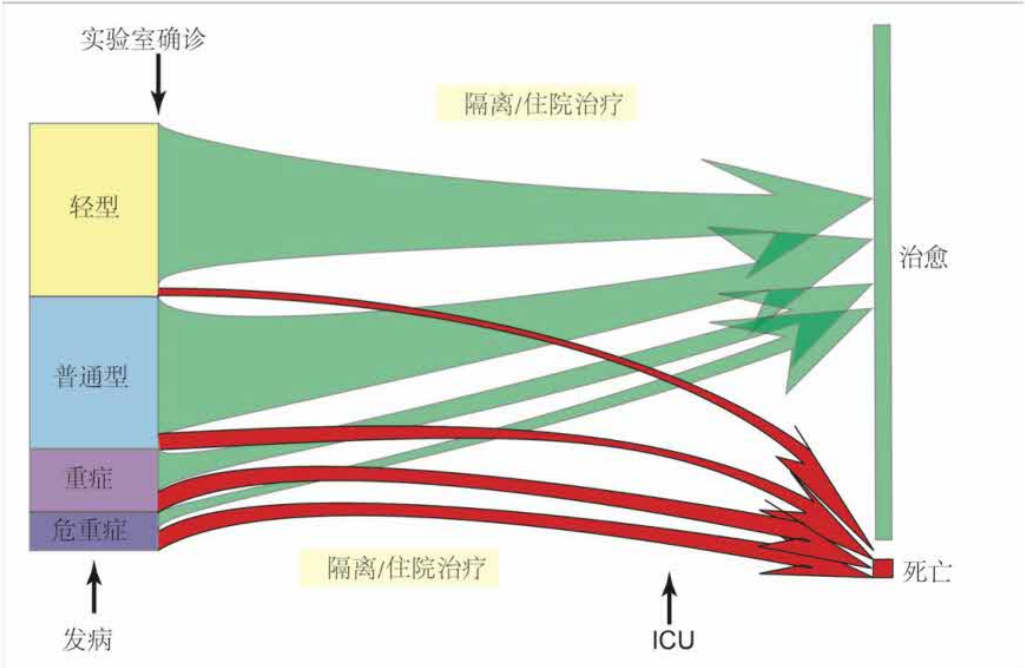


图 5. 新冠肺炎疾病进程示意图

注：疾病严重程度和预后的方框的相对大小反映了截至 2020 年 2 月 20 日报告病例的比例。箭头的大小指示康复或死亡病例的比例。疾病定义如上所述。“普通”是指轻度肺炎。

已康复患者数量不断增加，截至 2 月 20 日，已有 18264 人（24%）痊愈。令人鼓舞的是，广东省疾病预防控制中心 2 月 20 日的一份报告显示，在广东省发现的 125 例重症病例中，33 例（26.4%）已痊愈并出院，58 例（46.4%）转为轻/中度病例。在迄今报告的重症病例中，13.4%死亡。更早发现病例和接触者，就可以更早进行治疗。

（五）中国的应对措施

武汉新冠疫情发生后，党中央国务院高度重视，立即启动国家应急响应，成立中央应对疫情工作领导小组和国务院联防联控机制，习近平主席亲自指挥、亲自部署防控工作，明确要求防控新冠病毒疫情是当前各级政府的首要任务，李克强总理任中央应对疫情工作领导小组组长，统筹协调各相关部门和全国各省（区、市）各项防控工作，并第一时间亲赴武汉现场考察指导，孙春兰副总理驻武汉前线指挥部亲自领导和协调一线防控工作。

全国防控工作由前期在武汉等湖北重点地区快速上升到当前全国疫情的全面控制，主要经历了三个阶段，两个重

要事件可以作为三阶段的分期标志：一是2020年1月20日新冠肺炎纳入法定报告乙类传染病和国境卫生检疫传染病，标志着由前期的局部防控进入到依法全面采取各项控制措施的转变；二是2020年2月8日国务院下发《关于切实加强疫情科学防控有序做好企业复工复产工作的通知》，标志着中国防控工作进入疫情防控与全面恢复社会经济正常运行统筹兼顾阶段。

第一阶段，围绕武汉等湖北省重点地区防输出、全国其它地区防输入的防控目的，以控制传染源，阻断传播，预防扩散为主要策略，采取启动响应和多部门联防联控，关闭市场，确定病原体，1月3日向世卫组织通报疫情，1月10日分享了毒株全基因组序列，制定下发诊疗、监测、流调、密切接触者管理和实验室检测方案，开展监测与流行病学调查，研发检测试剂盒，严格野生动物和活禽市场监管等防控措施。

第二阶段，围绕降低流行强度，缓疫削峰的防控目的，在武汉等湖北省重点地区以积极救治，减少死亡，外防输出为主要策略，在全国其他地区以外防输入，内防扩散，群防群控为主要策略；在全国关闭了野生动物市场，隔离了野生动物繁育养殖设施；1月20日将新冠肺炎纳入法定报告乙类传染病和国境卫生检疫传染病，实行体温监测和健康申报制度，采取依法监测与交通场站检疫；1月23日武汉实行严格

限制交通的措施；完善诊疗和防控技术方案，强化病例隔离救治。

全面落实“四早”、“四集中”，确保应治尽治，对密接和重点地区人员隔离医学观察；实施延长春节假期、交通管制、控制运能的措施，减少人员流动，取消人群聚集性活动；动态发布疫情和防控信息，加强公众风险沟通和健康宣教；统筹调配医疗物资，新建医院，启用储备床位和征用相应场所，确保应收尽收；生活物资保供稳价，维护社会平稳运行等综合性防控措施。

第三阶段，围绕减少聚集性疫情，彻底控制疾病流行，统筹兼顾疫情防控与经济社会可持续发展的目的，全国范围内以统一指挥，分类指导，科学循证，精准施策为主要策略，其中，在武汉等湖北省重点地区突出“救治”和“阻断”，强调继续做实做细上一阶段“应检尽检、应收尽收、应治尽治”等各项措施。采取以风险为导向的地域差异化防控措施，强化流行病学调查、病例管理和高危场所聚集性疫情防控。

应用大数据和人工智能等新技术加强密切接触者和重点人群管理；出台“医保支付、异地结算、财政兜底”的医保政策；全国对口支援武汉等湖北省重点地区，迅速遏制疾病流行；完善开学前准备工作，分类分批有序复工复产，开展“点对点、一站式”务工人员返岗健康和保障服务，全面恢复社会正常运行；普及防病知识，提高公众健康素养和技能；

全面开展检测、药物、疫苗、疾病谱、溯源等应急科研攻关。

（六）现有知识局限

自从新冠肺炎疫情暴发以来，通过现场调查和中国开展的研究，人们对该病毒和疾病有了更好的了解。在如此短的时间内能获得关于一种新病毒如此多的知识令人瞩目。然而，与所有新疾病一样，疫情发生至今仅 7 周，关键的知识局限仍然存在。附件 4 总结了若干未知的关键领域，包括传染源、病毒的致病机理和毒性、传染性、感染和疾病进展的风险因素、监测、诊断、重症和危重病人的临床管理以及预防和控制措施的有效性。及时填补这些知识局限对于完善和加强控制策略至关重要。

三、评估

联合考察组根据考察组在中国的工作情况和全球应对新冠肺炎的了解得出 4 个主要结论，并从 5 个主要方面对全球和中国正在采取的应对措施提出建议。

（一）中国的应对措施及下一步工作

1.面对这种前所未知的病毒，中国采取了历史上最勇敢、最灵活、最积极的防控措施。疫情之初，基于围堵策略的防控措施是在全国范围广泛开展体温检测、佩戴口罩与洗手消毒等。随着疫情的发展和对疾病认识的深化，采取了更加科学、基于风险评估的防控措施，各省、县甚至社区根据各自

特点、机构能力以及新型冠状病毒传播情况，采取了更有针对性的防控措施。

在防控策略基本原则保持不变的基础上，根据对新型冠状病毒、新冠肺炎以及防控措施的新认识，不断完善具体措施，尽可能迅速地遏制病毒传播。中国科学家和公共卫生专家迅速分离了致病病毒，建立了诊断方法，确定了传播途径和潜伏期等关键传播参数，为中国防控策略的制定提供了重要的证据基础，为应急响应赢得了宝贵的时间。

令人瞩目的是，在所考察的每一个机构都能够强有力地落实防控措施；不折不扣提升关键措施效果，例如不断提高病例检测、隔离及早期治疗的速度；积极利用前沿科技促进防控措施的创新，比如将常规医疗和教学工作转移到在线医疗平台、使用 5G 平台支持农村地区的防控工作。

2.面对共同威胁时，中国人民凝聚共识团结行动，才使防控措施得以全面有效的实施。每个省、每个城市在社区层面都团结一致，帮助和支持脆弱人群及社区。尽管本地区也同样发生了疫情，但各省市仍不断地向湖北省和武汉市派遣了数以万计的医务人员，并支援了大量宝贵的个人防护用品。

在个人层面，面对此次疫情中国人民表现出极大的勇气和信念。他们接受并坚持了最严厉的遏制措施——无论是暂停公众集会、长达月余的“居家”，还是禁止旅行。在中国各

地为期 9 天的实地考察中，考察组与社区工作人员、一线医务人员、顶级的科学家以及省长和市长进行了坦诚的交流，他们表现出的真诚和奉献精神深深地感动了联合考察组所有成员。

3.中国采取的果敢措施有效遏制了这一新的呼吸道病原体的迅速蔓延，改变了疫情快速扩散流行的危险进程。一个特别令人信服的统计数字是，在先遣组工作的第一天，中国报告了 2478 例新增确诊病例，而两周后考察任务的最后一天，中国报告了 409 例新增确诊病例。这充分表明全国范围内新冠肺炎疫情下降是令人信服的。

另外有几组数据也支持这一结论，包括发热门诊就诊人数的急剧下降、治愈患者出院后空出的床位可用于收治新患者、以及因病人数量减少以至于临床实验难以招募足够的新病人等。联合考察组对各省的粗发病率进行了比较，估计中国采取的政府主导的全社会防控措施成功避免或至少预防了全国范围内数十万病例的发生。中国新冠肺炎疫情的下降显著地保护了国际安全，构建起了防止疾病国际传播强有力的第一道防线。然而，中国和中国人民为遏制疫情的暴发付出了巨大的生命和物质代价。

在充分肯定中国防控工作成绩的同时，也发现在公共卫生应急反应能力领域还有进一步提升的空间，包括消除阻碍及时开展早期预警和快速应对；短时间内大幅扩容隔离和救

治能力；优化医疗机构一线医务人员防护；加强关键优先的科研领域协同合作；促进与国际社会共享关键数据等。

4.中国在努力遏制疫情传播的同时，正在逐步恢复经济、教育和社会等各部门的日常服务和生产活动。中国也正在采取基于科学、风险研判和分层分级的防控策略，以便限制性策略解除时，能迅速应对和处置再次出现的新发病例或聚集性疫情。

尽管病例数在下降，考察组所到的省、市和社区都正在加速扩大对救治床位和公共卫生能力的投入，而且有必要持续加大投入力度。目前全国各地仍有5万名患者在接受治疗。考察组了解到中国在这次危机中迅速积累的知识、经验和能力。因此，联合考察组赞同中国对当前形势的判断,并认为随着认知、经验和能力的提高,中国采取针对性强的可持续的应对策略，如病例的迅速发现，关键防控措施的快速启动,高层领导直接领导以及社区层面的广泛参与，中国绝大部分省市能够很快的处置任何再发新冠肺炎病例。

中国正在努力恢复正常的社会和经济活动，世界各国必须正确认识并积极回应这一事实，即中国新冠肺炎疫情风险正在快速改变和不断降低。中国需要迅速恢复与世界的正常联系，其生产力和经济的恢复对中国自身和世界都至关重要。世界各国都迫切需要了解和利用中国在应对新冠肺炎疫情方面的经验，充分认识到其为全球应对行动带来的实际贡

献。随着中国境外新冠疫情形势的不断升级，目前更为紧迫的是，所有国家都应立即并且不断重新评估任何超出《国际卫生条例》新冠病毒应急委员会向各国提出的与中国相关的旅行和/或贸易限制。

（二）全球应对措施及下一步工作

1. 新型冠状病毒是一种新出现的病原体，传染性强、传播速度快，在任何环境下都会对公共卫生问题及经济社会影响。它既不是 SARS，也不是流感，仅根据已知的这两种病原体来构建对病毒的认识并制定防控措施存在风险，尚不足以阻止传播、减少疾病、挽救生命。

新型冠状病毒具备独有特征。例如，与流感相比，其在儿童中的传播活跃度有限，其临床表现也与 SARS 不尽相同。虽然上述结论仅基于有限数据，但在中国各地不同环境条件下，通过严格采取综合性非药物性干预措施阻断人传人已经发挥了作用，并取得了效果。新型冠状病毒极强的传播力、导致高危人群死亡的不确定性、以及对社会经济秩序破坏力，是人类冠状病毒中非比寻常的。如果要应对，必须假定全球人口均是易感人群。此外，目前还不清楚新型冠状病毒的动物来源，因此已发生疫情的地区必须考虑病毒复发的风险。

随着对病毒认识的不断深入，我们应像中国那样具有较强的灵活性，能够迅速调整应对措施和方案。这对于一个拥

有 14 亿人口的国家来说是一项非凡的成就。

2.中国采取了坚定有力的综合性非药物性干预措施，非常有效地切断病毒传播途径，为全球应对新冠肺炎提供了重要经验。尽管湖北其他地区已经发生了社区传播，其他有输入病例的省份也多有家庭聚集性疫情，但中国采取的这些独特且史无前例的措施彻底扭转了湖北和其他地区不断升级的疫情形势。

虽然中国各地暴发疫情的时间相对接近，但中国从北到南，从大城市到偏远地区，不同环境和场所的传播特点各不相同。然而，中国迅速调整防控措施表明，不同情况下都有可能成功实施防控措施。

中国的经验证明，确定新冠病毒后，积极的准备措施和快速应对十分有效。在地方开展全面风险评估，利用差异化的风险控制策略，管理无病例、散发病例、聚集性病例乃至社区传播等不同类型地区也取得了明显成效。这种策略对于确保控制措施落实的可持续性，尽量减少对社会经济影响都至关重要。

3.国际社会无论在思想上，还是行动上都还尚未准备好去组织实施已经被中国证明了的唯一能够阻断或最大程度降低新冠病毒传播的措施，这些措施包括：开展积极主动监测，迅速发现并立即诊断、隔离病例，严格追踪并隔离密切接触者，引导民众理解并接受上述措施。

贯彻落实上述举措并确保其实施效果，不仅需要高层迅速做出决策，公共卫生体系全面启动，还需要整个社会充分参与。新型冠状病毒如果不受控制地持续在社区传播，可能造成重大风险和严重损害，而采取综合性非药物性干预措施能够为研制疫苗及验证治疗方法争取到数周和数月时间。此外，目前中国以外的新发病例大都出现在中高收入国家，这些国家均承诺严格采取“非药物性干预措施”减缓传播，这对于建立其保护卫生体系及应对能力较差的低收入国家的第二道防线至关重要。

通过全面实施这些措施而获得的时间——即使只有几天或几周——在最终减少新冠肺炎致病和死亡方面都十分宝贵。中国在发现病毒后短短 7 周内，开展的科学研究在知识、方法和工具等方面都取得了巨大的进步。

4.必须充分利用通过实施遏制新冠肺炎措施所争取的时间，更加有效地提高全球应对疫情能力，尽快推出能够遏制病毒传播的具体工具。

新型冠状病毒正以惊人的速度蔓延，新冠肺炎在任何环境中暴发都将导致非常严重的后果。已有证据充分显示，综合性非药物性干预措施在某些情况下可以减少甚至阻断传播。然而，全球和各国的应对方案往往对非药物性干预措施态度模糊。为减少新冠肺炎发病和死亡，短期内采取的应对方案就是积极采取非药物性干预措施，而充分落实这些措施

就需要：快速发现并隔离病例，严格实施密切接触者追踪、医学观察和隔离，以及相关人群和社区的直接参与。

中国及全球各国都在开展大量新冠肺炎研究，相关科研项目和产品研发工作也正在进行，这值得鼓励和支持。但是，大量的研究项目需要优化，否则将有可能消耗研究者的精力和资源，而优化能够将研究成果时间表缩短宝贵的几周或几个月。新冠肺炎防控的紧迫形势要求必须优先开展诊断，治疗和疫苗领域的研究工作。

同样，关于新型冠状病毒的起源、疾病自然史以及病毒传播动力学方面的研究选题已经很多。然而，政策决策者很难在处置疫情和挽救生命的紧迫性与众多研究中取得适当的平衡。因此，应当优先选择保障与关键知识局限性相关的研究项目，而弥补这样的知识差距可以迅速对处置疫情产生很大的直接影响。建议优先开展家庭、机构和社区内聚集性传播危险因素研究，基于已有的呼吸系统疾病监测系统的人群新冠肺炎抽样监测，不同年龄人群血清流行病学调查，临床病例系列分析以及聚集性病例调查等。

四、主要建议

（一）对中国的建议

1. 考虑经济活动恢复、旅行限制逐渐解除、学校重新开学带来新出现病例和聚集性病例的风险，应继续维持基于各地风险评估的程度适当的应急管理方案；

2. 密切监测，分阶段有序解除限制措施，先复工和返程、然后复学，直至最终取消其他限制措施；

3. 进一步加强应急管理机制建设，协调公共卫生部门(如疾病预防控制中心)、医疗机构和社区联动机制，持续保持警惕，随时遏制疫情反弹；

4. 重点开展应急响应和风险管理决策相关研究，识别家庭、机构、医院和社区传播的危险因素，不同年龄人群血清流行病学调查，尽快在武汉开展新冠肺炎动物疫源综合性调查，开展集中研究项目，快速确定最有效的诊断和血清学检测方法，测试现有抗病毒药物和各类疫苗载体，中国应该参与多国试验项目；

5. 中国作为对新冠肺炎了解最多的国家，应持续系统的实时分享流行病学资料和临床结果与经验，帮助全球共同应对新冠肺炎疫情。

（二）对有输入性新冠肺炎病例及/或新冠肺炎疫情暴发国家的建议

1. 立即启动最高级别国家应急处置方案，确保各级政府和全社会采取所有必要的非药物性干预措施，阻断疫情传播；

2. 优先进行彻底的病例筛查和检测，耐心细致做好接触者追踪调查，严格隔离密切接触者；

3. 大力开展疫情防治宣传，让公众充分认识到新冠肺

炎疫情的严重性，并发挥公众力量，阻止疫情传播；

4. 立即扩大监测范围，以尽快发现新冠肺炎传播链；方法包括对所有非典型性肺炎症状患者进行新冠病毒检测，对上呼吸道疾病患者进行新冠病毒筛查和近期可能有新冠肺炎患者暴露史人员筛查，并在现有监测系统增加新冠病毒检测(如流感样病例和严重急性呼吸道感染病例监测系统)，

5. 制定多部门联合情景规划并模拟演练，根据需要采取更严格的措施阻断传播链(例如暂停大型集会和关闭学校和工作场所)。

（三）对尚未受疫情影响国家的建议

1. 做好随时启动最高级别应急响应机制的准备，动员各级政府和全社会共同应对可能暴发的新冠肺炎疫情；

2. 根据对采用非药物性干预措施阻断新冠肺炎传播有效性最新认识，迅速调整国家应急处置方案，将新冠肺炎快速检测、大规模病例隔离和呼吸机设备等救治能力、严格追踪和管理接触者纳入国家应急处置方案和能力建设当中；

3. 立即加强对新冠肺炎的监测，快速检测对阻断传播至关重要，考虑对所有非典型的肺炎症状患者进行新冠肺炎病毒检测，并将新冠肺炎病毒检测纳入现有流感监测系统；

4. 立即在所有医疗机构门急诊和发热门诊实施最为严格的防控措施，这些是新冠肺炎病例最有可能输入的区域；

5. 迅速评估公众对新冠肺炎的认知，并据此立即调整

国家健康促进材料和活动，确定与媒体沟通的临床权威专家。

（四）对公众的建议

1. 认识到新冠肺炎是一种全新出现的令人关注的传染性疾病，但只要采取正确的应对措施，疫情暴发就可以得到控制，患者大都能够康复;

2. 立即采取并落实最为严格的预防措施，勤洗手，打喷嚏或咳嗽时掩住口鼻;

3. 时时关注新冠肺炎及其体征和症状（如发热、干咳）的最新信息，各国会根据疫情发展不断调整应对策略;

4. 人人做好准备，通过各种方式积极参与到疫情防控中来，严格保持“社交距离”，努力帮助老年人等高危人群。

（五）对国际社会的建议

1. 认识到各国之间真正的团结与合作对于解决新冠肺炎的共同威胁至关重要并落实这一原则;

2. 根据《国际卫生条例》的要求迅速共享信息，包括输入病例的详细信息，促进各国追踪接触者并告知防控措施;

3. 识别新冠肺炎感染的国家疫情快速变化的风险特征，持续监测疫情暴发趋势和控制能力，重新评估严重干扰国际旅行和贸易的其他卫生措施。

附件

附件 1：中国—世界卫生组织新型冠状病毒肺炎联合考察组人员名单

1.	布鲁斯·艾尔沃德（Bruce Aylward ）	组长，世卫组织总干事高级顾问
2.	梁万年	组长，中国国家卫生健康委专家组组长
3.	董小平	中国疾控中心全球公共卫生中心主任、研究员
4.	蒂姆·埃克曼斯（Tim Eckmanns）	德国罗伯特·科赫研究所抗生素耐药和消费监测医疗相关感染部门主任
5.	戴尔·费希尔（Dale Fisher）	全球疫情预警和应对网络（GOARN） 委员会主席、新加坡国立大学杨璐琳医学院教授
6.	齐克韦·齐克韦祖（Chikwe Ihekweazu）	尼日利亚疾病控制中心主任
7.	克利夫·莱恩（Cliff Lane）	美国国立卫生研究院国家过敏及传染病研究所临床主任
8.	李钟国（Jong-Koo Lee）	韩国首尔国立大学医学院家庭医学教授
9.	梁卓伟（Gabriel Leung）	香港大学医学院院长、施玉荣伉俪基金教授席（民众健康）教授
10.	林江涛	国家呼吸疾病临床研究中心、中日友好医院呼吸与危重症医学科主任、教授
11.	刘海鹰	中国医学科学院病原生物学研究所副所长、研究员

12.	娜塔莉亚·普舍尼奇娜娅（Natalia Pshenichnaia）	俄罗斯国家肺生理和传染病医学研究中心国际部主任、顾问
13.	亚历山大·谢苗诺夫（Aleksandr Semenov ）	俄罗斯圣彼得堡巴斯德研究所副主任
14.	高桥均之（Hitoshi Takahashi）	日本国立传染病研究所流感病毒研究中心高级科学家
15.	玛利亚·范科霍夫（Maria van Kerkhove)	世卫组织全球传染病危害防范部门新发疾病与人畜共患病组负责人
16.	王　斌	副组长，中国国家卫生健康委疾控局副局长
17.	王广发	北京大学第一医院呼吸病危重医学科主任
18.	吴　凡	复旦大学上海医学院副院长
19.	巫忠泽	中国国家林草局动植物司履约执法处处长
20.	吴尊友	中国疾控中心首席流行病学家
21.	邢　军（Xing Jun）	世卫组织卫生安全防范部门《国际卫生条例》国家能力组组长
22.	袁国勇	香港大学微生物学系，新发传染病国家重点实验室讲座教授兼联合主任
23.	周为公（Weigong Zhou）	美国疾控中心国家免疫和呼吸疾病中心流感科医务官
24.	张　勇	中国疾控中心病毒病预防控制所所长助理、研究员
25.	周　蕾	中国疾控中心应急中心新发传染病应对室主任、研究员

注：组长之后的成员名单按姓氏（英文或拼音）首字母顺序排列

附件 2：考察组行程安排

北京（2 月 10 日-2 月 17 日）	
2 月 10-15 日 （先遣组）	先遣组成员和世界卫生组织驻华代表考察中方机构，会见中方专家
2 月 16 日 （星期日）	在世界卫生组织驻华代表处与全体国际专家组成员召开通气会
	在国家卫健委与国务院联防联控机制相关部门召开疫情防控座谈会
2 月 17 日 （星期一）	考察北京地坛医院
	考察北京市朝阳区安贞街道安华里社区及卫生服务站
	与中国疾病预防控制中心召开疫情防控座谈会
广东（2 月 18 日-2 月 20 日）	
2 月 18 日 （星期二）	考察深圳宝安国际机场
	考察深圳市第三人民医院
	考察深圳市疾病预防控制中心
	考察腾讯公司大数据助力疫情防控情况
2 月 19 日 （星期三）	考察深圳市侨香社区医疗卫生中心
	考察深圳市福田高铁站
	考察广州市番禺疗养院
	考察广州再生医学与健康广东省实验室
	考察广州市体育东智慧市场
	与广东省人民政府召开第一次疫情防控座谈会

2 月 20 日 （星期四）	考察广东省疾病预防控制中心
	考察广州市妇女儿童医疗中心人民路院区
	与广东省人民政府召开第二次疫情防控座谈会
四川（2 月 18 日-2 月 20 日）	
2 月 18 日 （星期二）	考察成都双流国际机场
	与四川省人民政府召开第一次疫情防控座谈会
	考察成都市双流区永安镇中心卫生院发热门诊
2 月 19 日 （星期三）	与四川省人民政府召开第二次疫情防控座谈会
	考察四川省疾病预防控中心
	考察四川大学华西医院
2 月 20 日 （星期四）	考察成都市妇女儿童中心医院
	考察国药控股四川医药股份有限公司医药物流中心
	考察成都东站
	考察成都市公共卫生临床医疗中心
武汉（2 月 23 日）	
2 月 23 日 （星期日）	考察武汉同济医院光谷院区
	考察武汉体育中心方舱医院
	与湖北省联防联控机制有关部门召开疫情防控座谈会
	与国家卫生健康委马晓伟主任举行联合考察组反馈会
北京（2 月 24 日）	
2 月 24 日 （星期一）	召开中国—世界卫生组织新型冠状病毒肺炎联合考察组新闻发布会

附件 3：详细的技术调查结果

一、应急处置、病例和密切接触者管理、风险沟通与社区防控

中国应急体系基于现有的应急预案，在国家、省、市、县/区四级自上而下，迅速响应。

（一）组织结构与响应机制

启动国家级响应:宣布新冠肺炎暴发之后，立即启动了国务院联防联控机制，下设综合组、疫情防控组、医疗救治组、科研攻关组、宣传组、外事组、医疗物资保障组、生活物资保障组、社会稳定组等 9 个工作组。各工作组组长由正部级领导担任，制、修订应急处置相关法律法规，指导应急处置工作。

启动省级响应:每个省都建立了与国家类似的联防联控机制，国家、省、市、县/区和社区等多级联动。截至 1 月 29 日，中国各省均启动突发公共卫生事件一级响应。

（二）应对策略

中国政府制定了明确的战略和目标，在整个响应体系内进行贯彻实施。并在应对过程中，根据全国不同地区疫情形势和各地区特点，迅速进行适应和调整。

根据疫情形势将各地分为四类地区:

无病例地区的防控原则是“严防输入”。包括交通枢纽隔离检疫，体温监测，加强预检分诊，启用发热门诊，确保经济社会正常运转。

出现散发病例地区的防控原则是“减少输入、阻断传播，提供适当治疗”。

出现社区聚集性病例地区的防控原则是“阻断传播，严防输出，加强治疗”。

发生社区传播地区实施最严格的防控措施，禁止人员流入、流出，全面加强公共卫生和医疗救治措施。

（三）中国实施的主要防控措施

中国实施的主要控制措施如图 6A 至 6D 所示，分别代表国家、省级和市级的应对措施。

1. 监测与报告: 1 月 20 日，新冠肺炎被纳入法定报告传染病，发布诊断、监测和报告的方案。

2. 加强口岸检疫:海关启动全国口岸突发公共卫生事件应急预案，重新启动出入境健康申报卡制度，严格开展出入境旅客体温监测。

3. 加强治疗:对重症和危重症患者实施“四集中”原则：集中患者、集中专家、集中资源、集中救治。各市县对相关医院进行改造，增加定点医院数量，派遣医务人员，成立专家组进行会诊，将重症患者的死亡率降到最低。调动全国各地的医疗资源，支持救治武汉的患者。

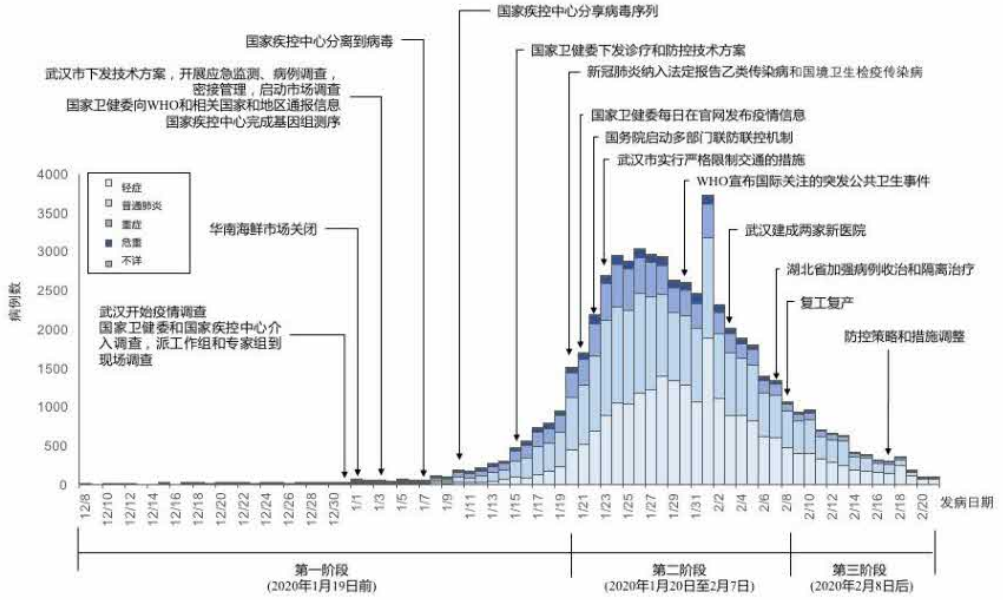
4. 流行病学调查与密切接触者管理:对确诊病例、聚集性病例和密切接触者开展详细流行病学调查，查明传染染源，并实施密切接触者追踪等有针对性的防控措施。

5. 减少公共活动，增加社交距离：国家层面：国务院延长 2020 年春节假期，全国各地取消或暂停体育赛事、影剧院等各项活动，全国各地推迟开学，企事业单位错开复工时间。交通部门在高速公路服务区及车站出入口设置数万个卫生检疫站。湖北省采取了最严格的交通管控措施，如暂停城市公共交通，包括地铁、轮渡和长途客运。所有人在公共场合都必须戴口罩，遵守居家规定。以上措施大大减少了公共活动。

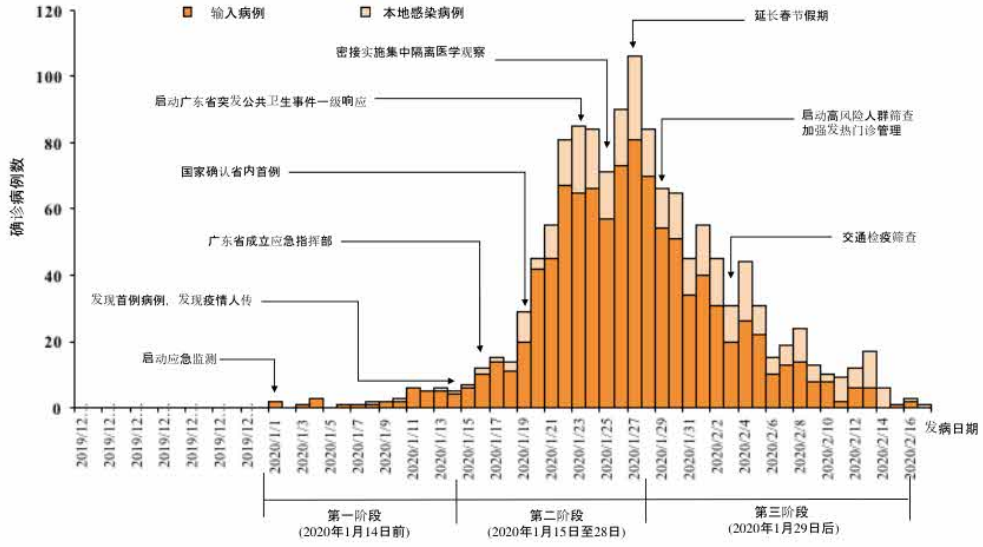
6. 资金与物资保障:医保支付救治费用，稳定医疗物资供应和价格，减轻群众个人负担，为受影响群众提供个人防护用品和基本生活物资。

7. 应急物资保障：政府号召恢复生产，组织已开工重点企业扩大产能，支持地方企业扩大进口，利用跨境电商平台和企业助力医疗物资进口，提升物资保障能力。

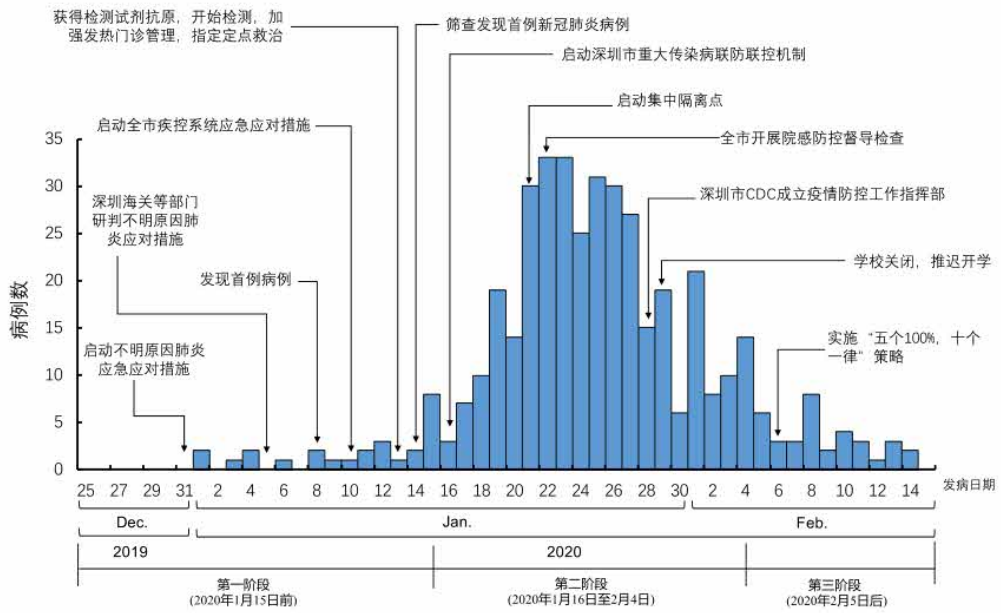
A


国家疾控中心分享病毒序列
国家疾控中心分离到病毒
国家卫健委下发诊疗和防控技术方案
武汉市下发技术方案，开展应急监测、病例调查，
密接管理，启动市场调查
新冠肺炎纳入法定报告乙类传染病和国境卫生检疫传染病
国家卫健委向WHO和相关国家和地区通报信息
国家疾控中心完成基因组测序
国家卫健委每日在官网发布疫情信息
国务院启动多部门联防联控机制
武汉市实行严格限制交通的措施
WHO宣布国际关注的突发公共卫生事件
轻症
普通肺炎
重症
危重
不详
华南海鲜市场关闭
武汉建成两家新医院
湖北省加强病例收治和隔离治疗
复工复产
武汉开始疫情调查
国家卫健委和国家疾控中心介
入调查，派工作组和专家组到
现场调查
防控策略和措施调整
病例数
发病日期
第一阶段
(2020年1月19日前)
第二阶段
(2020年1月20日至2月7日)
第三阶段
(2020年2月8日后)

B


输入病例
本地感染病例
延长春节假期
密接实施集中隔离医学观察
启动广东省突发公共卫生事件一级响应
启动高风险人群筛查
加强发热门诊管理
国家确认省内首例
广东省成立应急指挥部
交通检疫筛查
发现首例病例，发现疫情人传
启动应急监测
确诊病例例数
发病日期
第一阶段
(2020年1月14日前)
第二阶段
(2020年1月15日至28日)
第三阶段
(2020年1月29日后)

C



D

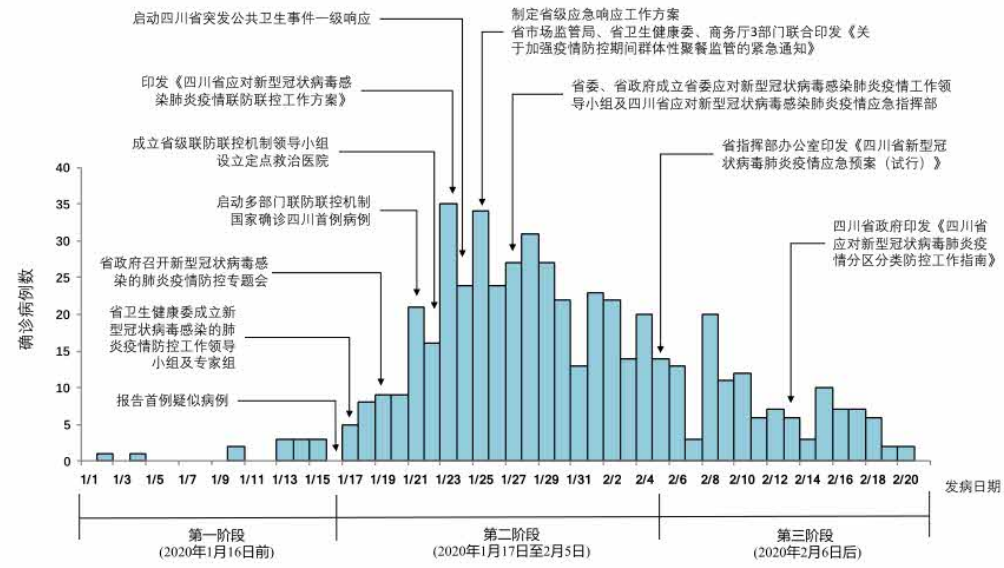


图 6 新冠肺炎疫情曲线及主要防控措施：A-全国；B-广东省；C-深圳市；D-四川省

（四）风险沟通（信息发布、公众和媒体沟通）

1. 开展国际及区域间合作、信息共享：从 1 月 3 日起，每天向世界卫生组织通报疫情信息。1 月 7 日确认病原体后，第一时间与世界卫生组织和国际社会共享了全部基因序列。1 月 10 日，港澳台专家组和世界卫生组织专家组应邀赴武汉实地考察。1 月 21 日，公布新型冠状病毒核酸检测引物和探针序列。

2. 每日更新信息:国家卫生健康委员会每天公布疫情信息并举行新闻发布会。政府经常性邀请专家分享新冠肺炎相关科学知识，回应公众关切。

3. 心理疏导:向患者和公众提供心理疏导服务。各级政府、非政府组织和社会各界编写紧急心理危机干预指导原则和公众心理自助与疏导辅导指南，开设心理健康服务热线。

4. 信息平台：中国利用信息技术、大数据和人工智能等手段，做好新冠肺炎疫情应对准备工作。发布权威可靠的信息和诊疗指南、提供在线诊疗服务、提供网络教学工具，开发并在全国范围使用远程办公工具。这些服务提高了医疗卫生资源的可及性，减少信息误报，最大限度减少虚假信息的影响。

（五）社会动员与社区参与

动员社会组织（社区工作站和卫生服务中心）参与疫情防控工作。大多数社区能落实防控措施，全面配合和落实居

民自我隔离和市民遵守管理措施的监督工作。组织社区志愿者，为居民自我隔离提供支持，帮助居家隔离的群众解决实际生活困难。实施以家庭为基础的管理措施，限制人口流动。目前，湖北以外，全国已有 30 个省对来自武汉的 500 多万人口进行了登记管理。

二、临床病例处置与感染控制

新冠肺炎的主要体征和症状包括发热、干咳、乏力、咳痰、气短、肌痛或关节痛、咽痛和头痛。一小部分患者(5%)报告恶心或呕吐。2 月 14 日，中国疾病预防控制中心介绍了 44672 例实验室确诊病例的临床特征、结果、实验室和影像学检查结果。其中只有 965 名患者(2.2%)年龄在 20 岁以下，该年龄段只有 1 人死亡(0.1%)。大部分患者(77.8%)年龄在 30 至 69 岁之间。80 岁以上患者的病死率为 14.8%。心血管疾病、糖尿病、慢性呼吸道疾病、高血压和癌症患者的病死率最高。

与 H1N1 不同的是，孕妇成为重症患者的风险似乎并不高。在对 147 名孕妇(64 名确诊，82 名疑似，1 名无症状)的调查中，8%的孕妇属于重症，1%的孕妇为危重症。

重症患者的定义为静息时气促(≥30 次呼吸/分钟)或氧饱和度≤93%或动脉血氧分压(PaO_2)/吸氧浓度(FiO_2)＜300mmHg，危重患者的定义为呼吸衰竭，需要机械通气、休克或其他器官衰竭，需要重症监护治疗。其中大约四分之一

的重症和危重症患者需要机械通气，剩余75%的仅需要氧气支持。

中国实行早发现、早隔离、早诊断、早治疗的“四早”防疫工作原则。尽早识别疑似病例对防控工作至关重要，可在机构、社区、交通场站(机场、火车站)、特别是医院的入口进行体温筛查和问询。SARS 暴发以来，不少医院设有发热门诊。根据早期的病例定义，进行实验室检测的疑似病例需要有与湖北或其他确诊病例的流行病学暴露史。然而，最近实行的临床诊疗方案，允许临床医生以较低的怀疑指数进行测试。

疑似病例在常压单人间隔离，戴外科口罩(用于源头控制)。工作人员须戴帽子、护目镜、N95 口罩、防护服及手套(一次性)。在武汉，大多数疑似病例需集中在常压隔离病房。工作人员持续穿着个人防护用品，只在离开病房时更换。

PCR 检测当天出结果。如果呈阳性，患者将被送往定点医院(一些城市采用负压救护车转运)。所有检测结果呈阳性的患者都被收治，包括轻症和无症状感染者。每个地区/县至少战略性的指定一家定点医院，名单向社会公开。阳性病例按性别分室居住。阴性患者根据临床需要进行管理。所有患者都进行了呼吸道病毒多重 PCR 核酸检测以确定其他诊断。此法可以提高新冠肺炎检测阴性患者排除新冠肺炎感染的可靠性。

武汉市共有 45 家定点医院，其中 6 家收治危重患者，39 家收治重症患者和年龄大于 65 岁以上患者。另外还有 10 家由体育馆和展览中心改建的临时医院，专门收治轻症患者。在武汉采取的其他快速床位扩增措施包括新建 2 所临时医院，拥有 2600 张床位，以及许多临时征用医院，以增加床位容量。武汉的床位容量已增加到 5 万张。

按照国家卫健委发布的新冠肺炎诊疗方案(第六版)治疗患者。目前，尚无经过证实的特异性抗病毒或免疫调节药物可改善预后。所有患者均接受常规脉搏血氧饱和度监测。诊疗方案内容包括按临床严重程度(轻症、普通型、重症和危重型)采取支持治疗，以及试验性治疗如磷酸氯喹、洛匹那韦/利托那韦、α 干扰素、利巴韦林、阿比多尔等。对危重患者应用插管/无创通气和 ECMO 可以提高其生存率。联合考察组成员在一家医院了解到，4 例患者使用 ECMO，其中 1 例死亡，3 例病情似乎有所好转。显然，ECMO 非常消耗医疗资源，卫生系统需要仔细权衡利弊。目前广泛使用中药治疗，对其疗效必须进行充分评估。

新冠肺炎患者不允许探视。工作人员穿戴连体工作服、面罩、护目镜、手套，仅在离开病房时脱下防护用品。

患者在临床康复后出院标准包括无发热＞3 天、症状消失且影像学表现明显改善，间隔 24 小时分别采样进行两次 PCR 核酸检测均为阴性。出院患者应尽量减少与家人和社会

的接触并佩戴口罩。新药临床试验结果有望在几周内发布，为治疗带来更多的可能。

中国针对养老院专门制定了养老院新冠肺炎防护指南，防止新冠肺炎传入养老院。

通过电视会议在全国开展大范围培训，指导实践及使用个人防护用品。专家组专家负责传播知识和提供本地的经验。

其他正常医疗活动由医院划分区域开展，如医疗机构设置分为清洁/污染区域等。

三、实验室检验、诊断与病毒学

1 月 7 日，首次从临床样本中分离获得新冠肺炎病毒。值得注意的是，在确定病毒病原后的 1-2 周内，即开发并部署了一系列可靠敏感的诊断工具。1 月 16 日，第一批新冠肺炎实时荧光 RT-PCR 试剂发往湖北。1 月 19 日实时荧光 RT-PCR 试剂盒发往中国大陆所有省份，且提供给香港特别行政区和澳门特别行政区。中国于 1 月 12 日与世界卫生组织和国际社会共享了病毒全基因组序列，PCR 引物和探针的信息，为了促进相关的产品开发和新病毒研究，将新冠肺炎病毒序列信息上传到 GISAID 数据库。

截至 2 月 23 日，国家药品监督管理局共审批 10 个种类的新冠肺炎检测试剂盒，包括 6 个 RT-PCR 试剂盒，1 个恒温扩增芯片法核酸检测试剂、1 个测序产品和 2 个胶体金抗

体检测试剂盒。其他一些检测试剂也已进入应急审批程序。现有至少 6 家本土 PCR 检测试剂盒生产商，每周可生产并发放多达 165 万人份的检测试剂。

同时采集上呼吸道（鼻咽部和咽部）和下呼吸道（深咳痰液、呼吸道吸出物和支气管肺泡灌洗）样本进行新冠病毒 PCR 检测。

呼吸道、粪便及血液样本中已检出新冠肺炎病毒。根据广州疾控中心原始数据，截至 2 月 20 日，新冠病毒可在症状出现前 1-2 日在上呼吸道首次检测到，在普通型患者中可持续 7-12 日，在重症患者中持续时间达 2 周。约有 30%的普通型患者在症状出现后第 5 日起，直至 4-5 周可在粪便中检测到病毒 RNA。然而，尚不清楚是否与病毒的传染性存在关联。同时，一些患者的粪便中也培养出活病毒，但其在粪-口传播中的作用尚不甚明确。

临床样本通过人呼吸道上皮细胞、Vero E6 和 Huh-7 细胞系分离出新冠病毒。

血清学诊断试剂正处于快速开发中，但尚未广泛应用。联合考察组成员在中国疾病预防控制中心和广州再生医学与健康广东实验室会见了当地的研究团队，他们向联合考察组报告了免疫组化及化学发光法的新冠病毒 IgM、IgG 和 IgM+IgG 快速检测研究进展。ELISA 检测试剂正在开发中。

四、研发

中国政府启动了病毒基因组学、抗病毒药物、中药、临床试验、疫苗、诊断和动物模型等一系列重大应急研究项目。研究涵盖基础研究和人体试验研究。就本报告的目的而言，研究仅限于涉及伦理审查委员会批准并知情同意的研究。其他类型的受试者调查放在本报告的流行病学部分。在疫情暴发的背景下进行的重点明确、结果可期的研究，通过确定预防、诊断和治疗疾病的最有效方法，有可能挽救许多生命。

由于新冠病毒与蝙蝠 SARS 样冠状病毒和穿山甲 SARS 样冠状病毒的基因组同源性分别为 96%和 86%-92%，因此蝙蝠很可能是 COVID-19 的动物源头。从武汉华南海鲜市场采集的大量 RT-PCR 阳性环境样本证实了这一点。

至少有 8 种直接检测 COVID-19 核酸的试剂盒和 2 种胶体金抗体检测试剂盒在中国获得了国家药品监督管理局（NMPA）的批准。其他一些检测试剂盒也即将获批。重要的是要比较这些已批准的试剂盒和未来的血清学方法的敏感性和特异性。如果可以将快速和准确的检测方法整合至目前市面上可及的多重呼吸道病毒检测中，将对开发目前在现场环境中表现较好的快速准确床边检测方法尤其有益。这将极大改善感染病人的早期识别与隔离，并扩大密切接触者的识别。快速 IgM 和 IgG 抗体检测对促进早期诊断同样重要。标准血清学检测可用于血清学调查背景下的回顾性诊断，有

助于更好的了解 COVID-19 感染的全疾病谱。

目前多种老药新用的药物和试验性药物已经被鉴定出来。通过筛选国家药品监督管理局（NMPA）批准的药物名录及其他化学库也发现了多种新型药剂。数以百计的临床实验包括瑞德西韦、磷酸氯喹、法匹拉韦、恢复期血浆、中医药以及其他干预措施等正在实施或者在计划中。快速完成这些研究中最重要的部分对于确定真正有效的治疗方法至关重要。然而，研究的评价工作需要有充足的人力、随机、对照试验以及符合实际的、科学的操作标准以及适当的患者分层。中国与其他地区开展相应的合作研究同样重要。

开发安全有效的呼吸道病毒疫苗是防治该病的重要手段。重组蛋白、mRNA、DNA、灭活全病毒和重组腺病毒疫苗目前正在研制中，一些疫苗已进入动物实验阶段。鉴于以往曾有灭活全病毒麻疹疫苗导致疾病严重效应以及 SARS 样冠状病毒疫苗在动物实验的类似报道，疫苗的安全性是冠状病毒感染研究的首要考虑。这些候选疫苗快速进入适当的临床试验也尤为重要。

研究病毒传播途径、发病机制、抗病毒治疗、疫苗和免疫应答的理想动物模型尚未找到。转人 ACE2 基因小鼠模型和恒河猴模型已在实验室中得到应用。系统地阐述哪些动物模型能够更加准确地模拟人类感染尤为重要。

口罩、手部卫生用品和其他个人防护用品在全球的需求

量激增。口罩、手卫生和减少公共活动等非药物措施需进一步研究量化其作用。

COVID-19 在家庭内传播有不同的传播模式。目前尚不清楚是否有遗传因素在内的宿主因素影响易感性或疾病进程。COVID-19 有多种临床病程，对病程的精确描述难以实现。此外，COVID-19 的长期后果尚不清楚。对确诊时登记的 COVID-19 患者（与适当的对照组）进行观察性队列研究将有助于提供关于 COVID-19 临床、病毒学及免疫学特征的深入信息。表 1 总结了优先研究领域的直接目标和长期目标。

直接目标	中间目标	长期目标
诊断：RNA 检测，抗体和抗原检测，床边诊断	诊断：多重诊断平台	诊断：预后标志物
治疗：瑞德西韦、法匹拉韦、氯喹、血浆、中医药	治疗：免疫球蛋白	治疗：创新疗法（CRISPR-CAS，RNA 干扰物；细胞学疗法；文库筛选活性化合物）
疫苗：动物模型	疫苗候选物：mRNA，病毒载体	疫苗候选物：灭活载体，亚单位载体

附件 4：现有知识局限

现有知识局限和防控策略关键问题包括：

一、传染源

1. 病毒的动物来源和天然宿主

2. 初始阶段的动物到人的感染过程

3. 早期暴露史不详的病例

二、致病机理与病毒毒力

三、传播动力学

1. 传播模式

（1）非医疗卫生环境中的气溶胶传播作用

（2）粪-口传播的作用

2. 疾病不同临床进程的不同类型标本的排毒情况(上、下呼吸道，唾液，粪便，尿液)

（1）发病前和无症状感染者

（2）症状期

（3）发病后/临床恢复期

四、感染风险因素

1. 行为与社会经济学危险因素

（1）家庭/机构

（2）社区

2. 无症状感染的危险因素

3. 院内感染的危险因素

（1） 医务人员之间

（2） 患者之间

五、监测与监控

1. 利用现有监测系统监控社区传播

（1）流感样病例监测系统

（2）严重急性呼吸道感染病例监测系统

2. 暴发趋势与干预动态

（1）流行各阶段的基本传播系数

（2）流行与季节性的关联

六、实验室检测与诊断

1. 不同核酸试剂盒（PCR、NAATs 和快速检测）、抗体和抗原检测方法的敏感性与特异性

2. 感染后抗体滴度变化与保护期限

3. 人群血清阳性水平

（1）医务人员

（2）一般人群

（3）儿童

七、重症与危重症患者临床管理

1. 体现体外膜肺氧合机（ECMO）在危重患者管理中的价值

2. 机械通气在危重患者管理中的最佳实践

3. 重新评估类固醇在重症与危重症患者治疗中的作用

4. 发现有效临床管理和疾病结果的相关因素

5. 确定中医药（TCM）的效用

6. 替代治疗方案的有效性（免疫球蛋白，康复者血浆等）

八、防控措施

1. 为循证防控策略决策与调整提供信息的关键流行病学指标

2. 各种医疗环境中感染预防与控制（IPC）措施的有效性

3. 出入境筛查的有效性

4. 公共卫生控制措施的有效性及其社会经济学影响

（1） 限制行动

（2） 扩大社交距离

（3） 关闭学校和工作场所

（4） 公共场所佩戴口罩

（5） 强制隔离

（6） 主动监测下的自愿隔离

附件 5：操作和技术建议

一、操作/规划建议

(一) 根据疫情的不同阶段重新评估风险和能力，在不同阶段采取不同的措施，评估应对的不同阶段，在应对与社会发展之间取得平衡

(二) 在政府强有力的领导下，建立及时、科学、有效、灵活的多部门联防联控机制

二、技术建议

（一）流行病学和传播

1. 通过现有的呼吸道疾病监测系统，包括 ILI、SARI 或肺炎监测系统，在全国范围内继续加强监测

2. 优先开展早期调查，包括家庭传播特征研究、儿童等不同年龄人群血清流行病学调查、病例对照研究、聚集性病例调查和医务人员血清学研究

（二）严重程度

1. 继续进行病例管理、疾病进程以及不同临床结局相关因素的信息共享

2. 分析研究与疾病严重程度相关的可能因素，包括:

（1） 研究疾病自然史，更为深入地认识轻度，重度和致命患者的疾病进程

（2）根据病例诊疗病案信息，回顾弱势群体，例如有基础性疾病的人群，老年人，孕妇和儿童等的严重程度，制定合适的诊疗护理标准

（3） 评估早发现、早治疗等产生积极结果的因素

（三）临床诊疗与感染防控

1. 疑似患者（未采样检测）应单间隔离。可将检测结果阳性的病例安排在一个房间。

2. 医生和所有医务人员需要对新冠肺炎保持高度警惕

3. 对于受影响的国家，根据当地专家人数和规模，开展标准化临床照护及 IPC 培训

4. 同时开展其他病毒病原体检测，以确保支持新冠肺炎检测阴性结果

5. 确保疫情期间维持常规和基本医疗服务

6. 确保落实老年人等最弱势群体预防感染的流程

7. 确保做好提供临床治疗和满足院内感染防控需求的准备

（1） 提前准备呼吸支持，例如脉搏血氧仪，氧气和适当的侵入性支持

（2） 修订新冠肺炎的国家临床照护和院内感染防控指南

（3） 在全国开展标准化培训，统一对疾病的认识，及医务人员使用个人防护装备

（4） 社区参与

（5） 储备个人防护装备和药物

（6） 制定早期发现应对方案，包括预检分诊，体温筛查，设置等待区（包括分诊、脉搏血氧测定）

（7） 制定诊疗方案，包括设置定点医院和患者转运

（8） 制定国家指南，加强流感和肺炎球菌疫苗接种

（9） 开展实验室检测

（10） 组建快速反应小组

（四）实验室检验与病毒学

1. 继续对不同时间和地点分离的病毒进行全基因组分析，掌握病毒进化特点。

2. 采用新冠肺炎患者活体或尸检标本，或受感染的动物模型进行致病机理研究。

3. 评估现有的 PCR 诊断试剂盒。

4. 快速开发和评估快速/定量血清学诊断方法。

5. 开展深入研究，解释新冠肺炎康复患者粪便中检测出新冠肺炎核酸阳性的意义。

6. 加强国际合作，重视生物安全和信息共享，深入认识新型冠状病毒，做好病毒溯源。

7. 考虑采用多重检测方法监测促炎细胞因子水平，预测“细胞因子风暴”的出现。

（五）研究与开发

1. 应进一步加大力度寻找病毒天然宿主和任何可能的中间宿主的动物，以防止出现任何新的疫源地或疫情复发。

2. 应建立统一的实验室检测标准和可用于评估的生物储存库，以完成对现有和未来的新冠肺炎诊断方法的一致性评估。

3. 应考虑在中国建立集中的研究项目以统筹并确保最有希望的研究（疫苗、治疗、发病机制）得到充分的支持并具有研究优先权。为减少现场临床人员的研究性工作量，参与此项目的科研人员应在临床研究现场工作。

4. 应考虑将中国一个或多个地区纳入已开展或将要开展的多中心全球性试验计划，中方研究人员应该积极参与此类国际试验。

5. 应继续开发其他动物模型，并尽力确保动物模型高度模拟人类感染和病毒传播模式。

6. 应开展个人防护装备（PPE）阻断新冠肺炎传播的有效性研究。

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From: Dr VAN KERKHOVE, Maria
Sent: Sun, 1 Mar 2020 21:27:39 +0000
To: Alexander Semenov
Cc: Lane, Cliff (NIH/NIAID) [E];AYLWARD, Raymond Bruce J.;Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Zhou, Weigong (CDC/DDID/NCIRD/ID);Dale FISHER (mdcfda@nus.edu.sg);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);LEE Jong-Koo (docmohw@snu.ac.kr);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Tim ECKMANNS (EckmannsT@rki.de);XING, Jun;gmleung;Zunyou Wu;(SPmig) LEI (b)(6)
Subject: Re: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19

I would suggest to replace the bullet with:

- truly **asymptomatic** infection is unknown without serology, but appears to be rare using molecular testing (e.g. <1% of reported cases)

From: Alexander Semenov <(b)(6)
Date: Sunday, 1 March 2020 at 20:48
To: Maria Van Kerkhove <vankerkhovem@who.int>
Cc: Cliff Lane <clane@niaid.nih.gov>, "AYLWARD, Raymond Bruce J." <aylwardb@who.int>, "chikwe.ihekweazu@ncdc.gov.ng" <chikwe.ihekweazu@ncdc.gov.ng>, "Zhou, Weigong (CDC/DDID/NCIRD/ID)" <waz6@CDC.GOV>, Dale Fisher <mdcfda@nus.edu.sg>, "Dr Hitoshi TAKAHASHI (takajin@nih.go.jp)" <takajin@nih.go.jp>, "LEE Jong-Koo (docmohw@snu.ac.kr)" <docmohw@snu.ac.kr>, "Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru)" <natalia-pshenichnaya@yandex.ru>, "eckmannst@rki.de" <EckmannsT@rki.de>, "XING, Jun" <xingj@who.int>, Gabriel Leung <gmleung@hku.hk>, Zunyou Wu (b)(6)>, "(SPmig) LEI ZHOU" <zhoulei@chinacdc.cn>, (b)(6) (b)(6) "liangwn@nhc.gov.cn" <liangwn@nhc.gov.cn>, (b)(6) (b)(6)
Subject: Re: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19

Dear all,
Absolutely agree with Maria. Let's wait for any serosurvey results. After that will be reasonableto make some concussions about real asymptomatic careers.

вс, 1 мар. 2020 г., 22:44 Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>:

Hi everyone,

Dear Cliff, I actually sent a message to Bruce about this!

The question I have is :

1) on the one hand, what we heard was that 1.2% of cases were asymptomatic at the time of reporting, but that many (up to 75%?) developed symptoms within a few days, so truly asymptomatic cases are rare.

2) on the other hand, without serologic surveys, we do not know the extent of asymptomatic/sub-clinical infection.

What do others think?

Thanks,
Maria

> On 1 Mar 2020, at 20:36, Lane, Cliff (NIH/NIAID) [E] <clane@niaid.nih.gov> wrote:
>
> Bruce,
>
> All looks good.
>
> My only suggestion would be to include a bullet on transmission from asymptomatic individuals. I defer to the epidemiologists on what might be most appropriate to say based upon what we heard.
>
> Cliff

From: Bruce Aylward <aylwardb@who.int>
Date: Sunday, March 1, 2020 at 1:42 PM
To: Alexander SEMENOV (b)(6), "Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng)" <chikwe.ihekweazu@ncdc.gov.ng>, "Lane, Cliff (NIH/NIAID) [E]" <clane@niaid.nih.gov>, "Zhou, Weigong (CDC/DDID/NCIRD/ID)" <waz6@CDC.GOV>, "Dale FISHER (mdcfda@nus.edu.sg)" <mdcfda@nus.edu.sg>, "Dr Hitoshi TAKAHASHI (takajin@nih.go.jp)" <takajin@nih.go.jp>, Jong-koo Lee <docmohw@snu.ac.kr>, "Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru)" <natalia-pshenichnaya@yandex.ru>, "Tim ECKMANNS (EckmannsT@rki.de)" <EckmannsT@rki.de>, "XING, Jun" <xingj@who.int>, gmleung <gmleung@hku.hk>
Cc: Maria VAN KERKHOVE <vankerkhovem@who.int>, Zunyou Wu <wuzy@263.net>, "(SPmig) LEI ZHOU" <zhoulei@chinacdc.cn>, (b)(6) (b)(6) "liangwn@nhc.gov.cn" <liangwn@nhc.gov.cn>, (b)(6) (b)(6)
Subject: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19

Dear International Members of the Joint Mission,

Clearly I need to get more sleep! Maria just pointed out that I had forgotten to send the attachments – please find the message/attachments again here:

I trust (hope!) that everyone remains in good health as you approach Day 7 since your departures from China. (b)(6) (b)(6) thanks to the good care of our Chinese hosts).

Congratulations to those of you who have been on the frontlines of managing new cases and importations such as Chikwe in Nigeria.

I'm writing tonight to share with you three things:

1. the official **Chinese version of the Joint Mission report** that WHO received from the National Health Commission and which will be posted on our site;

2. the **WHO website links for the English version** of the report in case helpful:
   - in the section of WHO Coronavirus page: https://www.who.int/emergencies/diseases/novel-coronavirus-2019
   - direct link to the report in English: https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf

3. a **short overview presentation** I quickly put together to share some of the key findings of the report in a VC with RD/WPRO and the WPRO Ministers of Health on Friday morning.

Please note, **I have added 3 slides on 'key epi/technical insights'** from our Mission to the end of the presentation. Maria and I put these together and WU Zunyou did a quick check/correction of them earlier this evening for us. **I would be most grateful if you might have a look at the 3 'technical insight' slides and provide any thoughts/corrections from your side**. I am not trying to be comprehensive but just to find a few key points that are important to understanding the evolving epi and containment impact in China.

I have also cc'd Dr LIANG, Dr WANG Bin, Dr Wu Zunyou and Dr Zhou Lei so that they can 'hear' the conversation (where all of them remain in quarantine at the Presidential Hotel in Beijing….).

With very best regards to all,

Bruce

From: AYLWARD, Raymond Bruce J.
Sent: Friday, February 28, 2020 10:58
To: GHEBREYESUS, Tedros Adhanom <drtedros@who.int>
Cc: KASAI, Takeshi <kasait@who.int>; GALEA, Gauden <galeag@who.int>; (b)(6) liangwn@nhc.gov.cn; liangwn@nhc.gov.cn; (b)(6) LI Juan (lijuan@nhc.gov.cn) <lijuan@nhc.gov.cn>; zhangyang@nhc.gov.cn; Alexander SEMENOV (b)(6) (b)(6); Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; RYAN, Michael J. <ryanm@who.int>; SCHWARTLANDER, Bernhard F. <schwartlanderb@who.int>; MINHAS, Raman <minhasr@who.int>; SNIDER, Paige Anne <sniderp@who.int>; ALEXANDER, Nyka <alexandern@who.int>; STERN, Gabriella <sterng@who.int>
Subject: NEW - FOR PUBLIC RELEASE: WHO-China Joint Mission on COVID-19
Importance: High

Dr Tedros & colleagues,

Our eagle-eyed counterparts spotted a tiny edit I had inadvertently overlooked in the version just sent (an updated section now has six sub-sections but I had forgotten to say '6' instead of '5' in the preambular para).

I would be most grateful if the attached version be used as the 'final final' (with time stamp of 1100hr in the file name).

Apologies to all for any inconvenience.

Bruce

From: AYLWARD, Raymond Bruce J.
Sent: Friday, February 28, 2020 10:22
To: GHEBREYESUS, Tedros Adhanom <drtedros@who.int>
Cc: KASAI, Takeshi <kasait@who.int>; (b)(6) liangwn@nhc.gov.cn; liangwn@nhc.gov.cn; (b)(6) LI Juan (lijuan@nhc.gov.cn) <lijuan@nhc.gov.cn>; zhangyang@nhc.gov.cn; Alexander SEMENOV (b)(6) m>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE

(cliff.lane@nih.gov) <cliff.lane@nih.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; RYAN, Michael J. <ryanm@who.int>; SCHWARTLANDER, Bernhard F. <schwartlanderb@who.int>; MINHAS, Raman <minhasr@who.int>; SNIDER, Paige Anne <sniderp@who.int>; ALEXANDER, Nyka <alexandern@who.int>; STERN, Gabriella <sterng@who.int>
Subject: FOR PUBLIC RELEASE: WHO-China Joint Mission on COVID-19
Importance: High

Dear Dr Tedros,

It is my honor to share with you the attached, final version of the ***Report of the WHO-China Joint Mission on COVID-19***, on behalf of myself, my Co-Lead Dr LIANG Wannian, our Deputy Team Leader Dr WANG Bin, and the entire Joint Team of Chinese national and international members.

I am pleased to inform you that in the 24 hours since sharing a preliminary version of this report, the China and international members have fully aligned the language of the English and Chinese versions, allowing the release of both versions today.

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It is our common hope and belief that the findings contained herein can inform the global work you are leading to stem the ongoing international spread of COVID-19.

Regards

Bruce

From: Dr VAN KERKHOVE, Maria
Sent: Sun, 1 Mar 2020 21:46:26 +0000
To: Alexander Semenov
Cc: Lane, Cliff (NIH/NIAID) [E];AYLWARD, Raymond Bruce J.;Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Zhou, Weigong (CDC/DDID/NCIRD/ID);Dale FISHER (mdcfda@nus.edu.sg);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);LEE Jong-Koo (docmohw@snu.ac.kr);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Tim ECKMANNS (EckmannsT@rki.de);XING, Jun;gmleung;Zunyou Wu;(SPmig) LEI (b)(6)
Subject: Re: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19
Attachments: COVID Joint Mission Findings - at 29Feb2020_MVK.pptx

Dear colleagues,

Some minor edits in the attached for consideration.

Thanks,
Maria

From: Alexander Semenov <(b)(6)
Date: Sunday, 1 March 2020 at 20:48
To: Maria Van Kerkhove <vankerkhovem@who.int>
Cc: Cliff Lane <clane@niaid.nih.gov>, "AYLWARD, Raymond Bruce J." <aylwardb@who.int>, "chikwe.ihekweazu@ncdc.gov.ng" <chikwe.ihekweazu@ncdc.gov.ng>, "Zhou, Weigong (CDC/DDID/NCIRD/ID)" <waz6@CDC.GOV>, Dale Fisher <mdcfda@nus.edu.sg>, "Dr Hitoshi TAKAHASHI (takajin@nih.go.jp)" <takajin@nih.go.jp>, "LEE Jong-Koo (docmohw@snu.ac.kr)" <docmohw@snu.ac.kr>, "Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru)" <natalia-pshenichnaya@yandex.ru>, "eckmannst@rki.de" <EckmannsT@rki.de>, "XING, Jun" <xingj@who.int>, Gabriel Leung <gmleung@hku.hk>, Zunyou Wu <wuzy@263.net>, "(SPmig) LEI ZHOU" <zhoulei@chinacdc.cn>, (b)(6) (b)(6) "liangwn@nhc.gov.cn" <liangwn@nhc.gov.cn>, (b)(6) (b)(6)
Subject: Re: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19

Dear all,
Absolutely agree with Maria. Let's wait for any serosurvey results. After that will be reasonableto make some concussions about real asymptomatic careers.

вс, 1 мар. 2020 г., 22:44 Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>:

> Hi everyone,
>
> Dear Cliff, I actually sent a message to Bruce about this!

The question I have is :

1) on the one hand, what we heard was that 1.2% of cases were asymptomatic at the time of reporting, but that many (up to 75%?) developed symptoms within a few days, so truly asymptomatic cases are rare.

2) on the other hand, without serologic surveys, we do not know the extent of asymptomatic/sub-clinical infection.

What do others think?

Thanks,
Maria

On 1 Mar 2020, at 20:36, Lane, Cliff (NIH/NIAID) [E] <clane@niaid.nih.gov> wrote:

Bruce,

All looks good.

My only suggestion would be to include a bullet on transmission from asymptomatic individuals. I defer to the epidemiologists on what might be most appropriate to say based upon what we heard.

Cliff

From: Bruce Aylward <aylwardb@who.int>
Date: Sunday, March 1, 2020 at 1:42 PM
To: Alexander SEMENOV <(b)(6)> "Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng)" <chikwe.ihekweazu@ncdc.gov.ng>, "Lane, Cliff (NIH/NIAID) [E]" <clane@niaid.nih.gov>, "Zhou, Weigong (CDC/DDID/NCIRD/ID)" <waz6@CDC.GOV>, "Dale FISHER (mdcfda@nus.edu.sg)" <mdcfda@nus.edu.sg>, "Dr Hitoshi TAKAHASHI (takajin@nih.go.jp)" <takajin@nih.go.jp>, Jong-koo Lee <docmohw@snu.ac.kr>, "Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru)" <natalia-pshenichnaya@yandex.ru>, "Tim ECKMANNS (EckmannsT@rki.de)" <EckmannsT@rki.de>, "XING, Jun" <xingj@who.int>, gmleung <gmleung@hku.hk>
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(b)(6)

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Dear International Members of the Joint Mission,

Clearly I need to get more sleep! Maria just pointed out that I had forgotten to send the attachments – please find the message/attachments again here:

I trust (hope!) that everyone remains in good health as you approach Day 7 since your departures from China. (b)(6) – (b)(6) (thanks to the good care of our Chinese hosts).

Congratulations to those of you who have been on the frontlines of managing new cases and importations such as Chikwe in Nigeria.

I'm writing tonight to share with you three things:

1. the official **Chinese version of the Joint Mission report** that WHO received from the National Health Commission and which will be posted on our site;

2. the **WHO website links for the English version** of the report in case helpful:
   - in the section of WHO Coronavirus page: https://www.who.int/emergencies/diseases/novel-coronavirus-2019
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3. a **short overview presentation** I quickly put together to share some of the key findings of the report in a VC with RD/WPRO and the WPRO Ministers of Health on Friday morning.

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I have also cc'd Dr LIANG, Dr WANG Bin, Dr Wu Zunyou and Dr Zhou Lei so that they can 'hear' the conversation (where all of them remain in quarantine at the Presidential Hotel in Beijing….).

With very best regards to all,

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Cc: KASAI, Takeshi <kasait@who.int>; (b)(6) liangwn@nhc.gov.cn; liangwn@nhc.gov.cn; (b)(6) LI Juan (lijuan@nhc.gov.cn)

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Regards

Bruce

(b)(4)

(b)(4)

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(b)(4)

(b)(4)

(b)(4)

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From: AYLWARD, Raymond Bruce J.
Sent: Sun, 1 Mar 2020 22:00:16 +0000
To: Zhou, Weigong (CDC/DDID/NCIRD/ID);Alexander SEMENOV (b)(6);Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Clifford LANE (cliff.lane@nih.gov);Dale FISHER (mdcfda@nus.edu.sg);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);LEE Jong-Koo (docmohw@snu.ac.kr);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Tim ECKMANNS (EckmannsT@rki.de);XING, Jun;gmleung
Cc: Dr VAN KERKHOVE, Maria;Zunyou Wu;(SPmig) LEI (b)(6)
Subject: RE: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19

Good points both – just going for simplicity of messaging that people can remember (I usually say 'about 15%' and 'about 5%). Will be clearer.

Re the diagram – agree as well – we need to get this designed properly. B

From: Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>
Sent: Sunday, March 1, 2020 21:49')
To: AYLWARD, Raymond Bruce J. <aylwardb@who.int>; Alexander SEMENOV (b)(6) <(b)(6)>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>
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Subject: RE: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19

One more quick not on slide 11. The proportions for severe and critical are reported at 13.8% and 6.1%, respectively in the joint mission report. So the 15% and 5% on slide 11 should be changed to 14% and 6%, respectively.

Thanks,
Weigong

From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Sunday, March 1, 2020 3:39 PM
To: AYLWARD, Raymond Bruce J. <aylwardb@who.int>; Alexander SEMENOV (b)(6) (b)(6); Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung

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Subject: RE: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19

Dear Bruce, Maria, and all,

I still think (b)(5) (b)(5) I thought this was pointed out during our discussion on Sunday. The suggested change was (b)(5) (b)(5)

Thanks,
Weigong

From: AYLWARD, Raymond Bruce J. <aylwardb@who.int>
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To: Alexander SEMENOV ([(b)(6)] <[(b)(6)]>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>
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It is our common hope and belief that the findings contained herein can inform the global work you are leading to stem the ongoing international spread of COVID-19.

Regards

Bruce

From: Dale Fisher
Sent: Mon, 2 Mar 2020 04:59:31 +0000
To: Dr VAN KERKHOVE, Maria;Alexander Semenov
Cc: Lane, Cliff (NIH/NIAID) [E];AYLWARD, Raymond Bruce J.;Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Zhou, Weigong (CDC/DDID/NCIRD/ID);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);LEE Jong-Koo (docmohw@snu.ac.kr);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Tim ECKMANNS (EckmannsT@rki.de);XING, Jun;gmleung;Zunyou Wu;(SPmig) LEI (b)(6)
Subject: RE: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19

Thanks all these are helpful

From: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Sent: Monday, 2 March 2020 5:46 AM
To: Alexander Semenov (b)(6)
Cc: Lane, Cliff (NIH/NIAID) [E] <clane@niaid.nih.gov>; AYLWARD, Raymond Bruce J. <aylwardb@who.int>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@CDC.GOV>; Dale Fisher <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>; Zunyou Wu <wuzy@263.net>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>; (b)(6) liangwn@nhc.gov.cn; (b)(6)
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- External Email -

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Cc: KASAI, Takeshi <kasait@who.int>; GALEA, Gauden <galeag@who.int>; (b)(6) liangwn@nhc.gov.cn; liangwn@nhc.gov.cn; (b)(6) LI Juan (lijuan@nhc.gov.cn) <lijuan@nhc.gov.cn>; zhangyang@nhc.gov.cn; Alexander SEMENOV (b)(6) (b)(6) >; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; RYAN, Michael J. <ryanm@who.int>; SCHWARTLANDER, Bernhard F. <schwartlanderb@who.int>; MINHAS, Raman <minhasr@who.int>; SNIDER, Paige Anne <sniderp@who.int>; ALEXANDER, Nyka <alexandern@who.int>; STERN, Gabriella <sterng@who.int>
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From: AYLWARD, Raymond Bruce J.
Sent: Mon, 2 Mar 2020 19:30:49 +0000
To: gmleung;Dr VAN KERKHOVE, Maria
Cc: Alexander Semenov;Lane, Cliff (NIH/NIAID) [E];Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Zhou, Weigong (CDC/DDID/NCIRD/ID);Dale FISHER (mdcfda@nus.edu.sg);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);LEE Jong-Koo (docmohw@snu.ac.kr);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Tim ECKMANNS (EckmannsT@rki.de);XING, Jun;Zunyou Wu;(SPmig) LEI
(b)(6)
Subject: RE: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19

Indeed – good point, esp for planning.

But the milds also require isolation.

B

From: Gabriel Leung <gmleung@hku.hk>
Sent: Monday, March 2, 2020 02:15
To: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Cc: Alexander Semenov <(b)(6) Lane, Cliff (NIH/NIAID) [E] <clane@niaid.nih.gov>; AYLWARD, Raymond Bruce J. <aylwardb@who.int>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; Zunyou Wu <wuzy@263.net>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>; (b)(6) liangwn@nhc.gov.cn; (b)(6)
Subject: Re: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19

This version looks fine to me, except perhaps we should distinguish further between mild and moderate rather than lumping them together as 80%. Moderate actually refers to those with pneumonia, which require hospitalisation as opposed to truly mild cases.

Gabriel

Gabriel M Leung 梁卓偉
Dean of Medicine
Helen and Francis Zimmern Professor in Population Health

T +852 3917 9210 | F +852 2818 7562
6/F, William MW Mong Block, 21 Sassoon Road, Pokfulam, Hong Kong

HKU Med LKS Faculty of Medicine
The University of Hong Kong
香港大學李嘉誠醫學院

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Cc: KASAI, Takeshi <kasait@who.int>; (b)(6) liangwn@nhc.gov.cn; liangwn@nhc.gov.cn; (b)(6) LI Juan (lijuan@nhc.gov.cn) <lijuan@nhc.gov.cn>; zhangyang@nhc.gov.cn; Alexander SEMENOV (b)(6) (b)(6) >; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; RYAN, Michael J. <ryanm@who.int>; SCHWARTLANDER, Bernhard F. <schwartlanderb@who.int>; MINHAS, Raman <minhasr@who.int>; SNIDER, Paige

Anne <sniderp@who.int>; ALEXANDER, Nyka <alexandern@who.int>; STERN, Gabriella <sterng@who.int>
Subject: FOR PUBLIC RELEASE: WHO-China Joint Mission on COVID-19
Importance: High

Dear Dr Tedros,

It is my honor to share with you the attached, final version of the ***Report of the WHO-China Joint Mission on COVID-19***, on behalf of myself, my Co-Lead Dr LIANG Wannian, our Deputy Team Leader Dr WANG Bin, and the entire Joint Team of Chinese national and international members.

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It is our common hope and belief that the findings contained herein can inform the global work you are leading to stem the ongoing international spread of COVID-19.

Regards

Bruce

From: Dr VAN KERKHOVE, Maria
Sent: Mon, 2 Mar 2020 22:38:00 +0000
To: docmohw
Cc: AYLWARD, Raymond Bruce J.;Alexander SEMENOV (alexvsemeno;Chikwe IHEKWEAZU (chikwe.ihekw;Clifford LANE (cliff.lane@nih.;Zhou, Weigong (CDC/DDID/NCIRD/ID);Dale FISHER (mdcfda@nus.edu.sg;Dr Hitoshi TAKAHASHI (takajin@;Natalia PSHENICHNAYA (natalia-;Tim ECKMANNS (EckmannsT@rki.de;XING, Jun;gmleung;Zunyou Wu;(SPmig) LEI
(b)(6)
Subject: Re: Possible SPAM detected: RE: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19

All of us are learning from each other.
We are all behind you Prof Lee! Korea can win this fight!

On 2 Mar 2020, at 23:11, docmohw <docmohw@snu.ac.kr> wrote:

Absolutely
Joint mission observation is very helpful for Korea to go a right way to win the war
JK
삼성 갤럭시 스마트폰에서 보냈습니다.
-------- 원본 이메일 --------
발신: "AYLWARD, Raymond Bruce J." <aylwardb@who.int>
날짜: 20/3/3 04:32 (GMT+09:00)
받은 사람: docmohw@snu.ac.kr, "Alexander SEMENOV (alexvsemeno" (b)(6) >, "Chikwe IHEKWEAZU (chikwe.ihekw" <chikwe.ihekweazu@ncdc.gov.ng>, "Clifford LANE (cliff.lane@nih." <cliff.lane@nih.gov>, "Zhou Weigong (CDC/DDID/NCIRD/" <waz6@cdc.gov>, "Dale FISHER (mdcfda@nus.edu.sg" <mdcfda@nus.edu.sg>, "Dr Hitoshi TAKAHASHI (takajin@" <takajin@nih.go.jp>, "Natalia PSHENICHNAYA (natalia-" <natalia-pshenichnaya@yandex.ru>, "Tim ECKMANNS (EckmannsT@rki.de" <EckmannsT@rki.de>, "XING, Jun" <xingj@who.int>, gmleung <gmleung@hku.hk>
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제목: RE: Possible SPAM detected: RE: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19

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From: docmohw@snu.ac.kr <docmohw@snu.ac.kr>
Sent: Monday, March 2, 2020 00:53
To: AYLWARD, Raymond Bruce J. <aylwardb@who.int>; "Alexander SEMENOV (alexvsemeno" [(b)(6)] "Chikwe IHEKWEAZU (chikwe.ihekw" <chikwe.ihekweazu@ncdc.gov.ng>; "Clifford LANE (cliff.lane@nih." <cliff.lane@nih.gov>; "Zhou Weigong (CDC/DDID/NCIRD/" <waz6@cdc.gov>; "Dale FISHER (mdcfda@nus.edu.sg" <mdcfda@nus.edu.sg>; "Dr Hitoshi TAKAHASHI (takajin@" <takajin@nih.go.jp>; "LEE Jong-Koo (docmohw@snu.ac.k" <docmohw@snu.ac.kr>; "Natalia PSHENICHNAYA (natalia-" <natalia-pshenichnaya@yandex.ru>; "Tim ECKMANNS (EckmannsT@rki.de" <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>
Cc: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; Zunyou Wu <wuzy@263.net>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>; [(b)(6)]" [(b)(6)]; "liangwn@nhc.gov.cn" <liangwn@nhc.gov.cn>; "[(b)(6)] [(b)(6)]
Subject: Possible SPAM detected: RE: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19

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I attach summery of press briefing and informal contact of KCDC staffs for your understanding only

Thanks for your advice and WHO colleagues

Jong-koo LEE MD, MPH, PhD

Director, Center for Healthy Society and Education

Professor, Department of Family Medicine

Seoul National University College of Medicine

Ihwajang-gil 71, Jongno-gu, Seoul, 110-810, Republic of Korea

Tel +82-2-740-8867, +82-2-3668-7350

Fax +82-2-766-1185

email : docmohw@snu.ac.kr; (b)(6)

---------- 원본 메일 ----------

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받는사람 : "Alexander SEMENOV (alexvsemeno" (b)(6) "Chikwe IHEKWEAZU (chikwe.ihekw" <chikwe.ihekweazu@ncdc.gov.ng>, "Clifford LANE (cliff.lane@nih." <cliff.lane@nih.gov>, "Zhou, Weigong (CDC/DDID/NCIRD/" <waz6@cdc.gov>, "Dale FISHER (mdcfda@nus.edu.sg" <mdcfda@nus.edu.sg>, "Dr Hitoshi TAKAHASHI (takajin@" <takajin@nih.go.jp>, "LEE Jong-Koo (docmohw@snu.ac.k" <docmohw@snu.ac.kr>, "Natalia PSHENICHNAYA (natalia-" <natalia-pshenichnaya@yandex.ru>, "Tim ECKMANNS (EckmannsT@rki.de" <EckmannsT@rki.de>, "XING, Jun" <xingj@who.int>, gmleung <gmleung@hku.hk>

참조 : "Dr VAN KERKHOVE, Maria" <vankerkhovem@who.int>, Zunyou Wu (b)(6) >, "(SPmig) LEI ZHOU" <zhoulei@chinacdc.cn>, (b)(6) (b)(6) "liangwn@nhc.gov.cn" <liangwn@nhc.gov.cn>, (b)(6) (b)(6)

받은날짜 : 2020-03-02 (월) 03:44:04

제목 : WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19

Dear International Members of the Joint Mission,

Clearly I need to get more sleep! Maria just pointed out that I had forgotten to send the attachments – please find the message/attachments again here:

I trust (hope!) that everyone remains in good health as you approach Day 7 since your departures from China. I have now had a 2nd test here in Geneva and am – of course – negative (thanks to the good care of our Chinese hosts).

Congratulations to those of you who have been on the frontlines of managing new cases and importations such as Chikwe in Nigeria.

I'm writing tonight to share with you three things:

1. the official **Chinese version of the Joint Mission report** that WHO received from the National Health Commission and which will be posted on our site;

2. the **WHO website links for the English version** of the report in case helpful:
    - in the section of WHO Coronavirus page: https://www.who.int/emergencies/diseases/novel-coronavirus-2019
    - direct link to the report in English: https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf

3. a **short overview presentation** I quickly put together to share some of the key findings of the report in a VC with RD/WPRO and the WPRO Ministers of Health on Friday morning.

Please note, **I have added 3 slides on 'key epi/technical insights'** from our Mission to the end of the presentation. Maria and I put these together and WU Zunyou did a quick check/correction of them earlier this evening for us. **I would be most grateful if you might have a look at the 3 'technical insight' slides and provide any thoughts/corrections from your side**. I am not trying to be comprehensive but just to find a few key points that are important to understanding the evolving epi and containment impact in China.

I have also cc'd Dr LIANG, Dr WANG Bin, Dr Wu Zunyou and Dr Zhou Lei so that they can 'hear' the conversation (where all of them remain in quarantine at the Presidential Hotel in Beijing….).

With very best regards to all,

Bruce

From: AYLWARD, Raymond Bruce J.
Sent: Friday, February 28, 2020 10:58
To: GHEBREYESUS, Tedros Adhanom <drtedros@who.int>
Cc: KASAI, Takeshi <kasait@who.int>; GALEA, Gauden <galeag@who.int>; (b)(6); liangwn@nhc.gov.cn; liangwn@nhc.gov.cn; (b)(6); LI Juan (lijuan@nhc.gov.cn) <lijuan@nhc.gov.cn>; zhangyang@nhc.gov.cn; Alexander SEMENOV (b)(6); Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; RYAN, Michael J. <ryanm@who.int>; SCHWARTLANDER, Bernhard F. <schwartlanderb@who.int>; MINHAS, Raman <minhasr@who.int>; SNIDER, Paige Anne <sniderp@who.int>; ALEXANDER, Nyka <alexandern@who.int>; STERN, Gabriella <sterng@who.int>
Subject: NEW - FOR PUBLIC RELEASE: WHO-China Joint Mission on COVID-19
Importance: High

Dr Tedros & colleagues,

Our eagle-eyed counterparts spotted a tiny edit I had inadvertently overlooked in the version just sent (an updated section now has six sub-sections but I had forgotten to say ‘6’ instead of ‘5’ in the preambular para).

I would be most grateful if the attached version be used as the 'final final' (with time stamp of 1100hr in the file name).

Apologies to all for any inconvenience.

Bruce

From: AYLWARD, Raymond Bruce J.
Sent: Friday, February 28, 2020 10:22
To: GHEBREYESUS, Tedros Adhanom <drtedros@who.int>
Cc: KASAI, Takeshi <kasait@who.int>; (b)(6) liangwn@nhc.gov.cn; liangwn@nhc.gov.cn; (b)(6) LI Juan (lijuan@nhc.gov.cn) <lijuan@nhc.gov.cn>; zhangyang@nhc.gov.cn; Alexander SEMENOV (b)(6) (b)(6); Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; RYAN, Michael J. <ryanm@who.int>; SCHWARTLANDER, Bernhard F. <schwartlanderb@who.int>; MINHAS, Raman <minhasr@who.int>; SNIDER, Paige Anne <sniderp@who.int>; ALEXANDER, Nyka <alexandern@who.int>; STERN, Gabriella <sterng@who.int>
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It is our common hope and belief that the findings contained herein can inform the global work you are leading to stem the ongoing international spread of COVID-19.

Regards

Bruce

From: Eckmanns, Tim
Sent: Wed, 4 Mar 2020 08:38:02 +0000
To: Alexander Semenov;Jong-koo Lee
Cc: AYLWARD Raymond Bruce J.;Chikwe IHEKWEAZU (chikwe.ihekw;Clifford LANE (cliff.lane@nih.;Zhou, Weigong (CDC/DDID/NCIRD/ID);Dale FISHER (mdcfda@nus.edu.sg;Dr Hitoshi TAKAHASHI (takajin@;Natalia PSHENICHNAYA (natalia-;XING Jun;gmleung;Dr VAN KERKHOVE Maria;Zunyou Wu;(SPmig) LEI ZHOU;(b)(6);liangwn@nhc.gov.cn;(b)(6)
Subject: AW: WITH ATTACHMENTS: WHO-China Joint Mission on CO

Thank you very impressive,
good luck
Tim

-----Ursprüngliche Nachricht-----
Von: Alexander Semenov [mailto(b)(6)
Gesendet: Mittwoch, 4. März 2020 09:30
An: Jong-koo Lee
Cc: "AYLWARD Raymond Bruce J."; "Chikwe IHEKWEAZU (chikwe.ihekw"; "Clifford LANE (cliff.lane@nih."; "Zhou Weigong (CDC/DDID/NCIRD/"; "Dale FISHER (mdcfda@nus.edu.sg"; "Dr Hitoshi TAKAHASHI (takajin@"; "Natalia PSHENICHNAYA (natalia-"; Eckmanns, Tim; XING Jun; gmleung; Dr VAN KERKHOVE Maria; Zunyou Wu; "(SPmig) LEI ZHOU"; "(b)(6); "liangwn@nhc.gov.cn";
(b)(6)
Betreff: Re: WITH ATTACHMENTS: WHO-China Joint Mission on CO

Wow! Thank you. Wish you good luck fighting the COVID-2019.

ср, 4 мар. 2020 г., 11:08 Jong-koo Lee <docmohw@snu.ac.kr>:

Dear All

FYI

--------- 원본 메일 ---------

보낸사람 : "AYLWARD, Raymond Bruce J." <aylwardb@who.int>
받는사람 : "docmohw@snu.ac.kr" <docmohw@snu.ac.kr>, "Alexander SEMENOV (alexvsemeno" (b)(6)>, "Chikwe IHEKWEAZU (chikwe.ihekw" <chikwe.ihekweazu@ncdc.gov.ng>, "Clifford LANE (cliff.lane@nih." <cliff.lane@nih.gov>, "Zhou Weigong (CDC/DDID/NCIRD/" <waz6@cdc.gov>, "Dale FISHER (mdcfda@nus.edu.sg" <mdcfda@nus.edu.sg>, "Dr Hitoshi TAKAHASHI (takajin@" <takajin@nih.go.jp>, "Natalia PSHENICHNAYA (natalia-" <natalia-pshenichnaya@yandex.ru>, "Tim ECKMANNS (EckmannsT@rki.de" <EckmannsT@rki.de>, "XING, Jun" <xingj@who.int>, gmleung <gmleung@hku.hk>
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"liangwn@nhc.gov.cn" <liangwn@nhc.gov.cn>, '(b)(6)' <(b)(6)>
받은날짜 : 2020-03-03 (화) 04:32:31
제목 : RE: Possible SPAM detected: RE: WITH ATTACHMENTS: WHO-China Joint Mission on CO

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받은날짜 : 2020-03-02 (월) 03:44:04
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* direct link to the report in English: https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf <https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf>

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Sent: Friday, February 28, 2020 10:58
To: GHEBREYESUS, Tedros Adhanom <drtedros@who.int>
Cc: KASAI, Takeshi <kasait@who.int>; GALEA, Gauden <galeag@who.int>; (b)(6) liangwn@nhc.gov.cn <mailto:liangwn@nhc.gov.cn> ; liangwn@nhc.gov.cn; (b)(6) LI Juan (lijuan@nhc.gov.cn) <lijuan@nhc.gov.cn>; zhangyang@nhc.gov.cn; Alexander SEMENOV (b)(6)) < (b)(6) ; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de)

<EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; RYAN, Michael J. <ryanm@who.int>; SCHWARTLANDER, Bernhard F. <schwartlanderb@who.int>; MINHAS, Raman <minhasr@who.int>; SNIDER, Paige Anne <sniderp@who.int>; ALEXANDER, Nyka <alexandern@who.int>; STERN, Gabriella <sterng@who.int>
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Importance: High

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Apologies to all for any inconvenience.

Bruce

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Sent: Friday, February 28, 2020 10:22
To: GHEBREYESUS, Tedros Adhanom <drtedros@who.int>
Cc: KASAI, Takeshi <kasait@who.int>; (b)(6) <mailto (b)(6) ; liangwn@nhc.gov.cn; liangwn@nhc.gov.cn; (b)(6) <mailto: (b)(6) > ; LI Juan (lijuan@nhc.gov.cn) <lijuan@nhc.gov.cn>; zhangyang@nhc.gov.cn; Alexander SEMENOV (b)(6) < (b)(6) Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; RYAN, Michael J. <ryanm@who.int>; SCHWARTLANDER, Bernhard F. <schwartlanderb@who.int>; MINHAS, Raman <minhasr@who.int>; SNIDER, Paige Anne <sniderp@who.int>; ALEXANDER, Nyka <alexandern@who.int>; STERN, Gabriella <sterng@who.int>
Subject: FOR PUBLIC RELEASE: WHO-China Joint Mission on COVID-19
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Dear Dr Tedros,

It is my honor to share with you the attached, final version of the Report of the WHO-China Joint Mission on COVID-19, on behalf of myself, my Co-Lead Dr LIANG Wannian, our Deputy Team Leader Dr WANG Bin, and the entire Joint Team of Chinese national and international members.

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It is our common hope and belief that the findings contained herein can inform the global work you are leading to stem the ongoing international spread of COVID-19.

Regards

Bruce

<http://mail.snu.ac.kr/checkread/MTMzNTI3MzQ0OA==/YXlsd2FyZGJAd2hvLmludA==/>

<http://mail.snu.ac.kr/checkread/MTMzNjMyOTkyMw==/YWxleHZzZW1lbm92QGdtYWlsLmNvbQ==/>

From: AYLWARD, Raymond Bruce J.
Sent: Thu, 12 Mar 2020 20:13:32 +0000
To: Alexander SEMENOV (b)(6);Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Clifford LANE (cliff.lane@nih.gov);Zhou, Weigong (CDC/DDID/NCIRD/ID);Dale FISHER (mdcfda@nus.edu.sg);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);LEE Jong-Koo (docmohw@snu.ac.kr);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Tim ECKMANNS (EckmannsT@rki.de);XING, Jun;gmleung
Cc: Dr VAN KERKHOVE, Maria;Zunyou Wu;(SPmig) LEI (b)(6) Zunyou Wu;LI Juan (lijuan@nhc.gov.cn);GALEA, Gauden;SCHWARTLANDER, Bernhard F.;MINHAS, Raman
Subject: UPDATES: WHO-China Joint Mission on COVID-19
Attachments: WHO-China Joint Mission on COVID-19 - FINAL REPORT 1100hr 28Feb2020 & 11Mar Update.pdf

Dear Colleagues,

I trust that all of our international colleagues have remained healthy and I am delighted to know that all of our Chinese national colleagues have finished quarantine.

I would like to take this opportunity to really thank those of you who have continued to share information on the evolving outbreaks in your countries (e.g. Dale in Singapore, Jong-Koo in South Korea). This has really helped with our ongoing learnings about COVID-19.

I also wanted to let you know that over the past 2 weeks we picked up a few little calculation errors and editorial issues in the original report. We have now corrected these and posted a slightly updated version of the Report on the WHO website. Our colleagues at the NHC have made the same changes in the Chinese text. You can find the specific changes at the end of this email. For your convenience I have also attached a copy of the report with these updates

As the COVID-19 situation continues to evolve globally, I would like to thank all of you for continuing to share any and all information that you deem relevant as we work to inform other countries of best practice.

With this information, Maria is leading an incredible effort here at WHO to translate the nuggets of knowledge we collect anywhere into the guidance that will save lives everywhere.

With best regards,

Bruce

_____

Editorial/calculation updates to the Final Report of the WHO-China Joint Mission on COVID-19:

- (b)(5)

(b)(5)

From: AYLWARD, Raymond Bruce J.
Sent: Sunday, March 1, 2020 19:41
To: Alexander SEMENOV (b)(6) ; (b)(6) ; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; gmleung <gmleung@hku.hk>
Cc: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; Zunyou Wu <wuzy@263.net>; ZHOU Lei (zhoulei@chinacdc.cn) <zhoulei@chinacdc.cn>; (b)(6) liangwn@nhc.gov.cn; (b)(6)
Subject: WITH ATTACHMENTS: WHO-China Joint Mission on COVID-19
Importance: High

Dear International Members of the Joint Mission,

Clearly I need to get more sleep! Maria just pointed out that I had forgotten to send the attachments – please find the message/attachments again here:

I trust (hope!) that everyone remains in good health as you approach Day 7 since your departures from China. (b)(6) (thanks to the good care of our Chinese hosts).

Congratulations to those of you who have been on the frontlines of managing new cases and importations such as Chikwe in Nigeria.

I'm writing tonight to share with you three things:

1. the official **Chinese version of the Joint Mission report** that WHO received from the National Health Commission and which will be posted on our site;

2. the **WHO website links for the English version** of the report in case helpful:

- in the section of WHO Coronavirus page: https://www.who.int/emergencies/diseases/novel-coronavirus-2019
- direct link to the report in English: https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf

3. a **short overview presentation** I quickly put together to share some of the key findings of the report in a VC with RD/WPRO and the WPRO Ministers of Health on Friday morning.

Please note, **I have added 3 slides on 'key epi/technical insights'** from our Mission to the end of the presentation. Maria and I put these together and WU Zunyou did a quick check/correction of them earlier this evening for us. **I would be most grateful if you might have a look at the 3 'technical insight' slides and provide any thoughts/corrections from your side**. I am not trying to be comprehensive but just to find a few key points that are important to understanding the evolving epi and containment impact in China.

I have also cc'd Dr LIANG, Dr WANG Bin, Dr Wu Zunyou and Dr Zhou Lei so that they can 'hear' the conversation (where all of them remain in quarantine at the Presidential Hotel in Beijing….).

With very best regards to all,

Bruce

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It is our common hope and belief that the findings contained herein can inform the global work you are leading to stem the ongoing international spread of COVID-19.

Regards

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Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19)

16-24 February 2020

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I. The Mission

Goal and Objectives

The overall goal of the Joint Mission was to rapidly inform national (China) and international planning on next steps in the response to the ongoing outbreak of the novel coronavirus disease (COVID-19[1]) and on next steps in readiness and preparedness for geographic areas not yet affected.

The major objectives of the Joint Mission were as follows:

- To enhance understanding of the evolving COVID-19 outbreak in China and the nature and impact of ongoing containment measures;
- To share knowledge on COVID-19 response and preparedness measures being implemented in countries affected by or at risk of importations of COVID-19;
- To generate recommendations for adjusting COVID-19 containment and response measures in China and internationally; and
- To establish priorities for a collaborative programme of work, research and development to address critical gaps in knowledge and response and readiness tools and activities.

Members & Method of Work

The Joint Mission consisted of 25 national and international experts from China, Germany, Japan, Korea, Nigeria, Russia, Singapore, the United States of America and the World Health Organization (WHO). The Joint Mission was headed by Dr Bruce Aylward of WHO and Dr Wannian Liang of the People's Republic of China. The full list of members and their affiliations is available in Annex A. The Joint Mission was implemented over a 9-day period from 16-24 February 2020. The schedule of work is available in Annex B.

The Joint Mission began with a detailed workshop with representatives of all of the principal ministries that are leading and/or contributing to the response in China through the National Prevention and Control Task Force. A series of in-depth meetings were then conducted with national level institutions responsible for the management, implementation and evaluation of the response, particularly the National Health Commission and the China Centers for Disease Control and Prevention (China CDC). To gain first-hand knowledge on the field level implementation and impact of the national and local response strategy, under a range of epidemiologic and provincial contexts, visits were conducted to Beijing Municipality and the provinces of Sichuan (Chengdu), Guangdong (Guangzhou, Shenzhen) and Hubei (Wuhan). The field visits included community centers and health clinics, country/district hospitals, COVID-19 designated hospitals, transportations hubs (air, rail, road), a wet market, pharmaceutical and personal protective equipment (PPE) stocks warehouses, research institutions, provincial health commissions, and local Centers for

[1] In the Chinese version of this report, COVID-19 is referred to throughout as novel coronavirus pneumonia or NCP, the term by which COVID-19 is most widely known in the People's Republic of China.

Disease Control (provincial and prefecture). During these visits, the team had detailed discussion and consultations with Provincial Governors, municipal Mayors, their emergency operations teams, senior scientists, frontline clinical, public health and community workers, and community neighbourhood administrators. The Joint Mission concluded with working sessions to consolidate findings, generate conclusions and propose suggested actions.

To achieve its goal, the Joint Mission gave particular focus to addressing key questions related to the natural history and severity of COVID-19, the transmission dynamics of the COVID-19 virus in different settings, and the impact of ongoing response measures in areas of high (community level), moderate (clusters) and low (sporadic cases or no cases) transmission.

The findings in this report are based on the Joint Mission's review of national and local governmental reports, discussions on control and prevention measures with national and local experts and response teams, and observations made and insights gained during site visits. The figures have been produced using information and data collected during site visits and with the agreement of the relevant groups. References are available for any information in this report that has already been published in journals.

The final report of the Joint Mission was submitted on 28 February and updated 11 March.

II. Major findings

The major findings are described in six sections: the virus, the outbreak, transmission dynamics, disease progression and severity, the China response and knowledge gaps. More detailed descriptions of technical findings are provided in Annex C.

The virus

On 30 December 2019, three bronchoalveolar lavage samples were collected from a patient with pneumonia of unknown etiology – a surveillance definition established following the SARS outbreak of 2002-2003 – in Wuhan Jinyintan Hospital. Real-time PCR (RT-PCR) assays on these samples were positive for pan-Betacoronavirus. Using Illumina and nanopore sequencing, the whole genome sequences of the virus were acquired. Bioinformatic analyses indicated that the virus had features typical of the coronavirus family and belonged to the Betacoronavirus 2B lineage. Alignment of the full-length genome sequence of the COVID-19 virus and other available genomes of Betacoronavirus showed the closest relationship was with the bat SARS-like coronavirus strain BatCov RaTG13, identity 96%.

Virus isolation was conducted with various cell lines, such as human airway epithelial cells, Vero E6, and Huh-7. Cytopathic effects (CPE) were observed 96 hours after inoculation. Typical crown-like particles were observed under transmission electron microscope (TEM) with negative staining. The cellular infectivity of the isolated viruses could be completely neutralized by the sera collected from convalescent patients. Transgenic human ACE2 mice and Rhesus monkey intranasally challenged by this virus isolate induced multifocal pneumonia with interstitial hyperplasia. The COVID-19 virus was subsequently detected and isolated in the lung and intestinal tissues of the challenged animals.

Whole genome sequencing analysis of 104 strains of the COVID-19 virus isolated from patients in different localities with symptom onset between the end of December 2019 and mid-February 2020 showed 99.9% homology, without significant mutation (Figure 1).

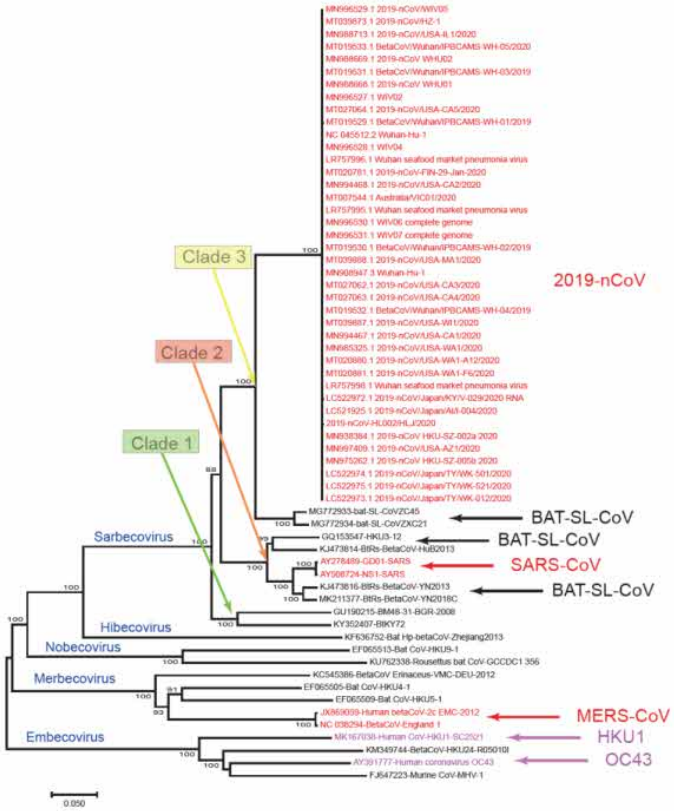


Figure 1. Phylogenetic analysis of the COVID-19 virus and its closely related reference genomes

Note: COVID-19 virus is referred to as 2019-nCoV in the figure, the interim virus name WHO announced early in the outbreak.

Post-mortem samples from a 50-year old male patient from Wuhan were taken from the lung, liver, and heart. Histological examination showed bilateral diffuse alveolar damage with cellular fibromyxoid exudates. The lung showed evident desquamation of pneumocytes and hyaline membrane formation, indicating acute respiratory distress syndrome (ARDS). Lung tissue also displayed cellular and fibromyxoid exudation, desquamation of pneumocytes and pulmonary oedema. Interstitial mononuclear inflammatory infiltrates, dominated by lymphocytes, were seen in both lungs. Multinucleated syncytial cells with atypical enlarged pneumocytes characterized by large nuclei, amphophilic granular cytoplasm, and prominent nucleoli were identified in the intra-alveolar spaces, showing viral cytopathic-like changes. No obvious intranuclear or intracytoplasmic viral inclusions were identified.

The outbreak

As of 20 February 2020, a cumulative total of 75,465 COVID-19 cases were reported in China. Reported cases are based on the National Reporting System (NRS) between the

National and Provincial Health Commissions. The NRS issues daily reports of newly recorded confirmed cases, deaths, suspected cases, and contacts. A daily report is provided by each province at 0300hr in which they report cases from the previous day.

The epidemic curves presented in Figures 2 and 3 are generated using China's National Infectious Disease Information System (IDIS), which requires each COVID-19 case to be reported electronically by the responsible doctor as soon as a case has been diagnosed. It includes cases that are reported as asymptomatic and data are updated in real time. Individual case reporting forms are downloaded after 2400hr daily. Epidemiologic curves for Wuhan, Hubei (outside of Wuhan), China (outside Hubei) and China by symptom onset are provided in Figure 2.

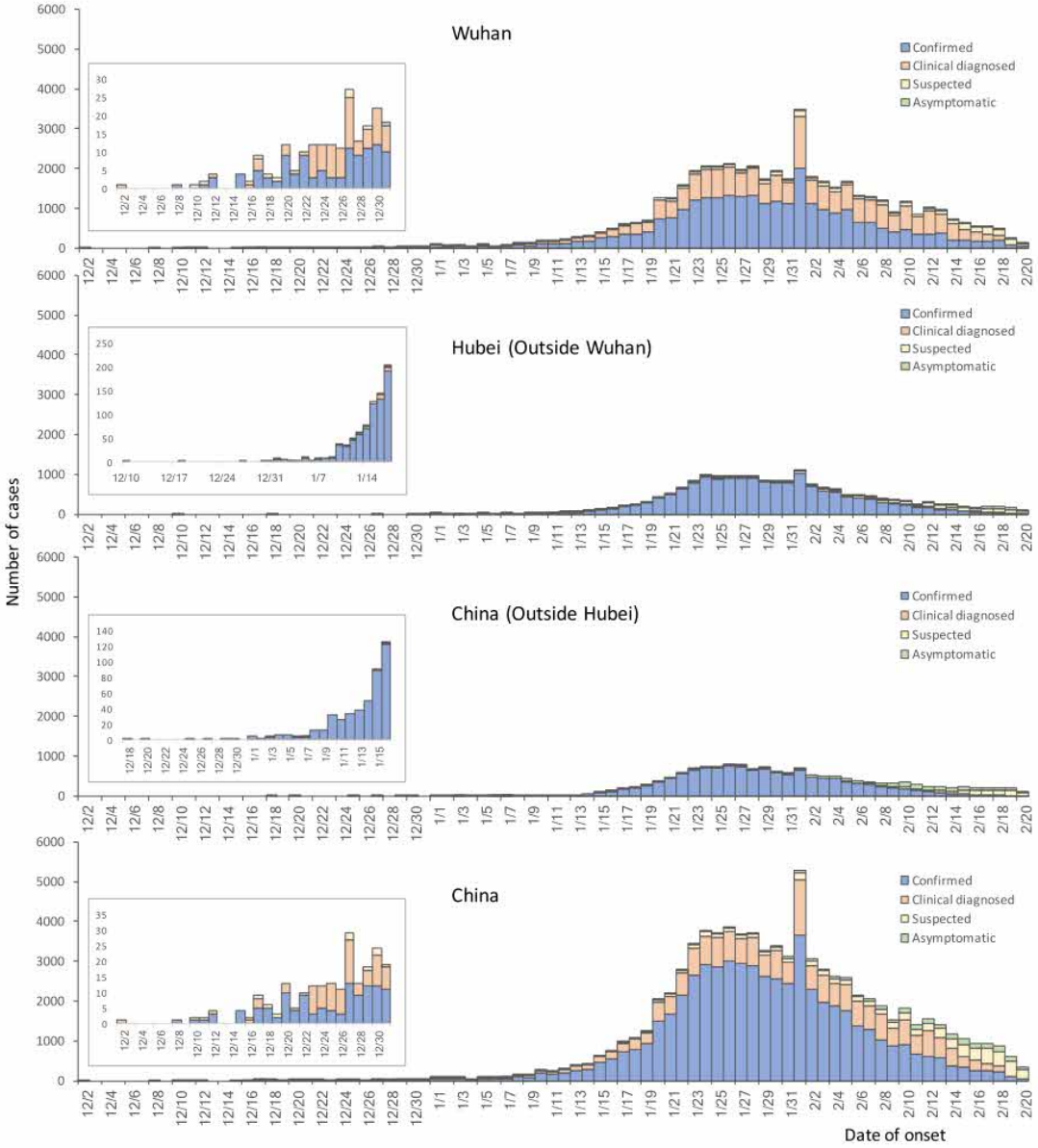


Figure 2 Epidemiologic curve of COVID-19 laboratory confirmed cases, by date of onset of illness, reported in China, as of 20 February 2020

Figure 3 presents epidemic curves of laboratory-confirmed cases, by symptom onset and separately by date of report, at 5, 12, and 20 February 2020. Figures 2 and 3 illustrate that the epidemic rapidly grew from 10-22 January, reported cases peaked and plateaued between 23 January and 27 January, and have been steadily declining since then, apart from the spike that was reported on 1 February (note: at a major hospital in Wuhan, fever clinic patients fell from a peak of 500/day in late January to average 50/day since mid-February).

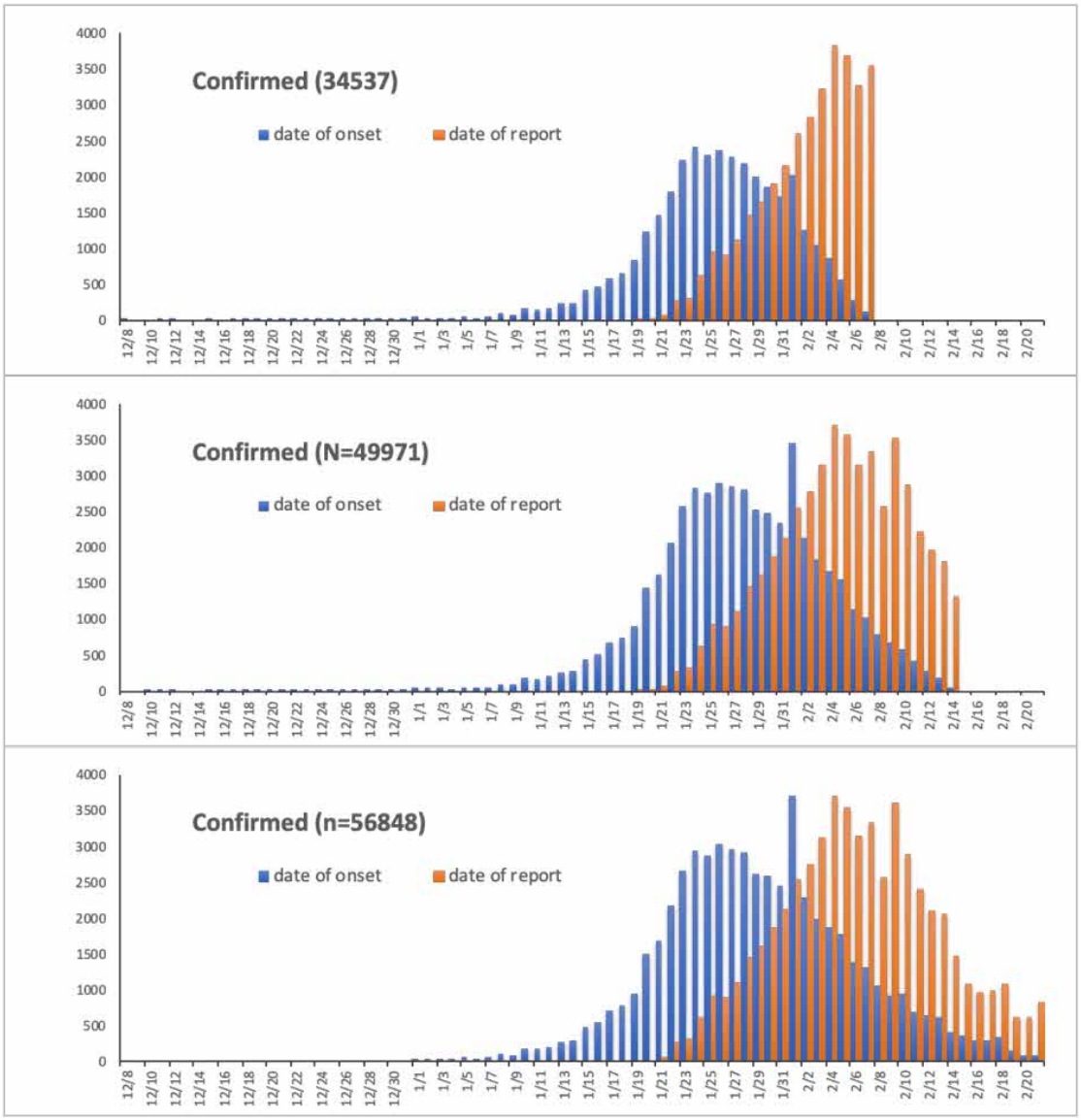


Figure 3. Epidemic curves by symptom onset and date of report as of 5 February (top panel), 12 February (middle panel) and 20 February 2020 (lower panel) for laboratory confirmed COVID-19 cases for all of China

Based on these epidemic curves, the published literature, and our on-site visits in Wuhan (Hubei), Guangdong (Shenzhen and Guangzhou), Sichuan (Chengdu), and Beijing, the Joint Mission team has made the following epidemiological observations:

Demographic characteristics

Among 55,924 laboratory confirmed cases reported as of 20 February 2020, the median age is 51 years (range 2 days-100 years old; IQR 39-63 years old) with the majority of cases (77.8%) aged between 30–69 years. Among reported cases, 51.1% are male, 77.0% are from Hubei and 21.6% are farmers or laborers by occupation.

Zoonotic origins

COVID-19 is a zoonotic virus. From phylogenetics analyses undertaken with available full genome sequences, bats appear to be the reservoir of COVID-19 virus, but the intermediate host(s) has not yet been identified. However, three important areas of work are already underway in China to inform our understanding of the zoonotic origin of this outbreak. These include early investigations of cases with symptom onset in Wuhan throughout December 2019, environmental sampling from the Huanan Wholesale Seafood Market and other area markets, and the collection of detailed records on the source and type of wildlife species sold at the Huanan market and the destination of those animals after the market was closed.

Routes of transmission

COVID-19 is transmitted via droplets and fomites during close unprotected contact between an infector and infectee. Airborne spread has not been reported for COVID-19 and it is not believed to be a major driver of transmission based on available evidence; however, it can be envisaged if certain aerosol-generating procedures are conducted in health care facilities. Fecal shedding has been demonstrated from some patients, and viable virus has been identified in a limited number of case reports. However, the fecal-oral route does not appear to be a driver of COVID-19 transmission; its role and significance for COVID-19 remains to be determined. Viral shedding is discussed in the Technical Findings (Annex C).

Household transmission

In China, human-to-human transmission of the COVID-19 virus is largely occurring in families. The Joint Mission received detailed information from the investigation of clusters and some household transmission studies, which are ongoing in a number of Provinces. Among 344 clusters involving 1308 cases (out of a total 1836 cases reported) in Guangdong Province and Sichuan Province, most clusters (78%-85%) have occurred in families. Household transmission studies are currently underway, but preliminary studies ongoing in Guangdong estimate the secondary attack rate in households ranges from 3-10%.

Contact Tracing

China has a policy of meticulous case and contact identification for COVID-19. For example, in Wuhan more than 1800 teams of epidemiologists, with a minimum of 5 people/team, are tracing tens of thousands of contacts a day. Contact follow up is painstaking, with a high percentage of identified close contacts completing medical observation. Between 1% and 5% of contacts were subsequently laboratory confirmed cases of COVID-19, depending on location. For example:

- As of 17 February, in Shenzhen City, among 2842 identified close contacts, 2842 (100%) were traced and 2240 (79%) have completed medical observation. Among the close contacts, 88 (3.1%) were found to be infected with COVID-19.

- As of 17 February, in Sichuan Province, among 25493 identified close contacts, 25347 (99%) were traced and 23178 (91%) have completed medical observation. Among the close contacts, 0.9% were found to be infected with COVID-19.
- As of 20 February, in Guangdong Province, among 9939 identified close contacts, 9939 (100%) were traced and 7765 (78%) have completed medical observation. Among the close contacts, 479 (4.8%) were found to be infected with COVID-19.

Testing at fever clinics and from routine ILI/SARI surveillance

The Joint Mission systematically enquired about testing for COVID-19 from routine respiratory disease surveillance systems to explore if COVID-19 is circulating more broadly and undetected in the community in China. These systems could include RT-PCR testing of COVID-19 virus in influenza-like-illness (ILI) and severe acute respiratory infection (SARI) surveillance systems, as well as testing of results among all visitors to fever clinics.

In Wuhan, COVID-19 testing of ILI samples (20 per week) in November and December 2019 and in the first two weeks of January 2020 found no positive results in the 2019 samples, 1 adult positive in the first week of January, and 3 adults positive in the second week of January; all children tested were negative for COVID-19 although a number were positive for influenza. In Guangdong, from 1-14 January, only 1 of more than 15000 ILI/SARI samples tested positive for the COVID-19 virus. In one hospital in Beijing, there were no COVID-19 positive samples among 1910 collected from 28 January 2019 to 13 February 2020. In a hospital in Shenzhen, 0/40 ILI samples were positive for COVID-19.

Within the fever clinics in Guangdong, the percentage of samples that tested positive for the COVID-19 virus has decreased over time from a peak of 0.47% positive on 30 January to 0.02% on 16 February. Overall in Guangdong, 0.14% of approximately 320,000 fever clinic screenings were positive for COVID-19.

Susceptibility

As COVID-19 is a newly identified pathogen, there is no known pre-existing immunity in humans. Based on the epidemiologic characteristics observed so far in China, everyone is assumed to be susceptible, although there may be risk factors increasing susceptibility to infection. This requires further study, as well as to know whether there is neutralising immunity after infection.

The transmission dynamics

Inferring from Figures 2 and 3, and based on our observations at the national and provincial/municipal levels during the Joint Mission, we summarize and interpret the transmission dynamics of COVID-19 thus far. It is important to note that transmission dynamics of any outbreak are inherently contextual. For COVID-19, we observe four major types of transmission dynamics during the epidemic growth phase and in the post-control period, and highlight what is known about transmission in children, as follows:

Transmission in Wuhan

Early cases identified in Wuhan are believed to be have acquired infection from a zoonotic source as many reported visiting or working in the Huanan Wholesale Seafood Market. As of 25 February, an animal source has not yet been identified.

At some point early in the outbreak, some cases generated human-to-human transmission chains that seeded the subsequent community outbreak prior to the implementation of the comprehensive control measures that were rolled out in Wuhan. The dynamics likely approximated mass action and radiated from Wuhan to other parts of Hubei province and China, which explains a relatively high R_0 of 2-2.5.

The *cordon sanitaire* around Wuhan and neighboring municipalities imposed since 23 January 2020 has effectively prevented further exportation of infected individuals to the rest of the country.

Transmission in Hubei, other than Wuhan

In the prefectures immediately adjoining Wuhan (Xiaogan, Huanggang, Jingzhou and Ezhou), transmission is less intense. For other prefectures, due to fewer transport links and human mobility flows with Wuhan, the dynamics are more closely aligned with those observed in the other areas of the country. Within Hubei, the implementation of control measures (including social distancing) has reduced the community force of infection, resulting in the progressively lower incident reported case counts.

Transmission in China outside of Hubei

Given Wuhan's transport hub status and population movement during the Chinese New Year (chunyun), infected individuals quickly spread throughout the country, and were particularly concentrated in cities with the highest volume of traffic with Wuhan. Some of these imported seeds generated limited human-to-human transmission chains at their destination.

Given the Wuhan/Hubei experience, a comprehensive set of interventions, including aggressive case and contact identification, isolation and management and extreme social distancing, have been implemented to interrupt the chains of transmission nationwide. To date, most of the recorded cases were imported from or had direct links to Wuhan/Hubei. Community transmission has been very limited. Most locally generated cases have been clustered, the majority of which have occurred in households, as summarized above.

Of note, the highly clustered nature of local transmission may explain a relatively high R_0 (2-2.5) in the absence of interventions and low confirmed case counts with intense quarantine and social distancing measures.

Special settings

We note that instances of transmission have occurred within health care settings prisons and other closed settings. At the present time, it is not clear what role these settings and groups play in transmission. However, they do not appear to be major drivers of the overall epidemic dynamics. Specifically, we note:

(a) **Transmission in health care settings and among health care workers (HCW)** – The Joint Mission discussed nosocomial infection in all locations visited during the Mission. As of 20 February 2020, there were 2,055 COVID-19 laboratory-confirmed cases reported among HCW from 476 hospitals across China. The majority of HCW cases (88%) were reported from Hubei.

Remarkably, more than 40,000 HCW have been deployed from other areas of China to support the response in Wuhan. Notwithstanding discrete and limited instances of nosocomial outbreaks (e.g. a nosocomial outbreak involving 15 HCW in Wuhan), transmission within health care settings and amongst health care workers does not appear to be a major transmission feature of COVID-19 in China. The Joint Mission learned that, among the HCW infections, most were identified early in the outbreak in Wuhan when supplies and experience with the new disease was lower. Additionally, investigations among HCW suggest that many may have been infected within the household rather than in a health care setting. Outside of Hubei, health care worker infections have been less frequent (i.e. 246 of the total 2055 HCW cases). When exposure was investigated in these limited cases, the exposure for most was reported to have been traced back to a confirmed case in a household.

The Joint Team noted that attention to the prevention of infection in health care workers is of paramount importance in China. Surveillance among health care workers identified factors early in the outbreak that placed HCW at higher risk of infection, and this information has been used to modify policies to improve protection of HCW.

(b) **Transmission in closed settings** – There have been reports of COVID-19 transmission in prisons (Hubei, Shandong, and Zhejiang, China), hospitals (as above) and in a long-term living facility. The close proximity and contact among people in these settings and the potential for environmental contamination are important factors, which could amplify transmission. Transmission in these settings warrants further study.

Children

Data on individuals aged 18 years old and under suggest that there is a relatively low attack rate in this age group (2.4% of all reported cases). Within Wuhan, among testing of ILI samples, no children were positive in November and December of 2019 and in the first two weeks of January 2020. From available data, and in the absence of results from serologic studies, it is not possible to determine the extent of infection among children, what role children play in transmission, whether children are less susceptible or if they present differently clinically (i.e. generally milder presentations). The Joint Mission learned that infected children have largely been identified through contact tracing in households of adults. Of note, people interviewed by the Joint Mission Team could not recall episodes in which transmission occurred from a child to an adult.

The signs, symptoms, disease progression and severity

Symptoms of COVID-19 are non-specific and the disease presentation can range from no symptoms (asymptomatic) to severe pneumonia and death. As of 20 February 2020 and

based on 55924 laboratory confirmed cases, typical **signs and symptoms** include: fever (87.9%), dry cough (67.7%), fatigue (38.1%), sputum production (33.4%), shortness of breath (18.6%), sore throat (13.9%), headache (13.6%), myalgia or arthralgia (14.8%), chills (11.4%), nausea or vomiting (5.0%), nasal congestion (4.8%), diarrhea (3.7%), and hemoptysis (0.9%), and conjunctival congestion (0.8%).

People with COVID-19 generally develop signs and symptoms, including mild respiratory symptoms and fever, on an average of 5-6 days after infection (mean incubation period 5-6 days, range 1-14 days).

Most people infected with COVID-19 virus have mild disease and recover. Approximately 80% of laboratory confirmed patients have had **mild to moderate disease**, which includes non-pneumonia and pneumonia cases, 13.8% have **severe disease** (dyspnea, respiratory frequency ≥30/minute, blood oxygen saturation ≤93%, PaO2/FiO2 ratio <300, and/or lung infiltrates >50% of the lung field within 24-48 hours) and 6.1% are **critical** (respiratory failure, septic shock, and/or multiple organ dysfunction/failure). **Asymptomatic infection** has been reported, but the majority of the relatively rare cases who are asymptomatic on the date of identification/report went on to develop disease. The proportion of truly asymptomatic infections is unclear but appears to be relatively rare and does not appear to be a major driver of transmission.

Individuals at **highest risk** for severe disease and death include people aged over 60 years and those with underlying conditions such as hypertension, diabetes, cardiovascular disease, chronic respiratory disease and cancer. Disease in **children** appears to be relatively rare and mild with approximately 2.4% of the total reported cases reported amongst individuals aged under 19 years. A very small proportion of those aged under 19 years have developed severe (2.5%) or critical disease (0.2%).

As of 20 February, 2114 of the 55,924 laboratory confirmed cases have died (**crude fatality ratio** [CFR[2]] 3.8%) (note: at least some of whom were identified using a case definition that included pulmonary disease). The overall CFR varies by location and intensity of transmission (i.e. 5.8% in Wuhan vs. 0.7% in other areas in China). In China, the overall CFR was higher in the early stages of the outbreak (17.3% for cases with symptom onset from 1-10 January) and has reduced over time to 0.7% for patients with symptom onset after 1 February (Figure 4). The Joint Mission noted that the standard of care has evolved over the course of the outbreak.

Mortality increases with age, with the highest mortality among people over 80 years of age (CFR 21.9%). The CFR is higher among males compared to females (4.7% vs. 2.8%). By occupation, patients who reported being retirees had the highest CFR at 8.9%. While patients who reported no comorbid conditions had a CFR of 1.4%, patients with comorbid conditions had much higher rates: 13.2% for those with cardiovascular disease, 9.2% for diabetes, 8.4% for hypertension, 8.0% for chronic respiratory disease, and 7.6% for cancer.

[2] The Joint Mission acknowledges the known challenges and biases of reporting crude CFR early in an epidemic.

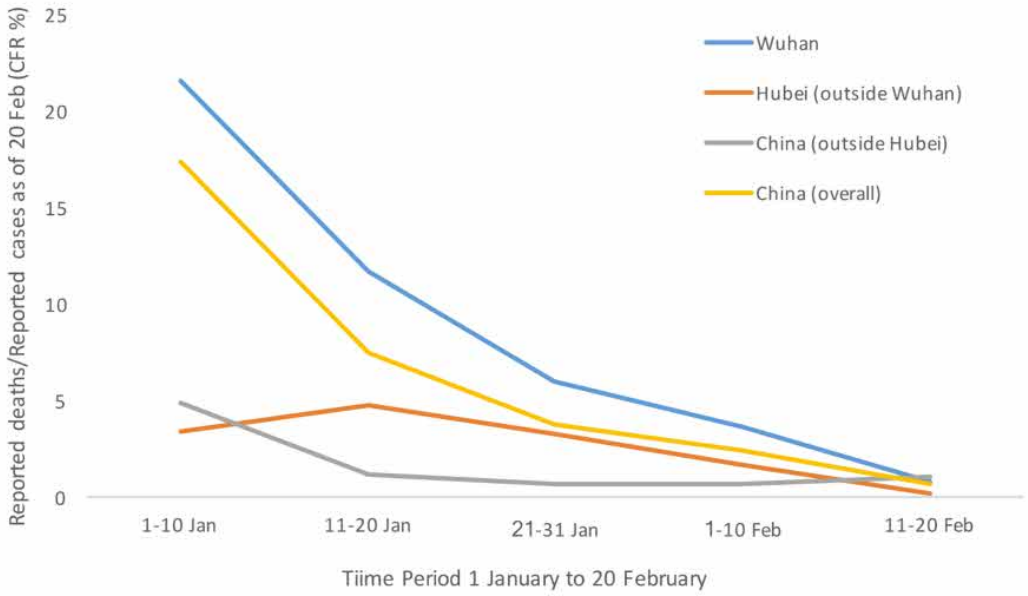


Figure 4 Case fatality ratio (reported deaths among total cases) for COVID-19 in China over time and by location, as of 20 February 2020

Data on the **progression of disease** is available from a limited number of reported hospitalized cases (Figure 5). Based on available information, the median time from symptom onset to laboratory confirmation nationally decreased from 12 days (range 8-18 days) in early January to 3 days (1-7) by early February 2020, and in Wuhan from 15 days (10-21) to 5 days (3-9), respectively. This has allowed for earlier case and contact identification, isolation and treatment.

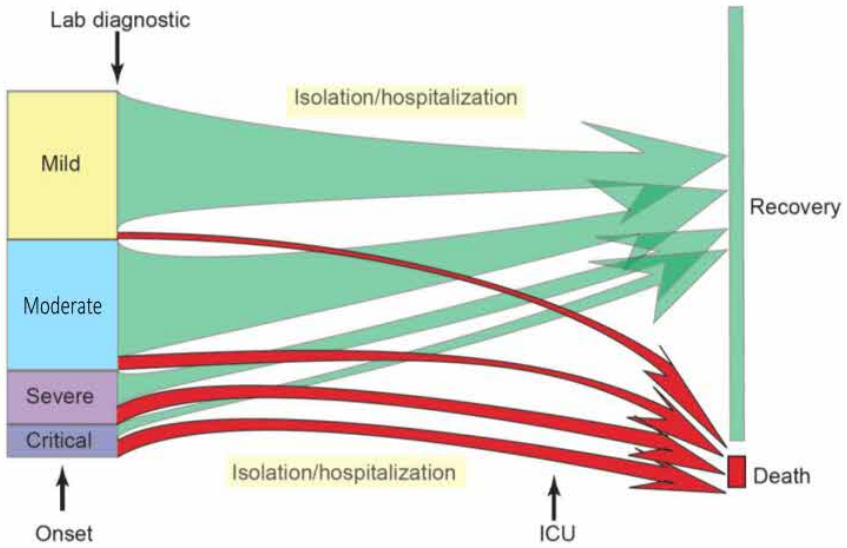


Figure 5. Pattern of disease progression for COVID-19 in China

Note: the relative size of the boxes for disease severity and outcome reflect the proportion of cases reported as of 20 February 2020. The size of the arrows indicates the proportion of cases who recovered or died. Disease definitions are described above. Moderate cases have a mild form of pneumonia.

Using available preliminary data, the median time from onset to clinical recovery for mild cases is approximately 2 weeks and is 3-6 weeks for patients with severe or critical disease. Preliminary data suggests that the time period from onset to the development of severe disease, including hypoxia, is 1 week. Among patients who have died, the time from symptom onset to outcome ranges from 2-8 weeks.

An increasing number of patients have **recovered**; as of 20 February, 18264 (24%) reported cases have recovered. Encouragingly, a report on 20 February from the Guangdong CDC suggests that of 125 severe cases identified in Guangdong, 33 (26.4%) have recovered and been released from hospital, and 58 (46.4%) had improved and were reclassified as having mild/moderate disease (i.e. + milder pneumonia). Among severe cases reported to date, 13.4% have died. Early identification of cases and contacts allows for earlier treatment.

The China response

Upon the detection of a cluster of pneumonia cases of unknown etiology in Wuhan, the CPC Central Committee and the State Council launched the national emergency response. A **Central Leadership Group for Epidemic Response** and the **Joint Prevention and Control Mechanism** of the State Council were established. General Secretary Xi Jinping personally directed and deployed the prevention and control work and requested that the prevention and control of the COVID-19 outbreak be the top priority of government at all levels. Prime Minister Li Keqiang headed the Central Leading Group for Epidemic Response and went to Wuhan to inspect and coordinate the prevention and control work of relevant departments and provinces (autonomous regions and municipalities) across the country. Vice Premier Sun Chunlan, who has been working on the frontlines in Wuhan, has led and coordinated the frontline prevention and control of the outbreak.

The prevention and control measures have been implemented rapidly, from the early stages in Wuhan and other key areas of Hubei, to the current overall national epidemic. It has been undertaken in **three main phases**, with two important events defining those phases. First, COVID-19 was included in the statutory report of Class B infectious diseases and border health quarantine infectious diseases on 20 January 2020, which marked the transition from the initial partial control approach to the comprehensive adoption of various control measures in accordance with the law. The second event was the State Council's issuing, on 8 February 2020, of The Notice on Orderly Resuming Production and Resuming Production in Enterprises, which indicated that China's national epidemic control work had entered a stage of overall epidemic prevention and control together with the restoration of normal social and economic operations.

The first stage

During the early stage of the outbreak, the main strategy focused on preventing the exportation of cases from Wuhan and other priority areas of Hubei Province, and preventing the importation of cases by other provinces; the overall aim was to control the source of infection, block transmission and prevent further spread. The response mechanism was initiated with multi-sectoral involvement in joint prevention and control measures. Wet markets were closed, and efforts were made to identify the zoonotic source. Information on the epidemic was notified to WHO on 3 January, and whole genome sequences of the COVID-19 virus were shared with WHO on 10 January. Protocols for COVID-19 diagnosis and

treatment, surveillance, epidemiological investigation, management of close contacts, and laboratory testing were formulated, and relevant surveillance activities and epidemiological investigations conducted. Diagnostic testing kits were developed, and wildlife and live poultry markets were placed under strict supervision and control measures.

The second stage

During the second stage of the outbreak, the main strategy was to reduce the intensity of the epidemic and to slow down the increase in cases. In Wuhan and other priority areas of Hubei Province, the focus was on actively treating patients, reducing deaths, and preventing exportations. In other provinces, the focus was on preventing importations, curbing the spread of the disease and implementing joint prevention and control measures. Nationally, wildlife markets were closed and wildlife captive-breeding facilities were cordoned off. On 20 January, COVID-19 was included in the notifiable report of Class B infectious diseases and border health quarantine infectious diseases, with temperature checks, health care declarations, and quarantine against COVID-19 instituted at transportation depots in accordance with the law. On 23 January, Wuhan implemented strict traffic restrictions. The protocols for diagnosis, treatment and epidemic prevention and control were improved; case isolation and treatment were strengthened.

Measures were taken to ensure that all cases were treated, and close contacts were isolated and put under medical observation. Other measures implemented included the extension of the Spring Festival holiday, traffic controls, and the control of transportation capacity to reduce the movement of people; mass gathering activities were also cancelled. Information about the epidemic and prevention and control measures was regularly released. Public risk communications and health education were strengthened; allocation of medical supplies was coordinated, new hospitals were built, reserve beds were used and relevant premises were repurposed to ensure that all cases could be treated; efforts were made to maintain a stable supply of commodities and their prices to ensure the smooth operation of society.

The third stage

The third stage of the outbreak focused on reducing clusters of cases, thoroughly controlling the epidemic, and striking a balance between epidemic prevention and control, sustainable economic and social development, the unified command, standardized guidance, and scientific evidence-based policy implementation. For Wuhan and other priority areas of Hubei Province, the focus was on patient treatment and the interruption of transmission, with an emphasis on concrete steps to fully implement relevant measures for the testing, admitting and treating of all patients. A risk-based prevention and control approach was adopted with differentiated prevention and control measures for different regions of the country and provinces. Relevant measures were strengthened in the areas of epidemiological investigation, case management and epidemic prevention in high-risk public places.

New technologies were applied such as the use of big data and artificial intelligence (AI) to strengthen contact tracing and the management of priority populations. Relevant health insurance policies were promulgated on "health insurance payment, off-site settlement, and financial compensation". All provinces provided support to Wuhan and priority areas in Hubei Province in an effort to quickly curb the spread of the disease and provide timely clinical treatment. Pre-school preparation was improved, and work resumed in phases and

batches. Health and welfare services were provided to returning workers in a targeted and 'one-stop' manner. Normal social operations are being restored in a stepwise fashion; knowledge about disease prevention is being popularized to improve public health literacy and skills; and a comprehensive program of emergency scientific research is being carried out to develop diagnostics, therapeutics and vaccines, delineate the spectrum of the disease, and identify the source of the virus.

Knowledge gaps

Since the start of the COVID-19 outbreak, there have been extensive attempts to better understand the virus and the disease in China. It is remarkable how much knowledge about a new virus has been gained in such a short time. However, as with all new diseases, and only 7 weeks after this outbreak began, key knowledge gaps remain. Annex D summarizes the key unknowns in a number of areas including the source of infection, pathogenesis and virulence of the virus, transmissibility, risk factors for infection and disease progression, surveillance, diagnostics, clinical management of severe and critically ill patients, and the effectiveness of prevention and control measures. The timely filling of these knowledge gaps is imperative to enhance control strategies.

III. Assessment

The Joint Mission drew four major conclusions from its work in China and four major conclusions from its knowledge of the broader global response to COVID-19. Recommendations are offered in five major areas to inform the ongoing response globally and in China.

The China Response & Next Steps

1. **In the face of a previously unknown virus, China has rolled out perhaps the most ambitious, agile and aggressive disease containment effort in history. The strategy that underpinned this containment effort was initially a national approach that promoted universal temperature monitoring, masking, and hand washing. However, as the outbreak evolved, and knowledge was gained, a science and risk-based approach was taken to tailor implementation. Specific containment measures were adjusted to the provincial, county and even community context, the capacity of the setting, and the nature of novel coronavirus transmission there.**

   While the fundamental principles of this strategy have been consistent since its launch, there has been constant refinement of specific aspects to incorporate new knowledge on the novel coronavirus, the COVID-19 disease, and COVID-19 containment, as rapidly as that knowledge has emerged. The remarkable speed with which Chinese scientists and public health experts isolated the causative virus, established diagnostic tools, and determined key transmission parameters, such as the route of spread and incubation period, provided the vital evidence base for China's strategy, gaining invaluable time for the response.

As striking, has been the uncompromising rigor of strategy application that proved to be a hallmark in every setting and context where it was examined. There has also been a relentless focus on improving key performance indicators, for example constantly enhancing the speed of case detection, isolation and early treatment. The implementation of these containment measures has been supported and enabled by the innovative and aggressive use of cutting edge technologies, from shifting to online medical platforms for routine care and schooling, to the use of 5G platforms to support rural response operations.

2. **Achieving China's exceptional coverage with and adherence to these containment measures has only been possible due to the deep commitment of the Chinese people to collective action in the face of this common threat. At a community level this is reflected in the remarkable solidarity of provinces and cities in support of the most vulnerable populations and communities. Despite ongoing outbreaks in their own areas, Governors and Mayors have continued to send thousands of health care workers and tons of vital PPE supplies into Hubei province and Wuhan city.**

   At the individual level, the Chinese people have reacted to this outbreak with courage and conviction. They have accepted and adhered to the starkest of containment measures – whether the suspension of public gatherings, the month-long 'stay at home' advisories or prohibitions on travel. Throughout an intensive 9-days of site visits across China, in frank discussions from the level of local community mobilizers and frontline health care providers to top scientists, Governors and Mayors, the Joint Mission was struck by the sincerity and dedication that each brings to this COVID-19 response.

3. **China's bold approach to contain the rapid spread of this new respiratory pathogen has changed the course of a rapidly escalating and deadly epidemic. A particularly compelling statistic is that on the first day of the advance team's work there were 2478 newly confirmed cases of COVID-19 reported in China. Two weeks later, on the final day of this Mission, China reported 409 newly confirmed cases. This decline in COVID-19 cases across China is real.**

   Several sources of data support this conclusion, including the steep decline in fever clinic visits, the opening up of treatment beds as cured patients are discharged, and the challenges to recruiting new patients for clinical trials. Based on a comparison of crude attack rates across provinces, the Joint Mission estimates that this truly all-of-Government and all-of-society approach that has been taken in China has averted or at least delayed hundreds of thousands of COVID-19 cases in the country. By extension, the reduction that has been achieved in the force of COVID-19 infection in China has also played a significant role in protecting the global community and creating a stronger first line of defense against international spread. Containing this outbreak, however, has come at great cost and sacrifice by China and its people, in both human and material terms.

   While the scale and impact of China's COVID-19 operation has been remarkable, it has also highlighted areas for improvement in public health emergency response capacity.

These include overcoming any obstacles to act immediately on early alerts, to massively scale-up capacity for isolation and care, to optimize the protection of frontline health care workers in all settings, to enhance collaborative action on priority gaps in knowledge and tools, and to more clearly communicate key data and developments internationally.

4. **China is already, and rightfully, working to bolster its economy, reopen its schools and return to a more normal semblance of its society, even as it works to contain the remaining chains of COVID-19 transmission. Appropriately, a science-based, risk-informed and phased approach is being taken, with a clear recognition and readiness of the need to immediately react to any new COVID-19 cases or clusters as key elements of the containment strategy are lifted.**

   Despite the declining case numbers, across China every province, city and community visited is urgently escalating their investments in acute care beds and public health capacity. It is crucial that this continues. Fifty thousand infected COVID-19 patient are still under treatment, across the country. However, the Joint Mission has come to understand the substantial knowledge, experience and capacities that China has rapidly built during this crisis. Consequently, it endorses China's working assumption that in most provinces and municipalities it should soon be possible to manage a resurgence in COVID-19 cases, using even more tailored and sustainable approaches that are anchored in very rapid case detection, instant activation of key containment activities, direct oversight by top leadership, and broad community engagement.

   As China works to resume a more normal level of societal and economic activity, it is essential that the world recognizes and reacts positively to the rapidly changing, and decreasing, risk of COVID-19 in the country. China's rapid return to full connectivity with the world, and to full productivity and economic output, is vital to China and to the world. The world urgently needs access to China's experience in responding to COVID-19, as well as the material goods it brings to the global response. It is even more urgent now, with escalating COVID-19 outbreaks outside of China, to constantly reassess any restrictions on travel and/or trade to China that go beyond the recommendations of the IHR Emergency Committee on COVID-19.

The Global Response & Next Steps

1. **The COVID-19 virus is a new pathogen that is highly contagious, can spread quickly, and must be considered capable of causing enormous health, economic and societal impacts in any setting. It is not SARS and it is not influenza. Building scenarios and strategies only on the basis of well-known pathogens risks failing to exploit all possible measures to slow transmission of the COVID-19 virus, reduce disease and save lives.**

   COVID-19 is not SARS and it is not influenza. It is a new virus with its own characteristics. For example, COVID-19 transmission in children appears to be limited compared with influenza, while the clinical picture differs from SARS. Such differences, while based on limited data, may be playing a role in the apparent efficacy of rigorously

applied non-pharmaceutical, public health measures to interrupt chains of human-to-human transmission in a range of settings in China. The COVID-19 virus is unique among human coronaviruses in its combination of high transmissibility, substantial fatal outcomes in some high-risk groups, and ability to cause huge societal and economic disruption. For planning purposes, it must be assumed that the global population is susceptible to this virus. As the animal origin of the COVID-19 virus is unknown at present, the risk of reintroduction into previously infected areas must be constantly considered.

The novel nature, and our continuously evolving understanding, of this coronavirus demands a tremendous agility in our capacity to rapidly adapt and change our readiness and response planning as has been done continually in China. This is an extraordinary feat for a country of 1.4 billion people.

2. **China's uncompromising and rigorous use of non-pharmaceutical measures to contain transmission of the COVID-19 virus in multiple settings provides vital lessons for the global response. This rather unique and unprecedented public health response in China reversed the escalating cases in both Hubei, where there has been widespread community transmission, and in the importation provinces, where family clusters appear to have driven the outbreak.**

   Although the timing of the outbreak in China has been relatively similar across the country, transmission chains were established in a wide diversity of settings, from mega-cities in the north and south of the country, to remote communities. However, the rapid adaptation and tailoring of China's strategy demonstrated that containment can be adapted and successfully operationalized in a wide range of settings.

   China's experience strongly supports the efficacy and effectiveness of anchoring COVID-19 readiness and rapid response plans in a thorough assessment of local risks and of utilizing a differentiated risk-based containment strategy to manage the outbreak in areas with no cases vs. sporadic cases vs. clusters of cases vs. community-level transmission. Such a strategy is essential for ensuring a sustainable approach while minimizing the socio-economic impact.

3. **Much of the global community is not yet ready, in mindset and materially, to implement the measures that have been employed to contain COVID-19 in China. These are the only measures that are currently proven to interrupt or minimize transmission chains in humans. Fundamental to these measures is extremely proactive surveillance to immediately detect cases, very rapid diagnosis and immediate case isolation, rigorous tracking and quarantine of close contacts, and an exceptionally high degree of population understanding and acceptance of these measures.**

   Achieving the high quality of implementation needed to be successful with such measures requires an unusual and unprecedented speed of decision-making by top leaders, operational thoroughness by public health systems, and engagement of society.

Given the damage that can be caused by uncontrolled, community-level transmission of this virus, such an approach is warranted to save lives and to gain the weeks and months needed for the testing of therapeutics and vaccine development. Furthermore, as the majority of new cases outside of China are currently occurring in high and middle-income countries, a rigorous commitment to slowing transmission in such settings with non-pharmaceutical measures is vital to achieving a second line of defense to protect low income countries that have weaker health systems and coping capacities.

The time that can be gained through the full application of these measures – even if just days or weeks – can be invaluable in ultimately reducing COVID-19 illness and deaths. This is apparent in the huge increase in knowledge, approaches and even tools that has taken place in just the 7 weeks since this virus was discovered through the rapid scientific work that has been done in China.

4. **The time gained by rigorously applying COVID-19 containment measures must be used more effectively to urgently enhance global readiness and rapidly develop the specific tools that are needed to ultimately stop this virus.**

   COVID-19 is spreading with astonishing speed; COVID-19 outbreaks in any setting have very serious consequences; and there is now strong evidence that non-pharmaceutical interventions can reduce and even interrupt transmission. Concerningly, global and national preparedness planning is often ambivalent about such interventions. However, to reduce COVID-19 illness and death, near-term readiness planning must embrace the large-scale implementation of high-quality, non-pharmaceutical public health measures. These measures must fully incorporate immediate case detection and isolation, rigorous close contact tracing and monitoring/quarantine, and direct population/community engagement.

   A huge array of COVID-19 studies, scientific research projects and product R&D efforts are ongoing in China and globally. This is essential and to be encouraged and supported. However, such a large number of projects and products needs to be prioritized. Without prioritizing, this risks compromising the concentration of attention and resources and collaboration required to cut timelines by precious weeks and months. While progress has been made, the urgency of the COVID-19 situation supports an even more ruthless prioritization of research in the areas of diagnostics, therapeutics and vaccines.

   Similarly, there is a long list of proposed studies on the origins of COVID-19, the natural history of the disease, and the virus's transmission dynamics. However, the urgency of responding to cases and saving lives makes it difficult for policy makers to consider and act on such comprehensive lists. This can be addressed by balancing studies with the immediate public health and clinical needs of the response. Studies can be prioritized in terms of the largest knowledge gaps that can be most rapidly addressed to have greatest immediate impact on response operations and patient management. This suggests prioritizing studies to identify risk factors for transmission in households, institutions and the community; convenience sampling for this virus in the population using existing surveillance systems; age-stratified sero-epidemiologic surveys; the analysis of clinical case series; and cluster investigations.

IV. Major Recommendations

For China

1. Maintain an appropriate level of emergency management protocols, depending on the assessed risk in each area and recognizing the real risk of new cases and clusters of COVID-19 as economic activity resumes, movement restrictions are lifted, and schools reopen;

2. Carefully monitor the phased lifting of the current restrictions on movement and public gatherings, beginning with the return of workers and migrant labor, followed by the eventual reopening of schools and lifting other measures;

3. Further strengthen the readiness of emergency management mechanisms, public health institutions (e.g. CDCs), medical facilities, and community engagement mechanisms to ensure sustained capacity to immediately launch containment activities in response to any resurgence in cases;

4. Prioritize research that rapidly informs response and risk management decisions, particularly household and health care facility studies, age-stratified sero-epidemiologic surveys and rigorous investigation of the animal-human interface; establish a centralized research program to fast-track the most promising rapid diagnostics and serologic assays, the testing of potential antivirals and vaccine candidates, and Chinese engagement in selected multi-country trials; and

5. As the country with the greatest knowledge on COVID-19, further enhance the systematic and real-time sharing of epidemiologic data, clinical results and experience to inform the global response.

For countries with imported cases and/or outbreaks of COVID-19

1. Immediately activate the highest level of national Response Management protocols to ensure the all-of-government and all-of-society approach needed to contain COVID-19 with non-pharmaceutical public health measures;

2. Prioritize active, exhaustive case finding and immediate testing and isolation, painstaking contact tracing and rigorous quarantine of close contacts;

3. Fully educate the general public on the seriousness of COVID-19 and their role in preventing its spread;

4. Immediately expand surveillance to detect COVID-19 transmission chains, by testing all patients with atypical pneumonias, conducting screening in some patients with upper respiratory illnesses and/or recent COVID-19 exposure, and adding testing for the COVID-19 virus to existing surveillance systems (e.g. systems for influenza-like-illness and SARI); and

5. Conduct multi-sector scenario planning and simulations for the deployment of even more stringent measures to interrupt transmission chains as needed (e.g. the suspension of large-scale gatherings and the closure of schools and workplaces).

For uninfected countries

1. Prepare to immediately activate the highest level of emergency response mechanisms to trigger the all-of-government and all-of society approach that is essential for early containment of a COVID-19 outbreak;

2. Rapidly test national preparedness plans in light of new knowledge on the effectiveness of non-pharmaceutical measures against COVID-19; incorporate rapid detection, largescale case isolation and respiratory support capacities, and rigorous contact tracing and management in national COVID-19 readiness and response plans and capacities;

3. Immediately enhance surveillance for COVID-19 as rapid detection is crucial to containing spread; consider testing all patients with atypical pneumonia for the COVID-19 virus, and adding testing for the virus to existing influenza surveillance systems;

4. Begin now to enforce rigorous application of infection prevention and control measures in all healthcare facilities, especially in emergency departments and outpatient clinics, as this is where COVID-19 will enter the health system; and

5. Rapidly assess the general population's understanding of COVID-19, adjust national health promotion materials and activities accordingly, and engage clinical champions to communicate with the media.

For the public

1. Recognize that COVID-19 is a new and concerning disease, but that outbreaks can managed with the right response and that the vast majority of infected people will recover;

2. Begin now to adopt and rigorously practice the most important preventive measures for COVID-19 by frequent hand washing and always covering your mouth and nose when sneezing or coughing;

3. Continually update yourself on COVID-19 and its signs and symptoms (i.e. fever and dry cough), because the strategies and response activities will constantly improve as new information on this disease is accumulating every day; and

4. Be prepared to actively support a response to COVID-19 in a variety of ways, including the adoption of more stringent 'social distancing' practices and helping the high-risk elderly population.

For the international community

1. Recognize that true solidarity and collaboration is essential between nations to tackle the common threat that COVID-19 represents and operationalize this principle;

2. Rapidly share information as required under the International Health Regulations (IHR) including detailed information about imported cases to facilitate contact tracing and inform containment measures that span countries;

3. Recognize the rapidly changing risk profile of COVID-19 affected countries and continually monitor outbreak trends and control capacities to reassess any 'additional health measures' that significantly interfere with international travel and trade.

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Annexes

A. WHO-China Joint Mission Members

Bruce AYLWARD	Team Lead WHO-China Joint Mission on COVID-19, Senior Advisor to the Director-General, World Health Organization, Geneva, Switzerland
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B. Summary Agenda of the Mission

Dates	Location	Activities
10-15 February 2020 (Advance Team)	Beijing	Advance Team and WHO Country team meetings with national counterparts and institutions
16 February 2020	Beijing	Meeting with the full international team for briefing at the WHO Country office
	Beijing	Workshop at the National Health Commission (NHC) with relevant departments of the Joint Prevention and Control Mechanism of the State Council
17 February 2020	Beijing	Site visit to Beijing Ditan Hospital
	Beijing	Site visit to Anhuali community and health service station, Anzhen street, Chaoyang District, Beijing
	Beijing	Workshop with Chinese Center for Disease Control and Prevention
18 February 2020 (Guangdong Team)	Shenzhen, Guangdong	Shenzhen customs at the airport
	Shenzhen, Guangdong	Shenzhen No.3 People's Hospital
	Shenzhen, Guangdong	Shenzhen Center for Disease Control and Prevention
	Shenzhen, Guangdong	Meeting at Tencent
19 February 2020 (Guangdong Team)	Shenzhen, Guangdong	Qiaoxiang community
	Shenzhen to Guangzhou	Visit to Futian High-speed Train Station, and travel to Guangzhou by train
	Guangzhou	Guangzhou Panyu Sanatorium
	Guangzhou	Guangdong Laboratory of Regenerative Medicine and Health
	Guangzhou	Guangzhou Tiyudongzhihui wet market
	Guangzhou	First Workshop with The People's government of Guangdong Province
20 February 2020 (Guangdong Team)	Guangzhou	Guangdong Provincial Center for Disease Control and Prevention
	Guangzhou	Renmin road campus of Guangzhou Women and Children Medical Center
	Guangzhou	The second Workshop with The People's government of Guangdong Province
18 February 2020 (Sichuan Team)	Beijing to Chengdu	
	Sichuan	Site visit to Chengdu Shuangliu International Airport
		Meeting with the Governor of Sichuan Provincial People's Government
		Site visit to Yong'an Township Central hospital with fever clinic
		Site visit to home community of Yong'an township
19 February 2020 (Sichuan Team)		Symposium with provincial and municipal authorities
		Sichuan Center for Disease Control and Prevention
		Site visit to West China Hospital- Designated COVID-19 hospital
20 February 2020 (Sichuan Team)		Site visit to Chengdu Women and Children's hospital
		Site visit to Pharmaceutical Logistics center
		Site visit to East Chengdu railway station

		Site visit to Chengdu Public Health Clinical Centre- Designated COVID 19 hospital
Sichuan and Guangdong teams reconvene in Guangzhou		
21-24 February 2020		Analyze major findings; Meetings of the WHO-China Joint mission to finalize the report
Feb 22 (Wuhan Team)	Guangzhou to Wuhan	Select team members only
23 February (Wuhan Team)		Site visit to Guanggu Campus of Wuhan Tongji Hospital
		Site visit to Mobile Cabin Hospital in Wuhan Sports Center
		Workshop with relevant departments of the Joint Prevention and Control Mechanism of Hubei Province
		Feedback Meeting with Minister Ma, NHC at the Wuhan Conference Center
24 February 2020	Guangzhou to Beijing	Finalize report, WHO-Joint Press conference in Beijing

C. Detailed Technical Findings

Response management, case and contact management, risk communication and community engagement

The response structures in China were rapidly put in place according to existing emergency plans and aligned from the top to the bottom. This was replicated at the four levels of government (national provincial, prefecture and county/district).

Organizational structure and response mechanism

Response activation at the national level: COVID-19 prevention and control mechanisms were initiated immediately after the outbreak was declared and nine working groups were set up to coordinate the response: a) Coordination b) Epidemic prevention and control c) Medical treatment d) Research e) Public communication f) Foreign affairs g) Medical material support h) Life maintenance supplies and i) Social stability. Each working group has a ministerial level leader. Emergency response laws and regulations for the emergency response to public health emergencies, prevention and control of infectious diseases have been developed or updated to guide the response.

Response activation in provinces: Each province set up a similar structure to manage the outbreak. The response is organized at the levels of national, provincial, prefecture, county/district and the community. By 29 January, all provinces across China had launched the highest level of response for major public health emergencies.

Response Strategy

A clear strategy was developed, and goals were well articulated and communicated across the entire response architecture. This strategy was rapidly adapted and adjusted to the outbreak, both in terms of the epidemiological situation over time and in different parts of the country.

The epidemiological situation has been used to define location into four areas:

- In areas without cases, the strategy in these areas is to "strictly prevent introduction". This includes quarantine arrangements in transportation hubs, monitoring for temperature changes, strengthening of triage arrangements, use of fever clinics, and ensuring normal economic and social operations.
- In areas with sporadic cases, the strategy is focused on "reducing importation, stopping transmission and providing appropriate treatment".
- In areas with community clusters, the strategy is focussed on "stopping transmission, preventing exportation, and strengthening treatment".
- In areas with community transmission, the strictest prevention and control strategies are being implemented, the entry and exit of people from these areas has been stopped and public health and medical treatment measures are comprehensively strengthened.

Main control measures implemented in China

The main control measures implemented in China are as follows and are illustrated in Figures 6A-6D, representing the national level response and examples of the response at the Provincial and municipal levels:

Monitoring and reporting: COVID-19 was included in the statutory reporting of infectious diseases on 20 January and plans were formulated to strengthen diagnosis, monitoring, and reporting.

Strengthening ports of entry and quarantine: The Customs Department launched the emergency plan for public health emergencies at ports across the country and restarted the health declaration card system for entry and exit into cities as well as strict monitoring of the temperature of entry and exit passengers.

Treatment: For severe or critical patients, the principle of "Four Concentrations" was implemented: i.e. concentrating patients, medical experts, resources and treatment into special centres. All cities and districts transformed relevant hospitals, increased the number of designated hospitals, dispatched medical staff, and set up expert groups for consultation, so as to minimise mortality of severe patients. Medical resources from all over China have been mobilized to support the medical treatment of patients in Wuhan.

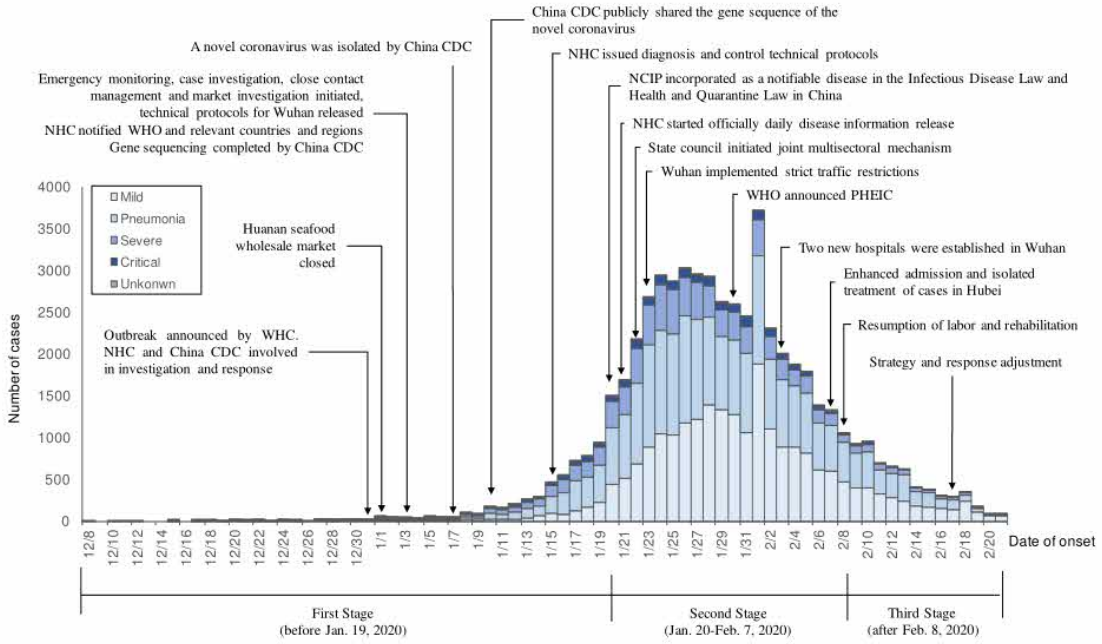
Epidemiological investigation and close contact management: Strong epidemiological investigations are being carried out for cases, clusters, and contacts to identify the source of infection and implement targeted control measures, such as contact tracing.

Social distancing: At the national level, the State Council extended the Spring Festival holiday in 2020, all parts of the country actively cancelled or suspended activities like sport events, cinema, theatre, and schools and colleges in all parts of the country postponed re-opening after the holiday. Enterprises and institutions have staggered their return to work. Transportation Departments setup thousands of health and quarantine stations in national service areas, and in entrances and exits for passengers at stations. Hubei Province adopted the most stringent traffic control measures, such as suspension of urban public transport, including subway, ferry and long-distance passenger transport. Every citizen has to wear a mask in public. Home support mechanisms were established. As a consequence of all of these measures, public life is very reduced.

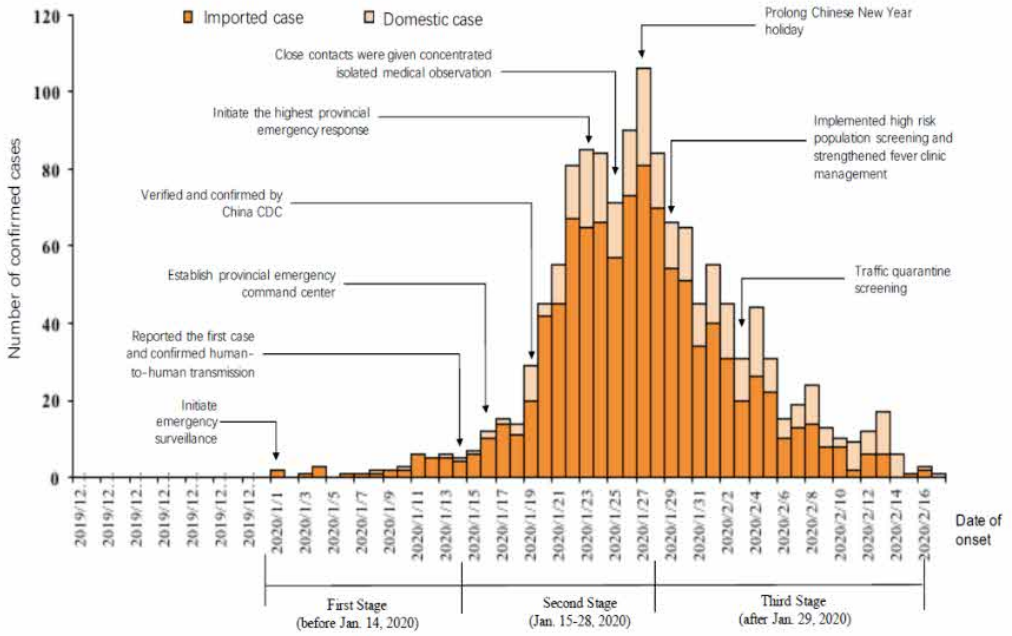
Funding and material support: Payment of health insurance was taken over by the state, as well as the work to improve accessibility and affordability of medical materials, provide personal protection materials, and ensure basic living materials for affected people.

Emergency material support: The government restored production and expanded production capacity, organized key enterprises that have already started to exceed current production capacity, supported local enterprises to expand imports, and used cross-border e-commerce platforms and enterprises to help import medical materials and improve the ability to guarantee supplies.

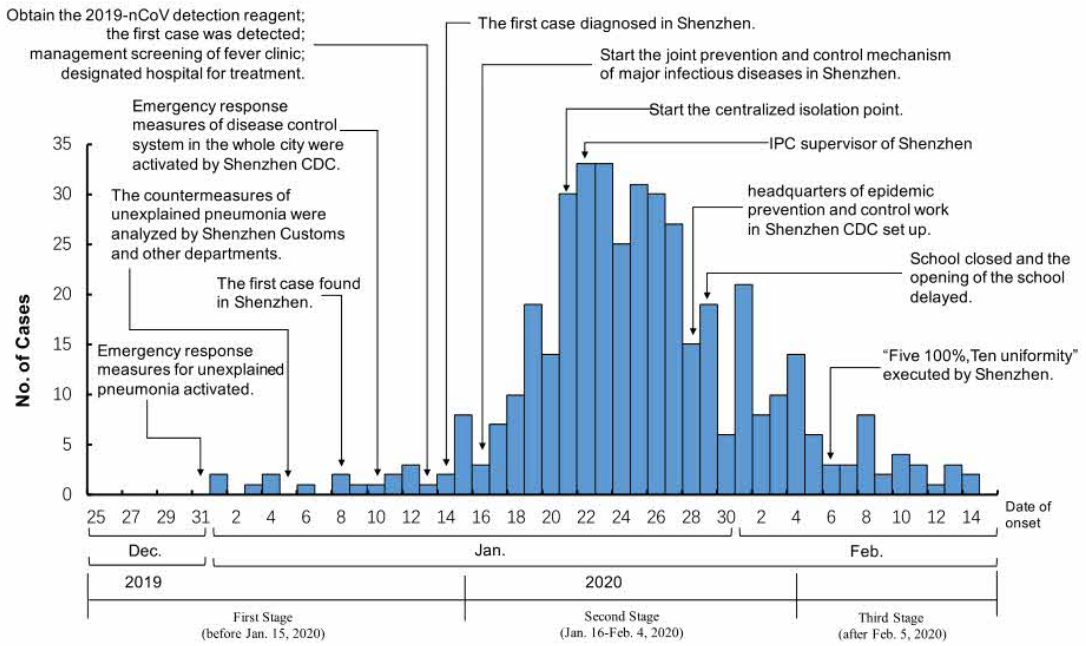
A


China CDC publicly shared the gene sequence of the novel coronavirus
A novel coronavirus was isolated by China CDC
NHC issued diagnosis and control technical protocols
Emergency monitoring, case investigation, close contact management and market investigation initiated, technical protocols for Wuhan released
NHC notified WHO and relevant countries and regions
Gene sequencing completed by China CDC
NCIP incorporated as a notifiable disease in the Infectious Disease Law and Health and Quarantine Law in China
NHC started officially daily disease information release
State council initiated joint multisectoral mechanism
Wuhan implemented strict traffic restrictions
WHO announced PHEIC
Mild
Pneumonia
Severe
Critical
Unkonwn
Huanan seafood wholesale market closed
Two new hospitals were established in Wuhan
Enhanced admission and isolated treatment of cases in Hubei
Outbreak announced by WHC, NHC and China CDC involved in investigation and response
Resumption of labor and rehabilitation
Strategy and response adjustment
Number of cases
Date of onset
First Stage (before Jan. 19, 2020)
Second Stage (Jan. 20-Feb. 7, 2020)
Third Stage (after Feb. 8, 2020)

B


Imported case
Domestic case
Prolong Chinese New Year holiday
Close contacts were given concentrated isolated medical observation
Initiate the highest provincial emergency response
Implemented high risk population screening and strengthened fever clinic management
Verified and confirmed by China CDC
Establish provincial emergency command center
Traffic quarantine screening
Reported the first case and confirmed human-to-human transmission
Initiate emergency surveillance
Number of confirmed cases
Date of onset
First Stage (before Jan. 14, 2020)
Second Stage (Jan. 15-28, 2020)
Third Stage (after Jan. 29, 2020)

C



D

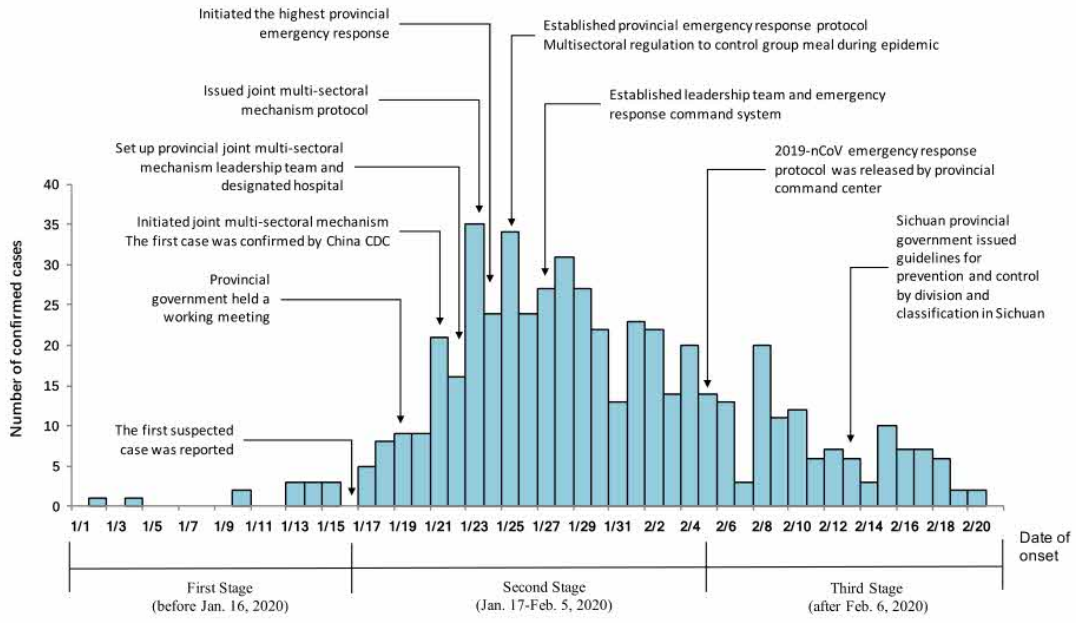


Figure 6. COVID-19 epidemic curves and major intervention measures in China as implemented at a) the national level b) in Guangdong province, c) in Shenzhen municipality and d) in Sichuan province

Risk communications (information release, public and media communications)

International and interregional cooperation and information sharing: From 3 January 2020, information on COVID-19 cases has been reported to WHO daily. Full genome sequences of the new virus were shared with WHO and the international community immediately after the pathogen was identified on 7 January. From 13 to 14 January, a group of technical experts from Hong Kong SAR, Macao SAR and Taiwan, China visited Wuhan. From 20-21 January, a World Health Organization team visited Wuhan. A set of nucleic acid primers and probes for PCR detection for COVID-19 was released on 21 January.

Daily updates: The National Health Commission announces the epidemic situation every day and holds daily press conferences to respond to emerging issues. The government also frequently invites experts to share scientific knowledge on COVID-19 and to address public concerns.

Psychological care: This is provided to patients and the public. Governments at all levels, NGOs and all sectors of society developed guidelines for emergency psychological crisis intervention and guidelines for public psychological self-support and counselling. A hotline for mental health services has been established for the public.

IT platform: China has capitalized on the use of technology, big data and AI for COVID-19 preparedness, readiness and response. Authoritative and reliable information, medical guidance, access to online services, provision of educational tools and remote work tools have been developed in and used across China. These services have increased accessibility to health services, reduced misinformation and minimized the impact of fake news.

Social mobilization and community engagement

Civil society organizations (community centers and public health centers) have been mobilized to support prevention and response activities. The community has largely accepted the prevention and control measures and is fully participating in the management of self-isolation and enhancement of public compliance. Community volunteers are organized to support self-isolation and help isolated residents at home to solve practical life difficulties. Measures were taken to limit the movement of the population through home-based support. Up to now, outside of Hubei, 30 provinces have registered and managed more than 5 million people coming from Wuhan.

Clinical case management and infection prevention and control

The main **signs and symptoms** of COVID-19 include fever, dry cough, fatigue, sputum production, shortness of breath, myalgia or arthralgia, sore throat, and headache. Nausea or vomiting has been reported in a small percentage of patients (5%). On 14 February, China CDC described the clinical features, outcomes, laboratory and radiologic findings of 44 672 laboratory-confirmed cases. Only 965 (2.2%) were under 20 years of age and there is just one recorded death (0.1%) in this age group. Most patients (77.8%) were aged 30 to 69 years. Patients aged over 80 years had a CFR of 14.8%. The CFR was highest in those with

comorbidities including cardiovascular, diabetes, chronic respiratory disease, hypertension and cancer.

As opposed to Influenza A(H1N1)pdm09, **pregnant women** do not appear to be at higher risk of severe disease. In an investigation of 147 pregnant women (64 confirmed, 82 suspected and 1 asymptomatic), 8% had severe disease and 1% were critical.

Severe cases are defined as tachypnoea (≧30 breaths/ min) or oxygen saturation ≤93% at rest, or PaO2/FIO2 <300 mmHg. **Critical cases** are defined as respiratory failure requiring mechanical ventilation, shock or other organ failure that requires intensive care. About a quarter of severe and critical cases require mechanical ventilation while the remaining 75% require only oxygen supplementation.

China has a principle of **early identification**, early isolation, early diagnosis and early treatment. Early identification of suspect cases is critical to containment efforts and occurs via a process of temperature screening and questioning at entrances to many institutions, communities, travel venues (airports, train stations) and hospitals. Many hospitals have fever clinics that were established and maintained since the SARS outbreak. In China, laboratory tests were originally requested according to the case definitions, which included an epidemiological link to Hubei or other confirmed cases. However, more recently, a more **liberal clinical testing regimen** allows clinicians to test with a low index of suspicion.

Suspect cases are isolated in normal pressure single rooms, wear a surgical mask (for source control). Staff in China wear a cap, eye protection, n95 masks, gown and gloves (single use only). In Wuhan it is necessary for most suspects to be cohorted in a normal pressure isolation ward. Staff wear PPE continuously, changing it only when they leave the ward.

PCR test results are returned the same day. If positive, patients are transported to designated hospitals (including negative pressure ambulances in some cities). All patients, including the mild and asymptomatic, with a positive test are admitted. The designated hospitals are known and are strategically placed with at least one per district/county. Positive cases are cohorted by gender. Negative tested patients are managed based on clinical needs. All patients are evaluated with a respiratory multiplex to look for other diagnoses. This can add to the reassurance that a negative COVID-19 test reflects a lack of infection with COVID-19.

In Wuhan, there are 45 **designated hospitals**, 6 of which are designated for critical patients, and 39 for severe patients and/or any patients >65 years old. There are an additional 10 temporary hospitals reconstructed from gymnasium and exhibition centers, which are for mild patients. Other surge measures undertaken in Wuhan include two new temporary hospitals with 2600 beds, plus many makeshift hospitals to increase bed capacity. Bed capacity within Wuhan has increased to >50,000.

Patients are treated according to the **National Clinical guidelines** (edition 6) released by the China National Health Commission (NHC). There are no specific antiviral or immune modulating agents proven (or recommended) to improve outcomes. All patients are monitored by regular pulse oximetry. The guidelines include supportive care by clinical category (mild, moderate, severe and critical), as well as the role of investigational

treatments such as chloroquine, phosphate, lopinavir/ritonavir, alpha interferon, ribavirin, arbidol. The application of intubation/invasive ventilation and ECMO in critically ill patients can improve survival. The Joint Mission Team was told of ECMO use in four patients at one hospital with one death and three who appeared to be improving. Clearly, though ECMO is very resource consumptive, any health system would need to carefully weigh the benefits. There is widespread use of Traditional Chinese Medicines (TCM), for which the affects must be fully evaluated.

Patients with COVID-19 are not permitted **visitors**. Staff use coveralls, masks, eye cover, and gloves, removing PPE only when they leave the ward.

Patients are discharged after clinical recovery (afebrile >3 days, resolution of symptoms and radiologic improvement) and 2 negative PCR tests taken 24 hours apart. Upon discharge, they are asked to minimise family and social contact and to wear a mask. There are expectations of clinical trial results within a matter of weeks, which will see further opportunities for treatment.

There are guidelines for **elderly care** specifically targeting prevention in individuals and introduction of COVID-19 to nursing homes.

Training programmes by video conference nationally are scaled up to inform staff of best practice and to ensure PPE usage. **Clinical champions** are created to disperse knowledge and provide local expertise.

Maintenance of usual healthcare activities is maintained by hospital zoning (e.g. clean/contaminated sections of the healthcare facility).

Laboratory, diagnostics and virology

The virus found to cause COVID-19 was initially isolated from a clinical sample on 7 January. It is notable that within weeks following the identification of the virus, a series of reliable and sensitive **diagnostic tools** were developed and deployed. On 16 January, the first RT-PCR assays for COVID-19 were distributed to Hubei. Real-time PCR kits were distributed to all the provinces on 19 January and were provided to Hong Kong SAR and Macao SAR on 21 January. Information regarding viral sequences and PCR primers and probes was shared with WHO and the international community by China CDC on 12 January 2020. To facilitate product development and research on the new virus, COVID-19 virus sequences were uploaded to the GISAID Database by China.

By 23 February, there were 10 kits for detection of COVID-19 approved in China by the NMPA, including 6 RT-PCR kits, 1 isothermal amplification kit, 1 virus sequencing product and 2 colloidal gold antibody detection kits. Several other tests are entered in the emergency approval procedure. Currently, there are at least 6 local producers of PCR test kits approved by NMPA. Overall, producers have the capacity to produce and distribute as many as 1,650,000 tests/week.

Specimens from both the upper respiratory tract (URT; nasopharyngeal and oropharyngeal) and lower respiratory tract (LRT; expectorated sputum, endotracheal aspirate, or bronchoalveolar lavage) are collected for COVID-19 testing by PCR.

COVID-19 virus has been detected in respiratory, fecal and blood specimens. According to preliminary data from Guangzhou CDC as of 20 February, virus can initially be detected in upper respiratory samples 1-2 days prior to symptom onset and persist for 7-12 days in moderate cases and up to 2 weeks in severe cases. Viral RNA has been detected in feces in up to 30% of patients from day 5 following onset of symptoms and has been noted for up to 4-5 weeks in moderate cases. However, it is not clear whether this correlates with the presence of infectious virus. While live virus has been cultured from stool in some cases, the role of fecal-oral transmission is not yet well understood. COVID-19 has been isolated from the clinical specimens using human airway epithelial cells, Vero E6 and Huh-7 cell lines.

Serological diagnostics are rapidly being developed but are not yet widely used. Joint Mission members met with local research teams at the China CDC, Guangzhou Regenerative Medicine and Health Guangdong Laboratory. The teams reported on the development of tests for IgM, IgG and IgM+IgG using rapid test platforms utilizing chemiluminiscence. ELISA assays are also under development.

Research & Development

The government of China has initiated a series of major emergency research programs on virus genomics, antivirals, traditional Chinese medicines, clinical trials, vaccines, diagnostics and animal models. Research includes fundamental basic research and human subjects research. For the purpose of this report, human studies are limited to those involving IRB approval and informed consent. Other forms of human subjects investigations are included in the sections on epidemiology in this report. Well-focused, robust research conducted in the setting of an outbreak has the potential of saving many lives by identifying the most effective ways to prevent, diagnose and treat disease.

Since the COVID-19 virus has a genome identity of 96% to a bat SARS-like coronavirus and 86%-92% to a pangolin SARS-like coronavirus, an animal source for COVID-19 is highly likely. This was corroborated by the high number of RT-PCR positive environmental samples taken from the Huanan Seafood Market in Wuhan.

At least 8 **nucleic acid-based methods** for direct detection of COVID-19 and two colloidal gold antibody detection kits have been approved in China by the NMPA. Several other tests are close to approval. It will be important to compare the sensitivities and specificities of these and future serologic tests. Development of rapid and accurate **point-of-care tests** which perform well in field settings are especially useful if the test can be incorporated into presently commercially available multiplex respiratory virus panels. This would markedly improve early detection and isolation of infected patients and, by extension, identification of contacts. **Rapid IgM and IgG antibody testing** are also important ways to facilitate early diagnosis. Standard serologic testing can be used for retrospective diagnoses in the context of serosurveys that help better understand the full spectrum of COVID-19 infection.

A variety of **repurposed drugs and investigational drugs** have been identified. Screening NMPA approved drug libraries and other chemical libraries have identified novel agents. Hundreds of clinical trials involving remdesivir, chloroquine, favipiravir, chloroquine, convalescent plasma, TCM and other interventions are planned or underway. Rapid completion of the most important of these studies is critical to identifying truly effective therapies. However, evaluation of investigational agents requires adequately powered, randomized, controlled trials with realistic eligibility criteria and appropriate stratification of patients. It is important for there to be a degree of coordination between those conducting studies within and beyond China.

The development of a safe and effective **vaccine** for this highly communicable respiratory virus is an important epidemic control measure. Recombinant protein, mRNA, DNA, inactivated whole virus and recombinant adenovirus vaccines are being developed and some are now entering animal studies. Vaccine safety is of prime concern in the area of coronavirus infection in view of the past experience of disease enhancement by inactivated whole virus measles vaccine and similar reports in animal experiments with SARS coronavirus vaccines. It will be important that these vaccine candidates rapidly move into appropriate clinical trials.

The ideal **animal model** for studying routes of virus transmission, pathogenesis, antiviral therapy, vaccine and immune responses has yet to be found. The ACE2 transgenic mouse model and Macaca Rhesus model are already used in research laboratories. Systematically addressing which models can accurately mimic human infection is required.

There is a global rush for masks, hand hygiene products and other personal protective equipment. The relative importance of **non-pharmaceutical control measures** including masks, hand hygiene, and social distancing require further research to quantify their impact.

There are distinct patterns of intra-familial transmission of COVID-19. It is unclear whether or not there are host factors, including genetic factors, that influence susceptibility or disease course. COVID-19 has a varied clinical course and a precise description of that course is not available. In addition, the long-term consequences of COVID-19 are unknown. An observational cohort study of patients with COVID-19 enrolled from the time of diagnosis (with appropriate controls) could provide in-depth information about clinical, virologic and immunologic characteristics of COVID-19. Table 1 summarizes priority research areas with immediate to longer term goals.

Table 1 Priority research areas with immediate, intermediate and longer-term goals

Immediate Goals	Intermediate Goals	Long-term goals
Diagnostics: RNA assays, antibody & antigen assays, point of care detection	Diagnostics: Multiplex diagnostic platforms	Diagnostics: Prognostic markers
Therapeutics: Remdesivir, favipiravir, chloroquine, plasma, TCM	Therapeutics: intravenous immunoglobulin (IVIg)	Therapeutics: Innovative approaches (CRISPR-CAS; RNAi; Cell-based; positive hits from library screening)
Vaccines: Development of animal models	Vaccines: mRNA candidates and candidate viral vectors	Vaccines: inactivated candidates and subunit candidates

D. Knowledge Gaps

Knowledge gaps and key questions to be answered to guide control strategies include:

Source of infection

- Animal origin and natural reservoir of the virus
- Human-animal interface of the original event
- Early cases whose exposure could not be identified

The pathogenesis and virulence evolution of the virus

Transmission dynamics

- Modes of Transmission:
    - Role of aerosol transmission in non-health care settings
    - Role of fecal-oral transmission
- Viral shedding in various periods of the clinical course in different biological samples (i.e. upper and lower respiratory tract, saliva, faeces, urine)
    - Before symptom onset and among asymptomatic cases
    - During the symptomatic period
    - After the symptomatic period / during clinical recovery

Risk factors for infection

- Behavioral and socio-economic risk factors for infection in
    - Households / institutions
    - the Community
- Risk factors for asymptomatic infection
- Risk factors for nosocomial infection
    - among health care workers
    - among patients

Surveillance and monitoring

- Monitoring community transmission through existing
    - ILI surveillance
    - SARI surveillance
- The outbreak trend and intervention dynamics
    - Basic reproduction numbers in various stages of the epidemic
    - The epidemic's relation to seasonality

Laboratory and diagnostics

- Sensitivity and specificity of different nucleic acid (PCR, NAATs and rapid tests), antibody and antigen tests
- Post-infection antibody titers and the duration of protection
- Sero-prevalence among
    - Health care workers
    - General population
    - Children

Clinical management of severe and critically ill patients

- Value of ECMO in the management of critically ill patients
- Best practice using mechanical ventilation in the management of critically ill patients
- Re-evaluation of the role of steroids in the management of severe and critically ill patients
- Identification of factors associated with successful clinical management and outcome
- Determination of the effectiveness of Traditional Chinese Medicines (TCM)
- Determination the effectiveness of additional investigational treatment options (e.g. intravenous immunoglobulin/IVIg, convalescent plasma)

Prevention and control measures

- Key epidemic indicators that inform evidence-based control strategy decision making and adjustments
- Effectiveness of infection prevention and control (IPC) measures in various health care settings
- Effectiveness of entry and exit screening
- Effectiveness of the public health control measures and their socio-economic impact
    - Restriction of movement
    - Social distancing
    - School and workplace closures
    - Wearing mask in general public
    - Mandatory quarantine
    - Voluntary quarantine with active surveillance

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E. Operational & Technical Recommendations

Operational/programmatic recommendations

- Reassess risk and capacities based on different stages of the outbreak; approve different measures during the different phases of the response; assess different stages of the response; reach a balance between response and social development
- Initiate a timely scientific evidence based, efficient and flexible joint multi-sectoral mechanism, which is driven by strong government leadership

Technical recommendations

Epidemiology and transmission

- Continue enhanced surveillance across the country through existing respiratory disease systems, including ILI, SARI or pneumonia surveillance systems
- Prioritize early investigations, including household transmission studies, age-stratified sero-epidemiologic surveys including children, case-control studies, cluster investigations, and serologic studies in health care workers

Severity

- Continue to share information on patient management, disease progression and factors leading to severe disease and favorable outcomes
- Review and analyze the possible factors associated with the disease severity, which may include:
    - natural history studies to better understand disease progression in mild, severe and fatal patients
    - medical chart reviews about disease severity among vulnerable groups, (e.g. those with underlying conditions, older age groups, pregnant women and children) to develop appropriate standards of care
    - evaluation of factors leading to favorable outcomes (e.g. early identification and care)

Clinical care and infection prevention and control

- Suspect patients who have not yet been tested should be isolated in single normal pressure rooms; cohorting of positive cases is acceptable
- Physicians and all health care workers need to maintain a high level of clinical alert for COVID-19
- For affected countries, standardize training for clinical care and IPC and scale with the development of local (e.g. district level) experts
- Ensure concurrent testing for other viral pathogens to support a negative COVID-19 test
- Ensure maintenance of usual and essential services during the outbreak

- Ensure processes are in place for infection prevention among the most vulnerable, including the elderly
- Ensure readiness to provide clinical care and to meet IPC needs, including:
    a. anticipated respiratory support requirements (e.g. pulse oximeters, oxygen, and invasive support where appropriate)
    b. national guidelines for clinical care and IPC, revised for COVID-19
    c. nationally standardised trainings for disease understanding and PPE use for HCWs
    d. community engagement
    e. PPE and Medication stockpiles
    f. early identification protocols; triage, temperature screening, holding bays (triage, including pulse oximetry)
    g. treatment protocols including designated facilities, patient transportation
    h. enhanced uptake of influenza and pneumococcal vaccine according to national guidelines
    i. laboratory testing
    j. rapid response teams

Laboratory and virology

- Continue to perform whole genome analysis of COVID-19 viruses isolated from different times and places, to evaluate virus evolution
- Conduct pathogenesis studies using biopsy/post-mortem specimens of COVID-19 patients or infected animal models
- Evaluate available nucleic acid PCR diagnostics
- Rapidly develop and evaluate rapid/point-of-care diagnostics and serologic assays
- Conduct further study to interpret the result of positive COVID-19 RNA detection in feces in patients recovering from COVID-19
- Enhance international cooperation, especially in terms of biosafety and information sharing for increased understanding of the COVID-19 virus and traceability of the virus
- Consider monitoring proinflammatory cytokines via multiplex assays to predict the development of “cytokine storm”

Research and development

- Additional effort should be made to find the animal source, including the natural reservoir and any intermediate amplification host, to prevent any new epidemic foci or resurgence of similar epidemics

- Efforts should be made to consistently evaluate existing and future diagnostic tests for detection of COVID-19 using a harmonized set of standards for laboratory tests and a biorepository that can be used for evaluating these tests
- Consider the establishment of a centralized research program in China to oversee that portfolio and ensure the most promising research (vaccines, treatments, pathogenesis) are adequately supported and studied first; program staff dedicated to the clinical research would work at the clinical research site(s) to decrease the research workload of the clinicians at the site
- Consider including one or more sites within China in the ongoing and future multi-center, international trials; Chinese investigators should be actively engaged in international trials
- Continue to develop additional animal models, making every effort to ensure these mimic human infection and virus transmission as closely as possible
- Conduct studies to determine which of the commonly used forms of PPE are most effective in controlling the spread of COVID-19

_____

From: Office of the Director-General
Sent: Thu, 13 Feb 2020 18:21:44 +0000
To: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Cc: SCHWARTLANDER, Bernhard F.;DRURY, Patrick Anthony;genevausmission@state.gov;'CarsonTL@state.gov'
Subject: Letter from WHO Director-General, Dr Tedros Adhanom Ghebreyesus
Attachments: Scanned from a Xerox Multifunction Printer.pdf

Dear Dr Zhou,

Please find attached for your kind and urgent attention, a letter from Dr Tedros Adhanom Ghebreyesus, Director-General of the World Health Organization.
Best regards.

Office of the Director-General
World Health Organization

World Health Organization

20, AVENUE APPIA – CH-1211 GENEVA 27 – SWITZERLAND – TEL CENTRAL +41 22 791 2111 – FAX CENTRAL +41 22 791 3111 – WWW.WHO.INT

Tel. direct: +41 22 791
Fax direct: +41 22 791
E-mail :

In reply please refer to:

Your reference:

Dr Weidong Zhou
Influenza Division
National Center for Immunization and Respiratory Diseases
US Centers for Disease Control and Prevention
United States of America

13 February 2020

Dear Dr Zhou,

I am pleased to invite you to participate, as an expert, in the World Health Organization (WHO)-led international technical mission to the People's Republic of China to support response operations for the COVID-19 outbreak.

WHO's declaration of this outbreak as a public health emergency of international concern warrants unprecedented collaboration, solidarity and coordinated action in this context. Your involvement in this mission would be invaluable to support response efforts nationally, regionally and globally.

This mission is being conducted under the framework of the Global Outbreak Alert and Response Network (GOARN), and will be comprised of international experts who will work alongside Chinese counterparts to increase understanding of the outbreak to guide global response efforts.

The Terms of Reference for the mission are being finalized in Beijing, China jointly with the Chinese authorities and an advance WHO team, led by Dr Bruce Aylward. The mission will serve, inter alia, to gain a greater understanding of the epidemiology and evolution of the outbreak, and learn more about the impact of the virus.

Your extensive skills and experience would render your participation in this mission invaluable, and WHO looks forward to your confirmation in this regard. WHO also extends its appreciation to your host institution for supporting your participation in this mission.

In conjunction with relevant authorities from the People's Republic of China, the GOARN Secretariat is on standby to support and facilitate your arrangements, and will follow-up with you directly in short course with additional details.

I would like to thank you very much for your engagement in this important work, and for your time and consideration.

Yours sincerely,

Dr Tedros Adhanom Ghebreyesus
Director-General

cc: The Director, Office of Global Health Affairs, Department of Health and Human Services, Washington, D.C.
Permanent Mission of the United States of America to the United Nations Office and other International Organizations at Geneva

From: AYLWARD, Raymond Bruce J.
Sent: Fri, 14 Feb 2020 18:26:04 +0000
To: Alexander SEMENOV (b)(6) IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Clifford LANE (cliff.lane@nih.gov);Dale FISHER (mdcfda@nus.edu.sg);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);gmleung;LEE Jong-Koo (docmohw@snu.ac.kr);Dr VAN KERKHOVE, Maria;Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Tim ECKMANNS (EckmannsT@rki.de);Zhou, Weigong (CDC/DDID/NCIRD/ID);Zhou, Weigong (CDC/DDID/NCIRD/ID);XING, Jun
Cc: GALEA, Gauden;DRURY, Patrick Anthony
Subject: Welcome to the WHO-CHN Joint Mission
Attachments: WHO-China Joint Mission on COVID-19_ToRs_13Feb2020.pdf
Importance: High

Dear Members of the Joint Mission,

Thank you all so much for your enthusiasm to participate in the forthcoming WHO-CHN Joint Mission on COVID-19.

I am also very grateful for your understanding and patience as key details of this Mission were worked out.

I am delighted that most of you are already scheduled to arrive either tomorrow (Saturday) or by mid-day Sunday. This should give us time for an initial 'pre-meeting' on Sunday afternoon at the WHO China office, which is a short walk from our hotel.

Over the past 3 days, myself and the other members of the Advance Team (Dr Maria van Kerkhove & Dr Jun Xing of WHO) have been working with national authorities here in Beijing to finalize the Mission objectives, workstreams, method of work and baseline information/data requests (please see attached 1-page summary of our draft ToRs).

Although the programme is still being finalized, we expect the formal Mission to start on Sunday evening with an in-depth workshop from 7-11 pm with our national Team counterparts and senior government officials from key Ministries involved in this COVID-19 response. Following a day of site visits here in Beijing there is a tentative plan for 3 days of field visits prior to our regrouping to consolidate findings.

A number of these details are still evolving, however, and will be finalized over the next 24 hours.

I understand that our very capable WHO teams in Geneva and here in Beijing have been communicating with each of you regarding your flights, airport pick-up and hotel accommodations. To facilitate our joint work and communications, we will also circulate a consolidated list of our names, affiliations, emails and cellphones by mid-day tomorrow (Saturday, 15 Feb).

You are in very good hands with our logistics teams, however please do not hesitate to contact me directly if I can be of assistance in advance of your arrival.

With very best regards,

Bruce

Bruce AYLWARD (WHO/Geneva)
Team Leader, WHO-China Joint Mission on COVID-19
Email: aylwardb@who.int
Mobile: (b)(6) (international)

(b)(4)

From: Dale Fisher
Sent: Sat, 15 Feb 2020 12:09:48 +0000
To: GALEA, Gauden;AYLWARD, Raymond Bruce J.;Alexander SEMENOV (b)(6) Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Clifford LANE (cliff.lane@nih.gov);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);gmleung;LEE Jong-Koo (docmohw@snu.ac.kr);Dr VAN KERKHOVE, Maria;Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Tim ECKMANNS (EckmannsT@rki.de);Zhou, Weigong (CDC/DDID/NCIRD/ID);Zhou, Weigong (CDC/DDID/NCIRD/ID);XING, Jun
Cc: DRURY, Patrick Anthony;PANG, Xinxin
Subject: RE: Welcome to the WHO-CHN Joint Mission

Thanks Gauden;

Very pleased to be here and looking forward to meeting you tomorrow.

Dale

From: PANG, Xinxin <pangx@who.int> **On Behalf Of** GALEA, Gauden
Sent: Saturday, 15 February 2020 4:47 PM
To: AYLWARD, Raymond Bruce J. <aylwardb@who.int>; Alexander SEMENOV (b)(6) (b)(6) Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Dale Fisher <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; gmleung <gmleung@hku.hk>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; Weigong ZHOU (waz6@cdc.gov) <waz6@cdc.gov>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; XING, Jun <xingj@who.int>
Cc: GALEA, Gauden <galeag@who.int>; DRURY, Patrick Anthony <druryp@who.int>; PANG, Xinxin <pangx@who.int>
Subject: RE: Welcome to the WHO-CHN Joint Mission

- External Email -

Dear Joint Mission members,

Further to Bruce's message of last evening, I am very pleased to welcome you to Beijing.

As Bruce informed you, we will have a meeting of the international team members from 11:00 hr - 15:00 hr at our WHO China Office tomorrow, Sunday 16 February. Our colleagues Maria and Jun will meet you in the lobby of the Holiday Inn Express at 10:45 so that you can walk over to our office together.

During the meeting we will provide you with a briefing folder that includes relevant administrative, epidemiologic and technical information, as well as a thumb drive with electronic versions of the same materials.

As we will serve a light lunch around 12:30hr, please let Xinxin know if you have any food allergies or strong preferences in that regard.

Finally, please be aware that our hosts, the National Health Commission (NHC), will be arranging all of our subsequent group transportation while you are in Beijing and during field visits.

I look forward to meeting you tomorrow.

With best regards,

Gauden GALEA
WHO Representative to China
Beijing

From: AYLWARD, Raymond Bruce J.
Sent: Saturday, February 15, 2020 2:26 AM
To: Alexander SEMENOV (b)(6) (b)(6) Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; gmleung <gmleung@hku.hk>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; Weigong ZHOU (waz6@cdc.gov) <waz6@cdc.gov>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; XING, Jun <xingj@who.int>
Cc: GALEA, Gauden <galeag@who.int>; DRURY, Patrick Anthony <druryp@who.int>
Subject: Welcome to the WHO-CHN Joint Mission
Importance: High

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With very best regards,

Bruce

Bruce AYLWARD (WHO/Geneva)
Team Leader, WHO-China Joint Mission on COVID-19
Email: aylwardb@who.int
Mobile: (b)(6) (international)

Important: This email is confidential and may be privileged. If you are not the intended recipient, please delete it and notify us immediately; you should not copy or use it for any purpose, nor disclose its contents to any other person. Thank you.

From: Eckmanns, Tim
Sent: Sat, 15 Feb 2020 13:43:20 +0000
To: GALEA, Gauden;AYLWARD, Raymond Bruce J.;Alexander SEMENOV (b)(6) IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Clifford LANE (cliff.lane@nih.gov);Dale FISHER (mdcfda@nus.edu.sg);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);gmleung;LEE Jong-Koo (docmohw@snu.ac.kr);Dr VAN KERKHOVE, Maria;Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Zhou, Weigong (CDC/DDID/NCIRD/ID);Zhou, Weigong (CDC/DDID/NCIRD/ID);XING, Jun
Cc: GALEA, Gauden;DRURY, Patrick Anthony;PANG, Xinxin
Subject: AW: Welcome to the WHO-CHN Joint Mission

Dear Gauden
Thank you.
I am on my way. I will reach Beijing at 11:45. So I will be late for the meeting.
Looking forward to meeting you tomorrow.
Tim

Gesendet von meinem BlackBerry 10-Smartphone.
Von: GALEA, Gauden
Gesendet: Samstag, 15. Februar 2020 09:47
An: AYLWARD, Raymond Bruce J.; Alexander SEMENOV (b)(6) Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng); Clifford LANE (cliff.lane@nih.gov); Dale FISHER (mdcfda@nus.edu.sg); Dr Hitoshi TAKAHASHI (takajin@nih.go.jp); gmleung; LEE Jong-Koo (docmohw@snu.ac.kr); Dr VAN KERKHOVE, Maria; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru); Eckmanns, Tim; Weigong ZHOU (waz6@cdc.gov); Weigong ZHOU (wzhou@cdc.gov); XING, Jun
Cc: GALEA, Gauden; DRURY, Patrick Anthony; PANG, Xinxin
Betreff: RE: Welcome to the WHO-CHN Joint Mission

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Cc: GALEA, Gauden <galeag@who.int>; DRURY, Patrick Anthony <druryp@who.int>
Subject: Welcome to the WHO-CHN Joint Mission
Importance: High

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With very best regards,

Bruce

Bruce AYLWARD (WHO/Geneva)
Team Leader, WHO-China Joint Mission on COVID-19
Email: aylwardb@who.int<mailto:aylwardb@who.int>
Mobile: +41792173438 (international)

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 30 Jul 2020 23:32:21 +0000
To: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP)
Subject: RE: 30 July GOARN Weekly Ops Call Notes/Slides

Good idea. I really enjoy dining al fresco. Ray

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Sent: Thursday, July 30, 2020 6:59 PM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Subject: Re: 30 July GOARN Weekly Ops Call Notes/Slides

We should aim for a socially distanced dinner!

Inger

Get Outlook for iOS

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Sent: Thursday, July 30, 2020 6:51 PM
To: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP)
Subject: RE: 30 July GOARN Weekly Ops Call Notes/Slides

Not this year. Shifted our Kodiak reservation to 2021. Ordering salmon from the place in Kodiak that processes our catch.

Ray

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Sent: Thursday, July 30, 2020 6:49 PM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Subject: Re: 30 July GOARN Weekly Ops Call Notes/Slides

Atlanta.

Hope to get to Colorado later in August. Is fishing in your future?

Get Outlook for iOS

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Sent: Thursday, July 30, 2020 6:48:07 PM
To: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Subject: RE: 30 July GOARN Weekly Ops Call Notes/Slides

Inger,

Are you in Atlanta or working from a Rocky Mtn location?

Ray

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Sent: Thursday, July 30, 2020 6:47 PM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Subject: Re: 30 July GOARN Weekly Ops Call Notes/Slides

Thank you, Ray

Inger

Get Outlook for iOS

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Sent: Thursday, July 30, 2020 6:37 PM
To: Armstrong, Gregory (CDC/DDID/NCEZID/OD); Beach, Michael J. (CDC/DDID/NCEZID/DFWED); Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP); Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID); Bresee, Joseph (CDC/DDID/NCIRD/ID); Bunga, Sudhir (CDC state.gov); Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM); Christie, Athalia (CDC/DDPHSIS/CGH/OD); Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP); Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID); Damon, Inger K. (CDC/DDID/NCEZID/DHCPP); Dawood, Fatimah S. (CDC/DDID/NCIRD/ID); Doshi, Reena H. (CDC/DDPHSIS/CGH/GID); CDC IMS Incident Manager -2; Farag, Noha (CDC/DDPHSIS/CGH/GID); Fitter, David L. (CDC/DDPHSIS/CGH/GID); Fox, LeAnne M. (CDC/DDID/NCIRD/DBD); GDD-OUTBREAK (CDC); Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED); Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID); Greene, Carolyn M. (CDC/DDID/NCIRD/ID); Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP); Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID); Hakim, Avi (CDC/DDPHSIS/CGH/DGHT); Hansen, Donda L. (CDC/DDPHSIS/CGH/OD); Helfand, Rita (CDC/DDID/NCEZID/OD); Henao, Olga (CDC/DDPHSIS/CGH/DGHP); Hyde, Terri (CDC/DDPHSIS/CGH/GID); Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP); Klena, John D. (CDC/DDID/NCEZID/DHCPP); Knight, Nancy (CDC/DDPHSIS/CGH/DGHP); Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP); Lessa, Fernanda (CDC/DDID/NCEZID/DHQP); Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM); McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID); McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD); McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP); Mirza, Sara (CDC/DDID/NCIRD/DBD); Montandon, Michele (CDC/DDPHSIS/CGH/DGHT); Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP); Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP); Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID); Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP); Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT); Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP); OConnor, John (CDC/DDID/NCEZID/OD); Park, Benjamin (CDC/DDID/NCEZID/DHQP); Patel, Anita (CDC/DDID/NCIRD/OD); Pesik, Nicki (CDC/DDID/NCEZID/OD); Prue, Christine (CDC/DDID/NCEZID/OD); Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD); Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ); Rotz, Lisa (CDC/DDID/NCEZID/DGMQ); Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO); Simonds, R. J. (CDC/DDPHSIS/CGH/OD); Smith, Rachel M. (CDC/DDID/NCEZID/DHQP); Soeters, Heidi (CDC/DDPHSIS/CGH/GID); Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID); Spath (CDC); Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD); Williams, Seymour (CDC/DDPHSIS/CGH/DGHP); Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: 30 July GOARN Weekly Ops Call Notes/Slides

Attached are the 08:00 EDT/ 14:00 CET GOARN Ops call notes (includes all presentations), DRC EVD Data Pack, and other presentations from today.

(b)(4)

Regards,
Puneet Anantharam



Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road NE, Mailstop D68
Atlanta, GA 30333

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Fri, 31 Jul 2020 18:35:37 +0000
To: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP)
Subject: RE: IDWeek 2020 Converts to Virtual, Adds 24-hr. COVID-19 Coverage

You have the correct address. Mike's messages are screened and he doesn't read messages often. It's even difficult at times to reach him on his mobile. His exec assistant is Christine Y. Fares, faresc@who.int, +41 22 791 2126 (O), +(b)(6) (M). I suggest that you may also want to contact Pat (druryp@who.int), but even Pat doesn't have the access he once had.

Ray

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Sent: Friday, July 31, 2020 2:13 PM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Subject: FW: IDWeek 2020 Converts to Virtual, Adds 24-hr. COVID-19 Coverage

Ray – the email I have for Mike is ryanm@who.int (the address that is shown does link to that one) . Are Mike's emails screened now – is there another address I should try?

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP)
Sent: Friday, July 31, 2020 2:09 PM
To: Ryan, Michael (CDC who.int) <ryanm@who.int>
Subject: RE: IDWeek 2020 Converts to Virtual, Adds 24-hr. COVID-19 Coverage

Mike – I am pestering you, once more. I have my old boss, Dr. Tom Frieden lined up to be one of the discussants - what we learned – where are the gaps – what we need to learn - at the conclusion of the 24 hour session. Do you think Dr Tedros would additionally be interested? Yourself? Dr Souyma Swaminathan?

If it is easier to talk by phone, I am at +(b)(6)

Hope you are well. Nice seeing you on the teleconferences

Inger

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Sent: Tuesday, July 21, 2020 8:07 AM
To: Ryan, Michael (CDC who.int) <ryanm@who.int>
Subject: Re: IDWeek 2020 Converts to Virtual, Adds 24-hr. COVID-19 Coverage

Mike - Just following up on this email from the weekend. Hope you are hanging in there

Inger

Inger K Damon MD PhD

Director, Division of High Consequence Pathogens and Pathology

National Center for Emerging and Zoonotic Infectious Diseases

Centers for Disease Control and Prevention

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Sent: Saturday, July 18, 2020 9:20 AM
To: Ryan, Michael (CDC who.int) <ryanm@who.int>
Cc: sharwood@idsociety.org <sharwood@idsociety.org>; Cavell, Ashley <acavell@idsociety.org>
Subject: IDWeek 2020 Converts to Virtual, Adds 24-hr. COVID-19 Coverage

Good afternoon, Mike.

I am writing on behalf of IDweek, which just determined that it will be a virtual meeting this year. I have the (?dubious) distinction of being the program committee chair for this year's meeting. I had previously spoken with Teresa Zakaria and Kate about putting an opening plenary about Infectious Disease control efforts in conflict areas. It was a great discussion, and as COVID19 evolved, it became apparent that the opening plenary would turn into a COVID19 plenary. Now, this has turned into a free, 24 hour around the world reporting. We have some ideas for international speakers, primarily from affiliated Infectious Diseases Societies in Asia and Europe, and would love your perspectives for additional international speakers.

We are thinking that we would like to end the 24 hour "Chasing the Sun" session on COVID19 with thoughts from WHO. (The description of Chasing the Sun is in the below email text.)

The primary ask: Do you think Tedros would be interested to take on this role? Would you be willing to put me in touch with him to ask/invite?

Thanks for considering, and would appreciate thoughts on both Qs.

Best regards, hang in there - and I think what WHO has been doing with these weekly calls about various aspects of international research response efforts has been fabulously well done.

Copying Ashley and Sandy from IDSA.

Inger

Inger K Damon MD PhD

Director, Division of High Consequence Pathogens and Pathology

National Center for Emerging and Zoonotic Infectious Diseases

Centers for Disease Control and Prevention

From: IDWeek <info@idweek.org>
Sent: Tuesday, July 14, 2020 2:30 PM
To: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Subject: IDWeek 2020 Converts to Virtual, Adds 24-hr. COVID-19 Coverage

July 14, 2020

To view this email as a web page, click here.



IDWeek 2020 Converts to Virtual, Adds 24-hr. COVID-19 Coverage

Given the evolving global pandemic, **ID**Week organizers have made the unanimous decision to convert the meeting to a 100% virtual event. **ID**Week 2020 will no longer take place in Philadelphia, Pa. Oct. 21-25, but instead you will be able to receive the latest updates on COVID-19 and other infectious diseases through a virtual program.

Register now to kick off **ID**Week with 24 hours of COVID-19 during *Chasing the Sun*. This global event will begin on Wednesday, Oct. 21 at 9 a.m. ET and conclude on Thursday, Oct. 22 at 9:30 a.m. ET. **ID** Week and its partners are joining forces with recognized scientific agencies, non-governmental agencies and infectious diseases organizations from around the world, including the Centers for Disease Control and Prevention, the American Society for Microbiology, Asociación Panamericana de Infectologia, the Chinese Society of Infectious Diseases, the European Society of Clinical Microbiology, and the Japanese Association for

Infectious Diseases. Each brings unique global perspectives and data to cover various aspects of COVID-19, including clinical presentation, treatments, diagnostics, vaccine development, infection control and mitigation strategies and other late breaking issues. We hope to add additional co-organizing entities as the program further develops. Closed captioning in English will be available for this program.

IDWeek gratefully acknowledges the partnerships that are providing support for this program through funding from the CDC and others. These funds allow **ID**Week to defray production and broadcasting costs and offer the 24 hours of COVID-19 *Chasing the Sun* event at no charge to everyone interested in the infectious diseases community and related subspecialties.

IDWeek sessions will begin on Thursday, Oct. 22 and continue through Sunday, Oct. 25. The program will offer 174.5* CME and MOC credits, all from the comfort of your home or office. An additional 11* CME and MOC credits may be earned from pre-meeting workshops. CPE credits will also be offered; total available hours will be announced soon.

The prodigious amount of educational content that **ID**Week is known for is being developed by the program committee, invited speakers, and abstract presenters. We hope you will join us from the best seat in the house--yours--this October!

For more information, please visit our FAQ page.

*subject to modification

A joint meeting of:

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Fri, 17 Jul 2020 15:29:00 +0000
To: Dale Fisher
Subject: RE: lancet correspondence

Dale,

I strongly agree with the content and support submission to Lancet Given the lengthy CDC clearance process and the anticipated edits that would follow, e.g., (b)(5) (b)(5) Please list my name and degree. As others have indicated, it's important that the that it is clear that the correspondence is coming from the Steering Committee.

Thanks.
Ray

Ray R. Arthur, PhD
Lead, Global Disease Detection Operations Center
Emergency Response and Recovery Branch

Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention

1600 Clifton Road, NE
MS: H21-9
Atlanta, GA 30329
Phone: 404-639-3855
Mobile (b)(6)
rarthur@cdc.gov

From: Dale Fisher <mdcfda@nus.edu.sg>
Sent: Friday, July 17, 2020 1:07 AM
To: María Alejandra Morales (b)(6) azharul@icddrb.org; Navarro-Colorado, Carlos (CDC unicef.org) <cnavarrocolorado@unicef.org>; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; lmoses2@tulane.edu; jansena@rki.de; panu.saaristo@ifrc.org; Gwendolen EAMER <gwen.eamer@ifrc.org>; daniel.bausch@phe.gov.uk; raraj@globalhealthdev.org; (b)(6); elizabeth.gooding@canada.ca; Josep.Jansa@ecdc.europa.eu; januszp@nicd.ac.za; executive.director@globalhealthdev.org; asall@pasteur.sn; ali.khan@unmc.edu; pnguku@afenet.net; zhangyp@chinacdc.cn; Myriam Henkens <Myriam.Henkens@msf.org>
Cc: gail.carson@ndm.ox.ac.uk; yotiza@who.int; SALMON, Sharon <salmons@who.int>; storozhenkoo@who.int; vicarian@paho.org; aldighsy@paho.org; DEL RIO VILAS, Victor <delriov@who.int>; DRURY, Patrick Anthony <druryp@who.int>; SURI, Sameera <suris@who.int>;

ebuliva@who.int
Subject: RE: lancet correspondence

Please everyone reply and at the same time tell me if you can have your name added ideally with your organisation.

Please?

From: María Alejandra Morales <(b)(6)>
Sent: Friday, 17 July 2020 4:49 AM
To: Dale Fisher <mdcfda@nus.edu.sg>; azharul@icddrb.org; cnavarrocolorado@unicef.org; RArthur@cdc.gov; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; lmoses2@tulane.edu; jansena@rki.de; panu.saaristo@ifrc.org; Gwendolen EAMER <gwen.eamer@ifrc.org>; daniel.bausch@phe.gov.uk; raraj@globalhealthdev.org; (b)(6) elizabeth.gooding@canada.ca; Josep.Jansa@ecdc.europa.eu; januszp@nicd.ac.za; executive.director@globalhealthdev.org; asall@pasteur.sn; ali.khan@unmc.edu; pnguku@afenet.net; zhangyp@chinacdc.cn; Myriam Henkens <Myriam.Henkens@msf.org>
Cc: gail.carson@ndm.ox.ac.uk; yotiza@who.int; SALMON, Sharon <salmons@who.int>; storozhenkoo@who.int; vicarian@paho.org; aldighsy@paho.org; DEL RIO VILAS, Victor <delriov@who.int>; DRURY, Patrick Anthony <druryp@who.int>; SURI, Sameera <suris@who.int>; ebuliva@who.int
Subject: Re: lancet correspondence

- External Email -

Thank you very much, Dale!
I think the letter to the publisher is excellent, and the addition of Mimi, very appropriate-

Alejandra

Bqca. María Alejandra Morales
Especialista en Bioquimica Clínica, orientación Virología.
Directora Centro Colaborador OPS/OMS en Fiebres Hemorrágicas Virales y Arbovirus

Directora Asistente
Coordinación Científico-Técnica
INEVH "Dr. Julio I. Maiztegui"- ANLIS

TE: +54-2477-433044/420712 al 714 Int 238
FAX: +54-2477-433045
Calle Monteagudo Nº 2510- (2700) Pergamino, Argentina

El jueves, 16 de julio de 2020 13:31:20 ART, Myriam Henkens <myriam.henkens@msf.org> escribió:

thanks for the draft Dale

just one suggestion in the attached

Mimi

From: Dale Fisher <mdcfda@nus.edu.sg>
Sent: jeudi 16 juillet 2020 06:51
To: azharul@icddrb.org; cnavarrocolorado@unicef.org; RArthur@cdc.gov; Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; lmoses2@tulane.edu; jansena@rki.de; panu.saaristo@ifrc.org; Gwendolen EAMER <gwen.eamer@ifrc.org>; daniel.bausch@phe.gov.uk; Myriam Henkens <Myriam.Henkens@msf.org>; raraj@globalhealthdev.org; (b)(6) elizabeth.gooding@canada.ca; Josep.Jansa@ecdc.europa.eu; (b)(6) januszp@nicd.ac.za; executive.director@globalhealthdev.org; asall@pasteur.sn; ali.khan@unmc.edu; pnguku@afenet.net; zhangyp@chinacdc.cn
Cc: gail.carson@ndm.ox.ac.uk; yotiza@who.int; SALMON, Sharon <salmons@who.int>; storozhenkoo@who.int; vicarian@paho.org; aldighsy@paho.org; DEL RIO VILAS, Victor <delriov@who.int>; DRURY, Patrick Anthony <druryp@who.int>; SURI, Sameera <suris@who.int>; ebuliva@who.int
Subject: lancet correspondence

Dear all;

As discussed at the most recent virtual SCOM meeting we have drafted a letter. We feel an entry point could be correspondence in Lancet in a response to a recent editorial (attached)

Please read the 250 word response. Feel free to suggest on track changes any changes you think of.

I also need to know if you can put your name and organisation to this if we are allowed to list all SCOM members

If possible please turn this around in the next 24-48 hrs. The letter is short and we have to submit within 2 weeks of the original article.

Thanks all

Important: This email is confidential and may be privileged. If you are not the intended recipient, please delete it and notify us immediately; you should not copy or use it for any purpose, nor disclose its contents to any other person. Thank you.

Important: This email is confidential and may be privileged. If you are not the intended recipient, please delete it and notify us immediately; you should not copy or use it for any purpose, nor disclose its contents to any other person. Thank you.

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Wed, 16 Dec 2020 12:17:37 +0000
To: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP)
Subject: RE: WHO CC call

I wasn't aware that a change was in the works and will inquire.

Ray

From: Damon, Inger K. (CDC/DDID/NCEZID/DHCPP) <iad7@cdc.gov>
Sent: Wednesday, December 16, 2020 6:17 AM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Subject: WHO CC call

Any insights as to the drivers for this potential rethink of the WHO CC system?

Inger K Damon MD PhD

Director, Division of High Consequence Pathogens and Pathology

National Center for Emerging and Zoonotic Infectious Diseases

Centers for Disease Control and Prevention

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 6 Aug 2020 15:02:07 +0000
To: Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greene, Carolyn M. (CDC/DDID/NCIRD/ID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: FW: 6 August GOARN Weekly Ops Call Notes/Slides
Attachments: GOARN Weekly Ops Call Notes 2020 08 06.docx, DRC EVD Équateur Data Pack 2020 08 06.pptx, IHR 4th EC COVID-19 2020 08 03.pdf, COVID-19 Situation Update 2020 08 06.pdf, GOARN RCCE Update 2020 08 06.pptx

Thanks Puneet.

Ray

From: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP) <ogq2@cdc.gov>
Sent: Thursday, August 6, 2020 10:50 AM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC)

<GDDOUTBREAK@cdc.gov>
Subject: 6 August GOARN Weekly Ops Call Notes/Slides

Hi Ray and team,

Attached are the 08:00 EDT/ 14:00 CET GOARN Ops call notes (includes all presentations), DRC EVD Data Pack, and other presentations from today.

(b)(4)

Regards,
Puneet Anantharam



Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road NE, Mailstop D68

Atlanta, GA 30333

GOARN Weekly Ops Call Notes

Date: 6 August 2020

Time: 8:00 EDT/ 14:00 CET

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 8 Oct 2020 22:31:52 +0000
To: Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Hazim, Carmen Emily (CDC/DDID/NCEZID/DHQP);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hicks, Elizabeth (NIH/NINDS) [E];Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);Marston, Hilary (NIH/NIAID) [E];McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Morales-Betoulle, Maria (CDC/DDID/NCEZID/DHCPP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Safstrom, Jacqueline (CDC/DDID/NCEZID/DHQP) (CTR);Shoemaker, Trevor (CDC/DDID/NCEZID/DHCPP);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT);Terrell-Perica, Steven (CDC/DDPHSIS/CGH/DGHT);Whitmer, Shannon (CDC/DDID/NCEZID/DHCPP);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: FW: 8 October GOARN Weekly Ops Call Notes/Slides
Attachments: DRC EVD Équateur Data Pack 2020 10 08.pdf, CASS- Response Interventions 2020 10 08.pdf, COVID-19 Situation Update 2020 10 08.pdf, GOARN RCCE Update 2020 10 08.pdf, DVA PHI South Sudan VHF 2020 10 08.pdf, GOARN Weekly Ops Call Notes 2020 10 08.docx

Thanks Puneet.

Ray

From: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP) <ogq2@cdc.gov>
Sent: Thursday, October 8, 2020 3:43 PM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>
Subject: 8 October GOARN Weekly Ops Call Notes/Slides

Hi Ray and team,

Attached are the 08:00 EDT/ 14:00 CET GOARN Ops call notes (includes all presentations), DRC EVD Data Pack, and other presentations from today.

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Regards,

Puneet Anantharam



-

Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road NE, Mailstop D68
Atlanta, GA 30333

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GOARN Weekly Ops Call Notes

Date: 8 October 2020

Time: 8:00 EDT/ 14:00 CET

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 15 Oct 2020 14:01:09 +0000
To: Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Hazim, Carmen Emily (CDC/DDID/NCEZID/DHQP);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hicks, Elizabeth (NIH/NINDS) [E];Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);Marston, Hilary (NIH/NIAID) [E];McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Morales-Betoulle, Maria (CDC/DDID/NCEZID/DHCPP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Safstrom, Jacqueline (CDC/DDID/NCEZID/DHQP) (CTR);Shoemaker, Trevor (CDC/DDID/NCEZID/DHCPP);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT);Terrell-Perica, Steven (CDC/DDPHSIS/CGH/DGHT);Whitmer, Shannon (CDC/DDID/NCEZID/DHCPP);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: FW: 15 October GOARN Weekly Ops Call Notes/Slides
Attachments: GOARN Weekly Ops Call Notes 2020 10 15.docx, DRC EVD Équateur Data Pack 2020 10 15.pdf, DRC EVD CASS Lotumbe 2020 10 15.pdf, COVID-19 Situation Update 2020 10 15.pdf

Thanks Puneet for the comprehensive notes.

Ray

From: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP) <ogq2@cdc.gov>
Sent: Thursday, October 15, 2020 9:28 AM

To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>
Subject: 15 October GOARN Weekly Ops Call Notes/Slides

Hi Ray and team,

Attached are the 08:00 EDT/ 14:00 CET GOARN Ops call notes (includes all presentations), DRC EVD Data Pack, and other presentations from today.

(b)(4)

Thank you,
Puneet Anantharam



Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road NE, Mailstop D68
Atlanta, GA 30333

GOARN Weekly Ops Call Notes

Date: 15 October 2020

Time: 8:00 EDT/ 14:00 CET

EVD Équateur Province, DRC

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Page 1124

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From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Thu, 13 Feb 2020 18:26:34 +0000
To: Office of the Director-General
Cc: SCHWARTLANDER, Bernhard F.;DRURY, Patrick Anthony;genevausmission@state.gov;'CarsonTL@state.gov'
Subject: RE: Letter from WHO Director-General, Dr Tedros Adhanom Ghebreyesus

Well received with thanks!

Best,
Weigong

From: Office of the Director-General <DGOffice@who.int>
Sent: Thursday, February 13, 2020 1:22 PM
To: Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>
Cc: SCHWARTLANDER, Bernhard F. <schwartlanderb@who.int>; DRURY, Patrick Anthony <druryp@who.int>; genevausmission@state.gov; 'CarsonTL@state.gov' <CarsonTL@state.gov>
Subject: Letter from WHO Director-General, Dr Tedros Adhanom Ghebreyesus

Dear Dr Zhou,

Please find attached for your kind and urgent attention, a letter from Dr Tedros Adhanom Ghebreyesus, Director-General of the World Health Organization.
Best regards.

Office of the Director-General
World Health Organization

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Sun, 25 Oct 2020 19:49:23 +0000
To: Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Hazim, Carmen Emily (CDC/DDID/NCEZID/DHQP);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hicks, Elizabeth (NIH/NINDS) [E];Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);Marston, Hilary (NIH/NIAID) [E];McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Morales-Betoulle, Maria (CDC/DDID/NCEZID/DHCPP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Safstrom, Jacqueline (CDC/DDID/NCEZID/DHQP) (CTR);Shoemaker, Trevor (CDC/DDID/NCEZID/DHCPP);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT);Terrell-Perica, Steven (CDC/DDPHSIS/CGH/DGHT);Whitmer, Shannon (CDC/DDID/NCEZID/DHCPP);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: FW: 22 October GOARN Weekly Ops Call Notes/Slides
Attachments: GOARN Weekly Ops Call Notes 2020 10 22.docx, DRC EVD Équateur Data Pack 2020 10 22.pdf, COVID-19 Situation Update 2020 10 22.pdf, GOARN RCCE Update 2020 10 22.pdf

Please excuse the delay in sending the notes and slides from Thursday's call.

Best,
Ray

From: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP) <ogq2@cdc.gov>
Sent: Thursday, October 22, 2020 9:11 AM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>
Subject: 22 October GOARN Weekly Ops Call Notes/Slides

Hi Ray and team,

Attached are the 08:00 EDT/ 14:00 CET GOARN Ops call notes (includes all presentations), DRC EVD Data Pack, and other presentations from today.

(b)(4)

Thank you,
Puneet Anantharam



Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road NE, Mailstop D68
Atlanta, GA 30333

GOARN Weekly Ops Call Notes

Date: 22 October 2020

Time: 8:00 EDT/ 14:00 CET

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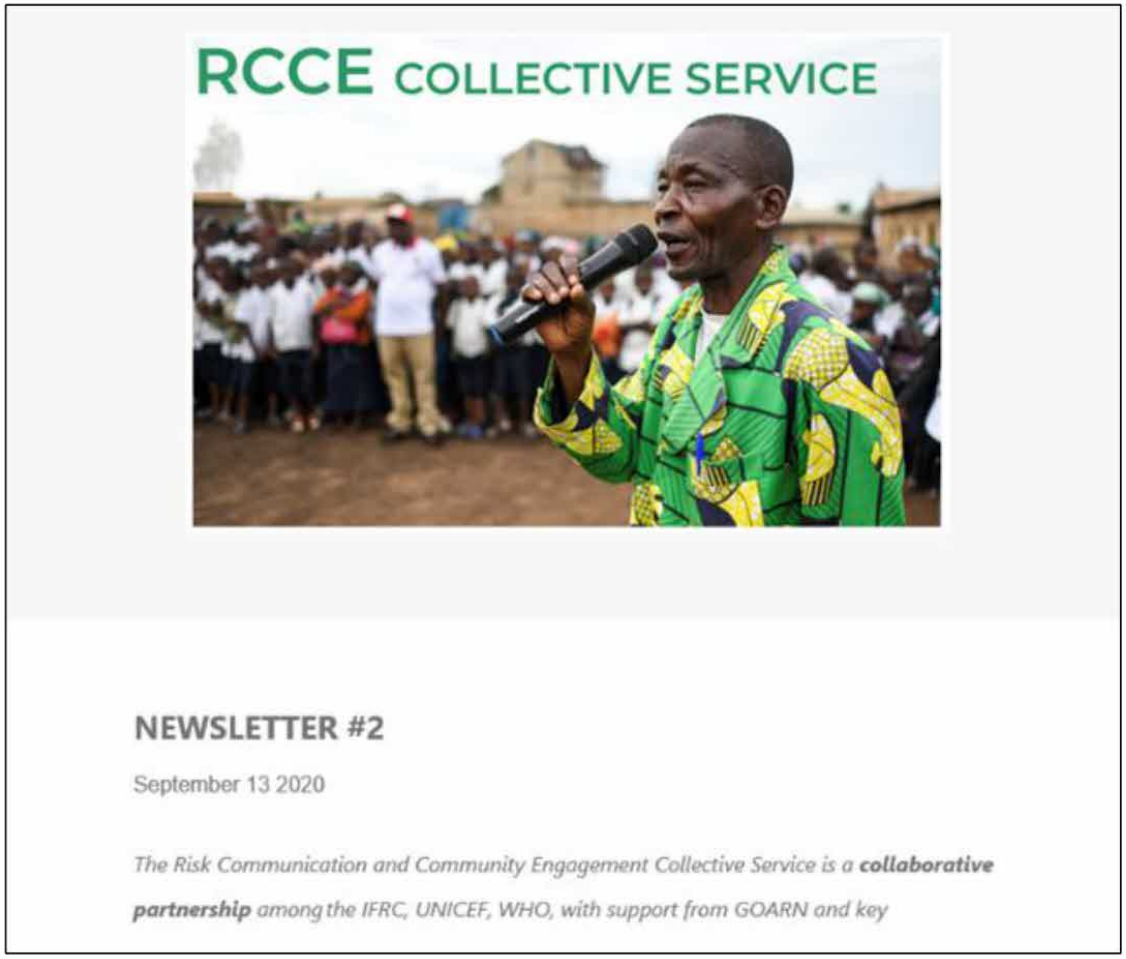
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ALL NEW!

COLLECTIVE SERVICE NEWSLETTER



PLEASE email Sameera SURI suris@who.int to get the word out on YOUR upcoming webinars, research and tools!!

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 29 Oct 2020 22:57:08 +0000
To: Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Hazim, Carmen Emily (CDC/DDID/NCEZID/DHQP);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hicks, Elizabeth (NIH/NINDS) [E];Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);Marston, Hilary (NIH/NIAID) [E];McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Morales-Betoulle, Maria (CDC/DDID/NCEZID/DHCPP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Safstrom, Jacqueline (CDC/DDID/NCEZID/DHQP) (CTR);Shoemaker, Trevor (CDC/DDID/NCEZID/DHCPP);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT);Terrell-Perica, Steven (CDC/DDPHSIS/CGH/DGHT);Whitmer, Shannon (CDC/DDID/NCEZID/DHCPP);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: FW: 29 October GOARN Weekly Ops Call Notes/Slides
Attachments: DRC EVD Equateur Data pack_2020-10-29_GOARN.pdf, 2020-10-29 CASS Equateur- Evidence for Influence - GOARN OPS 29.10.2020-VF.pdf, 20201029_GOARN_EpiUpdate_v2.pdf, Bi weekly COVID-19 update on humanitarian settings - Cabo Delgado 28 Oct 2020 +OPS.pdf, RDT Project Slide.pdf, GOARN Weekly Ops Call Notes 2020 10 29.docx

Thanks to Larry and Philip for the slides and notes.

Ray

From: Hinkle IV, Lawrence (CDC/DDPHSIS/CGH/DGHP) <ndf5@cdc.gov>
Sent: Thursday, October 29, 2020 1:36 PM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>
Subject: 29 October GOARN Weekly Ops Call Notes/Slides

Hi Ray and team,

Attached are the compiled 0:900 EDT/14:00 CET GOARN Ops call notes (includes all presentations) from Philip and myself, DRC EVD Data Pack, and other presentations from today.

(b)(4); (b)(5)

Cheers,

Larry

Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road NE, Mailstop H21-3
Atlanta, GA 30333

GDDOC secure mailbox: gddoutbreak@cdc.gov
Ray Arthur, PhD, Director: tel: +1.404.639.3855; mobile: (b)(6)
Puneet Anantharam, MPH, ORISE Fellow: mobile: (b)(6)
Catherine Chow, MD, MPH, Captain, USPHS, Analyst: tel: +1.404.553.7659; mobile: (b)(6)
Kira Christian Coggeshall, DVM, MPH, DACVPM, Analyst: tel: +1.404.553.7666; mobile: (b)(6)

James Fuller, PhD, MSPH, Analyst: tel: +1.404.639.7361; mobile: (b)(6)
Christine Hercik, PhD, Analyst: tel: +1.404.718.6669; mobile: (b)(6)
Lawrence Hinkle, MSPH, Analyst: tel: +1.404.718.5654; mobile: (b)(6)
Rossanne M. Philen, MD, MS, Analyst: tel: +1.404.553.7660; mobile: (b)(6)
Philip M Ricks, PhD, MPH, Analyst: tel: +1 404.553.7664; mobile: (b)(6)
Serena Fuller, MPH, Emergency Coordinator: tel: +1.404.553.7662; mobile: (b)(6)

For after hours support, please phone the EOC Watch Desk at: +1.770.488.7100

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GOARN Weekly Ops Call Notes

Date: 29 October 2020

Time: 9:00 EDT/ 14:00 CET

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From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Wed, 19 Feb 2020 11:51:14 +0000
To: Dale Fisher;Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);XING, Jun
Subject: Re: Wuhan draft questions
Attachments: Wuhan HCW questions_df_wz.docx

I added a few questions.
Thanks,
Weigong
From: Dale Fisher <mdcfda@nus.edu.sg>
Sent: Wednesday, February 19, 2020 5:12 AM
To: Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; XING, Jun <xingj@who.int>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>
Subject: Wuhan draft questions

Evening all;

Here is my first attempt…a starting point

Jun; please share

thanks

Dale Fisher

Important: This email is confidential and may be privileged. If you are not the intended recipient, please delete it and notify us immediately; you should not copy or use it for any purpose, nor disclose its contents to any other person. Thank you.

The below is a list of ideas as a starting point or framework for questions that Bruce can share with Wuhan staff.

Please make comments on this or else say them at the 8 pm meeting. I also don't think we need to make it final as our Guangzhou friends will have input to the final version.

(b)(5)

(b)(5)

From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Wed, 19 Feb 2020 14:51:46 +0000
To: Dale Fisher;XING, Jun;Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);(SPmig) LEI ZHOU;wufan@shmu.edu.cn (b)(6) iangtao_l@263.net
Subject: Re: Wuhan draft questions

Yes, please do.
Thanks,
Weigong
From: Dale Fisher <mdcfda@nus.edu.sg>
Sent: Wednesday, February 19, 2020 10:39:26 PM
To: XING, Jun <xingj@who.int>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>; wufan@shmu.edu.cn <wufan@shmu.edu.cn>; (b)(6) (b)(6) (b)(6)
Subject: RE: Wuhan draft questions

I am waiting for your collated comments. Shall I just revise and circulate……I only had 4 hrs sleep last night so can't go much longer. If you have no comments I will just do it, circulate and then send to Bruce 15 mins later….ok everyone ?

From: XING, Jun <xingj@who.int>
Sent: Wednesday, 19 February 2020 10:30 PM
To: Dale Fisher <mdcfda@nus.edu.sg>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>; wufan@shmu.edu.cn; (b)(6) (b)(6)
Subject: RE: Wuhan draft questions

- External Email -

I guess people are waiting for the revised version…

From: Dale Fisher <mdcfda@nus.edu.sg>
Sent: Wednesday, February 19, 2020 3:25 PM
To: XING, Jun <xingj@who.int>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>;

wufan@shmu.edu.cn; (b)(6) jiangtao_l@263.net
Subject: RE: Wuhan draft questions

Is anything coming…..i would like to sleep ☺

From: XING, Jun <xingj@who.int>
Sent: Wednesday, 19 February 2020 9:20 PM
To: Dale Fisher <mdcfda@nus.edu.sg>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; (SPmig) LEI ZHOU <zhoulei@chinacdc.cn>; wufan@shmu.edu.cn; (b)(6) jiangtao_l@263.net
Subject: RE: Wuhan draft questions

- External Email -

Here is the full list of Chinese experts (adding Dr Lin). Thanks.

From: XING, Jun
Sent: Wednesday, February 19, 2020 2:12 PM
To: 'Dale Fisher' <mdcfda@nus.edu.sg>; Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; 'zhoulei@chinacdc.cn' <zhoulei@chinacdc.cn>; 'wufan@shmu.edu.cn' <wufan@shmu.edu.cn>; (b)(6) (b)(6)
Subject: RE: Wuhan draft questions

Hi Dale,
As discussed, I have added emails of the Chinese experts above (still missing Dr Lin though). Please use this group for the next version of the questions. Thanks.
Best regards,
Jun

From: Dale Fisher <mdcfda@nus.edu.sg>
Sent: Wednesday, February 19, 2020 11:12 AM
To: Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; XING, Jun <xingj@who.int>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>
Subject: Wuhan draft questions

Evening all;

Here is my first attempt…a starting point

Jun; please share

thanks

Dale Fisher

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Important: This email is confidential and may be privileged. If you are not the intended recipient, please delete it and notify us immediately; you should not copy or use it for any purpose, nor disclose its contents to any other person. Thank you.

Important: This email is confidential and may be privileged. If you are not the intended recipient, please delete it and notify us immediately; you should not copy or use it for any purpose, nor disclose its contents to any other person. Thank you.

From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Fri, 21 Feb 2020 14:51:37 +0000
To: Dr VAN KERKHOVE, Maria
Subject: Fw: knowledge gaps
Attachments: knowledge gaps 2.docx

From: Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>
Sent: Friday, February 21, 2020 5:12 AM
To: vankerkhavem@who.int <vankerkhavem@who.int>
Subject: Re: knowledge gaps

sorry, here is an updated one.
Thanks,
Weigong
From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Friday, February 21, 2020 4:57 AM
To: vankerkhavem@who.int <vankerkhavem@who.int>
Subject: knowledge gaps

please see attached.
thanks,
Weigong

Knowledge gaps and key questions to be answered to guide the control strategies:

Source of infection

- Animal original source and natural reservoir
- Human – animal interface of the original transmission
- Among those who had unknown exposure

Virology

- Pathogenesis
- Virulence evolution

Transmissibility

- Modes of Transmission:
  - Role of aerosol transmission
  - Fecal- oral transmission

- Viral shedding in various periods of clinical course
  - Before symptom onset or among asymptomatic cases
  - During the symptomatic period
  - After the symptomatic period/during clinical recovery

Risk factors of infection

- Risk factors for infection in
  - Household/institution
  - Community
- Risk factors among those with unknown exposure
- Risk factors for asymptomatic infection
- Risk factors for nosocomial infection
  - Among health care workers
  - Among patients

Surveillance and monitoring

- Monitoring community transmission through
  - ILI surveillance
  - SARI surveillance
- Understand outbreak trend and intervention dynamics using mathematic modelling
  - R0 in different scenarios
  - Factors associated with epidemic, seasonality?
  - Estimated infection among population

Diagnostics

- Sensitivity and specificity of
    - nucleic acid test
    - clinical diagnosis
- Antibody titer change
- Spectrum of infection among population
    - Sero-prevalence among
        - Health care workers
        - General population
        - Children

Clinical management of severe and critically ill patients

- Value of ECOMO in the management of critically ill patients
- Best practice of using mechanical ventilation in the management of critically ill patients
- Re-evaluate the role of steroid in the management of severe and critically ill patients
- Factors associated with clinical management and outcome
- Special treatment options (TCM, convalescence plasma, etc)

Prevention and control measures

- Epidemic variables change for strategy adjustment
- The effectiveness of IPC measures in various health care settings
- The effectiveness of entry and exit screening
- The effectiveness of the public health control measures
    - Restriction of movement
    - Social distancing
    - School and workplace closures
    - Wearing mask in general public
    - Mandatory quarantine vs voluntary quarantine and active surveillance

From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Fri, 21 Feb 2020 15:35:05 +0000
To: Dr VAN KERKHOVE, Maria
Subject: Knowledge gaps version 3
Attachments: knowledge gaps 3.docx

update again.
Thanks,
Weigong

Knowledge gaps and key questions to be answered to guide the control strategies:

Source of infection

- Animal original source and natural reservoir
- Human – animal interface of the original transmission
- Among those who had unknown exposure

Virology

- Pathogenesis
- Virulence evolution

Transmissibility

- Modes of Transmission:
    - Role of aerosol transmission
    - Fecal- oral transmission

- Viral shedding in various periods of clinical course
    - Before symptom onset or among asymptomatic cases
    - During the symptomatic period
    - After the symptomatic period/during clinical recovery

Risk factors for infection

- Risk factors for infection in
    - Household/institution
    - Community
- Behavior risk factors among those with unclear exposure
- Risk factors for asymptomatic infection
- Risk factors for nosocomial infection
    - Among health care workers
    - Among patients

Surveillance and monitoring

- Monitoring community transmission through
    - ILI surveillance
    - SARI surveillance
- Understand outbreak trend and intervention dynamics using mathematic modelling
    - R0 in different scenarios
    - Factors associated with epidemic, seasonality?
    - Estimated infection among population

Diagnostics

- Sensitivity and specificity of
    - nucleic acid test

    - clinical diagnosis
- Antibody titer change
- Spectrum of infection in populations
    - Sero-prevalence among
        - Health care workers
        - General population
        - Children

Clinical management of severe and critically ill patients

- Value of ECOMO in the management of critically ill patients
- Best practice of using mechanical ventilation in the management of critically ill patients
- Re-evaluate the role of steroid in the management of severe and critically ill patients
- Factors associated with clinical management and outcome
- Special treatment options (TCM, convalescence plasma, etc.)

Prevention and control measures

- Epidemic variables change for strategy adjustment
- The effectiveness of IPC measures in various health care settings
- The effectiveness of entry and exit screening
- The effectiveness of the public health control measures
    - Restriction of movement
    - Social distancing
    - School and workplace closures
    - Wearing mask in general public
    - Mandatory quarantine vs voluntary quarantine and active surveillance

From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Fri, 21 Feb 2020 16:27:12 +0000
To: Dr VAN KERKHOVE, Maria
Subject: Knowledge gaps version 4
Attachments: knowledge gaps 4.docx

please see the paragraph you requested in the beginning of this version.
thanks,
Weigong

Since the start of the COVID-19 outbreak, there has been extensive understanding of the virus and the disease from the field investigations as well as researches. However, key knowledge gaps remain in a number of areas including the source of infection, pathogenesis and virulence of the virus, transmissibility, risk factor for infection, surveillance, diagnostics, clinical management of severe and critically ill patients, and the effectiveness of prevention and control measures. Timely filling these knowledge gaps is imperative for enhancing control strategies

Knowledge gaps and key questions to be answered to guide the control strategies:

Source of infection

- Animal original source and natural reservoir
- Human – animal interface of the original transmission
- Among those who had unknown exposure

Virology

- Pathogenesis
- Virulence evolution

Transmissibility

- Modes of Transmission:
    - Role of aerosol transmission
    - Fecal- oral transmission

- Viral shedding in various periods of clinical course
    - Before symptom onset or among asymptomatic cases
    - During the symptomatic period
    - After the symptomatic period/during clinical recovery

Risk factors for infection

- Risk factors for infection in
    - Household/institution
    - Community
- Behavior risk factors among those with unclear exposure
- Risk factors for asymptomatic infection
- Risk factors for nosocomial infection
    - Among health care workers
    - Among patients

Surveillance and monitoring

- Monitoring community transmission through
    - ILI surveillance
    - SARI surveillance
- Understand outbreak trend and intervention dynamics using mathematic modelling
    - R0 in different scenarios
    - Factors associated with epidemic, seasonality?

    - Estimated infection among population

Diagnostics

- Sensitivity and specificity of
    - nucleic acid test
    - clinical diagnosis
- Antibody titer change
- Spectrum of infection in populations
    - Sero-prevalence among
        - Health care workers
        - General population
        - Children

Clinical management of severe and critically ill patients

- Value of ECOMO in the management of critically ill patients
- Best practice of using mechanical ventilation in the management of critically ill patients
- Re-evaluate the role of steroid in the management of severe and critically ill patients
- Factors associated with clinical management and outcome
- Special treatment options (TCM, convalescence plasma, etc.)

Prevention and control measures

- Epidemic variables change for strategy adjustment
- The effectiveness of IPC measures in various health care settings
- The effectiveness of entry and exit screening
- The effectiveness of the public health control measures
    - Restriction of movement
    - Social distancing
    - School and workplace closures
    - Wearing mask in general public
    - Mandatory quarantine vs voluntary quarantine and active surveillance

From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Sat, 22 Feb 2020 01:41:09 +0000
To: Dr VAN KERKHOVE, Maria
Subject: Knowledge gaps version 5
Attachments: knowledge gaps 5.docx

sorry, updated again.
Thanks,
Weigong

From: Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>
Sent: Friday, February 21, 2020 11:27 AM
To: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Subject: Knowledge gaps version 4

please see the paragraph you requested in the beginning of this version.
thanks,
Weigong

Since the start of the COVID-19 outbreak, there has been extensive understanding of the virus and the disease from the field investigations as well as researches. However, key knowledge gaps remain in a number of areas including the source of infection, pathogenesis and virulence of the virus, transmissibility, risk factor for infection, surveillance, diagnostics, clinical management of severe and critically ill patients, and the effectiveness of prevention and control measures. Timely filling these knowledge gaps is imperative for enhancing control strategies

Knowledge gaps and key questions to be answered to guide the control strategies:

Source of infection

- Animal original source and natural reservoir
- Human – animal interface of the original transmission
- Among those who had unknown exposure

The pathogenesis and virulence evolution of the virus

Transmissibility

- Modes of Transmission:
    - Role of aerosol transmission in non-health care setting
    - Role of Fecal- oral transmission

- Viral shedding in various periods of clinical course
    - Before symptom onset or among asymptomatic cases
    - During the symptomatic period
    - After the symptomatic period/during clinical recovery

Risk factors for infection

- Behavioral and socio-economic risk factors for infection in
    - Household/institution
    - Community
- Risk factors for asymptomatic infection
- Risk factors for nosocomial infection
    - among health care workers
    - among patients

Surveillance and monitoring

- Monitoring community transmission through
    - ILI surveillance
    - SARI surveillance

- The outbreak trend and intervention dynamics
    - R0 in different scenarios
    - Factors associated with epidemic seasonality
    - Infection in various populations

Diagnostics

- Sensitivity and specificity of
    - nucleic acid test
    - clinical diagnosis
- Antibody titer change
- Spectrum of infection in populations
    - Sero-prevalence among
        - Health care workers
        - General population
        - Children

Clinical management of severe and critically ill patients

- Value of ECOMO in the management of critically ill patients
- Best practice of using mechanical ventilation in the management of critically ill patients
- Re-evaluate the role of steroid in the management of severe and critically ill patients
- Factors associated with clinical management and outcome
- Special treatment options (TCM, convalescence plasma, etc.)

Prevention and control measures

- Key Epidemic indicators informing evidence based control strategy decision making and adjustment
- The effectiveness of IPC measures in various health care settings
- The effectiveness of entry and exit screening
- The effectiveness of the public health control measures
    - Restriction of movement
    - Social distancing
    - School and workplace closures
    - Wearing mask in general public
    - Mandatory quarantine vs voluntary quarantine and active surveillance

From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Sat, 22 Feb 2020 14:36:50 +0000
To: Dr VAN KERKHOVE, Maria
Subject: updated knowledge gaps
Attachments: WHO-China Joint Mission - DRAFT REPORT V1.1_wz.docx

I updated the knowledge gaps in Annex B on page 24 -26 with track change.
thanks,
Weiogng

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WHO-China Joint Mission on COVID-19
Draft Report

Executive summary

(to add)

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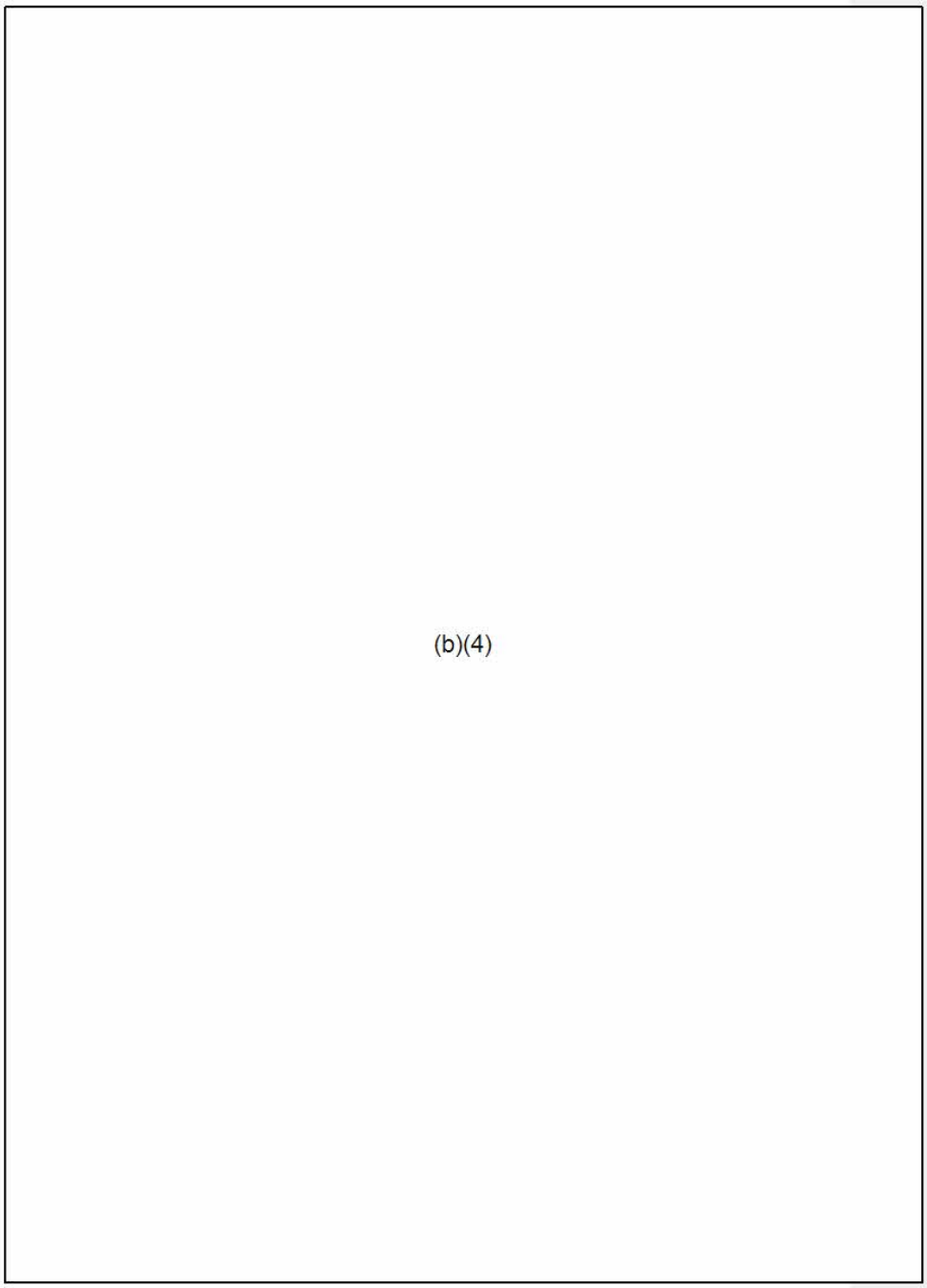
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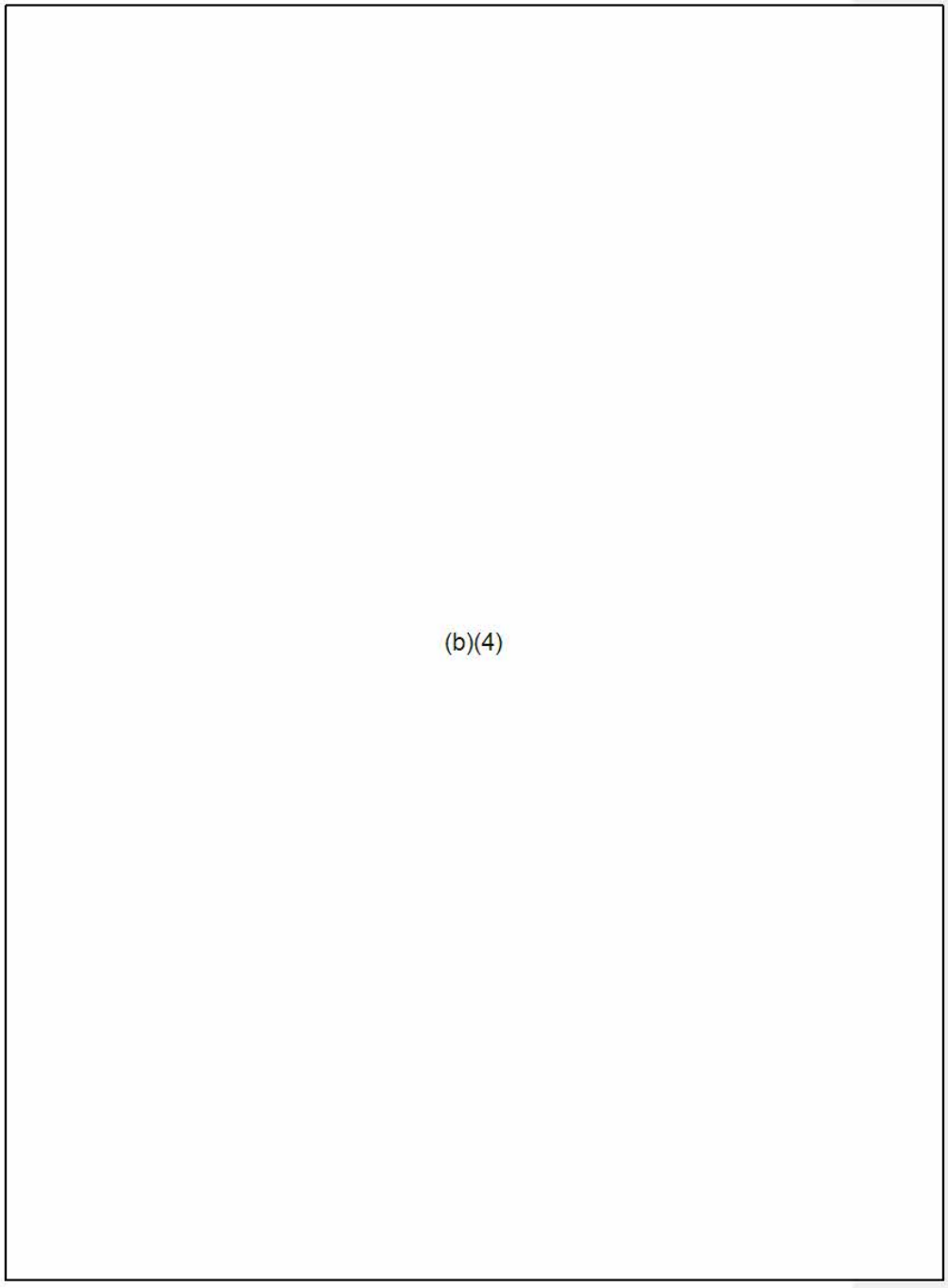
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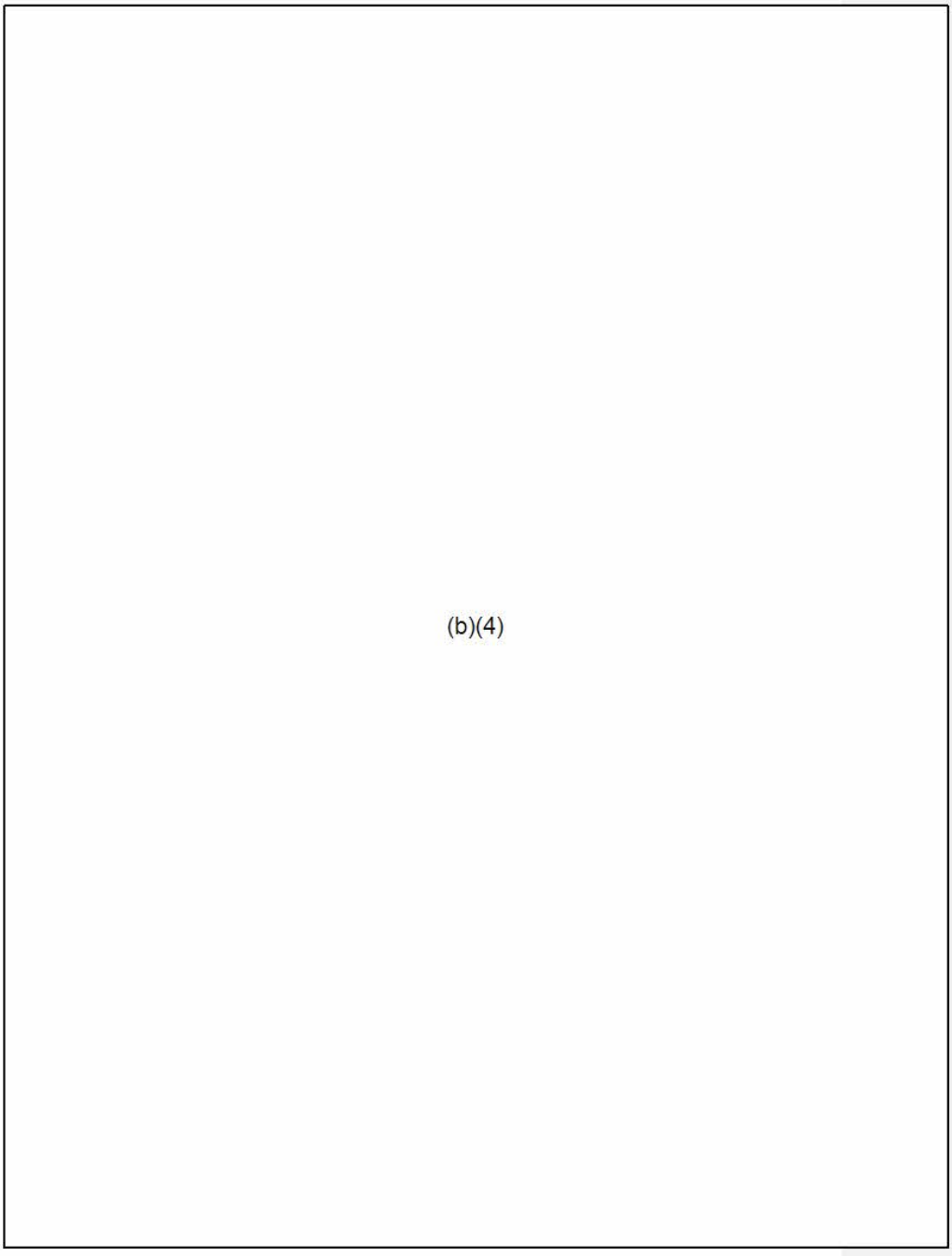


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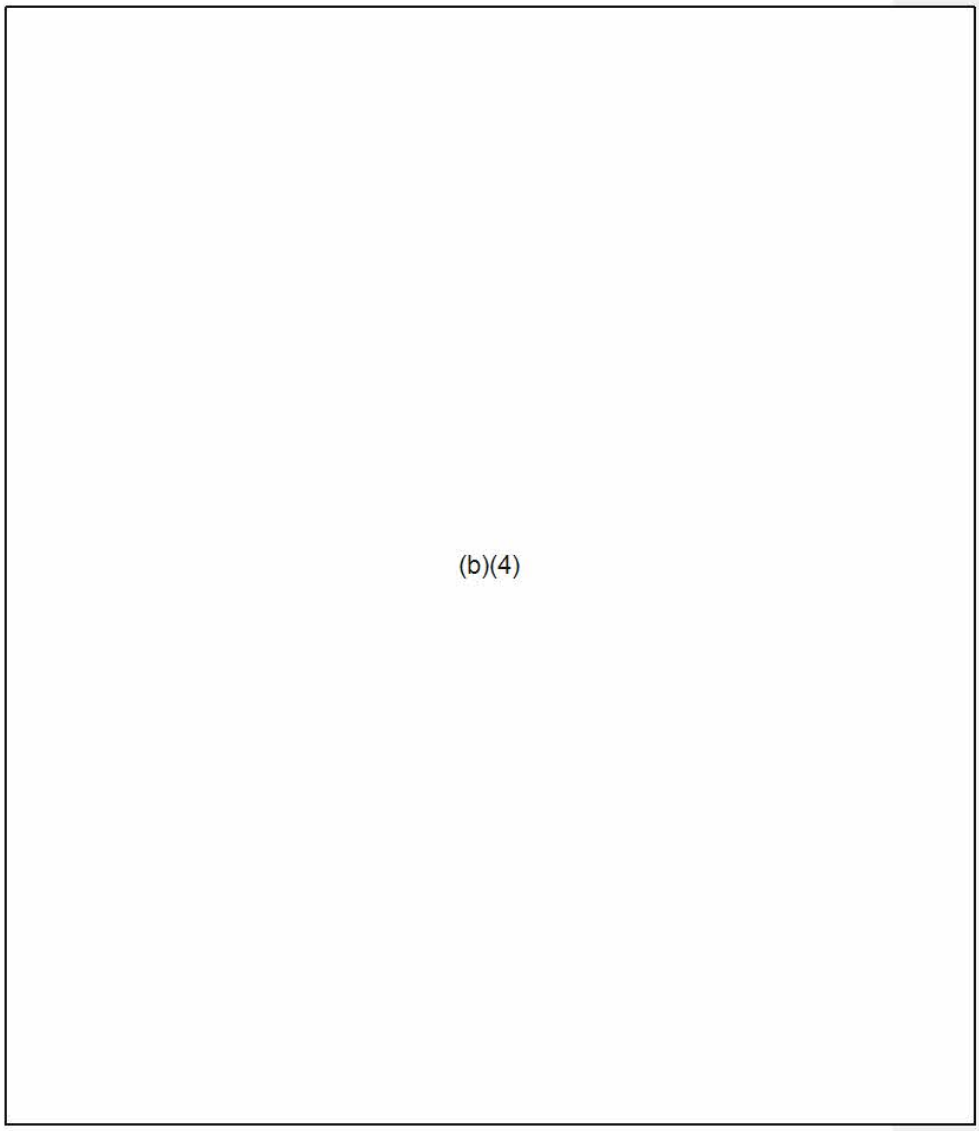
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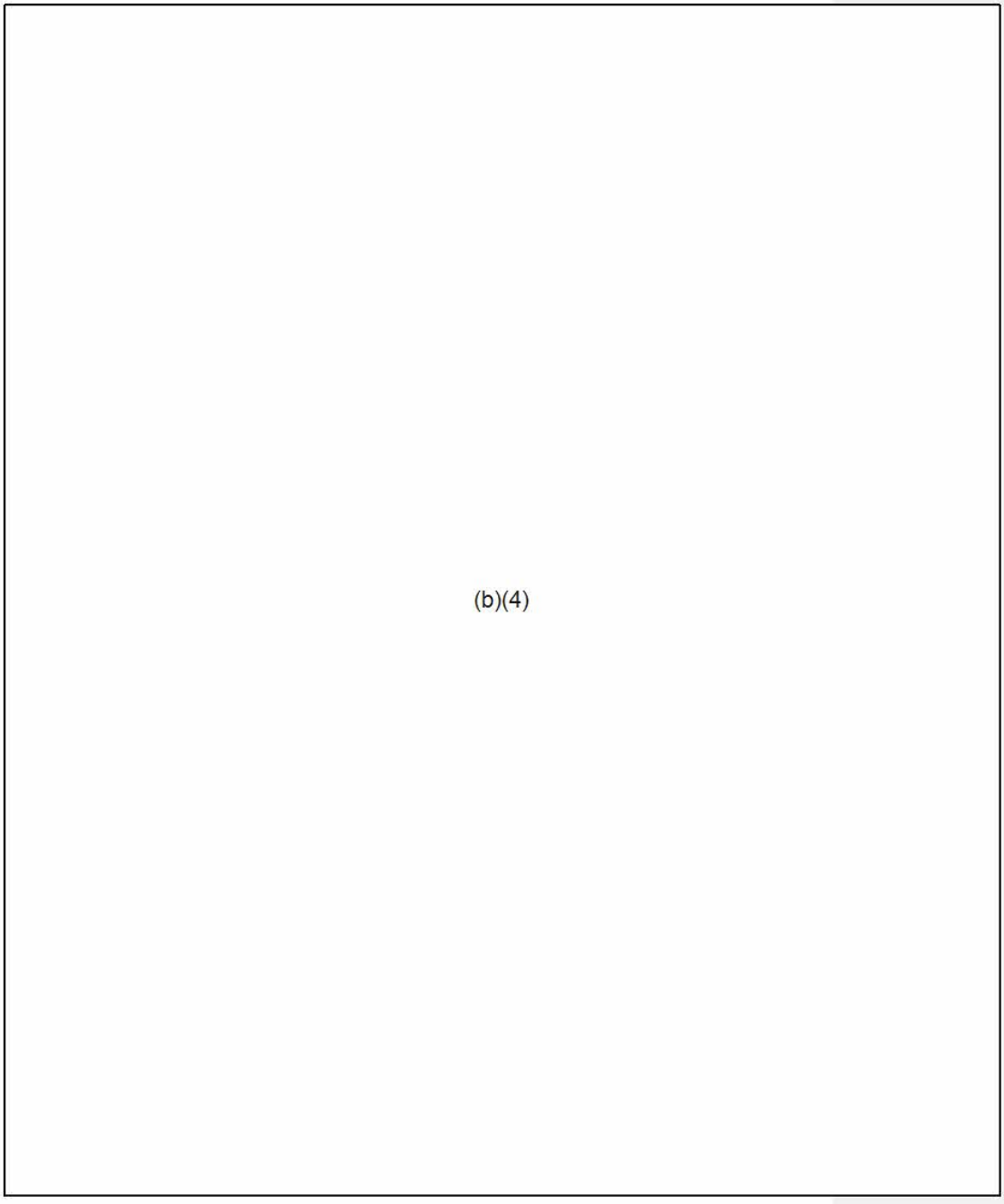
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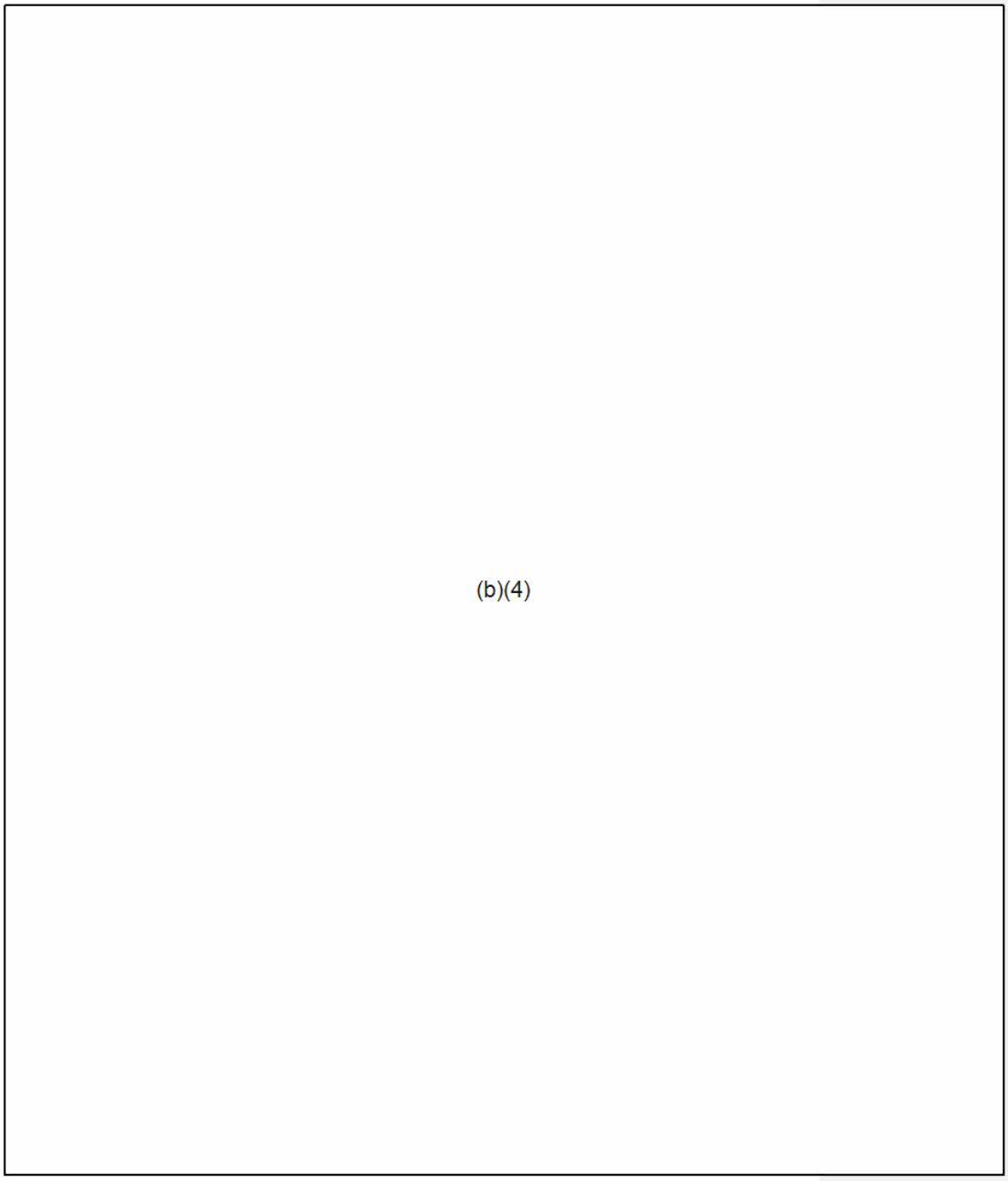
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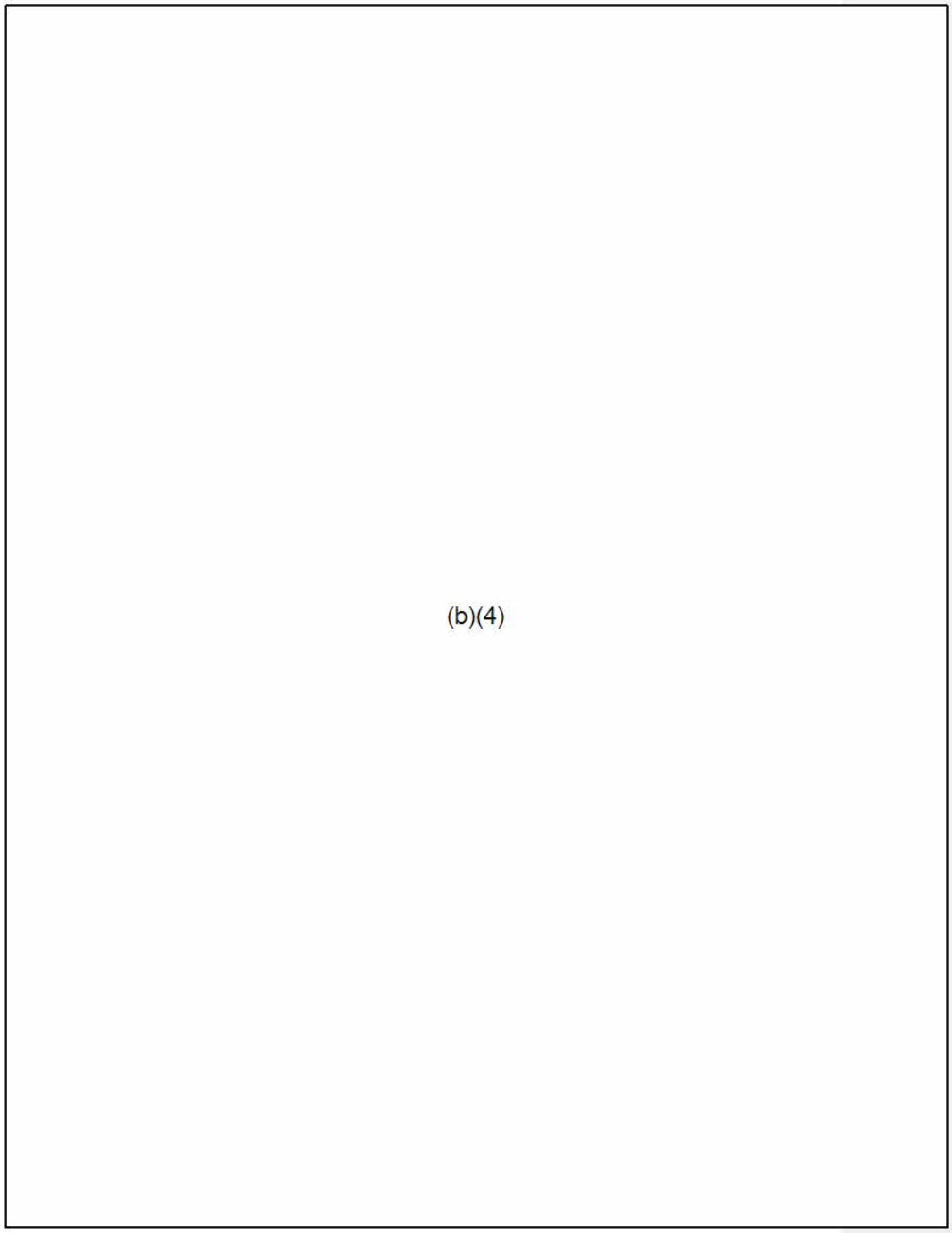
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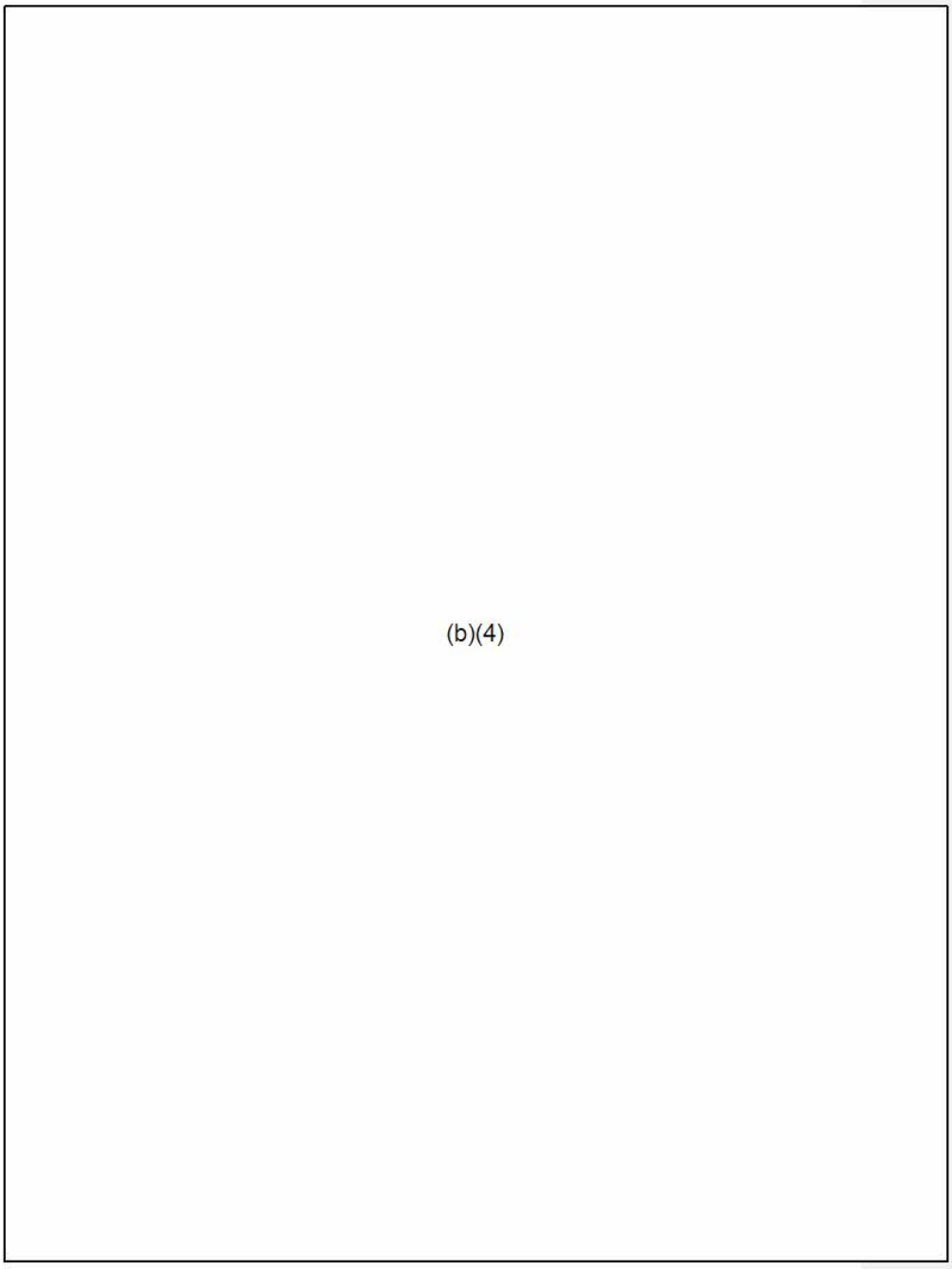
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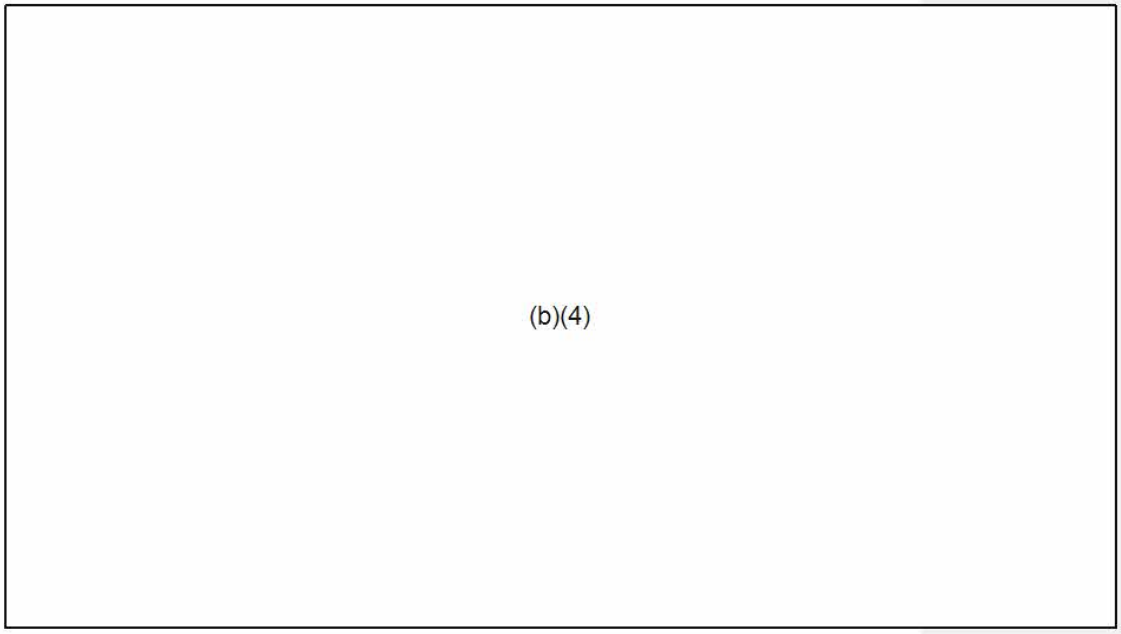
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Annexes

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C. Agenda

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Draft outline v1

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 5 Nov 2020 22:27:59 +0000
To: Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Hazim, Carmen Emily (CDC/DDID/NCEZID/DHQP);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hicks, Elizabeth (NIH/NINDS) [E];Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);Marston, Hilary (NIH/NIAID) [E];McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Morales-Betoulle, Maria (CDC/DDID/NCEZID/DHCPP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Safstrom, Jacqueline (CDC/DDID/NCEZID/DHQP) (CTR);Shoemaker, Trevor (CDC/DDID/NCEZID/DHCPP);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT);Terrell-Perica, Steven (CDC/DDPHSIS/CGH/DGHT);Whitmer, Shannon (CDC/DDID/NCEZID/DHCPP);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: FW: 5 November GOARN Weekly Ops Call Notes/Slides
Attachments: DRC EVD Équateur Data Pack 2020 11 05.pdf, VHF Sudan 2020 11 05.pptx, COVID-19 Situation Update 2020 11 05.pdf, GOARN RCCE Update 2020 11 05.pdf, HEV Burkina Faso 2020 11 05.pdf, GOARN Weekly Ops Call Notes 2020 11 05.docx

Thanks Puneet.

A reminder to all: The information provided on these calls is for internal use by participating partners.

Best,

Ray

From: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP) <ogq2@cdc.gov>
Sent: Thursday, November 5, 2020 9:47 AM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>
Subject: 5 November GOARN Weekly Ops Call Notes/Slides

Hi Ray and team,

Attached are the 08:00 EDT/ 14:00 CET GOARN Ops call notes (includes all presentations), DRC EVD Data Pack, and other presentations from today.

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Thank you,
Puneet Anantharam



-
Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road NE, Mailstop D68
Atlanta, GA 30333

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Continuity of other health services (immunization) during the COVID 19 Pandemic.

The UNICEF Burkina Faso experience

Background

- March 9: first confirmed cases of COVID-19 (Ouagadougou and Bobo)
- Polio Round 0 and 1 in Feb and Mar, Round 2 postponed and held in July 2020 (Centre-Est)
- Decrease by 10% in routine immunization coverage at the beginning of the outbreak (national)
- January-July: 10 confirmed AFP cases in several other districts
- Round1 polio campaign in 36 health districts in September (in 7/13 regions)
- Measles outbreaks in Sahel, Centre-North and Boucle du Mounhoun regions (March – April)
- Preventive measures taken by Government (quarantine, curfew, border closure, delay of polio campaign)
- Closure of schools, mosques, churches, markets, transport stations …
- Lifting of collective prevention measures (end of April)
- New hotspot of COVID-19 outbreak mainly community transmission in non affected regions/cities

Challenges

- Uptake immunization coverage
- Immunization campaigns: polio, measles (IDPs and security affected areas)
- Maintain demand for health services and positive healthy practices
- COVID 19 : Fake news, Misinformation on social media, Rumors (vaccine)
- Need to conceal two competing priority needs: increase perception risk whilst generating trust and demand towards services.
- Stigmatisation of health workers/clinics providing COVID-19 response
- Fear of people to go to health centres or look for health services (risk of contamination or trust in diagnostic)
- Informal and unstructured economic preventing physical distancing

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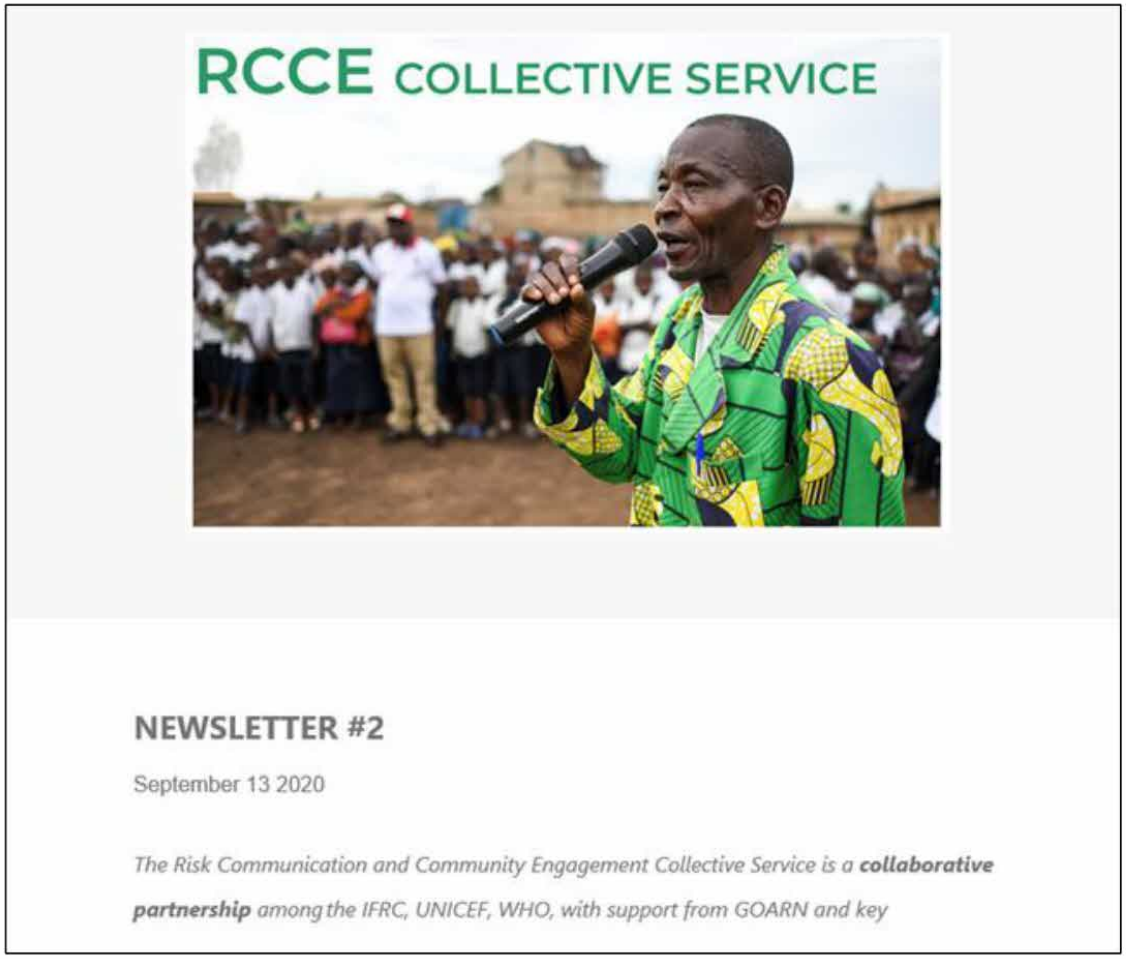
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COLLECTIVE SERVICE NEWSLETTER



PLEASE email Sameera SURI suris@who.int to get the word out on YOUR upcoming webinars, research and tools!!

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GOARN Weekly Ops Call Notes

Date: 5 November 2020

Time: 8:00 EDT/ 14:00 CET

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Fri, 14 Aug 2020 12:35:25 +0000
To: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP);Aboulhab, Jamila (CDC usaid.gov);Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greene, Carolyn M. (CDC/DDID/NCIRD/ID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hicks, Elizabeth (NIH/NINDS) [E];Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);Marston, Hilary (NIH/NIAID) [E];McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: FW: 13 August GOARN Weekly Ops Call Notes/Slides
Attachments: GOARN Weekly Ops Call Notes 2020 08 13.docx, DRC EVD Équateur Data Pack 2020 08 13.pdf, COVID-19 Situation Update 2020 08 13.pdf, COVID-19 Health Care Workers 2020 08 04.pdf, RCCE GOARN Update 2020 08 13.pdf

Thanks Puneet.

Ray

From: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP) <ogq2@cdc.gov>
Sent: Thursday, August 13, 2020 6:13 PM

To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>
Subject: 13 August GOARN Weekly Ops Call Notes/Slides

Hi Ray and team,

Attached are the 08:00 EDT/ 14:00 CET GOARN Ops call notes (includes all presentations), DRC EVD Data Pack, and other presentations from today.

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Regards,
Puneet Anantharam



Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road NE, Mailstop D68
Atlanta, GA 30333

GOARN Weekly Ops Call Notes

Date: 13 August 2020

Time: 8:00 EDT/ 14:00 CET

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Fri, 21 Aug 2020 21:36:42 +0000
To: Aboulhab, Jamila (CDC usaid.gov);Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greene, Carolyn M. (CDC/DDID/NCIRD/ID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hicks, Elizabeth (NIH/NINDS) [E];Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);Marston, Hilary (NIH/NIAID) [E];McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Cc: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP)
Subject: 20 August GOARN Weekly Ops Call Notes/Slides
Attachments: GOARN Weekly Ops Call Notes 2020 08 20.docx, DRC EVD Équateur Data Pack 2020 08 20.pdf, COVID-19 Situation Update 2020 08 20.pdf, RCCE GOARN Update 2020 08 20.pdf

Attached are the 08:00 EDT/ 14:00 CET GOARN Ops call notes (includes all presentations), DRC EVD Data pack, and other presentations from yesterday's call.

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Thanks to Puneet for preparing the notes and capturing slides.

Ray

Ray R. Arthur, PhD
Lead, Global Disease Detection Operations Center
Emergency Response and Recovery Branch

Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention

1600 Clifton Road, NE
MS: H21-9
Atlanta, GA 30329
Phone: 404-639-3855
Mobile: (b)(6)
rarthur@cdc.gov

GOARN Weekly Ops Call Notes

Date: 20 August 2020

Time: 8:00 EDT/ 14:00 CET

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 27 Aug 2020 18:37:58 +0000
To: Aboulhab, Jamila (CDC usaid.gov);Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greene, Carolyn M. (CDC/DDID/NCIRD/ID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hicks, Elizabeth (NIH/NINDS) [E];Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);Marston, Hilary (NIH/NIAID) [E];McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: FW: 27 August GOARN Weekly Ops Call Notes/Slides
Attachments: GOARN Weekly Ops Call Notes 2020 08 27.docx, DRC EVD Équateur Data Pack 2020 08 27.pdf, COVID-19 Situation Update 2020 08 27.pdf, RCCE GOARN Update 2020 08 27.pdf

Thanks Puneet.

Ray

From: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP) <ogq2@cdc.gov>
Sent: Thursday, August 27, 2020 12:32 PM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC)

<GDDOUTBREAK@cdc.gov>
Subject: 27 August GOARN Weekly Ops Call Notes/Slides

Hi Ray and team,

Attached are the 08:00 EDT/ 14:00 CET GOARN Ops call notes (includes all presentations), DRC EVD Data Pack, and other presentations from today.

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Regards,
Puneet Anantharam



Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
Division of Global Health Protection
Center for Global Health

Centers for Disease Control and Prevention
1600 Clifton Road NE, Mailstop D68
Atlanta, GA 30333

GOARN Weekly Ops Call Notes

Date: 27 August 2020

Time: 8:00 EDT/ 14:00 CET

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 3 Sep 2020 18:39:10 +0000
To: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP);Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Hazim, Carmen Emily (CDC/DDID/NCEZID/DHQP);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hicks, Elizabeth (NIH/NINDS) [E];Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);Marston, Hilary (NIH/NIAID) [E];McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Shoemaker, Trevor (CDC/DDID/NCEZID/DHCPP);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT);Whitmer, Shannon (CDC/DDID/NCEZID/DHCPP);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: FW: 3 September GOARN Weekly Ops Call Notes/Slides
Attachments: GOARN Weekly Ops Call Notes 2020 09 03.docx, DRC EVD Équateur Data Pack 2020 09 03.pdf, DRC MPX GOARN 2020 09 03.pdf, COVID-19 Situation Update 2020 09 03.pdf, COVID-19 SAR 2020 09 03.pdf

Thanks Puneet.

The monkeypox-DRC event was a last minute addition to the agenda.

Ray

From: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP) <ogq2@cdc.gov>
Sent: Thursday, September 3, 2020 9:56 AM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>
Subject: 3 September GOARN Weekly Ops Call Notes/Slides

Hi Ray and team,

Attached are the 08:00 EDT/ 14:00 CET GOARN Ops call notes (includes all presentations), DRC EVD Data Pack, and other presentations from today.

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Regards,
Puneet Anantharam



-
Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road NE, Mailstop D68
Atlanta, GA 30333

GOARN Weekly Ops Call Notes

Date: 3 September 2020

Time: 8:00 EDT/ 14:00 CET

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Page 1515

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From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Sun, 23 Feb 2020 03:39:01 +0000
To: AYLWARD, Raymond Bruce J.;Dale Fisher;Dr VAN KERKHOVE, Maria
Subject: Re: REVISED ASSESSMENT ETC.
Attachments: Report - ASSESSMENT & MAJOR RECS 22Feb2020 Rev2_wz.docx

Hi Bruce,
It looks great! Please see my edits in the attached.
Thanks,
Weigong
Pleas
From: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Sent: Saturday, February 22, 2020 6:43 PM
To: AYLWARD, Raymond Bruce J. <aylwardb@who.int>; Dale Fisher <mdcfda@nus.edu.sg>
Cc: Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>
Subject: Re: REVISED ASSESSMENT ETC.

Hi Bruce,

Looks really good. I made some v minor edits to be consistent with our nomenclature (we don't use nCoV anymore and added influenza instead of flu). None of the content is changed but took away 2 qualifiers in 2 sentences. I do think its balanced and fair and reflects our discussions.

Thanks

From: "AYLWARD, Raymond Bruce J." <aylwardb@who.int>
Date: Saturday, 22 February 2020 at 19:22
To: Maria Van Kerkhove <vankerkhovem@who.int>, Dale Fisher <mdcfda@nus.edu.sg>
Cc: "Weigong ZHOU (waz6@cdc.gov)" <waz6@cdc.gov>, "Weigong ZHOU (wzhou@cdc.gov)" <wzhou@cdc.gov>
Subject: REVISED ASSESSMENT ETC.

Hey Rockstars both….

Attached is a revised version of the *Assessment, Major Conclusions and Major Recommendations*.

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Sorry to be so late!

Bruce

PS – have cc'd Weigong as I think he asked to be cc'd on the electronic as I was dashing out the door…

From: Dr VAN KERKHOVE, Maria
Sent: Saturday, February 22, 2020 15:28
To: Dale Fisher <mdcfda@nus.edu.sg>
Cc: AYLWARD, Raymond Bruce J. <aylwardb@who.int>
Subject: Re: Draft report 22 Feb 1654 version

Rockstar Dale… thank you. We will likely slash some sections tomorrow, but great to see this all together.

Thanks again,
Maria

From: Dale Fisher <mdcfda@nus.edu.sg>
Date: Saturday, 22 February 2020 at 15:25
To: Maria Van Kerkhove <vankerkhovem@who.int>
Cc: "AYLWARD, Raymond Bruce J." <aylwardb@who.int>
Subject: RE: Draft report 22 Feb 1654 version

Here Maria;

My team was to review and send tracked changes tonight……I guess they were happy ☺

I think this gives all you want and its about double the length. In addition I slashed some of the rubbish (yay)

Use this as you want and do tell me if I can help in any way

Cheers

Dale

From: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Sent: Saturday, 22 February 2020 4:57 PM
To: Alexander SEMENOV (b)(6) (b)(6) Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Dale Fisher <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; gmleung <gmleung@hku.hk>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; Weigong ZHOU (waz6@cdc.gov) <waz6@cdc.gov>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; XING, Jun <xingj@who.int>
Cc: AYLWARD, Raymond Bruce J. <aylwardb@who.int>
Subject: Draft report 22 Feb 1654 version

- External Email -

Dear colleagues,

Thank you for the tremendous work in drafting this together with our colleagues from China. It was a fascinating and productive day. Jun, can you please share this word document with Chinese colleagues?

As discussed, please use this version to update your technical sections (the narrative) adding in the discussed recommended text/tables/stats/figures. Please also revise your technical recommendations.

I look forward to receiving your updated versions by 2200 tonight.

Thank you!

Maria

Important: This email is confidential and may be privileged. If you are not the intended recipient, please delete it and notify us immediately; you should not copy or use it for any purpose, nor disclose its contents to any other person. Thank you.

3rd DRAFT – 23 February 2020

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From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Sun, 23 Feb 2020 05:40:07 +0000
To: Dr VAN KERKHOVE, Maria
Subject: Re: REVISED ASSESSMENT ETC.

thanks!
Weigong
From: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Sent: Sunday, February 23, 2020 12:28 AM
To: Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; AYLWARD, Raymond Bruce J. <aylwardb@who.int>; Dale Fisher <mdcfda@nus.edu.sg>
Subject: Re: REVISED ASSESSMENT ETC.

Incorporated, thanks weigong

From: "Zhou, Weigong (CDC/DDID/NCIRD/ID)" <waz6@cdc.gov>
Date: Sunday, 23 February 2020 at 04:39
To: "AYLWARD, Raymond Bruce J." <aylwardb@who.int>, Dale Fisher <mdcfda@nus.edu.sg>, Maria Van Kerkhove <vankerkhovem@who.int>
Subject: Re: REVISED ASSESSMENT ETC.

Hi Bruce,

It looks great! Please see my edits in the attached.

Thanks,
Weigong

Pleas

From: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Sent: Saturday, February 22, 2020 6:43 PM
To: AYLWARD, Raymond Bruce J. <aylwardb@who.int>; Dale Fisher <mdcfda@nus.edu.sg>
Cc: Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>
Subject: Re: REVISED ASSESSMENT ETC.

Hi Bruce,

Looks really good. I made some v minor edits to be consistent with our nomenclature (we don't use nCoV anymore and added influenza instead of flu). None of the content is changed but took away 2 qualifiers in 2 sentences. I do think its balanced and fair and reflects our discussions.

Thanks

From: "AYLWARD, Raymond Bruce J." <aylwardb@who.int>
Date: Saturday, 22 February 2020 at 19:22
To: Maria Van Kerkhove <vankerkhovem@who.int>, Dale Fisher <mdcfda@nus.edu.sg>
Cc: "Weigong ZHOU (waz6@cdc.gov)" <waz6@cdc.gov>, "Weigong ZHOU (wzhou@cdc.gov)" <wzhou@cdc.gov>
Subject: REVISED ASSESSMENT ETC.

Hey Rockstars both….

Attached is a revised version of the *Assessment, Major Conclusions and Major Recommendations*.

Big points:

- **Preamble on the China Response:** in an excellent and encouraging discussion with Dr Liang on the train we agreed that the best way to ensure we meet China's need for a strong assessment of its response and where it plans to go next, would be to add (b)(5) (b)(5) Please have a look at and test my proposed language with the group. I tested an earlier version with Tim and Chikwe who were very keen on it but recommended I dial it back a bit for a public audience and at least hint to shortcomings. Re any edits on this section, it is the opinion of the Internationals that matter most here (b)(5) (b)(5) I will check this with Dr Liang tomorrow.

- **Subsection on Major Conclusions:** to accommodate the above, I have relabeled the 4 subsequent points as a subsection called 'Major Conclusions'.

- **Proposed Edits from This Afternoon:** I have included most. Those that I didn't are intentional. I did a heap of other edits and rewrites to tighten the language and fix recs.

- **Still to be Done:** I just ran out of gas and left placeholders for 3 little recs in a final section call 'For the International community'. This has to be very carefully worded…. It can be popped in even on Monday if needed. I'll try to have a look over lunch tomorrow (oops – today).

- **Question:** I was not clear today if Wang Bin wanted to dump the 'For the public' section or just drop bits of it. As I was unclear – and the language was kind of crap – I cleaned it up anyway. I had understood yesterday that they recommended this section(??). I can live with either.

Sorry to be so late!

Bruce

PS – have cc'd Weigong as I think he asked to be cc'd on the electronic as I was dashing out the door…

From: Dr VAN KERKHOVE, Maria
Sent: Saturday, February 22, 2020 15:28
To: Dale Fisher <mdcfda@nus.edu.sg>
Cc: AYLWARD, Raymond Bruce J. <aylwardb@who.int>
Subject: Re: Draft report 22 Feb 1654 version

Rockstar Dale… thank you. We will likely slash some sections tomorrow, but great to see this all together.

Thanks again,
Maria

From: Dale Fisher <mdcfda@nus.edu.sg>
Date: Saturday, 22 February 2020 at 15:25
To: Maria Van Kerkhove <vankerkhovem@who.int>
Cc: "AYLWARD, Raymond Bruce J." <aylwardb@who.int>
Subject: RE: Draft report 22 Feb 1654 version

Here Maria;

My team was to review and send tracked changes tonight……I guess they were happy ☺

I think this gives all you want and its about double the length. In addition I slashed some of the rubbish (yay)

Use this as you want and do tell me if I can help in any way

Cheers

Dale

From: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Sent: Saturday, 22 February 2020 4:57 PM
To: Alexander SEMENOV (b)(6) (b)(6) Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Dale Fisher <mdcfda@nus.edu.sg>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; gmleung <gmleung@hku.hk>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; Weigong ZHOU (waz6@cdc.gov) <waz6@cdc.gov>; Weigong ZHOU (wzhou@cdc.gov) <wzhou@cdc.gov>; XING, Jun <xingj@who.int>
Cc: AYLWARD, Raymond Bruce J. <aylwardb@who.int>
Subject: Draft report 22 Feb 1654 version

- External Email -

Dear colleagues,

Thank you for the tremendous work in drafting this together with our colleagues from China. It was a fascinating and productive day. Jun, can you please share this word document with Chinese colleagues?

As discussed, please use this version to update your technical sections (the narrative) adding in the discussed recommended text/tables/stats/figures. Please also revise your technical recommendations.

I look forward to receiving your updated versions by 2200 tonight.

Thank you!

Maria

Important: This email is confidential and may be privileged. If you are not the intended recipient, please delete it and notify us immediately; you should not copy or use it for any purpose, nor disclose its contents to any other person. Thank you.

From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Mon, 24 Feb 2020 08:41:20 +0000
To: Dr VAN KERKHOVE, Maria
Subject: Re: Thank you and safe travels

Thanks, Maria! Well noted!
It's really a pleasure to work with you. Have a nice trip back home.
Best,
Weigong
From: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Sent: Monday, February 24, 2020 3:23 AM
To: gmleung <gmleung@hku.hk>
Cc: Alexander SEMENOV (b)(6) (b)(6) Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; AYLWARD, Raymond Bruce J. <aylwardb@who.int>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; XING, Jun <xingj@who.int>; (b)(6) (b)(6) >; GALEA, Gauden <galeag@who.int>; LEE, Chin-kei <LeeC@who.int>; SCANO, Fabio <scanof@who.int>
Subject: Re: Thank you and safe travels

Dear colleagues, please also do not share the report until it is (Final) and public.

Best,
Maria

> On 24 Feb 2020, at 15:55, Gabriel Leung <gmleung@hku.hk> wrote:
>

From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Wed, 26 Feb 2020 20:53:40 +0000
To: Dr VAN KERKHOVE, Maria
Cc: Alexander SEMENOV (b)(6) IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng);Clifford LANE (cliff.lane@nih.gov);Dale FISHER (mdcfda@nus.edu.sg);AYLWARD, Raymond Bruce J.;Dr Hitoshi TAKAHASHI (takajin@nih.go.jp);LEE Jong-Koo (docmohw@snu.ac.kr);Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru);Tim ECKMANNS (EckmannsT@rki.de);XING, (b)(6) GALEA, Gauden;LEE, Chin-kei;SCANO, Fabio;gmleung
Subject: RE: Thank you and safe travels
Attachments: WHO-China Joint Mission - DRAFT REPORT V5_wz.docx

Dear Maria,
Please see my comments/suggestions and some minor edits in the attached version 5. I removed a few figures but kept their space (so you know I didn't mean to delete them) to make the size of the file manageable for transmitting through email.

My comments/suggestions are on pages 11, 12, 13, 14, 34, 36, 37, 38

Minor edits are on
- Page 7, last line
- Page 8, line 4 from top, and line 5&6 from bottom
- Page 38, line 3 from top

Dear all,
It was a privilege and pleasure to work with you all during the unforgettable mission in China. I look forward to seeing you again in the near future.

All the best,
Weigong

-----Original Message-----
From: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Sent: Monday, February 24, 2020 3:23 AM
To: gmleung <gmleung@hku.hk>
Cc: Alexander SEMENOV (b)(6) (b)(6) Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; AYLWARD, Raymond Bruce J. <aylwardb@who.int>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; XING, Jun <xingj@who.int>; (b)(6) ; GALEA, Gauden <galeag@who.int>; LEE, Chin-kei <LeeC@who.int>; SCANO, Fabio <scanof@who.int>
Subject: Re: Thank you and safe travels

Dear colleagues, please also do not share the report until it is (Final) and public.

Best,
Maria

> On 24 Feb 2020, at 15:55, Gabriel Leung <gmleung@hku.hk> wrote:
>

Draft report v5~~v4~~

WHO-China Joint Mission on COVID-19
Draft Report

Executive summary

(to add- largely from existing txt from intro/assessment/major findings)

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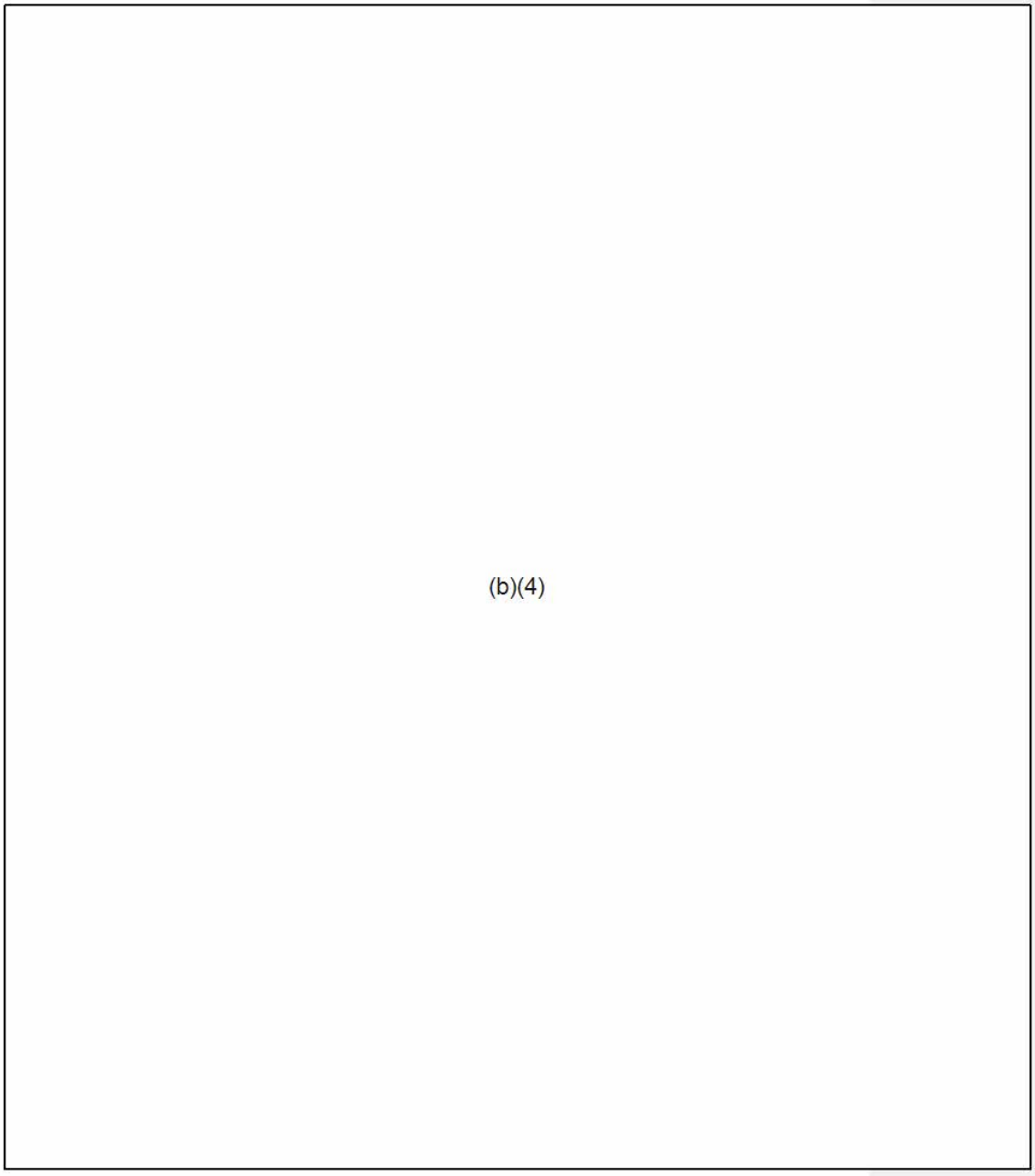
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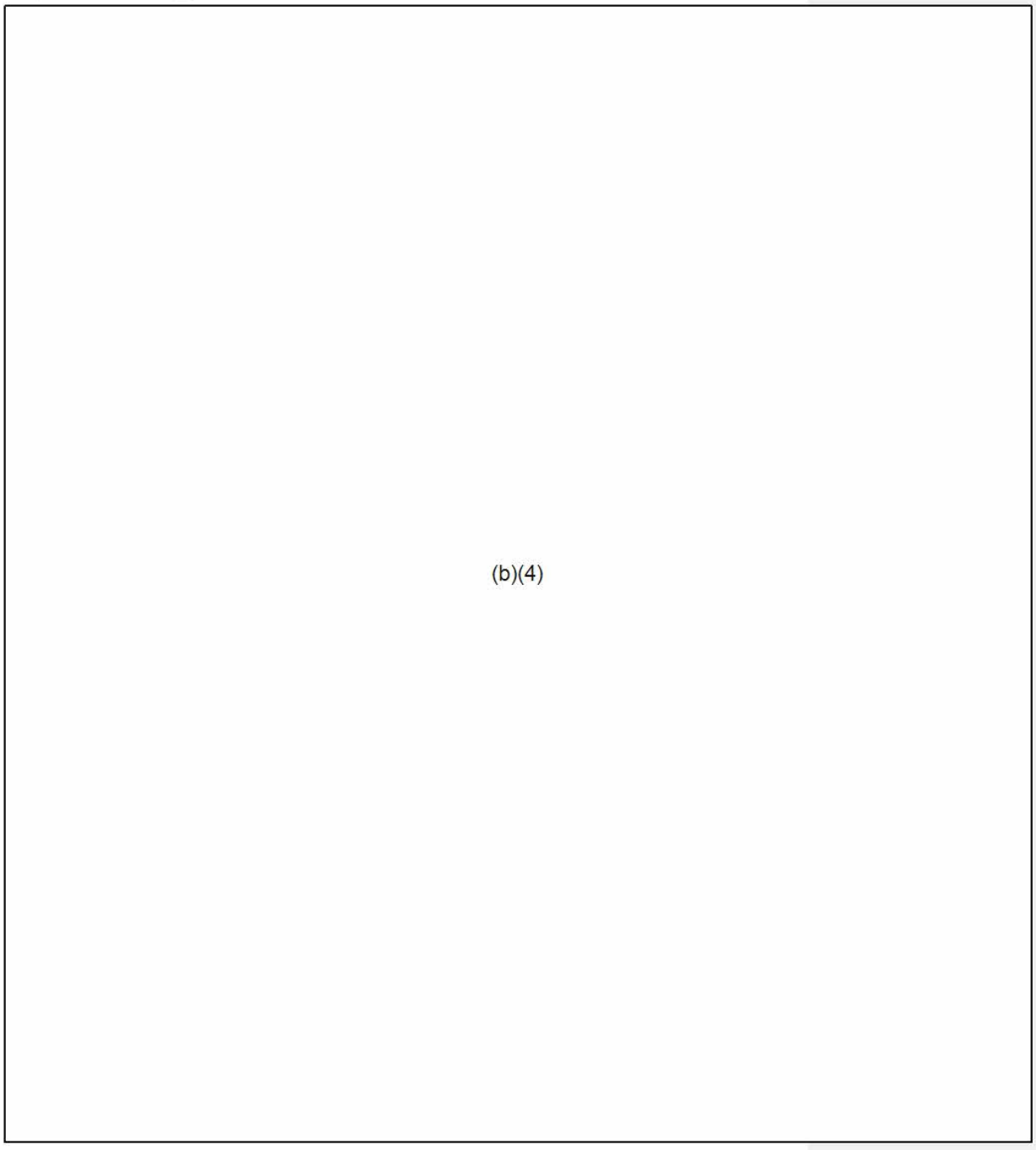

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Annexes

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B. Agenda of the Mission

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 17 Sep 2020 18:54:48 +0000
To: Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Hazim, Carmen Emily (CDC/DDID/NCEZID/DHQP);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hicks, Elizabeth (NIH/NINDS) [E];Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);Marston, Hilary (NIH/NIAID) [E];McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Safstrom, Jacqueline (CDC/DDID/NCEZID/DHQP) (CTR);Shoemaker, Trevor (CDC/DDID/NCEZID/DHCPP);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT);Terrell-Perica, Steven (CDC/DDPHSIS/CGH/DGHT);Whitmer, Shannon (CDC/DDID/NCEZID/DHCPP);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: 17 September GOARN Weekly Ops Call Notes/Slides
Attachments: GOARN Weekly Ops Call Notes 2020 09 17.docx, DRC EVD Équateur Data Pack 2020 09 17.pdf, COVID-19 Situation Update 2020 09 17.pdf, AfO Update 2020 09 17.pdf, RCCE GOARN Update 2020 09 17.pdf

Thanks Puneet. Ray

From: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP) <ogq2@cdc.gov>
Sent: Thursday, September 17, 2020 2:16 PM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC)

<GDDOUTBREAK@cdc.gov>
Subject: 17 September GOARN Weekly Ops Call Notes/Slides

Hi Ray and team,

Attached are the 08:00 EDT/ 14:00 CET GOARN Ops call notes (includes all presentations), DRC EVD Data Pack, and other presentations from today.

(b)(4); (b)(5)

Regards,
Puneet Anantharam



-
Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road NE, Mailstop D68
Atlanta, GA 30333

GOARN Weekly Ops Call Notes

Date: 17 September 2020

Time: 8:00 EDT/ 14:00 CET

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Page 1656

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Page 1657

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From: Zhou, Weigong (CDC/DDID/NCIRD/ID)
Sent: Thu, 27 Feb 2020 02:47:51 +0000
To: AYLWARD, Raymond Bruce J.
Cc: Dr VAN KERKHOVE, Maria
Subject: RE: Thank you and safe travels

Thanks a lot, Bruce! It was amazing experience to work with you in the past 10 day and it was fun! Hope I'll have the luck to work with you again in the future.

I wish I could send you my comments sooner. Hopefully our Chinese colleagues will send you revised figure 4 (11-20 Feb data point can not be right) and figure 5 before publication of the report. (b)(5) (b)(5) Also just a note, the >3000 HCW infection was quoted in Dr Liang's speech during the press conference in Beijing.

(b)(6)

Again, it's really a privilege to be part of the team and I appreciate the opportunity to work with you very much.

Best,
Weigong

-----Original Message-----
From: AYLWARD, Raymond Bruce J. <aylwardb@who.int>
Sent: Wednesday, February 26, 2020 6:40 PM
To: Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>
Cc: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Subject: RE: Thank you and safe travels

Dear Weigong,

Thank you SO much for the close read of this and for picking up those details (important details).

I've reworked a few things to try and address most of them. (b)(4); (b)(5) (b)(4); (b)(5)

Have also worked with Maria to sort the (b)(4); (b)(5)

I trust the final version works for you.

Again, Weigong, on a personal note I want to thank you so so much for participating, despite the quarantine.... ☺. I truly admired and appreciated the skills, knowledge and wonderful personality that you brought to the mission.

BTW, I heard a rumour that (b)(6) for 2 weeks? If yes, PLEASE give my very very warmest regards to Ailan - I am a HUGE fan of her.

Warmly,

Bruce

-----Original Message-----

From: Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>
Sent: Wednesday, February 26, 2020 21:54
To: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Cc: Alexander SEMENOV (b)(6) (b)(6) Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; AYLWARD, Raymond Bruce J. <aylwardb@who.int>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; XING, Jun <xingj@who.int>; (b)(6) GALEA, Gauden <galeag@who.int>; LEE, Chin-kei <LeeC@who.int>; SCANO, Fabio <scanof@who.int>; gmleung <gmleung@hku.hk>
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Minor edits are on
* Page 7, last line
* Page 8, line 4 from top, and line 5&6 from bottom
* Page 38, line 3 from top

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All the best,
Weigong

-----Original Message-----
From: Dr VAN KERKHOVE, Maria <vankerkhovem@who.int>
Sent: Monday, February 24, 2020 3:23 AM
To: gmleung <gmleung@hku.hk>
Cc: Alexander SEMENOV (b)(6) (b)(6) Chikwe IHEKWEAZU (chikwe.ihekweazu@ncdc.gov.ng) <chikwe.ihekweazu@ncdc.gov.ng>; Clifford LANE (cliff.lane@nih.gov) <cliff.lane@nih.gov>; Dale FISHER (mdcfda@nus.edu.sg) <mdcfda@nus.edu.sg>; AYLWARD, Raymond Bruce J. <aylwardb@who.int>; Dr Hitoshi TAKAHASHI (takajin@nih.go.jp) <takajin@nih.go.jp>; LEE Jong-Koo (docmohw@snu.ac.kr) <docmohw@snu.ac.kr>; Natalia PSHENICHNAYA (natalia-pshenichnaya@yandex.ru) <natalia-pshenichnaya@yandex.ru>; Tim ECKMANNS (EckmannsT@rki.de) <EckmannsT@rki.de>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; Zhou, Weigong (CDC/DDID/NCIRD/ID) <waz6@cdc.gov>; XING, Jun <xingj@who.int>; (b)(6) GALEA, Gauden <galeag@who.int>; LEE, Chin-kei <LeeC@who.int>; SCANO, Fabio <scanof@who.int>
Subject: Re: Thank you and safe travels

Dear colleagues, please also do not share the report until it is (Final) and public.

Best,
Maria

> On 24 Feb 2020, at 15:55, Gabriel Leung <gmleung@hku.hk> wrote:
>

From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 12 Nov 2020 23:12:31 +0000
To: Staples, J. Erin (CDC/DDID/NCEZID/DVBD);Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Hazim, Carmen Emily (CDC/DDID/NCEZID/DHQP);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hicks, Elizabeth (NIH/NINDS) [E];Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);Marston, Hilary (NIH/NIAID) [E];McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Morales-Betoulle, Maria (CDC/DDID/NCEZID/DHCPP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Safstrom, Jacqueline (CDC/DDID/NCEZID/DHQP) (CTR);Shoemaker, Trevor (CDC/DDID/NCEZID/DHCPP);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT);Terrell-Perica, Steven (CDC/DDPHSIS/CGH/DGHT);Whitmer, Shannon (CDC/DDID/NCEZID/DHCPP);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: FW: 12 November GOARN Weekly Ops Call Notes/Slides
Attachments: YF Nigeria NCDC Update 2020 11 12.pdf, COVID-19 Situation Update 2020 11 12.pdf, RRML Update 2020 11 12.pdf, GOARN RCCE Update 2020 11 12.pdf, DRC EVD Équateur Data Pack 2020 11 12.pdf, GOARN Weekly Ops Call Notes 2020 11 12.docx

Thanks Puneet for the comprehensive notes.

Ray

From: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP) <ogq2@cdc.gov>
Sent: Thursday, November 12, 2020 9:43 AM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>
Subject: 12 November GOARN Weekly Ops Call Notes/Slides

Hi Ray and team,

Attached are the 08:00 EDT/ 14:00 CET GOARN Ops call notes (includes all presentations), DRC EVD Data Pack, and other presentations from today.

(b)(4); (b)(5)

Thank you,
Puneet Anantharam



-

Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road NE, Mailstop D68
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GOARN Weekly Ops Call Notes

Date: 12 November 2020

Time: 8:00 EDT/ 14:00 CET

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Fri, 10 Jul 2020 20:59:01 +0000
To: Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greene, Carolyn M. (CDC/DDID/NCIRD/ID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: 9 July GOARN Weekly Ops Call Notes/Slides
Attachments: GOARN Weekly Ops Call Notes 2020 07 09.docx, DRC Plague Ituri 2020 07 09.pdf, DRC EVD Équateur Data Pack 2020 07 09.pptx, WHO COVID-19 Situation Update 2020 07 09.pdf, Indigenous Populations and COVID-19 2020 07 09.pdf, RCCE Update 2020 07 09.pdf

Colleagues,

Forwarding from Puneet the slides/call notes (includes all presentations) and DRC EVD Data Pack from the 08:00 EDT GOARN Ops call on 9 July. Thanks Puneet.

Ray

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Regards,
Puneet Anantharam



-
Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road NE, Mailstop D68
Atlanta, GA 30333

GOARN Weekly Ops Call Notes

Date: 9 July 2020

Time: 8:00 EDT/ 14:00 CET

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 24 Sep 2020 20:13:43 +0000
To: Hinkle IV, Lawrence (CDC/DDPHSIS/CGH/DGHP);Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Hazim, Carmen Emily (CDC/DDID/NCEZID/DHQP);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hicks, Elizabeth (NIH/NINDS) [E];Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);Marston, Hilary (NIH/NIAID) [E];McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Safstrom, Jacqueline (CDC/DDID/NCEZID/DHQP) (CTR);Shoemaker, Trevor (CDC/DDID/NCEZID/DHCPP);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT);Terrell-Perica, Steven (CDC/DDPHSIS/CGH/DGHT);Whitmer, Shannon (CDC/DDID/NCEZID/DHCPP);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: FW: 24 September GOARN Weekly Ops Call Notes/Slides
Attachments: GOARN Weekly Ops Call Notes 2020 09 24.docx, DRC EVD Equateur Data Pack 2020 09 24.pdf, 2020-09-24-GOARN OPS- Ebola update.pdf, GOARN_COVID_Epi_Update 2020 09 24.pdf, GOARN RCCE update 2020 09 24.pdf

Thanks Larry.

Ray

From: Hinkle IV, Lawrence (CDC/DDPHSIS/CGH/DGHP) <ndf5@cdc.gov>
Sent: Thursday, September 24, 2020 3:22 PM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>
Subject: 24 September GOARN Weekly Ops Call Notes/Slides

Hi Ray and team,

Attached are the 0:800 EDT/14:00 CET GOARN Ops call notes (includes all presentations), DRC EVD Data Pack, and other presentations from today.

(b)(4); (b)(5)

Cheers,

Larry

Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road NE, Mailstop H21-3
Atlanta, GA 30333

GDDOC secure mailbox: gddoutbreak@cdc.gov
Ray Arthur, PhD, Director: tel: +1.404.639.3855; mobile: (b)(6)
Puneet Anantharam, MPH, ORISE Fellow: mobile: (b)(6)
Catherine Chow, MD, MPH, Captain, USPHS, Analyst: tel: +1.404.553.7659; mobile (b)(6)
Kira Christian Coggeshall, DVM, MPH, DACVPM, Analyst: tel: +1.404.553.7666; mobile (b)(6)
James Fuller, PhD, MSPH, Analyst: tel: +1.404.639.7361; mobile: (b)(6)
Christine Hercik, PhD, Analyst: tel: +1.404.718.6669; mobile: (b)(6)
Lawrence Hinkle, MSPH, Analyst: tel: +1.404.718.5654; mobile: (b)(6)
Rossanne M. Philen, MD, MS, Analyst: tel: +1.404.553.7660; mobile: (b)(6)
Philip M Ricks, PhD, MPH, Analyst: tel: +1 404.553.7664; mobile: (b)(6)
Serena Fuller, MPH, Emergency Coordinator: tel: +1.404.553.7662; mobile: (b)(6)

For after hours support, please phone the EOC Watch Desk at: +1.770.488.7100

GOARN Weekly Ops Call Notes

Date: 24 September 2020

Time: 8:00 EDT/ 14:00 CET

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 16 Jul 2020 22:26:00 +0000
To: Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greene, Carolyn M. (CDC/DDID/NCIRD/ID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Cc: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP)
Subject: FW: 16 July GOARN Weekly Ops Call Notes/Slides
Attachments: GOARN Weekly Ops Call Notes 2020 07 16.docx, Kazakhstan Unknown Pneumonia 2020 07 16.pdf, DRC EVD Équateur Data Pack 2020 07 16.pptx, COVID-19 Situation Update 2020 07 16.pdf, RCCE GOARN Update 2020 07 16.pdf

Attached are the 08:00 EDT/ 14:00 CET GOARN Ops Call notes (includes all presentations), DRC EVD Data Pack, and other presentations from today. Many thanks to Puneet for preparing the notes and assembling the slide sets. Best, Ray

(b)(5); (b)(4)

(b)(4); (b)(5)

Regards,
Puneet Anantharam



Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road NE, Mailstop D68
Atlanta, GA 30333

GOARN Weekly Ops Call Notes

Date: 16 July 2020

Time: 8:00 EDT/ 14:00 CET

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 1 Oct 2020 19:00:35 +0000
To: Hinkle IV, Lawrence (CDC/DDPHSIS/CGH/DGHP);Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Hazim, Carmen Emily (CDC/DDID/NCEZID/DHQP);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hicks, Elizabeth (NIH/NINDS) [E];Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);Marston, Hilary (NIH/NIAID) [E];McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Safstrom, Jacqueline (CDC/DDID/NCEZID/DHQP) (CTR);Shoemaker, Trevor (CDC/DDID/NCEZID/DHCPP);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT);Terrell-Perica, Steven (CDC/DDPHSIS/CGH/DGHT);Whitmer, Shannon (CDC/DDID/NCEZID/DHCPP);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: FW: 01 October GOARN Weekly Ops Call Notes/Slides
Attachments: GOARN Weekly Ops Call Notes 2020 10 01.docx, GOARN_COVID_10 01 2020_EpiUpdate_v3.pdf, KAP COVID Dashboard 10 01 2020.pdf, Oct 1 GOARN WHO RCCE.pdf, Take away RCCE GOARN Call 10 01 2020.pdf, Jaundice _Burkina Faso_10 01 2020_GOARN _PHI_final.pdf, Sudan AHF_GOARN_10 01 2020.pdf, DRC EVD Equateur Data pack_2020-10-01.pdf

Thanks Larry.

A reminder to all that the information presented on the GOARN Ops calls is for use of partner institutions and should not be shared.

Thanks.
Ray

From: Hinkle IV, Lawrence (CDC/DDPHSIS/CGH/DGHP) <ndf5@cdc.gov>
Sent: Thursday, October 1, 2020 2:03 PM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>
Subject: 01 October GOARN Weekly Ops Call Notes/Slides

Hi Ray and team,

Attached are the 0:800 EDT/14:00 CET GOARN Ops call notes (includes all presentations), DRC EVD Data Pack, and other presentations from today. There were some audio issues early on during the COVID update. I think I got most of it but please let me know if you heard something else.

(b)(4); (b)(5)

Cheers,

Larry

Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)

Division of Global Health Protection

Center for Global Health

Centers for Disease Control and Prevention

1600 Clifton Road NE, Mailstop H21-3

Atlanta, GA 30333

GDDOC secure mailbox: gddoutbreak@cdc.gov
Ray Arthur, PhD, Director: tel: +1.404.639.3855; mobile: (b)(6)
Puneet Anantharam, MPH, ORISE Fellow: mobile: (b)(6)
Catherine Chow, MD, MPH, Captain, USPHS, Analyst: tel: +1.404.553.7659; mobile: (b)(6)
Kira Christian Coggeshall, DVM, MPH, DACVPM, Analyst: tel: +1.404.553.7666; mobile: (b)(6)
James Fuller, PhD, MSPH, Analyst: tel: +1.404.639.7361; mobile (b)(6)
Christine Hercik, PhD, Analyst: tel: +1.404.718.6669; mobile: (b)(6)
Lawrence Hinkle, MSPH, Analyst: tel: +1.404.718.5654; mobile: (b)(6)
Rossanne M. Phillen, MD, MS, Analyst: tel: +1.404.553.7660; mobile (b)(6)
Philip M Ricks, PhD, MPH, Analyst: tel: +1 404.553.7664; mobile: + (b)(6)
Serena Fuller, MPH, Emergency Coordinator: tel: +1.404.553.7662; mobile: + (b)(6)

For after hours support, please phone the EOC Watch Desk at: +1.770.488.7100

GOARN Weekly Ops Call Notes

Date: 01 October 2020

Time: 8:00 EDT/ 14:00 CET

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 19 Nov 2020 22:15:40 +0000
To: Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Hazim, Carmen Emily (CDC/DDID/NCEZID/DHQP);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hicks, Elizabeth (NIH/NINDS) [E];Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);Marston, Hilary (NIH/NIAID) [E];McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Morales-Betoulle, Maria (CDC/DDID/NCEZID/DHCPP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Safstrom, Jacqueline (CDC/DDID/NCEZID/DHQP) (CTR);Shoemaker, Trevor (CDC/DDID/NCEZID/DHCPP);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT);Terrell-Perica, Steven (CDC/DDPHSIS/CGH/DGHT);Whitmer, Shannon (CDC/DDID/NCEZID/DHCPP);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: FW: 19 November GOARN Weekly Ops Call Notes/Slides
Attachments: GOARN Weekly Ops Call Notes 2020 11 19.docx, COVID-19 Situation Update 2020 11 19.pdf, GOARN RCCE Update 2020 11 19.pdf

For internal CDC use only.

Thanks.
Ray

From: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP) (CTR) <ogq2@cdc.gov>
Sent: Thursday, November 19, 2020 8:48 AM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>
Subject: 19 November GOARN Weekly Ops Call Notes/Slides

Hi Ray and team,

Attached are the 08:00 EDT/ 14:00 CET GOARN Ops call notes (includes all presentations), COVID-19 Situation Update, and other presentations from today.

(b)(4); (b)(5)

Thank you,
Puneet Anantharam



Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road NE, Mailstop H21
Atlanta, GA 30333

GOARN Weekly Ops Call Notes

Date: 19 November 2020

Time: 8:00 EST/ 14:00 CST

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 3 Dec 2020 18:38:22 +0000
To: Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Hazim, Carmen Emily (CDC/DDID/NCEZID/DHQP);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hicks, Elizabeth (NIH/NINDS) [E];Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);Marston, Hilary (NIH/NIAID) [E];McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Morales-Betoulle, Maria (CDC/DDID/NCEZID/DHCPP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Safstrom, Jacqueline (CDC/DDID/NCEZID/DHQP) (CTR);Shoemaker, Trevor (CDC/DDID/NCEZID/DHCPP);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT);Terrell-Perica, Steven (CDC/DDPHSIS/CGH/DGHT);Whitmer, Shannon (CDC/DDID/NCEZID/DHCPP);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: F3 December GOARN Weekly Ops Call Notes/Slides
Attachments: GOARN Weekly Ops Call Notes 2020 12 03.docx, COVID-19 Situation Update 2020 12 03.pdf, YF Nigeria NCDC Update 2020 12 03.pdf

Thanks Puneet.

Ray

From: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP) (CTR) <ogq2@cdc.gov>
Sent: Thursday, December 3, 2020 9:13 AM

To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>
Subject: 3 December GOARN Weekly Ops Call Notes/Slides

Dear Ray and team,

Attached are the 08:00 EDT/ 14:00 CET GOARN Ops call notes (includes all presentations), COVID-19 Situation Update, and other presentations from today. **Note: NCDC presentation slides were not provided on GOARN KP.**

(b)(4); (b)(5)

Regards,
Puneet Anantharam, MPH

Global Disease Detection Operations Center | GDDOC
Emergency Response and Recovery Branch | ERRB
Centers for Disease Control and Prevention | CDC
E: ogq2@cdc.gov | **P:** +1 404.312.5665 (US)

Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

GOARN Weekly Ops Call Notes

Date: 3 December 2020

Time: 8:00 EST/ 14:00 CST

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 23 Jul 2020 21:59:52 +0000
To: Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greene, Carolyn M. (CDC/DDID/NCIRD/ID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: Slides from GOARN Ops Call - 23 July 2020
Attachments: GOARN.docx

Best,
Ray

Ray R. Arthur, PhD
Lead, Global Disease Detection Operations Center
Emergency Response and Recovery Branch

Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention

1600 Clifton Road, NE

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rarthur@cdc.gov

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 10 Dec 2020 14:51:21 +0000
To: O'Donoghue, Lucy (CDC/DDPHSIS/CGH/OD);Shelby, Laura (CDC/DDPHSIS/CGH/DGHP);Desai, Meghna (CDC/DDPHSIS/CGH/DGHP);Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Cantey, Paul T. (CDC/DDPHSIS/CGH/DPDM);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);Doshi, Reena H. (CDC/DDPHSIS/CGH/GID);CDC IMS Incident Manager -2;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Hansen, Donda L. (CDC/DDPHSIS/CGH/OD);Hazim, Carmen Emily (CDC/DDID/NCEZID/DHQP);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hicks, Elizabeth (NIH/NINDS) [E];Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);Marston, Hilary (NIH/NIAID) [E];McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McNamara, Lucy Alexandra (CDC/DDID/NCIRD/DBD);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Morales-Betoulle, Maria (CDC/DDID/NCEZID/DHCPP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Safstrom, Jacqueline (CDC/DDID/NCEZID/DHQP) (CTR);Shoemaker, Trevor (CDC/DDID/NCEZID/DHCPP);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Spiropoulou, Christina (CDC/DDID/NCEZID/DHCPP);Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD);Suthar, Amitabh (CDC/DDPHSIS/CGH/DGHT);Terrell-Perica, Steven (CDC/DDPHSIS/CGH/DGHT);Whitmer, Shannon (CDC/DDID/NCEZID/DHCPP);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: FW: 10 December GOARN Weekly Ops Call Notes/Slides
Attachments: COVID-19 Situation Update 2020 12 10.pdf, GOARN RCCE Update 2020 12 10.pdf, UndiagnosedIllness_India 2020 12 10.pdf, GOARN Weekly Ops Call Notes 2020 12 10.docx

Thanks Puneet.

Ray

From: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP) (CTR) <ogq2@cdc.gov>
Sent: Thursday, December 10, 2020 9:01 AM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>
Subject: 10 December GOARN Weekly Ops Call Notes/Slides

Dear Ray and team,

Attached are the 08:00 EST/ 14:00 CST GOARN Ops call notes (includes all presentations), COVID-19 Situation Update, and other presentations from today.

(b)(4); (b)(5)

Regards,
Puneet Anantharam, MPH

Global Disease Detection Operations Center | GDDOC
Emergency Response and Recovery Branch | ERRB
Centers for Disease Control and Prevention | CDC
E: ogq2@cdc.gov | **P:** +1 404.312.5665 (US)

Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

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Undiagnosed illness – Andhra Pradesh - India

PREFACE:

- The following slides are not final and are produced solely for the purposes of informing operations. As investigations are ongoing, all data are subject to verification and change.
- **All information in this slide deck should be treated as confidential**, and should not be shared or used for any outward facing products.

- 10 December 2020

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GOARN Weekly Ops Call Notes

Date: 10 December 2020

Time: 8:00 EST/ 14:00 CST

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Thu, 16 Apr 2020 18:33:59 +0000
To: Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);EOC IM;Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Greene, Carolyn M. (CDC/DDID/NCIRD/ID);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC)
Subject: 16 April GOARN Weekly Ops Call Notes/Slides
Attachments: Ebola DRC Data Pack 2020 04 16.pptx, GOARN Meeting Notes 2020 04 16.docx, GOARN Meeting Slides 2020 04 16.pptx

Many thanks Puneet.

Ray

From: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP) <ogq2@cdc.gov>
Sent: Thursday, April 16, 2020 11:58 AM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>
Cc: GDD-OUTBREAK (CDC) <GDDOUTBREAK@cdc.gov>
Subject: 16 April GOARN Meeting Notes/Slides

Hi Ray and team,

Attached are the 08:00 EDT/ 14:00 CET GOARN meeting notes, EVD Epi Data Pack, and meeting slides (includes EVD/COVID) from today.

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Regards,
Puneet Anantharam, MPH

Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
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Centers for Disease Control and Prevention
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Puneet Anantharam, MPH, ORISE Fellow | mobile: (b)(6)
Catherine Chow, MD, MPH, Captain, USPHS, Analyst | tel: +1.404.553.7659, mobile: (b)(6)
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For after hours support, please phone the EOC Watch Desk at: +1.770.488.7100

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GOARN CALL Meeting Notes

Date: 16 April 2020

Time: 8:00 EDT/ 14:00 CET

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From: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP)
Sent: Fri, 29 May 2020 16:41:54 +0000
To: Armstrong, Gregory (CDC/DDID/NCEZID/OD);Beach, Michael J. (CDC/DDID/NCEZID/DFWED);Ben Hamida, Amen (em-EN) (CDC/DDPHSIS/CGH/DGHP);Bennett, Sarah D. (CDC/DDPHSIS/CGH/GID);Bresee, Joseph (CDC/DDID/NCIRD/ID);Bunga, Sudhir (CDC state.gov);Christie, Athalia (CDC/DDPHSIS/CGH/OD);Clarke, Kevin R. (CDC/DDPHSIS/CGH/DGHP);Dahl, Benjamin A. (CDC/DDPHSIS/CGH/GID);Damon, Inger K. (CDC/DDID/NCEZID/DHCPP);Dawood, Fatimah S. (CDC/DDID/NCIRD/ID);EOC IM;Farag, Noha (CDC/DDPHSIS/CGH/GID);Fitter, David L. (CDC/DDPHSIS/CGH/GID);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);GDD-OUTBREAK (CDC);Geissler, Aimee L. (CDC/DDID/NCEZID/DFWED);Ghiselli, Margherita (CDC/DDPHSIS/CGH/GID);Greene, Carolyn M. (CDC/DDID/NCIRD/ID);Greiner, Ashley L. (CDC/DDPHSIS/CGH/DGHP);Hagan, Jose Edward (CDC/DDPHSIS/CGH/GID);Hakim, Avi (CDC/DDPHSIS/CGH/DGHT);Helfand, Rita (CDC/DDID/NCEZID/OD);Henao, Olga (CDC/DDPHSIS/CGH/DGHP);Hyde, Terri (CDC/DDPHSIS/CGH/GID);Kaiser, Reinhard (CDC/DDPHSIS/CGH/DGHP);Klena, John D. (CDC/DDID/NCEZID/DHCPP);Knight, Nancy (CDC/DDPHSIS/CGH/DGHP);Kolwaite, Amy R. (CDC/DDID/NCEZID/DHQP);Lessa, Fernanda (CDC/DDID/NCEZID/DHQP);Marston, Barbara J. (CDC/DDPHSIS/CGH/DPDM);McCarron, Margaret (Meg) (CDC/DDID/NCIRD/ID);McQuiston, Jennifer H. (CDC/DDID/NCEZID/DHCPP);Mirza, Sara (CDC/DDID/NCIRD/DBD);Montandon, Michele (CDC/DDPHSIS/CGH/DGHT);Montgomery, Joel M. (CDC/DDID/NCEZID/DHCPP);Moolenaar, Ronald L. (CDC/DDPHSIS/CGH/DGHP);Mounts, Anthony (Tony) (CDC/DDPHSIS/CGH/GID);Neatherlin, John C. (CDC/DDPHSIS/CGH/DGHP);Nelson, Lisa J. (CDC/DDPHSIS/CGH/DGHT);Nichol, Stuart T. (CDC/DDID/NCEZID/DHCPP);OConnor, John (CDC/DDID/NCEZID/OD);Park, Benjamin (CDC/DDID/NCEZID/DHQP);Patel, Anita (CDC/DDID/NCIRD/OD);Pesik, Nicki (CDC/DDID/NCEZID/OD);Prue, Christine (CDC/DDID/NCEZID/OD);Raghunathan, Pratima (CDC/DDPHSIS/CGH/OD);Roohi, Shahrokh (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Rouse, Edward N. (CDC/DDPHSIS/CPR/DEO);Simonds, R. J. (CDC/DDPHSIS/CGH/OD);Smith, Rachel M. (CDC/DDID/NCEZID/DHQP);Soeters, Heidi (CDC/DDPHSIS/CGH/GID);Soke, Gnakub (Norbert) (CDC/DDPHSIS/CGH/GID);Spath (CDC);Williams, Seymour (CDC/DDPHSIS/CGH/DGHP);Zhou, Weigong (CDC/DDID/NCIRD/ID)
Subject: FW: 28 May GOARN Weekly Ops Call Notes/Slides
Attachments: Angola Suspected VHF 2020 05 28.pptx, DRC EVD Epi Data Pack 2020 05 28.pptx, COVID-19 Situation Update 2020 05 28.pdf, COVID-19 in Humanitarian settings 2020 05 28.pdf, RCCE Update 2020 05 28.pdf, GOARN Weekly Ops Call Notes 2020 05 28.docx

Dear Colleagues,

The notes and slides from yesterday's call are attached.

Thanks once again to Puneet.

Best,
Ray

From: Anantharam, Puneet (CDC/DDPHSIS/CGH/DGHP) <ogq2@cdc.gov>
Sent: Thursday, May 28, 2020 6:11 PM
To: Arthur, Ray (CDC/DDPHSIS/CGH/DGHP) <rca8@cdc.gov>; GDD-OUTBREAK (CDC)

<GDDOUTBREAK@cdc.gov>
Subject: 28 May GOARN Weekly Ops Call Notes/Slides

Hi Ray and team,

Attached are the 08:00 EDT/ 14:00 CET GOARN Ops call notes/slides (includes all presentations), DRC EVD Epi Data Pack, and other presentations from today.

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Regards,
Puneet Anantharam



Please copy GDDOUTBREAK@CDC.GOV on all outbreak related e-mails.

Global Disease Detection Operations Center (GDDOC)
Division of Global Health Protection
Center for Global Health
Centers for Disease Control and Prevention

1600 Clifton Road NE, Mailstop D68
Atlanta, GA 30333

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