PREDICT Quarter 4 Year 5 Reporting

GLOBAL – US, Africa, Southeast Asia, Asia & Latin America

LOW 1: Wildlife Pathogen Detection—Identification of Novel Wildlife Pathogens that Pose a Significant Public Health Threat

- **Activity 1.1 Capacity Building**
  - Sub-activity 1.1.1: **Operationalizing One Health Highlights**

a) International, National, or Regional Surveillance System Improvements

- In Democratic Republic of Congo and Republic of Congo, provided training and prevention information on monkeypox to the PREDICT team in Cameroon in response to the outbreak in chimpanzees, and in the Democratic Republic of Congo participated in the Ministry of Health's human monkeypox crisis committee.
- Presented on Ebola transmission and PREDICT activities from Democratic Republic of Congo's Isiro 2012 outbreak at Cameroon's Ministry of Livestock Ebola and monkeypox workshop.
- In Republic of Congo, held workshop at Ministry of External Relations to present surveillance and laboratory results, and hold discusssions with partners from the Ministry of National Defense, the National Public Health Laboratory, the Veterinary Diagnostic Laboratory of Brazzaville, the Ministry of Public Health, the Ministry of Agriculture, and the National Institute of Agronomic Research.
- Trained staff from Republic of Congo's Central Veterinary Laboratory of Brazzaville on PREDICT laboratory protocols.
- In Republic of Congo, held PREDICT review meeting at the Ministry of Foreign Affairs (with US Ambassador and Ministry of Health).
- Attended EPT Republic of Congo meeting with partners from LNSP, LNV, IDENTIFY, and the Ministry of Defense Military Health to discuss the agenda for the PREDICT stakeholders workshop.
- Held briefing for the Cameroonian Ministry of Defense.
- In Cameroon, provided technical and resource support to government partners for Ebola preparedness efforts: attended emergency committee meetings, assisted the Ministry of Health and CDC with travel history forms and case definitions and drafting of Ministry of Health directives, provided training for clinical staff, facilitated communication between MINSANTE and US Embassy for PPE orders, and demonstrated PPE use; coordinated with WHO and CDC on training and PPE; encouraged inclusion of

livestock and wildlife ministries in planning and discussions on Ebola related interventions, and the Livestock One Health focal point attended training of trainers sessions.

- In Tanzania, met with the Director of Veterinary Services regarding engaging with the Ministry of Health's Preventive Services, specifically involving veterinarians in Ebola preparedness plans.
- At the request of Rwanda's Ministry of Health, donated gloves for border prevention for Ebola.
- Held One Health meetings with Laos central and provincial government sectors including agriculture, health, forestry, industry, and commerce.
- Hosted an event titled "Surveillance and Epidemiological Research of Zoonotic Diseases & Application of One Health in Disease Control and Prevention in South China" with participants from the Institute of Public Health, Provincial CDCs, WuHan Institute of Virology, and FAO and discussed PREDICT, One Health activities, H7N9, and Ebola.
- In Cambodia, participated in the National Workshop on Monkey Diseases and Diagnostics organized by NaVRI and a macaque farm company.
- Attended Cambodia's National Workshop for the Development of Doctor of Veterinary Medicine Curriculum for the Royal University of Agriculture.
- Attended the Cambodia government's Zoonotic Technical Working Group meeting.
- In Cambodia, held community-level meetings with animal, forestry, and human health workers and villagers to report on results and zoonotic disease transmission risk and prevention for communities that had been involved in surveillance. Village chiefs gave closing speeches, encouraging change in certain risky behaviors.
- In Thailand, served on the National Committee for Ebola Laboratory Diagnostics.
- Presented project activities at launch of One Health Communications Network in Vietnam, an initiative co-chaired by the Ministry of Agriculture and Rural Development and the Ministry of Health.
- Presented a poster at the Wildlife Disease Association conference on surveillance in Cambodia, Lao PDR, and Vietnam.
- Presented on "Zoonotic disease surveillance at wildlife-domestic animal-human interface in Cambodia" at the Society for Conservation Biology, Asia in Malaysia.
- Spoke about One Health at the Malaysian Palm Oil Conference.
- Invited by the Indonesian Health Research and Development Agency, Ministry of Health, to be part of commission of special research on vectors and reservoirs of diseases and to develop a manual for sampling, logistics, testing, and data management, and activity management.
- In Indonesia, attended the Ministry of Health's "Preparation of white paper on Global Health Security".

- Invited by the Directorate General of Livestock and Animal Health, Ministry of Agriculture, as experts to discuss Indonesia's preparedness regarding the Ebola Virus outbreak in Africa.
- In Indonesia, appointed as local experts by the Ministry of Forestry to the team formed to develop guidelines for investigation and control of wildlife diseases.
- Participated in a One Health National Coordination Meeting in Bangladesh.
- Presented on the project's One Health approach at Peru's Regional Forum for Wildlife Management, hosted by the Regional Government of Ucayali, highlighting health risks from animal-human interfaces and unsustainable activities such as the wildlife trade; a broad coalition of authorities proposed creating a workforce to combat the wildlife trade.
- Presented a summary of project outcomes to Peru's Health, Wildlife, and Forestry authorities. Health authorities committed to cooperate with surveillance of wildlife-borne zoonoses and offered support to enhance local surveillance capacity.

b) Laboratory System Improvements

- Continued to provide weekly testing and result interpretation support from US teams to laboratory teams at CMDN (Nepal), Makerere University (Uganda), Sokoine University of Agriculture (Tanzania), INS (Peru), INRB (DRC), GV Cameroon Laboratory (Cameroon), RAHO6 and HUA (Vietnam), and USP ICBII (Brazil).
- Continued online test result tracking in GAINS to for reporting of test findings to host-country governments, producing monthly test result reports for obtaining government approvals for release of data, and posting of data for partners and the public on the PREDICT site through HealthMap.
- Implemented training to perform viral family testing at three additional laboratories at the Ulin Hospital, University of Lambung Mangkurat Banjarmasin, and the Ministry of Health Institute for Epidemiology, Disease Control, and Research (IEDCR) (Bangladesh).
- Received a request from the Ministry of Health Institute for Epidemiology, Disease Control and Research (IEDCR, Bangladesh) to transfer PREDICT protocols so that they can screen high-risk travelers for Ebolavirus by PCR.
- Continued weekly training of two laboratory technicians from NaVRI at Institut Pasteur du Cambodge (Cambodia) on viral family screening of PREDICT samples with the goal to transfer a portion of viral family screening to NaVRI.
- PREDICT Democratic Republic of Congo laboratory team members trained two staff members from the Republic of Congo on the use of project laboratory protocols.

- PREDICT and FAO ECTAD Indonesia conducted a joint laboratory training for Ministry of Agriculture laboratories focusing on using the PREDICT viral family protocols to identify viral agents in livestock samples (poultry and cattle). Laboratory participants included the Ministry of Agriculture's National Veterinary Laboratories Disease Investigation Center (DIC) Wates-Yogyakarta and DIC Lampung-Sumatera (Indonesia).

Table 1: Labs Receiving Assistance from PREDICT to Date:

Region	# of labs targeted for screening with desired viral families	# of labs receiving training in preparation for screening of desired viral families	# of labs that have initiated work that will eventually lead to screening desired viral families (labs with partial capacity)
Africa	7	7	5
Asia / SE Asia	19	19	16
Latin America	8	6	6
Totals	**34**	**32**	**27**

- Sub-activity 1.1.2: **Capacity Assessment and Tracking of Development Progress**
  - Summarized global capacity tracking findings from rapid tool surveys and local media pilot program for inclusion in PREDICT final report.
  - Published a manuscript evaluating local media surveillance (LMS) as a low cost capacity building approach to disease risk and outbreak event tracking in six countries to the PLoS ONE journal entitled "Evaluation of local media surveillance for improved disease recognition and monitoring in global hotspot regions", by (b)(6) (b)(6) (b)(6), PREDICT (b)(6) (b)(6) (b)(6). The LMS pilot program involved local staff screening non-online local print media sources on a weekly basis for risk and disease events in an effort to extend the reach of media surveillance beyond the digital sources currently captured by HealthMap.
  - Prepared a capacity assessment manuscript testing the hypothesis that higher capacity for wildlife surveillance is present in countries that are considered more developed, as has been observed by others for public health and livestock health surveillance capacities.

Table 2: PREDICT Training:

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Country	Total # Trained	# Women Trained	Trainings covered various combinations of the following topics:
Asia			
Bangladesh	**29**	**4**	Biosafety-PPE; N95 fit testing; GIS; Lab techniques in BSL2 lab & lab diagnostics and safety; PCR; animal capture safety; epidemiology and outbreak investigation; capture and sampling of rodents & bats; GAINS system; use of GIS.
Cambodia	**245**	**106**	Core safety, animal capture, & sampling skills and protocols; data collection & management; rodent and primate ID & primate and rodent sampling; PPE use and respirator fit testing. Intro to emerging zoonoses and surveillance in Cambodia.
China	**24**	**10**	Core safety, animal capture & sampling skills and protocols; sample collection, handling, and transport; wildlife restraint & anesthesia; human & animal safety; bat, rodent, and primate sampling; zoonoses of bats & rodents.
India	**18**	**2**	Core safety, animal capture & sampling; laboratory safety protocols; zoonoses; surveillance and sampling protocols; bar-coding and data management; animal necropsies.
Indonesia	**42**	**20**	Modeling behind the PREDICT project; zoonotic diseases of bats and rodents; human and animal safety during capture; laboratory safety & PPE use; sample collection; set up for sampling bats and rodents; respirator fit testing.
Lao PDR	**101**	**22**	Core safety, animal capture, & sampling skills and protocols; data collection; PPE use; bar-coding & data management; animal necropsies; surveillance & sampling; laboratory molecular techniques; respirator fit testing, and cold chain.
Malaysia	**118**	**34**	Core safety protocols; PPE and biosafety; N95 fit testing; animal capture & sampling skills and protocols; bat and rodent capture, handling & sampling; laboratory skills; packing and shipping samples & cold chain; sampling strategy & data collection; bat, rodent & macaque sampling; collection of trigeminal nerve root ganglia from macaques for Herpes testing; virus extraction; bat & rodent capture; rodent retro-orbital bleed; primate sampling & human and animal safety; PRC & cloning; respirator fit testing.
Nepal	**26**	**8**	Biosafety & PPE; animal capture safety; laboratory safety, data collection procedures, rodent sampling methods and data recording; bat sampling & data collection; primate sampling, field safety & data collection; laboratory and diagnostics training; local media surveillance reporting, ethics & responsibilities.
Thailand	**174**	**64**	Lab and bioinformatics training; animal capture; laboratory safety; animal sampling protocols; zoonotic diseases; respirator fit testing.
Vietnam	**526**	**134**	Core safety, animal capture & sampling skills and protocols; packing & shipping samples; barcode system; animal pathology; sample collection & data management & use of GAINS; surveillance; filter paper blood spot, sampling; lab diagnostic protocols, virus family level protocols; one health & sampling strategy; sample transport & lab methods; wildlife pathology; First Aid; respirator fit testing. One Health and disease risks of handling wildlife. Bat & rat sampling, Disease management & surveillance, and risk assessment.
Africa			
Cameroon	**170**	**59**	Core safety, animal capture & sampling skills and protocols; specialized field sampling and laboratory skills; packing & shipping samples to reference lab; PPE use; bushmeat policy and wildlife ethics; extraction, RT-PCR, ELISA and other lab methods; lab

			systems; immunology and serology; ethics; pan-viral protocols; emergency preparedness and management; outbreak response training; bio-risk management; use of satellite phones; molecular biology and conventional PCR; respirator fit testing.
DRC	**27**	**6**	Core safety, animal capture & sampling skills and protocols; specialized field sampling and laboratory skills; RT-PCR, ELISA; administration and reporting; Monkeypox surveillance; sample tracking & GAINS system; ethical issues; blood spot sampling; DNA & RNA extraction from animal samples; respirator fit testing.
Gabon	**6**	**3**	Bushmeat sampling; packing & shipping samples; PPE use and biosafety; lab safety; animal capture; bat & rodent sampling; sampling for AI; animal sample collection; cold chain; lab methods, DNA extraction, PCR; sample prioritization; safe handling of liquid nitrogen; sequencing; virus isolation; RNA & RT-PCR; GAINS system & data management.
Republic of Congo	**13**	**2**	Core safety, PPE and biosafety; safe animal capture, & sampling skills and protocols; bat, rodent, and primate sampling; laboratory safety & skills; data collection; cold chain; protecting human subjects in research; virology laboratory methods; respirator fit testing.
Rwanda	**206**	**25**	Core safety, animal capture & sampling skills and protocols; PPE use and biosafety; bat, rodent, and primate capture, handling, and sampling; zoonoses; ethics and responsibilities; wildlife pathology & necropsy; sample collection & preservation; packing & shipping samples; tracking primates & health monitoring; lab personnel safety; PCR protocols & sample processing; bushmeat handling.
Tanzania	**110**	**36**	Core safety, animal capture & sampling skills and protocols; bat and rodent capture, handling & sampling; data management; laboratory safety; surveillance; information management and GAINS system; wildlife capture & restraint; emergency preparedness; ethics, cultural sensitivity & SHP; pathogen detection; extraction and PCR & protocols; cold chain; respirator fit testing. RNA extraction using Qiagen kits, CDNA synthesis & Beta actin PCR.
Uganda	**52**	**10**	Core safety, animal capture & sampling skills and protocols; PPE & biosafety; laboratory safety; packing & shipping samples; bushmeat sampling; cold chain; GPS; Animal Mortality Monitoring Study; bat capture, handling & sampling; PPE & biosafety to handle dead animals.
Latin America			
Bolivia	**169**	**75**	Core safety, animal capture, laboratory & sampling skills and protocols and zoonotic diseases; bat, rodent, and primate sampling; bushmeat sampling; molecular and parasite diagnostic methods; lab safety and methods; packing and shipping samples; wildlife management and disease management; work ethics, cultural sensitivity & SHP; managing livestock & poultry diseases; detecting zoonoses; sample collection and storage; methods of detecting Salmonella in wildlife; biostatistics; respirator fit testing.
Brazil	**39**	**17**	Core safety, animal capture, handling & sampling skills and protocols; PPE use & biosafety; bat and rodent sampling; bushmeat sampling; packing and shipping samples; cold chain; surveillance, ethics, and responsibilities; primate sampling; respirator fit testing.
Colombia	**54**	**29**	Core safety, animal capture & sampling skills and protocols; lab safety & methods; One Health; Conservation Medicine; GAINS system and data management.
Mexico	**27**	**14**	Core safety, animal capture, handling & sampling skills and protocols; lab safety &

			methods; PPE use & biosafety; disease modeling; animal care and use protocols; lab diagnostic techniques; respirator fit testing.
Peru	**346**	**162**	Core safety, animal capture & sampling skills and protocols; PPE use & biosafety; surveillance; zoonotic disease risks from wildlife trade and consumption; wildlife regulations, wildlife management and disease monitoring; sample collection & storage; species ID & health risks; emergency management of spider bites; safe transport of confiscated animals; respirator fit testing.
Total Trained	**2,522**	**842**	

- **Activity 1.2: Surveillance**
  - Sub-activity 1.2.1: **Highlights of Surveillance Activities Completed in Current Quarter**
    - Conducted human-animal contact survey with hunters in Tanzania's Ruaha ecosystem.
    - In Cameroon, supported Ministry of Health initiative to mobilize Ministry of Health, Wildlife, and Livestock representatives to respond to outbreak situation in a chimpanzee sanctuary; met with authorities, discussed response, and collected samples.
    - Worked with Ministry of Livestock on Ebola surveillance in wildlife in Cameroon.
    - Screened post-mortem samples from captive non-human primates from sanctuaries in Cameroon.
    - Met with experts from Cameroon's University of Maroua to discuss bat specimens and data.
    - As part of the Deep Forest project, reviewed bat acoustic recordings from Uganda.
    - Screened archived samples from humans with acute febrile illness in Malaysia.
    - In Malaysia, conducted orangutan fecal sampling at field sites and Sepilok Orangutan Rehabilitation Centre under ongoing agreement with SWD.
    - Bangladesh's Ministry of Health requested a MERS study in camels and sampling was approved.
    - In Nepal, received approval and conducted human-animal contact survey; data was collected via mobile app.
    - In Cambodia, held training on wild bird surveillance with counterparts from Forestry Administration and National Institute of Veterinary Research for capacity building
    - As part of hospital-based human surveillance in China, collected encephalitis, hemorrhagic fever, and respiratory samples in collaboration with Guangdong Provincial Center for Disease Control and Prevention (GDCDC) and conducted scoping visits with GDCDC to Luoding and Zhaoqing for future hospital-based surveillance sample collection.
    - In Indonesia, conducted site exploration in Riau, Sumatera with U.S. CDC.

- In Democratic Republic of Congo, INRB/PREDICT was contacted by Bonobo sanctuary that received an animal that developed illness and died; screened blood samples with PREDICT protocols.

Table 3: PREDICT Global Surveillance Summary by Region, Taxa and Primary Risk Interface in GAINS (through Q4Y5):

Taxa	# animals sampled this quarter	# animals sampled to date	# animals prioritized for testing	# animals with at least one final test result	# animals with at least one test result with interpretation completed	# animals with at least one test result cleared for release by govt
Africa						
Bats	0	6725	5918	5641	5641	5015
Non-human Primates	12	5551	3356	2374	2374	1949
Other Taxa	0	6550	998	561	561	561
Rodents & Shrews	0	5763	3744	3343	3343	3020
Asia						
Bats	0	7513	4999	3244	3244	2710
Non-human Primates	0	792	741	731	731	605
Other Taxa	0	557	43	43	43	38
Rodents & Shrews	0	1880	1740	1360	1360	1357
Southeast Asia						
Bats	0	5583	4503	4384	4384	3551
Non-human Primates	17	1728	1302	1228	1228	1040
Other Taxa	11	1341	628	624	624	605
Rodents & Shrews	0	3872	3347	3311	3311	2607
Latin America						
Bats	13	4436	2980	2710	2710	2191
Non-human Primates	0	800	492	448	448	128
Other Taxa	0	1491	301	196	196	82
Rodents & Shrews	0	1970	440	364	364	359
TOTALS	**53**	**56552**	**35532**	**30562**	**30562**	**25818**

- Sub-activity 1.2.2**: Partner with Stakeholders in Public and Livestock Health to Explore Use of PREDICT Protocols and Practicality/Sustainability of One Health Surveillance**
  - In all countries, continued and expanded meetings with government partners to share and discuss PREDICT results reports and seek approval for data release.
  - Across countries, offered support to government partners in Ebola preparedness and response efforts, especially diagnostics, as needed, including: In Democratic Republic of Congo, at the government's request, the PREDICT team conducted the initial testing for diagnosis of the Ebola outbreak, provided ongoing test validation support, and assisted INRB and Ministry of Health in setting up a field mobile lab; In Cameroon, in close coordination with government partners, boosted PPE supply and testing capacity using PREDICT lab smartcycler; Thailand's Chulalongkorn University laboratory served as country reference laboratory for Ebola virus testing using the project protocol in collaboration with Ministry of Public Health; in Gabon, partner laboratory is Ebola reference center for Africa and has project protocols available for Ebola detection; and INRB screened suspected Ebola case at a medical center for Arenavirus (in addition to Ebola virus) using project protocols.
  - Project protocols and human resources were made available to Malaysia government for potential screening of livestock during a JEV outbreak.
  - Provided training materials for the Ministry of Health at WHO Partners' meeting in Cameroon.
  - In Malaysia, assisted PERHILITAN with construction of new laboratory, providing advice on requirements for certification, building plans, equipment, and work flow.
  - In collaboration with Indonesian Institute of Sciences (LIPI), assisted with training by Institute of Vector and Reservoir Control Research and Development, Salatiga, on how to capture, handle, and collect specimens from rodents and bats.
  - In collaboration with FAO, held training for DGLAHS DIC staff (Indonesia) on sample handling, data management, and testing. Analyzed poultry and livestock samples for Influenza, Paramyxovirus, Coronavirus, and Herpesvirus using project protocols. Discussed results with director of Animal Health Services of Ministry of Agriculture with FAO and training participants.
  - Collaborated with Thailand Department of National Parks, Wildlife, and Plant Conservation on screening for coronaviruses in fecal swabs specimens from flying foxes using project protocol.

- **Activity 1.3: Technology Development and Pathogen Detection and Discovery**
  - Sub-activity 1.3.2: **Pathogen Detection and Discovery (Q4Y5):**
    - Continued to implement and refine guidelines to assess viral sequences and cut-offs to classify as known

or novel viruses based on sequence similarity for priority viral families/genera.

- Performed analysis and interpretation of an additional 2847 sequences (a total of 7148 sequences detected to date) to classify the sequences resulting in 991 known and novel viruses; results approved for release by the host country governments included 703 viruses (Cameroon, Democratic Republic of Congo, Republic of Congo, Gabon, Rwanda, Tanzania, Uganda, Bangladesh, China, Cambodia, Indonesia, Nepal, Malaysia (Peninsula and Sabah), Lao PDR, Thailand, Vietnam, Bolivia, Brazil, and Mexico) and are summarized and detailed in Tables 4-7 below.
- Submitted results awaiting approval for release to the governments of Malaysia (Peninsula) and China; reports were in preparation for the governments of China, Cambodia, Nepal, Indonesia, Thailand, Vietnam, Malaysia (Sabah), Bangladesh, Cameroon, Democratic Republic of Congo, Tanzania, Rwanda, Uganda, Gabon, Mexico, and Brazil.
- Refined virological criteria for prioritizing viruses detected for further characterization to better assess their potential for pandemic risk, ranking of all viruses detected to date is ongoing.
- Performed next generation sequencing using the Ion Torrent platform to obtain genome sequences to further characterize new viruses of interest detected through viral family protocols in bats from Uganda, Bolivia, and Malaysia.
- Completed viral family PCR on Deep Forest samples from Uganda, Malaysia, and Brazil.
- Completed analysis to compare the cost and efficiency of different discovery methods using 458 fecal samples collected from macaques in Bangladesh comparing PREDICT family level PCR protocols to two different deep-sequencing platforms. The final data supports our strategy of using PCR as our main discovery tool, while complementing our efforts with deep-sequencing to find highly divergent viruses. This study was designed to refine our diagnostic approach both for PREDICT and for the wider scientific community.

Table 4: PREDICT Summary of the Total Number of Viruses Detected by Host Taxa Approved for Release by Host Country Governments (through Q4Y5):

Virus	Bat	Primate	Rodent/Shrew	Carnivores	Other Mammals	Humans	Total
New	288	181	98	3	6	0	576
Known	55	58	8	0	1	5	127
Total	343	239	106	3	7	5	703

Table 5: PREDICT Summary of the Total Number of Viruses Detected by Region and Country Approved for Release by Host Country Governments (through Q4Y5):

Region	Country	Number of Viruses
Africa	Cameroon	93
	Congo, Democratic Republic of	21
	Congo, Republic of	60
	Gabon	21
	Rwanda	21
	Tanzania	43
	Uganda	38
Asia	Bangladesh	225
	China	39
	Cambodia	44
	Indonesia	6
	Nepal	9
	Lao PDR	19
	Malaysia, Peninsular	17
	Malaysia, Sabah	5
	Thailand	54
	Vietnam	7
Latin America	Bolivia	8
	Brazil	22

Mexico	10

Note: The total number if viruses in Tables 4 and 5 may not match up as distinct viruses may appear in more than one taxa or geographic region. Details on the viruses found this quarter are in Table 7 below.

Table 6: PREDICT Summary of the Total Number of Animals with a Virus Detected (Number with a Confirmed Virus/Number of Animals Tested) by Viral Family/Genus Approved for Release by Host Country Governments (through Q4Y5):

Virus	New Bat	Known Bat	New Primate	Known Primate	New Rodent/Shrew	Known Rodent/Shrew
Adeno-associated viruses	0/0	0/0	67/458	0/458	0/0	0/0
Adenovirus	170/2432	91/2432	11/1023	60/1023	117/1429	5/1429
Alphavirus	0/2841	0/2841	0/1328	1/1328	0/3084	0/3084
Arenavirus	0/6562	0/6562	0/1914	0/1914	2/5838	5/5838
Astrovirus	229/4805	80/4805	35/1366	7/1366	190/2508	22/2508
Bocavirus	0/1531	2/1531	6/2281	8/2281	0/61	0/61
Bunyavirus	0/3983	0/3983	0/1398	0/1398	0/3487	0/3487
Coronavirus	209/11252	223/11252	4/2442	0/2442	3/2427	0/2427
Enterovirus	0/1781	0/1781	1/1244	50/1244	0/602	0/602
Filovirus	0/8956	0/8956	0/2252	0/2252	0/928	0/928
Flavivirus	3/8575	0/8575	0/2284	3/2284	0/5336	0/5336
Hantavirus	3/4705	0/4705	0/830	0/830	0/5703	0/5703
Henipavirus	0/5273	0/5273	0/1480	1/1480	0/566	0/566
Herpesvirus	309/2174	0/2174	52/2153	234/2153	49/1491	9/1491
Influenza	0/5215	3/5215	0/1524	0/1524	0/3274	3/3274
Lyssa virus	0/2401	0/2401	0/476	0/476	0/585	0/585
Nipah virus	13/2629	0/2629	0/35	0/35	0/26	0/26
Novel_Mononegavirales	0/0	0/0	5/458	0/458	0/0	0/0

Orbiviruses	1/229	0/229	5/480	0/480	0/48	0/48
Orthopoxvirus	0/416	0/416	0/1992	2/1992	0/1847	0/1847
Papillomaviruses	0/26	0/26	1/508	0/508	0/24	0/24
Paramyxovirus	58/8500	1/8500	0/2392	0/2392	15/5328	0/5328
Parapoxvirus	0/413	0/413	0/1062	0/1062	0/452	0/452
Phlebovirus	1/438	0/438	0/496	0/496	0/35	0/35
Picobirnaviruses	0/0	0/0	211/456	0/456	0/0	0/0
Picornaviruses	0/0	0/0	26/458	0/458	0/0	0/0
Polyomavirus	128/1792	1/1792	9/541	12/541	17/1232	0/1232
Posaviruses	0/0	0/0	44/458	0/458	0/0	0/0
Poxvirus	0/851	0/851	0/847	0/847	1/774	0/774
Reovirus	0/302	0/302	0/4	0/4	0/263	0/263
Retrovirus - Lentivirus genus	0/18	0/18	2/1792	0/1792	0/85	0/85
Retrovirus	0/0	0/0	0/15	0/15	0/0	0/0
Rhabdovirus	5/4136	0/4136	2/1233	0/1233	8/3340	0/3340
Rotaviruses	0/0	0/0	0/458	5/458	0/0	0/0
Seadornaviruses	1/2405	0/2405	0/1397	0/1397	0/1533	0/1533
Simian Foamy virus	0/2	0/2	0/1873	143/1873	0/33	0/33

Table 7: Description of the Animal Viruses Detected by Region, Country and Host Taxa Approved for Release by Host Country Governments (Q4Y5 new results; see additional data in country reports below):

Region	Country	Taxa	Viral Family/Genus	Virus	Interpretation	No. Animals Positive

Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-28	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	3
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-29	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	4
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-30	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-33	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	3
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-34	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	3
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-35	This is a new Adenovirus found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	4
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-36	This is a new Adenovirus found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	3
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-37	This is a new Adenovirus found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-38	This is a new Adenovirus found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	10
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-39	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-40	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-41	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-42	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-48	This is a new Adenovirus found in bats. There is no evidence at this time to suggest this virus	4

					poses a threat to human health.	
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-49	This is a new Adenovirus found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	6
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-50	This is a new Adenovirus found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	3
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-53	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-54	This is a new Adenovirus found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-56	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-57	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-58	This is a new Adenovirus found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-59	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-60	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-61	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-62	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-63	This a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-64	This a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-65	This a new Adenovirus found in a bat. There is no	1

					evidence at this time to suggest this virus poses a threat to human health.	
Africa	Cameroon	Bats	Adenoviruses	PREDICT_AdV-68	This a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Bats	Adenoviruses	A strain of Bat adenovirus isolate 1050597	This is a strain of the known Adenovirus Bat adenovirus isolate 1050597 (Genbank Accession no. HQ529709) found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	19
Africa	Cameroon	Bats	Coronaviruses	PREDICT_CoV-30	This is a new coronavirus found in bats belonging to the betacoronavirus genus. The genus Betacoronaviruses includes viruses that are of significance to public health such as SARS and MERS, however this virus is not considered to be closely related to either of these viruses. Therefore, at this time there is no evidence to suggest this virus poses a threat to human health.	8
Africa	Cameroon	Bats	Coronaviruses	PREDICT_CoV-32	This is a new coronavirus found in bats belonging to the betacoronavirus genus. The genus Betacoronaviruses includes viruses that are of significance to public health such as SARS and MERS, however this virus is not considered to be closely related to either of these viruses. Therefore, at this time there is no evidence to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Bats	Coronaviruses	PREDICT_CoV-33	This is a new coronavirus found in bats belonging to the alphacoronavirus genus. There is not evidence at this time to suggest that this virus pose any risk to human health.	1
Africa	Cameroon	Bats	Coronaviruses	PREDICT_CoV-35	This is a new coronavirus found in bats belonging to the alphacoronavirus genus, and closely related viruses have now been found in bats in Cambodia and Cameroon as a part of the PREDICT project. There is no evidence at this time to suggest that this virus poses any risk to human health.	8
Africa	Cameroon	Bats	Coronaviruses	A strain of bat coronavirus HKU9	This is a strain of the known coronavirus Bat coronavirus HKU9, in the betacoronavirus genus (Genbank Accession no. NC_009021). The genus Betacoronavirus includes viruses that are of significance to public health such as SARS and MERS, however HKU9 is not considered to be closely related to either of these viruses.	2

					Therefore, at this time there is no evidence to suggest this virus poses a threat to human health.	
Africa	Cameroon	Bats	Coronaviruses	A strain of betacoronavirus Kenya/BtKY56/BtKY55	This a strain of the known betacoronavirus Kenya/BtKY56/BtKY55 (Accession Number GU065400) found in bats.The genus Betacoronavirus includes viruses that are of significance to public health such as SARS and MERS, however this virus is not considered to be closely related to either of these viruses. Therefore, at this time there is no evidence to suggest this virus poses a threat to human health.	17
Africa	Cameroon	Bats	Coronaviruses	A strain of Chaerephon Bat coronavirus/Kenya/KY22/2006	This is a strain of the known alphacoronavirus Chaerephon Bat coronavirus/Kenya/KY22/2006 (Genbank Accession no. HQ728486) found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	20
Africa	Cameroon	Bats	Coronaviruses	A strain of Eidelon bat Coronavirus	This a strain of the known betacoronavirus Eidelon bat Coronavirus found in bats. The genus Betacoronaviruses includes viruses that are of significance to public health such as SARS and MERS, however this virus is not considered to be closely related to either of these viruses. Therefore, at this time there is no evidence to suggest this virus poses a threat to human health.	12
Africa	Cameroon	Bats	Coronaviruses	A strain of Human Coronavirus 229E	This is a strain of the known alphacoronavirus Human Coronavirus 229E (Genbank Accession no. NC_002645) found in bats. This human 229E virus is known to cause respiratory illness in people.	1
Africa	Cameroon	Bats	Paramyxoviruses	PREDICT_PMV-15	This is a new paramyxovirus in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Bats	Polyomaviruses	Chaerephon Polyomavirus 1	This is the known bat Polyomavirus Chaerephon Polyomavirus 1 (Genbank Accession no. JX520657) also found here in a bat. There is no evidence at this time to suggest that it poses a threat to human health.	1
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-10	This is a new Polyomavirus found in a rodent. There is no evidence at this time to suggest that it poses a threat to human health.	5
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-11	This is a new Polyomavirus found in a bat. There is no evidence at this time to suggest that it poses a threat to human health.	2

Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-12	This is a new Polyomavirus found in bats. There is no evidence at this time to suggest that it poses a threat to human health.	14
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-13	This is a new Polyomavirus found in bats. There is no evidence at this time to suggest that it poses a threat to human health.	3
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-14	This is a new Polyomavirus found in bats. There is no evidence at this time to suggest that it poses a threat to human health.	28
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-15	This is a new Polyomavirus found in bats. There is no evidence at this time to suggest that it poses a threat to human health.	1
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-16	This is a new Polyomavirus found in bats. There is no evidence at this time to suggest that it poses a threat to human health.	4
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-17	This is a new Polyomavirus found in bats. There is no evidence at this time to suggest that it poses a threat to human health.	8
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-18	This is a new Polyomavirus found in a bat. There is no evidence at this time to suggest that it poses a threat to human health.	1
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-19	This is a new Polyomavirus found in a bat. There is no evidence at this time to suggest that it poses a threat to human health.	1
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-20	This is a new Polyomavirus found in a bat. There is no evidence at this time to suggest that it poses a threat to human health.	1
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-21	This is a new Polyomavirus found in bats. There is no evidence at this time to suggest that it poses a threat to human health.	3
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-22	This is a new Polyomavirus found in bats. There is no evidence at this time to suggest that it poses a threat to human health.	2
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-23	This is a new Polyomavirus found in bats. There is no evidence at this time to suggest that it poses a threat to human health.	1
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-24	This is a new Polyomavirus found in bats. There is no evidence at this time to suggest that it poses a threat to human health.	3
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-25	This is a new Polyomavirus found in bats. There is no evidence at this time to suggest that it poses a	2

					threat to human health.	
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-26	This is a new Polyomavirus found in bats. There is no evidence at this time to suggest that it poses a threat to human health.	2
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-27	This is a new Polyomavirus found in a bat. There is no evidence at this time to suggest that it poses a threat to human health.	1
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-29	This is a new Polyomavirus found in a bat. There is no evidence at this time to suggest that it poses a threat to human health.	1
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-33	This is a new Polyomavirus found in a bat. There is no evidence at this time to suggest that it poses a threat to human health.	1
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-38	This is a new Polyomavirus found in a bat. There is no evidence at this time to suggest that it poses a threat to human health.	1
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-8	This is a new Polyomavirus found in bats. There is no evidence at this time to suggest that it poses a threat to human health.	4
Africa	Cameroon	Bats	Polyomaviruses	PREDICT_PyV-9	This is a new Polyomavirus found in bats. There is no evidence at this time to suggest that it poses a threat to human health.	1
Africa	Cameroon	Non-human Primates	Alphaviruses	Chikungunya virus	This is the known Alphavirus Chikungunya virus found in a baboon. Chikungunya is a viral disease that is transmitted to people by mosquitoes and can cause fever and severe joint pain. Most patients feel better within a week following onset of illness.	1
Africa	Cameroon	Non-human Primates	Bocaviruses	Gorilla Bocavirus-1	This is the known virus Gorilla Bocavirus-1 (Genbank Accession no. NC_014358) found in a gorilla. Bocaviruses commonly infect the respiratory and gastrointestinal tracts of young animals and humans, however the significance of their association with disease is currently unknown.	1
Africa	Cameroon	Non-human Primates	Herpesviruses	PREDICT_HV-22	This is a new gammaherpesvirus found in non-human primates. There is no evidence at this time to suggest this virus poses a threat to human health.	5
Africa	Cameroon	Non-human Primates	Herpesviruses	PREDICT_HV-27	This is a new betaherpesvirus found in non-human primates. There is no evidence at this time to suggest this virus poses a threat to human	2

					health.	
Africa	Cameroon	Non-human Primates	Herpesviruses	A strain of Cercopithecine herpesvirus 12	This is a strain of the known virus Cercopithecine herpesvirus 12 (Genbank Accession no. AF091052) in the gammaherpes subfamily found in non-human primates. To date, this virus has not been detected in humans and there is no evidence at this time to suggest this virus poses a threat to human health .	1
Africa	Cameroon	Non-human Primates	Herpesviruses	A strain of Gorilla lymphocryptovirus 1	This is a strain of the known virus Gorilla lymphocryptovirus 1 in the gammaherpes subfamily found in non-human primates. To date, this virus has not been detected in humans and there is no evidence at this time to suggest this virus poses a threat to human health.	33
Africa	Cameroon	Non-human Primates	Herpesviruses	A strain of Papiine Herpesvirus 1	This is a strain of the known virus Papiine Herpesvirus 1 in the gammaherpes subfamily found in non-human primates. To date, this virus has not been detected in humans and there is no evidence at this time to suggest this virus poses a threat to human health.	11
Africa	Cameroon	Rodents & Shrews	Adenoviruses	PREDICT_AdV-17	This is a new Adenovirus found in rodents. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Cameroon	Rodents & Shrews	Adenoviruses	PREDICT_AdV-18	This is a new Adenovirus found in a rodent. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Cameroon	Rodents & Shrews	Adenoviruses	PREDICT_AdV-19	This is a new Adenovirus found in a rodent. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Rodents & Shrews	Adenoviruses	PREDICT_AdV-20	This is a new Adenovirus found in a rodent. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Rodents & Shrews	Adenoviruses	PREDICT_AdV-21	This is a new Adenovirus found in rodents. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Cameroon	Rodents & Shrews	Adenoviruses	PREDICT_AdV-22	This is a new Adenovirus found in rodents. There is no evidence at this time to suggest this virus poses a threat to human health.	3
Africa	Cameroon	Rodents & Shrews	Adenoviruses	PREDICT_AdV-23	This is a new Adenovirus found in a rodent. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Rodents &	Adenoviruses	PREDICT_AdV-24	This is a new Adenovirus found in rodents. There	7

		Shrews			is no evidence at this time to suggest this virus poses a threat to human health.	
Africa	Cameroon	Rodents & Shrews	Adenoviruses	PREDICT_AdV-25	This is a new Adenovirus found in a rodent. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Cameroon	Rodents & Shrews	Adenoviruses	PREDICT_AdV-44	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	3
Africa	Cameroon	Rodents & Shrews	Adenoviruses	PREDICT_AdV-45	This is a new Adenovirus found in a rodent. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Cameroon	Rodents & Shrews	Adenoviruses	PREDICT_AdV-46	This is a new Adenovirus found in a rodent. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Rodents & Shrews	Adenoviruses	PREDICT_AdV-51	This is a new Adenovirus found in a bat. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Rodents & Shrews	Adenoviruses	PREDICT_AdV-74	This a new Adenovirus found in rodents. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Rodents & Shrews	Herpesviruses	Murid Herpesvirus 1	This is the known virus Murid Herpesvirus 1 (GenBank Accession no. HE610456) in the betaherpes subfamily found in rodents. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Rodents & Shrews	Herpesviruses	PREDICT_HV-44	This is a new betaherpesvirus found in a shrew. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Rodents & Shrews	Herpesviruses	PREDICT_HV-46	This is a new betaherpesvirus found in a shrew. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Rodents & Shrews	Herpesviruses	PREDICT_HV-47	This is a new betaherpesvirus found in a shrew. There is no evidence at this time to suggest this virus poses a threat to human health.	3
Africa	Cameroon	Rodents & Shrews	Herpesviruses	PREDICT_HV-48	This is a new betaherpesvirus found in a shrew. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Cameroon	Rodents & Shrews	Herpesviruses	PREDICT_HV-49	This is a new betaherpesvirus found in a shrew. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo,	Bats	Coronaviruses	A strain of	This a strain of the known betacoronavirus	2

	Democratic Republic Of			betacoronavirus Kenya/BtKY56/BtKY55	Kenya/BtKY56/BtKY55 (Genbank Accession No. GU065400) found in bats.The genus Betacoronavirus includes viruses that are of significance to public health such as SARS and MERS, however this virus is not considered to be closely related to either of these viruses. Therefore, at this time there is no evidence to suggest this virus poses a threat to human health.	
Africa	Congo, Democratic Republic Of	Non-human Primates	Enteroviruses	A strain of Human Enterovirus B	This is a strain of the known enterovirus, Human Enterovirus B, found in a chimpanzee. Enteroviruses are common human pathogens that can cause a wide range of disease, from mild respiratory illness to central nervous system disease. PREDICT investigators are currently further characterizing this virus.	5
Africa	Congo, Democratic Republic Of	Non-human Primates	Enteroviruses	A strain of Human Enterovirus C	This is a strain of the known enterovirus, Human Enterovirus C, found in a chimpanzee. Enteroviruses are common human pathogens that can cause a wide range of disease, from mild respiratory illness to central nervous system disease. PREDICT investigators are currently further characterizing this virus.	10
Africa	Congo, Democratic Republic Of	Rodents & Shrews	Adenoviruses	PREDICT_AdV-76	This a new Adenovirus found in a rodent. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Democratic Republic Of	Rodents & Shrews	Adenoviruses	A strain of Murine adenovirus 2	This a strain of the known Adenovirus Murine adenovirus 2 (Genbank Accession no. HM049560) found in rodents. There is no evidence at this time to suggest this virus poses a threat to human health.	5
Africa	Congo, Democratic Republic Of	Rodents & Shrews	Polyomaviruses	PREDICT_PyV-28	This is a new Polyomavirus found in rodents. There is no evidence at this time to suggest that it poses a threat to human health.	5
Africa	Congo, Democratic Republic Of	Rodents & Shrews	Polyomaviruses	PREDICT_PyV-30	This is a new Polyomavirus found in a rodent. There is no evidence at this time to suggest that it poses a threat to human health.	1
Africa	Congo, Democratic Republic Of	Rodents & Shrews	Polyomaviruses	PREDICT_PyV-32	This is a new Polyomavirus found in a rodent. There is no evidence at this time to suggest that it poses a threat to human health.	1
Africa	Congo, Democratic Republic Of	Rodents & Shrews	Polyomaviruses	PREDICT_PyV-34	This is a new Polyomavirus found in rodents. There is no evidence at this time to suggest that it poses a threat to human health.	6

Africa	Congo, Democratic Republic Of	Rodents & Shrews	Polyomaviruses	PREDICT_PyV-35	This is a new Polyomavirus found in a rodent. There is no evidence at this time to suggest that it poses a threat to human health.	1
Africa	Congo, Democratic Republic Of	Rodents & Shrews	Polyomaviruses	PREDICT_PyV-36	This is a new Polyomavirus found in rodents. There is no evidence at this time to suggest that it poses a threat to human health.	2
Africa	Congo, Democratic Republic Of	Rodents & Shrews	Polyomaviruses	PREDICT_PyV-37	This is a new Polyomavirus found in a rodent. There is no evidence at this time to suggest that it poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-29	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-30	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-31	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-32	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-33	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-34	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-35	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-36	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo,	Bats	Astroviruses	PREDICT MAstV-37	This is a new Astrovirus in bats within the genus	1

	Republic Of				Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-38	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-39	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-40	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-41	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-42	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-43	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-44	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-45	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-46	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-47	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human	1

					health.	
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-48	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-49	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-50	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	4
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-51	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-52	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-53	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-54	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	11
Africa	Congo, Republic Of	Bats	Astroviruses	PREDICT MAstV-81	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Coronaviruses	PREDICT_CoV-20	This is a new coronavirus found in bats belonging to the betacoronavirus genus. The genus Betacoronaviruses includes viruses that are of significance to public health such as SARS and MERS, however this virus is not considered to be closely related to either of these viruses. Therefore, at this time there is no evidence to suggest this virus poses a threat to human health.	1
Africa	Congo,	Bats	Coronaviruses	PREDICT_CoV-21	This is a new coronavirus found in bats belonging	1

	Republic Of				to the alphacoronavirus genus. There is no evidence at this time to suggest this virus poses a threat to human health.	
Africa	Congo, Republic Of	Bats	Coronaviruses	PREDICT_CoV-28	This is a new coronavirus found in bats belonging to the alphacoronavirus genus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Coronaviruses	PREDICT_CoV-29	This is a new coronavirus found in bats belonging to the alphacoronavirus genus. There is no evidence at this time to suggest this virus poses a threat to human health.	4
Africa	Congo, Republic Of	Bats	Coronaviruses	A strain of Human Coronavirus 229E	This is a strain of the known alphacoronavirus Human Coronavirus 229E (Genbank Accession Number NC_002645) found in bats. This human 229E virus is known to cause respiratory illness in people.	3
Africa	Congo, Republic Of	Bats	Coronaviruses	A strain of Kenya/KY33/2006	This is a strain of the known alphacoronavirus Kenya/KY33/2006 (Genbank Accession Number HQ728485) found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	3
Africa	Congo, Republic Of	Bats	Herpesviruses	PREDICT_HV-14	This is a new gammaherpesvirus found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Herpesviruses	PREDICT_HV-15	This is a new gammaherpesvirus found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Orbiviruses	PREDICT_Orbi-1	This is a new Orbivirus found in a bat. This is likely to be an arbovirus ie. transmitted by arthropod vectors. At this time there is minimal evidence to suggest orbiviruses are involved in human disease, however, they are well established animal pathogens.	1
Africa	Congo, Republic Of	Bats	Paramyxoviruses	PREDICT_PMV-11	This is a new paramyxovirus in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Paramyxoviruses	PREDICT_PMV-12	This is a new paramyxovirus in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Paramyxoviruses	PREDICT_PMV-16	This is a new paramyxovirus in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	2

Africa	Congo, Republic Of	Bats	Paramyxoviruses	PREDICT_PMV-19	This is a new paramyxovirus in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Bats	Paramyxoviruses	PREDICT_PMV-24	This is a new paramyxovirus in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Congo, Republic Of	Bats	Paramyxoviruses	PREDICT_PMV-26	This is a new paramyxovirus in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Congo, Republic Of	Bats	Phleboviruses	PREDICT_Phlebo-1	This is a new highly divergent Phlebovirus, within the Bunyavirus family, found in a bat. These viruses are transmitted by insect vectors (mostly sand flies and ticks) and some have been linked to disease in humans. While we have not demostrated actual infection, the detection of this virus in lung may suggest the bat is truly infected. PREDICT investigators are further characterizing this virus.	1
Africa	Congo, Republic Of	Bats	Rhabdoviruses	PREDICT_RbdV-1	This is a new Rhabdovirus found in a bat. This virus is related to a group of insect transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are continuing to characterize this virus.	1
Africa	Congo, Republic Of	Bats	Rhabdoviruses	PREDICT_RbdV-2	This is a new Rhabdovirus found in a bat. This virus is related to a group of insect transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are continuing to characterize this virus.	1
Africa	Congo, Republic Of	Bats	Rhabdoviruses	PREDICT_RbdV-3	This is a new Rhabdovirus found in a bat. This virus is related to a group of insect transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are continuing to characterize this virus.	1
Africa	Congo,	Bats	Rhabdoviruses	PREDICT_RbdV-4	This is a new Rhabdovirus found in a bat. This	1

	Republic Of				virus is related to a group of insect transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are continuing to characterize this virus.	
Africa	Congo, Republic Of	Non-human Primates	Adenoviruses	A strain of Human Adenovirus F	This is a strain of the known Adenovirus Human Adenovirus F (also known as Adenovirus serotypes 40 or 41) (Genbank Accession no. L19443) found in a non-human primate. In humans this virus is associated with acute gastroenteritis, most commonly in children. The disease is self-limiting in immunocompetent individuals and asymptomatic infections are common.	1
Africa	Congo, Republic Of	Non-human Primates	Herpesviruses	PREDICT_HV-18	This is a new betaherpesvirus found in non-human primates. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Congo, Republic Of	Non-human Primates	Herpesviruses	PREDICT_HV-19	This is a new gammaherpesvirus found in primates. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Congo, Republic Of	Non-human Primates	Herpesviruses	PREDICT_HV-24	This is a new betaherpesvirus found in non-human primates. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Congo, Republic Of	Non-human Primates	Herpesviruses	PREDICT_HV-27	This is a new betaherpesvirus found in non-human primates. There is no evidence at this time to suggest this virus poses a threat to human health.	5
Africa	Congo, Republic Of	Non-human Primates	Herpesviruses	A strain of Papiine Herpesvirus 1	This is a strain of the known virus Papiine Herpesvirus 1 in the gammaherpes subfamily found in non-human primates. To date, this virus has not been detected in humans and there is no evidence at this time to suggest this virus poses a threat to human health.	3
Africa	Congo, Republic Of	Non-human Primates	Simian Foamy viruses	A new strain of Cercopithicine Foamy virus	This is a new strain of the known virus Cercopithicine Foamy virus (official name African Green Monkey Simian Foamy Virus) (Genbank Accession no. M74895) found in a moustached monkey. There is no evidence at this time to suggest that this virus a poses a threat to human	3

					health.	
Africa	Congo, Republic Of	Non-human Primates	Simian Foamy viruses	A strain of Macaque Foamy virus	This is a strain of the known virus Macaque Foamy virus (Genebank Accession no. X54482) found in a Greater spot-nosed monkey. There is no evidence at this time to suggest that this virus a poses a threat to human health.	1
Africa	Gabon	Other Mammals	Orbiviruses	PREDICT_Orbi-4	This is a new Orbivirus found in pangolins. At this time only limited sequence data is available making accurate taxonomic placement difficult. This is likely to be an arbovirus ie. transmitted by arthropod vectors. At this time there is minimal evidence to suggest orbiviruses are involved in human disease, however, they are well established animal pathogens and therefore this virus warrants further investigation. PREDICT investigators are currently further characterizing this virus.	5
Africa	Gabon	Rodents & Shrews	Adenoviruses	PREDICT_AdV-73	This a new Adenovirus found in rodents. There is no evidence at this time to suggest this virus poses a threat to human health.	5
Africa	Gabon	Rodents & Shrews	Adenoviruses	PREDICT_AdV-74	This a new Adenovirus found in rodents. There is no evidence at this time to suggest this virus poses a threat to human health.	5
Africa	Gabon	Rodents & Shrews	Adenoviruses	PREDICT_AdV-75	This a new Adenovirus found in rodents. There is no evidence at this time to suggest this virus poses a threat to human health.	70
Africa	Gabon	Rodents & Shrews	Astroviruses	PREDICT MAstV-110	This is a new Astrovirus in rodents within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	85
Africa	Gabon	Rodents & Shrews	Astroviruses	PREDICT MAstV-121	This is a new Astrovirus in rodents within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	14
Africa	Gabon	Rodents & Shrews	Herpesviruses	PREDICT_HV-49	This is a new betaherpesvirus found in rodents. There is no evidence at this time to suggest this virus poses a threat to human health.	4
Africa	Gabon	Rodents & Shrews	Herpesviruses	PREDICT_HV-99	This is a new betaherpesvirus found in rodents. There is no evidence at this time to suggest this virus poses a threat to human health.	4
Africa	Gabon	Ungulates	Orbiviruses	PREDICT_Orbi-2	This is a new Orbivirus found in duikers. This virus is related to Peruvian Horse Sickness Virus	5

					(GenBank Accession No. DQ248057) but further sequence is needed to determine if it is a strain of PHSV (a known pathogen of horses) or is a new species of orbivirus. This is likely to be an arbovirus ie. transmitted by arthropod vectors. At this time there is minimal evidence to suggest orbiviruses are involved in human disease, however, they are well established animal pathogens and therefore this virus warrants further investigation. PREDICT investigators are currently further characterizing this virus.	
Africa	Gabon	Ungulates	Orbiviruses	PREDICT_Orbi-2	This is a new Orbivirus found in duikers. This virus is related to Peruvian Horse Sickness Virus (GenBank Accession No. DQ248057) but further sequence is needed to determine if it is a strain of PHSV (a known pathogen of horses) or is a new species of orbivirus. This is likely to be an arbovirus ie. transmitted by arthropod vectors. At this time there is minimal evidence to suggest orbiviruses are involved in human disease, however, they are well established animal pathogens and therefore this virus warrants further investigation. PREDICT investigators are currently further characterizing this virus. Two other animals were also infected with this same virus, PREDICT_Orbi-2, and all three were also co-infected with another new Orbivirus, PREDICT_Orbi-5, this is interesting because of the possibility for reassortment and the emergence of new strains.	3
Africa	Gabon	Ungulates	Orbiviruses	PREDICT_Orbi-3	This is a new Orbivirus found in a wild hog. This virus is most related to Equine Encephalosis Virus, a known pathogen of horses (GenBank Accession No. AB811635), however at this time only limited sequence data is available making accurate taxonomic placement difficult. This is likely to be an arbovirus ie. transmitted by arthropod vectors. At this time there is minimal evidence to suggest orbiviruses are involved in human disease, however, they are well established animal pathogens and therefore this virus warrants further investigation. PREDICT investigators are currently further characterizing this virus.	1

Africa	Gabon	Ungulates	Orbiviruses	PREDICT_Orbi-5	This is a new Orbivirus found in duikers. At this time only limited sequence data is available making accurate taxonomic placement difficult. This is likely to be an arbovirus ie. transmitted by arthropod vectors. At this time there is minimal evidence to suggest orbiviruses are involved in human disease, however, they are well established animal pathogens and therefore this virus warrants further investigation. PREDICT investigators are currently further characterizing this virus. Two other animals were also infected with this same virus, PREDICT_Orbi-5, and all three were also co-infected with another new Orbivirus, PREDICT_Orbi-2, this is interesting because of the possibility for reassortment and the emergence of new strains.	3
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-130	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-131	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-132	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-133	This is new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	3
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-134	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-139	This is new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-160	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human	1

					health.	
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-161	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-176	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-177	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-178	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-179	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-180	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-181	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-182	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-188	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-191	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania,	Bats	Astroviruses	PREDICT MAstV-201	This is new Astrovirus in bats within the genus	3

	United Republic Of				Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-202	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-203	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-204	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-205	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-52	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	5
Africa	Tanzania, United Republic Of	Bats	Astroviruses	PREDICT MAstV-54	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	6
Africa	Tanzania, United Republic Of	Bats	Coronaviruses	PREDICT_CoV-21	This is a new coronavirus found in bats belonging to the alphacoronavirus genus, and has also been found in the Republic of Congo. There is no evidence at this time to suggest that this virus poses any risk to human health.	12
Africa	Tanzania, United Republic Of	Bats	Coronaviruses	PREDICT_CoV-63	This is a new coronavirus found in bats belonging to the alphacoronavirus genus. While divergent enough to be considered a new virus, it is genetically related to the human virus Human Coronavirus NL63. NL63 is known to cause various respiratory infections particularly in children, the elderly and immunocompromized, and thus PREDICT investigators are further characterizing this virus.	9
Africa	Tanzania,	Bats	Coronaviruses	A strain of	This is a strain of the known alphacoronavirus	6

	United Republic Of			Chaerephon Bat coronavirus/Kenya/KY22/2006	Chaerephon Bat coronavirus/Kenya/KY22/2006 (Genbank Accession no. HQ728486) found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	
Africa	Tanzania, United Republic Of	Bats	Coronaviruses	A strain of Chaerephon Bat coronavirus/Kenya/KY41/2006	This is strain of the known alphacoronavirus Chaerephon Bat coronavirus/Kenya/KY41/2006 (Genbank Accession no. HQ728481) found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Bats	Coronaviruses	A strain of Eidelon bat Coronavirus	This a strain of the known betacoronavirus Eidelon bat Coronavirus found in bats. The genus Betacoronaviruses includes viruses that are of significance to public health such as SARS and MERS, however this virus is not considered to be closely related to either of these viruses. Therefore, at this time there is no evidence to suggest this virus poses a threat to human health.	26
Africa	Tanzania, United Republic Of	Bats	Influenzas	Influenza A	This is the known virus Influenza A found in bats. Influenza viruses are important pathogens in humans and animals. PREDICT investigators are currently in the process of subtyping this virus and characterizing the full genome.	2
Africa	Tanzania, United Republic Of	Rodents & Shrews	Astroviruses	PREDICT MAstV-115	This is a new Astrovirus in rodents within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Rodents & Shrews	Astroviruses	PREDICT MAstV-116	This is a new Astrovirus in a rodent within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Africa	Tanzania, United Republic Of	Rodents & Shrews	Astroviruses	PREDICT MAstV-129	This is a new Astrovirus in a rodent within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Asia	Bangladesh	Non-human Primates	Adeno-associated viruses	PREDICT_AaV-1	This is a new Adeno-associated virus within the Dependo virus genus, found in non-human primates. These viruses have been found previously in humans and non-human primates and do not appear to cause disease. There is no evidence at this time to suggest that this virus poses any risk to human health.	33
Asia	Bangladesh	Non-human Primates	Adeno-associated viruses	PREDICT_AaV-10	This is a new Adeno-associated virus within the Dependo virus genus, found in non-human	3

					primates. These viruses have been found previously in humans and non-human primates and do not appear to cause disease. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Adeno-associated viruses	PREDICT_AaV-11	This is a new Adeno-associated virus within the Dependo virus genus, found in non-human primates. These viruses have been found previously in humans and non-human primates and do not appear to cause disease. There is no evidence at this time to suggest that this virus poses any risk to human health.	6
Asia	Bangladesh	Non-human Primates	Adeno-associated viruses	PREDICT_AaV-2	This is a new Adeno-associated virus within the Dependo virus genus, found in non-human primates. These viruses have been found previously in humans and non-human primates and do not appear to cause disease. There is no evidence at this time to suggest that this virus poses any risk to human health.	2
Asia	Bangladesh	Non-human Primates	Adeno-associated viruses	PREDICT_AaV-3	This is a new Adeno-associated virus within the Dependo virus genus, found in non-human primates. These viruses have been found previously in humans and non-human primates and do not appear to cause disease. There is no evidence at this time to suggest that this virus poses any risk to human health.	32
Asia	Bangladesh	Non-human Primates	Adeno-associated viruses	PREDICT_AaV-4	This is a new Adeno-associated virus within the Dependo virus genus, found in non-human primates. These viruses have been found previously in humans and non-human primates and do not appear to cause disease. There is no evidence at this time to suggest that this virus poses any risk to human health.	2
Asia	Bangladesh	Non-human Primates	Adeno-associated viruses	PREDICT_AaV-5	This is a new Adeno-associated virus within the Dependo virus genus, found in a non-human primate. These viruses have been found previously in humans and non-human primates and do not appear to cause disease. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Adeno-associated viruses	PREDICT_AaV-6	This is a new Adeno-associated virus within the Dependo virus genus, found in a non-human primate. These viruses have been found	1

					previously in humans and non-human primates and do not appear to cause disease. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Adeno-associated viruses	PREDICT_AaV-7	This is a new Adeno-associated virus within the Dependo virus genus, found in non-human primates. These viruses have been found previously in humans and non-human primates and do not appear to cause disease. There is no evidence at this time to suggest that this virus poses any risk to human health.	2
Asia	Bangladesh	Non-human Primates	Adeno-associated viruses	PREDICT_AaV-8	This is a new Adeno-associated virus within the Dependo virus genus, found in non-human primates. These viruses have been found previously in humans and non-human primates and do not appear to cause disease. There is no evidence at this time to suggest that this virus poses any risk to human health.	4
Asia	Bangladesh	Non-human Primates	Adeno-associated viruses	PREDICT_AaV-9	This is a new Adeno-associated virus within the Dependo virus genus, found in a non-human primate. These viruses have been found previously in humans and non-human primates and do not appear to cause disease. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Adenoviruses	PREDICT_AdV-55	This is a new Adenovirus found in non-human primates. There is no evidence at this time to suggest this virus poses a threat to human health.	6
Asia	Bangladesh	Non-human Primates	Adenoviruses	PREDICT_AdV-69	This a new Adenovirus found in a non-human primate. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Asia	Bangladesh	Non-human Primates	Adenoviruses	PREDICT_AdV-72	This a new Adenovirus found in non-human primates. This appears to be related to avian adenoviruses, though it is unclear at this time whether this represents a spillover event or if there are avian-like viruses circulating in macaques. PREDICT investigators are currently further characterizing this virus.	3
Asia	Bangladesh	Non-human Primates	Adenoviruses	A strain of Human Adenovirus F	This is a strain of the known Adenovirus Human Adenovirus F (also known as Adenovirus serotypes 40 or 41) (Genbank Accession no. L19443) found in a non-human primate. In humans this virus is associated with acute	3

					gastroenteritis, most commonly in children. The disease is self-limiting in immunocompetent individuals and asymptomatic infections are common.	
Asia	Bangladesh	Non-human Primates	Adenoviruses	A strain of Human Adenovirus G	This is a strain of the known Adenovirus Human Adenovirus G (Genbank Accession no. JN1639921) found in macaques. These viruses are found in both humans and non-human primates. Little is known about the human strains, however some have been associated with gastroenteritis, and others are believed to have origins in primates (suggesting zoonotic spillover).	54
Asia	Bangladesh	Non-human Primates	Astroviruses	PREDICT MAstV-111	This is a new Astrovirus in non-human primates within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Asia	Bangladesh	Non-human Primates	Astroviruses	PREDICT MAstV-112	This is a new Astrovirus in a non-human primate within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Asia	Bangladesh	Non-human Primates	Astroviruses	PREDICT MAstV-113	This is a new Astrovirus in a non-human primate within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Asia	Bangladesh	Non-human Primates	Astroviruses	PREDICT MAstV-117	This is a new Astrovirus in a non-human primate within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Asia	Bangladesh	Non-human Primates	Astroviruses	PREDICT MAstV-118	This is a new Astrovirus in a non-human primate within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Asia	Bangladesh	Non-human Primates	Astroviruses	PREDICT MAstV-122	This is a new Astrovirus in non-human primates within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	7
Asia	Bangladesh	Non-human Primates	Astroviruses	PREDICT MAstV-123	This is a new Astrovirus in non-human primates within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Asia	Bangladesh	Non-human Primates	Astroviruses	PREDICT MAstV-124	This is a new Astrovirus in a non-human primate within the genus Mamastrovirus. There is no	1

					evidence at this time to suggest this virus poses a threat to human health.	
Asia	Bangladesh	Non-human Primates	Astroviruses	PREDICT MAstV-125	This is a new Astrovirus in non-human primates within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	10
Asia	Bangladesh	Non-human Primates	Astroviruses	PREDICT MAstV-126	This is a new Astrovirus in non-human primates within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	4
Asia	Bangladesh	Non-human Primates	Astroviruses	PREDICT MAstV-127	This is a new Astrovirus in a non-human primate within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Asia	Bangladesh	Non-human Primates	Astroviruses	PREDICT MAstV-128	This is a new Astrovirus in a non-human primate within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Asia	Bangladesh	Non-human Primates	Astroviruses	PREDICT MAstV-137	This is new Astrovirus in a non-human primate within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Asia	Bangladesh	Non-human Primates	Astroviruses	PREDICT MAstV-57	This is a new Astrovirus in non-human primates within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Asia	Bangladesh	Non-human Primates	Astroviruses	A strain of Mamastrovirus-1	This is a strain of the known virus Mamastrovirus-1 found in a bat. This virus is known to cause acute gastroenteritis in humans. Given that this bat was by handled people prior to sampling it is possible that this virus came from the people.	1
Asia	Bangladesh	Non-human Primates	Astroviruses	A strain of Mamastrovirus-5	This is a strain of the known virus Mamastrovirus-5 (GenBank Accession No. HM045005) found in non-human primates. This virus has been previously described in dogs and associated with gastroenteritis. This finding suggests that this virus can infect both canine and primate hosts and therefore warrants further investigation. PREDICT investigators are currently further characterizing this virus.	2
Asia	Bangladesh	Non-human Primates	Astroviruses	A strain of Mamastrovirus-5	This is a strain of the known virus Mamastrovirus-5 (GenBank Accession No. JN193534) found in	1

					non-human primates. This virus has been previously described in dogs and associated with gastroenteritis. This finding suggests that this virus can infect both canine and primate hosts and therefore warrants further investigation. PREDICT investigators are currently further characterizing this virus.	
Asia	Bangladesh	Non-human Primates	Astroviruses	A strain of Mamastrovirus-6	This is a strain of the known virus Mamastrovirus-6 (Genbank Accession No. JF742759, FJ222451) found in non-human primates. There is some evidence to suggest that certain strains within this species can cause respiratory and gastrointestinal illness in people, and therefore warrants further investigation. PREDICT investigators are currently further characterizing this virus.	3
Asia	Bangladesh	Non-human Primates	Bocaviruses	PREDICT_BoV-1	This is a new Bocavirus found for the first time in non-human primates. Bocaviruses commonly infect the respiratory and gastointestinal tracts of young animals and humans, however the significance of their association with disease is currently unknown. There is no evidence at this time to suggest that this virus poses any risk to human health.	6
Asia	Bangladesh	Non-human Primates	Bocaviruses	A strain of Human Bocavirus-3	This is a strain of the known virus Human Bocavirus-3 (Genbank Accession no. EU918736) found in a non-human primate. Bocaviruses commonly infect the respiratory and gastointestinal tracts of young animals and humans, however the significance of their association with disease is currently unknown.	1
Asia	Bangladesh	Non-human Primates	Coronaviruses	PREDICT_CoV-49	This is a new coronavirus found in a non-human primate belonging to the gammacoronavirus genus. The gammacoronaviruses are thought to be more associated with avian and mammalian hosts (compared to the alpha and beta coronaviruses that are more associated with bats). This new virus is, to our knowledge, the first gammacoronavirus found in a non-human primate and therefore warrants further investigation. PREDICT investigators are currently further characterizing this virus.	1
Asia	Bangladesh	Non-human Primates	Coronaviruses	PREDICT_CoV-50	This is a new coronavirus found in a non-human primate belonging to the gammacoronavirus	1

					genus. The gammacoronaviruses are thought to be more associated with avian and mammalian hosts (compared to the alpha and beta coronaviruses that are more associated with bats). This new virus is, to our knowledge, the second gammacoronavirus found in a non-human primate and therefore warrants further investigation. PREDICT investigators are currently further characterizing this virus.	
Asia	Bangladesh	Non-human Primates	Enteroviruses	A strain of Human Enterovirus B	This is a strain of the known enterovirus, Human Enterovirus B found in a macaque. Enteroviruses are common human pathogens that can cause a wide range of disease, from mild respiratory illness to central nervous system disease. PREDICT investigators are currently further characterizing this virus.	2
Asia	Bangladesh	Non-human Primates	Herpesviruses	A strain of Macacine Herpesvirus 3	This is a strain of the known virus Macacine Herpesvirus 3 (AF033184) in the betaherpes subfamily found in non-human primates. To date, this virus has not been detected in humans and there is no evidence at this time to suggest this virus poses a threat to human health.	8
Asia	Bangladesh	Non-human Primates	Herpesviruses	A strain of Macacine herpesvirus 4/Asia	This is a strain of the known virus Macacine herpesvirus 4/Asia in the gammaherpes subfamily found in non-human primates. This virus is commonly found in Asian macaques and as part of this project we have detected this virus in several macaque species across Asia. To date, this virus has not been detected in humans and there is no evidence at this time to suggest this virus poses a threat to human health.	24
Asia	Bangladesh	Non-human Primates	Novel_Mononega virales	PREDICT_MNV-1	This virus likely represents a new viral family within the Mononegavirales. However, only part of the genome has been completed and thus definitive classification of a new viral family is pending.	5
Asia	Bangladesh	Non-human Primates	Orbiviruses	PREDICT_Orbi-6	This is a new Orbivirus found in non-human primates and is highly divergent from all viruses characterized in this genus to date. This is likely to be an arbovirus ie. transmitted by arthropod vectors. At this time there is minimal evidence to suggest orbiviruses are involved in human disease, however, they are well established	5

					animal pathogens and therefore this virus warrants further investigation. PREDICT investigators are currently further characterizing this virus.	
Asia	Bangladesh	Non-human Primates	Papillomaviruses	PREDICT_PapV-1	This is a new papillomavirus found in non-human primates. Papillomaviruses often cause skin infections but generally without clinical signs of illness. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-1	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	11
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-10	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	3
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-100	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to	1

					suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-101	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	8
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-102	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	3
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-103	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-104	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric	3

					viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-105	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-106	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	16
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-107	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	4
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-108	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are	1

					no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-109	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	13
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-11	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	6
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-110	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to	2

					suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-111	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-112	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	3
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-113	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	2
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-114	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric	6

					viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-115	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-116	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	2
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-117	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-118	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are	4

					no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-119	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-12	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	17
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-120	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to	

					suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-13	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	2
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-14	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	7
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-15	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	3
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-16	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric	2

					viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-17	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-18	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	2
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-19	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-2	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are	6

					no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-20	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-21	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-22	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to	

					suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-23	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	4
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-24	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-26	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	4
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-27	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric	

					viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-28	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-29	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	2
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-3	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-30	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are	1

					no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-31	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	13
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-32	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	3
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-33	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to	1

					suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-34	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-35	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-36	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-37	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric	5

					viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-38	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	16
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-4	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	14
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-40	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-41	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are	4

					no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-42	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	2
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-43	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	4
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-44	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to	1

					suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-45	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	5
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-46	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	5
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-47	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	2
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-48	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric	7

					viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-5	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	2
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-50	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	3
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-51	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	9
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-52	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are	4

					no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-53	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-54	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-55	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to	

					suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-56	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-57	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	18
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-58	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	2
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-59	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric	2

					viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-6	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	9
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-60	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	3
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-61	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	7
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-62	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are	1

					no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-63	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-64	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-67	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to	

					suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-68	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	2
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-69	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-7	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-70	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric	

					viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-71	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-72	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-73	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-74	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are	1

					no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-75	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	2
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-76	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	3
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-77	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to	7

					suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-78	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	5
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-79	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-8	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	2
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-80	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric	46

					viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-81	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-82	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-83	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	6
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-84	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are	1

					no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-85	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-86	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	4
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-87	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to	2

					suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-88	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	3
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-89	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	2
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-9	This is a new picobirnavirus found in a non-human primate belonging to the G1 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-90	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric	4

					viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-91	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-92	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	5
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-93	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-94	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are	14

					no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-95	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	3
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-96	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	7
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-97	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to	1

					suggest that this virus poses any risk to human health.	
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-98	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	3
Asia	Bangladesh	Non-human Primates	Picobirnaviruses	PREDICT_PbV-99	This is a new picobirnavirus found in a non-human primate belonging to the G2 genotype. There are no definitive guidelines for classification of these viruses to the species level, and as such viruses have been assigned based on phylogenetic clustering. Picobirna viruses are common enteric viruses in animals and people, and while there are a few reports suggesting involvement in disease, the significance of this association is currently unclear. There is no evidence at this time to suggest that this virus poses any risk to human health.	1
Asia	Bangladesh	Non-human Primates	Picornaviruses	PREDICT_Picorna-1	This is a new virus within the Picornavirus family, however further taxonomic assignment can't be performed at this time due to incomplete genome sequence. Picornaviruses are classified into a number of genera and include many important pathogens of humans and animals. The diseases they cause are varied, ranging from acute "common-cold"-like illnesses, to polio and chronic livestock infections. Therefore this virus warrants further investigation and PREDICT investigators are currently further characterizing this virus.	5
Asia	Bangladesh	Non-human Primates	Picornaviruses	PREDICT_Picorna-2	This is a new virus within the Picornavirus family, however further taxonomic assignment can't be performed at this time due to incomplete genome sequence. Picornaviruses are classified into a number of genera and include many important pathogens of humans and animals. The diseases they cause are varied, ranging from acute	2

					"common-cold"-like illnesses, to polio and chronic livestock infections. Therefore this virus warrants further investigation and PREDICT investigators are currently further characterizing this virus.	
Asia	Bangladesh	Non-human Primates	Picornaviruses	PREDICT_Picorna-3	This is a new virus within the Picornavirus family, however further taxonomic assignment can't be performed at this time due to incomplete genome sequence. Picornaviruses are classified into a number of genera and include many important pathogens of humans and animals. The diseases they cause are varied, ranging from acute "common-cold"-like illnesses, to polio and chronic livestock infections. Therefore this virus warrants further investigation and PREDICT investigators are currently further characterizing this virus.	7
Asia	Bangladesh	Non-human Primates	Picornaviruses	PREDICT_Picorna-4	This is a new virus within the Picornavirus family, however further taxonomic assignment can't be performed at this time due to incomplete genome sequence. Picornaviruses are classified into a number of genera and include many important pathogens of humans and animals. The diseases they cause are varied, ranging from acute "common-cold"-like illnesses, to polio and chronic livestock infections. Therefore this virus warrants further investigation and PREDICT investigators are currently further characterizing this virus.	15
Asia	Bangladesh	Non-human Primates	Polyomaviruses	PREDICT_PyV-31	This is a new Polyomavirus found in non-human primates. There is no evidence at this time to suggest that it poses a threat to human health.	3
Asia	Bangladesh	Non-human Primates	Polyomaviruses	A strain of Human BK Polyomavirus	This is a strain of the known Polyomavirus Human BK Polyomavirus (Genbank Accession No. NC_001538) found in a non-human primate. This virus is widespread in humans and has also been reported in non-human primates. In people, it rarely causes significant disease except in immunocompromised individuals.	6
Asia	Bangladesh	Non-human Primates	Posaviruses	PREDICT_PosaV-1	This is a new virus found in feces from macaques that is distantly related to two recently described posaviruses found in feces from swine. It is currently suspected that these may be nematode viruses and their ability to infect mammals is unknown.	7
Asia	Bangladesh	Non-human	Posaviruses	PREDICT_PosaV-2	This is a new virus found in feces from macaques	8

		Primates			that is distantly related to two recently described posaviruses found in feces from swine. It is currently suspected that these may be nematode viruses and their ability to infect mammals is unknown.	
Asia	Bangladesh	Non-human Primates	Posaviruses	PREDICT_PosaV-3	This is a new virus found in feces from macaques that is distantly related to two recently described posaviruses found in feces from swine. It is currently suspected that these may be nematode viruses and their ability to infect mammals is unknown.	8
Asia	Bangladesh	Non-human Primates	Posaviruses	PREDICT_PosaV-4	This is a new virus found in feces from macaques that is distantly related to two recently described posaviruses found in feces from swine. It is currently suspected that these may be nematode viruses and their ability to infect mammals is unknown.	21
Asia	Bangladesh	Non-human Primates	Rhabdoviruses	PREDICT_RbdV-14	This is a new Rhabdovirus found in a non-human primate. This virus is related to a group of insect transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are currently further characterizing this virus.	1
Asia	Bangladesh	Non-human Primates	Rhabdoviruses	PREDICT_RbdV-15	This is a new Rhabdovirus found in a non-human primate. This virus is related to a group of insect transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are currently further characterizing this virus.	1
Asia	Bangladesh	Non-human Primates	Rotaviruses	A strain of Rotavirus A	This is a strain of the known virus Rotavirus A (GenBank Accession no. FJ169853) found in non-human primates. This virus has been found previously in non-human primates. Rotavirus infections are common in children and are one of the leading causes of childhood diarrhea.	5
Asia	Bangladesh	Non-human Primates	Simian Foamy viruses	A strain of Macaque Foamy virus	This is a strain of the known virus Macaque Foamy virus (Genebank Accession no. X54482) found in macaques. There is no evidence at this time to suggest that this virus a poses a threat to	42

					human health.	
Asia	Nepal	Non-human Primates	Henipaviruses	A strain of Human Parainfluenzavirus 3	This is a strain of the known virus Human Parainfluenzavirus 3 (GenBank Accession No. KJ672616) in the family Paramxyoviruses, found in a macaque. Human parainfluenza viruses are major causes of lower respiratory tract infections in infants and elderly persons. This virus has been previously found in other non-human primates, but further studies are needed to determine whether it is transmitted between humans and non-human primates. PREDICT investigators are currently further characterizing this virus.	1
Asia	Nepal	Rodents & Shrews	Paramyxoviruses	PREDICT_PMV-54	This is a new paramyxovirus in house shrews that is related to the henipaviruses. Similar viruses have been identified previously in shrews and are currently classified as henipavirus-related paramyxoviruses. This virus warrants further investigation due its proximity to Hendra and Nipah viruses, but it is unclear whether these viruses currently pose a threat to human health. PREDICT investigators are continuing to characterize this virus.	6
Asia	Nepal	Rodents & Shrews	Paramyxoviruses	PREDICT_PMV-55	This is a new paramyxovirus within the morbillivirus genus found in a rodent. The genus morbillivirus contains many significant pathogens for humans and animals, and therefore this virus warrants further investigation. PREDICT investigators are continuing to characterize this virus.	1
Asia	Nepal	Rodents & Shrews	Rhabdoviruses	PREDICT_RbdV-5	This is a new Rhabdovirus found in a house shrew. This virus is related to a group of insect transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are continuing to characterize this virus.	1
Latin America	Brazil	Bats	Adenoviruses	PREDICT_AdV-13	This is a new Adenovirus found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Latin America	Brazil	Bats	Adenoviruses	PREDICT_AdV-14	This is a new Adenovirus found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	1

Latin America	Brazil	Bats	Adenoviruses	PREDICT_AdV-15	This is a new Adenovirus found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Latin America	Brazil	Bats	Adenoviruses	PREDICT_AdV-16	This is a new Adenovirus found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	5
Latin America	Brazil	Bats	Astroviruses	PREDICT MAstV-7	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Latin America	Brazil	Bats	Astroviruses	PREDICT MAstV-8	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	4
Latin America	Brazil	Bats	Astroviruses	PREDICT MAstV-9	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	4
Latin America	Brazil	Bats	Coronaviruses	PREDICT_CoV-12	This is a new coronavirus found in bats belonging to the alphacoronavirus genus. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Latin America	Brazil	Bats	Coronaviruses	PREDICT_CoV-13	This is a new coronavirus found in bats belonging to the alphacoronavirus genus. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Latin America	Brazil	Bats	Coronaviruses	PREDICT_CoV-14	This is a new coronavirus found in bats belonging to the alphacoronavirus genus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Latin America	Brazil	Bats	Coronaviruses	PREDICT_CoV-15	This is a new coronavirus found in bats belonging to the alphacoronavirus genus. There is no evidence at this time to suggest this virus poses a threat to human health.	3
Latin America	Brazil	Bats	Coronaviruses	PREDICT_CoV-18	This is a new coronavirus found in bats belonging to the alphacoronavirus genus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Latin America	Brazil	Bats	Coronaviruses	PREDICT_CoV-19	This is a new coronavirus found in bats belonging to the betacoronavirus genus. The genus Betacoronaviruses includes viruses that are of significance to public health such as SARS and	1

					MERS, however this virus is not considered to be closely related to either of these viruses. Therefore, at this time there is no evidence to suggest this virus poses a threat to human health.	
Latin America	Brazil	Bats	Coronaviruses	PREDICT_CoV-4	This is a new coronavirus found in bats belonging to the alphacoronavirus genus. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Latin America	Brazil	Bats	Coronaviruses	A strain of Trinidad/1FY2BA/2007	This is a strain of the known alphacoronavirus Trinidad/1FY2BA/2007 (Accession Number EU769557) found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Latin America	Brazil	Bats	Polyomaviruses	PREDICT_PyV-3	This is a new Polyomavirus found in bats. There is no evidence at this time to suggest that it poses a threat to human health.	1
Latin America	Brazil	Bats	Polyomaviruses	PREDICT_PyV-4	This is a new Polyomavirus found in bats. There is no evidence at this time to suggest that it poses a threat to human health.	1
Latin America	Brazil	Rodents & Shrews	Astroviruses	PREDICT MAstV-10	This is a new Astrovirus in rodents within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	3
Latin America	Brazil	Rodents & Shrews	Paramyxoviruses	PREDICT_PMV-21	This is a new paramyxovirus in rodents. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Cambodia	Bats	Astroviruses	PREDICT MAstV-13	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Cambodia	Bats	Astroviruses	PREDICT MAstV-167	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Cambodia	Bats	Astroviruses	PREDICT MAstV-20	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	3
Southeast Asia	Cambodia	Bats	Astroviruses	PREDICT MAstV-22	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1

Southeast Asia	Cambodia	Bats	Astroviruses	PREDICT MAstV-23	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Cambodia	Bats	Astroviruses	PREDICT MAstV-24	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	9
Southeast Asia	Cambodia	Bats	Astroviruses	PREDICT MAstV-25	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Southeast Asia	Cambodia	Bats	Astroviruses	PREDICT MAstV-26	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Cambodia	Bats	Astroviruses	PREDICT MAstV-27	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Southeast Asia	Cambodia	Bats	Astroviruses	PREDICT MAstV-28	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	14
Southeast Asia	Cambodia	Bats	Astroviruses	A strain of Bat Astrovirus Ms/HK61/CHN/2007	This is a strain of an Astrovirus that has been found in bats, BtAstV Ms/HK61/CHN/2007 (GenBank Accession No. HQ613174). There is no evidence at this time to suggest this virus poses a threat to human health.	6
Southeast Asia	Cambodia	Bats	Astroviruses	A strain of Bat Astrovirus Ms/sy10/CHN/2008	This is a strain of an Astrovirus that has been found in bats, BtAstV Ms/sy10/CHN/2008 (GenBank Accession No. HQ613160). There is no evidence at this time to suggest this virus poses a threat to human health.	17
Southeast Asia	Cambodia	Bats	Astroviruses	A strain of Bat Astrovirus Myr/Anhui/A900/2005	This is a strain of an Astrovirus that has been found in bats (Bat Astrovirus Myr/Anhui/A900/2005; FJ571081). There is no evidence at this time to suggest this virus poses a threat to human health.	3
Southeast Asia	Cambodia	Bats	Astroviruses	A strain of Bat Astrovirus Sk/HK63/CHN/2007	This is a strain of an Astrovirus that has been found in bats (Bat Astrovirus Sk/HK63/CHN/2007; HQ613175). There is no evidence at this time to	3

					suggest this virus poses a threat to human health.	
Southeast Asia	Cambodia	Bats	Astroviruses	A strain of Bat Astrovirus Tm/Guangxi/LD145/2007	This is a strain of an Astrovirus that has been found in bats (Bat Astrovirus Tm/Guangxi/LD145/2007; FJ571091). There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Cambodia	Bats	Astroviruses	A strain of Bat Astrovirus Tm/Guangxi/LD153/2007	This is a strain of an Astrovirus that has been found in bats (Bat Astrovirus Tm/Guangxi/LD153/2007; FJ571126). There is no evidence at this time to suggest this virus poses a threat to human health.	2
Southeast Asia	Cambodia	Bats	Coronaviruses	PREDICT_CoV-22	This is a new coronavirus found in bats belonging to the betacoronavirus genus. The genus Betacoronavirus includes viruses that are of significance to public health such as SARS and MERS, however this virus is not considered to be closely related to either of these viruses. Therefore, at this time there is no evidence to suggest this virus poses a threat to human health.	2
Southeast Asia	Cambodia	Bats	Coronaviruses	PREDICT_CoV-24	This is a new coronavirus found in bats belonging to the betacoronavirus genus. The genus Betacoronavirus includes viruses that are of significance to public health such as SARS and MERS, however this virus is not considered to be closely related to either of these viruses. Therefore, at this time there is no evidence to suggest this virus poses a threat to human health.	11
Southeast Asia	Cambodia	Bats	Coronaviruses	PREDICT_CoV-25	This is a new coronavirus found in bats belonging to the alphacoronavirus genus. There is not evidence at this time to suggest that this virus pose any risk to human health.	1
Southeast Asia	Cambodia	Bats	Coronaviruses	PREDICT_CoV-34	This is a new coronavirus found in bats belonging to the betacoronavirus genus. The genus Betacoronaviruses includes viruses that are of significance to public health such as SARS and MERS, however this virus is not considered to be closely related to either of these viruses. Therefore, at this time there is no evidence to suggest this virus poses a threat to human health.	1
Southeast Asia	Cambodia	Bats	Coronaviruses	PREDICT_CoV-35	This is a new coronavirus found in bats belonging to the alphacoronavirus genus, and closely related viruses have now been found in bats in Cambodia and Cameroon as a part of the PREDICT project.	3

					There is no evidence at this time to suggest that this virus poses any risk to human health.	
Southeast Asia	Cambodia	Bats	Coronaviruses	A strain of bat coronavirus HKU9	This is a strain of the known coronavirus Bat coronavirus HKU9, in the betacoronavirus genus (Genbank Accession no. NC_009021). The genus Betacoronavirus includes viruses that are of significance to public health such as SARS and MERS, however HKU9 is not considered to be closely related to either of these viruses. Therefore, at this time there is no evidence to suggest this virus poses a threat to human health.	2
Southeast Asia	Cambodia	Bats	Coronaviruses	A strain of BtCoV/512	This is strain of the known alphacoronavirus BtCoV/512 (Genbank Accession no. NC_009657) found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	27
Southeast Asia	Cambodia	Bats	Coronaviruses	A strain of Porcine epidemic diarrhea virus	This is a known coronavirus in the alphacoronavirus genus. It is a strain of Porcine epidemic diarrhea virus Genbank Acession no. NC_003436). While pathogenic for pigs, there is currently no evidence this viruses poses a threat to human health.	2
Southeast Asia	Cambodia	Bats	Flaviviruses	PREDICT_Flavi-1	This is a new virus within the genus Flavivirus (family Flaviviridae) found in a bat. However, the current phylogenetic placement of this virus within the Flavivirus genus is unclear. PREDICT investigators are continuing to characterize this virus to further classify it.	1
Southeast Asia	Cambodia	Bats	Paramyxoviruses	PREDICT_PMV-13	This is a new paramyxovirus in bats and has also been found in bats in Vietnam as part of the PREDICT project. There is no evidence at this time to suggest this virus poses a threat to human health.	6
Southeast Asia	Cambodia	Bats	Paramyxoviruses	PREDICT_PMV-22	This is a new paramyxovirus in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Cambodia	Bats	Seadornaviruses	PREDICT_SdV-1	This is a new virus in the Seadornavirus genus (Reo viral family) found in the feces of an insectivorous bat. This virus is likely to be insect transmitted, because all known virses in this genus are transmitted by mosquitos. Members of this genus have been associated with variable disease in animals and people, however it is unclear if this virus has the potential to cause	1

					disease in people and warrants further investigation. PREDICT investigators are continuing to characterize this virus.	
Southeast Asia	Cambodia	Non-human Primates	Astroviruses	PREDICT MAstV-138	This is new Astrovirus in a non-human primate within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Cambodia	Non-human Primates	Astroviruses	PREDICT MAstV-21	This is a new Astrovirus in non-human primate within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Cambodia	Non-human Primates	Astroviruses	PREDICT MAstV-56	This is a new Astrovirus in non-human primates within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Cambodia	Non-human Primates	Coronaviruses	PREDICT_CoV-31	This is a new coronavirus found in non-human primates belonging to the betacoronavirus genus. The genus Betacoronaviruses includes viruses that are of significance to public health such as SARS and MERS, however this virus is not considered to be closely related to either of these viruses. Therefore, at this time there is no evidence to suggest this virus poses a threat to human health.	2
Southeast Asia	Cambodia	Non-human Primates	Enteroviruses	A strain of Human Enterovirus C	This is a strain of the known enterovirus, Human Enterovirus C, found in a macaque. Enteroviruses are common human pathogens that can cause a wide range of disease, from mild respiratory illness to central nervous system disease. PREDICT investigators are currently further characterizing this virus.	1
Southeast Asia	Cambodia	Non-human Primates	Herpesviruses	PREDICT_HV-25	This is a new betaherpesvirus found in non-human primates. There is no evidence at this time to suggest this virus poses a threat to human health.	5
Southeast Asia	Cambodia	Non-human Primates	Herpesviruses	A strain of Macacine herpesvirus 4/Asia	This is a strain of the known virus Macacine herpesvirus 4/Asia in the gammaherpes subfamily found in non-human primates. This virus is commonly found in Asian macaques and as part of this project we have detected this virus in several macaque species across Asia. To date, this virus has not been detected in humans and there is no evidence at this time to suggest this	10

					virus poses a threat to human health.	
Southeast Asia	Cambodia	Non-human Primates	Simian Foamy viruses	A new strain of Macaque Foamy virus	This is a new strain of the known virus Macaque Foamy virus (Genbank Accession no. X54482) found in a Black-shanked douc. There is no evidence at this time to suggest that this virus a poses a threat to human health.	1
Southeast Asia	Cambodia	Non-human Primates	Simian Foamy viruses	A strain of Macaque Foamy virus	This is a strain of the known virus Macaque Foamy virus (Genbank Accession no. X54482) found in macaques. There is no evidence at this time to suggest that this virus a poses a threat to human health.	5
Southeast Asia	Cambodia	Non-human Primates	Simian Foamy viruses	A strain of SFVHpi	This is a strain of the known virus Simian Foamy virus strain SFVHpi (Genbank Accession No.AF516486) found in pileated gibbons. There is no evidence at this time to suggest that this virus a poses a threat to human health.	2
Southeast Asia	Cambodia	Rodents & Shrews	Arenaviruses	PREDICT_ArenaV-2	This is a new Arenavirus found in a rodent. It is unknown if this virus could be a threat to human health, however, many Arenaviruses are significant human pathogens and can cause viral hemorrhagic fevers. PREDICT investigators are currently further characterizing this virus.	1
Southeast Asia	Cambodia	Rodents & Shrews	Astroviruses	PREDICT MAstV-183	This is new Astrovirus in rodents within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	9
Southeast Asia	Cambodia	Rodents & Shrews	Astroviruses	PREDICT MAstV-19	This is a new Astrovirus in rodents within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Cambodia	Rodents & Shrews	Astroviruses	A strain of Mamastrovirus-25	This is a strain of the known virus Mamastrovirus-25 found in rodents. There is no evidence at this time to suggest this virus poses a threat to human health.	14
Southeast Asia	Cambodia	Rodents & Shrews	Paramyxoviruses	PREDICT_PMV-20	This is a new paramyxovirus in rodents. There is no evidence at this time to suggest this virus poses a threat to human health.	5
Southeast Asia	Cambodia	Rodents & Shrews	Paramyxoviruses	PREDICT_PMV-28	This is a new paramyxovirus in a rodent. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Lao Peoples	Bats	Astroviruses	PREDICT MAstV-13	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time	4

	Democratic Republic				to suggest this virus poses a threat to human health.	
Southeast Asia	Lao Peoples Democratic Republic	Bats	Astroviruses	PREDICT MAstV-16	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Lao Peoples Democratic Republic	Bats	Astroviruses	PREDICT MAstV-17	This is a new Astrovirus in bats within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Lao Peoples Democratic Republic	Bats	Astroviruses	PREDICT MAstV-184	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Lao Peoples Democratic Republic	Bats	Astroviruses	PREDICT MAstV-185	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Lao Peoples Democratic Republic	Bats	Astroviruses	PREDICT MAstV-186	This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Lao Peoples Democratic Republic	Bats	Astroviruses	A strain of Mamastrovirus-19	This is a strain of the known virus Mamastrovirus-19 found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Lao Peoples Democratic Republic	Bats	Coronaviruses	PREDICT_CoV-23	This is a new coronavirus found in bats belonging to the betacoronavirus genus. The genus Betacoronavirus includes viruses that are of significance to public health such as SARS and MERS, however this virus is not considered to be closely related to either of these viruses. Therefore, at this time there is no evidence to suggest this virus poses a threat to human health.	6
Southeast Asia	Lao Peoples Democratic Republic	Bats	Coronaviruses	PREDICT_CoV-53	This is a new coronavirus found in bats belonging to the alphacoronavirus genus. There is no evidence at this time to suggest that this virus pose any risk to human health.	5
Southeast Asia	Lao Peoples Democratic Republic	Bats	Coronaviruses	PREDICT_CoV-56	This is a new coronavirus found in bats belonging to the betacoronavirus genus. The genus Betacoronavirus includes viruses that are of significance to public health such as SARS and	1

					MERS, however this virus is not considered to be closely related to either of these viruses. Therefore, at this time there is no evidence to suggest this virus poses a threat to human health.	
Southeast Asia	Lao Peoples Democratic Republic	Bats	Coronaviruses	A strain of bat coronavirus HKU9	This is a strain of the known coronavirus Bat coronavirus HKU9, in the betacoronavirus genus (Genbank Accession no. NC_009021). The genus Betacoronavirus includes viruses that are of significance to public health such as SARS and MERS, however HKU9 is not considered to be closely related to either of these viruses. Therefore, at this time there is no evidence to suggest this virus poses a threat to human health.	13
Southeast Asia	Lao Peoples Democratic Republic	Bats	Coronaviruses	A strain of BtCoV/Hipposideros/ Ractcha-67/THA/2007	This is a strain of the known alphacoronavirus BtCoV/Hipposideros/Ractcha-67/THA/2007 (GenBank Accession Number HQ898913) found in bats. There is no evidence at this time to suggest this virus poses a threat to human health.	2
Southeast Asia	Lao Peoples Democratic Republic	Non-human Primates	Herpesviruses	A strain of Macacine herpesvirus 4/Asia	This is a strain of the known virus Macacine herpesvirus 4/Asia in the gammaherpes subfamily found in non-human primates. This virus is commonly found in Asian macaques and as part of this project we have detected this virus in several macaque species across Asia. To date, this virus has not been detected in humans and there is no evidence at this time to suggest this virus poses a threat to human health.	3
Southeast Asia	Lao Peoples Democratic Republic	Non-human Primates	Simian Foamy viruses	A strain of Macaque Foamy virus	This is a strain of the known virus Macaque Foamy virus (Genbank Accession no. X54482) found in macaques. There is no evidence at this time to suggest that this virus a poses a threat to human health.	1
Southeast Asia	Lao Peoples Democratic Republic	Rodents & Shrews	Astroviruses	PREDICT MAstV-114	This is a new Astrovirus in a rodent within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Lao Peoples Democratic Republic	Rodents & Shrews	Astroviruses	PREDICT MAstV-135	This is new Astrovirus in a rodent within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Vietnam	Rodents & Shrews	Influenzas	Influenza A	This is the known virus Influenza A found in a rodent. Influenza viruses are important pathogens in humans and animals. Given that this rodent	3

					was sampled in a restaurant, and therefore handled by people prior to sampling, it is possible that this virus came from the people. PREDICT investigators are currently in the process of subtyping this virus and characterizing the full genome.	
Southeast Asia	Vietnam	Rodents & Shrews	Paramyxoviruses	PREDICT_PMV-58	This is a new paramyxovirus in rodents, related to other rodent paramyxoviruses. There is no evidence at this time to suggest this virus poses a threat to human health.	1
Southeast Asia	Vietnam	Rodents & Shrews	Rhabdoviruses	PREDICT_RbdV-16	This is a new Rhabdovirus found in rodents. This virus is related to a group of insect transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are currently further characterizing this virus.	2
Southeast Asia	Vietnam	Rodents & Shrews	Rhabdoviruses	PREDICT_RbdV-17	This is a new Rhabdovirus found in rodents. This virus is related to a group of insect transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are currently further characterizing this virus.	1
Southeast Asia	Vietnam	Rodents & Shrews	Rhabdoviruses	PREDICT_RbdV-18	This is a new Rhabdovirus found in rodents. This virus is related to a group of insect transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are currently further characterizing this virus.	1

- **Activity 1.4: Sample Tracking and Information**
  - Sub-activity 1.4.1: **Optimize Surveillance Data Management System**
    - Moved database to Amazon Web Services (the “cloud”) for improved security, stability, and performance.
    - Developed and implemented a new search tool with improved criteria selection and export speeds.
    - Developed a pilot data entry tool for initial use with human data for expanded use across all PREDICT.

The tool is platform-independent (i.e. works on mobile devices, PCs, and Macintosh computers etc.), allows offline data entry with server synchronization once online, and better validation and prepopulation with data, reducing potential for errors.
- Also created a database to better organize secure human data, which is currently in a testing phase.
- Facilitated the entry and processing of all available human and animal data from PREDICT.

- Sub-activity 1.4.2: **Establish Global Open Access to Database and Procedure for Dissemination of Knowledge**
  - Mapped all surveillance and test results approved for release by host country governments on the PREDICT public website (www.healthmap.org/predict) for dissemination of data and knowledge gained through the project. Test result data are now available for 20 countries.

- **Activity 1.5 Program Information Dissemination**
  - Sub-activity 1.5.1: **Communication (National and International Meetings)**
    - Met with Agriculture and Environment experts from the World Bank office in DC to share PREDICT outcomes and explore areas of One Health collaborations.
    - Invited to represent the Infectious Disease perspective for the Convention on Biological Diversity's State of Knowledge Review on Biodiversity and Health and Biodiversity, which is being co-published with the World Health Organization. Also held meetings with colleagues at FAO Headquarters to discuss key policy-relevant messages on zoonoses and One Health for the State of Knowledge Review.
    - Attended the OIE *ad hoc* group meeting on the Middle East Respiratory Syndrome (MERS-CoV) to discuss the state of knowledge on MERS, relevance to animal trade, and highlight CoV screening protocols developed through PREDICT.
    - Presented on “Vector-borne Diseases -- Animals and Patterns” in the opening plenary session of the IOM Workshop on Vector-Borne Diseases, highlighting PREDICT’s novel viral findings and host-pathogen relationship work.
    - Appointed to an expert panel organized by WHO and FAO on future directions for prevention/response to Ebola and other emerging diseases.
    - Presented at the ZADD Annual Meeting during the keynote dinner on “Environmental, Agricultural, and Demographic Drivers of Emerging Diseases” highlighting the PREDICT’s work in Malaysia and China.

- Organized a forum on "Surveillance and Epidemiology Research of Zoonotic Diseases & Application of 'One Health' in Disease Control and Prevention in South China" on August 21, 2014 in Guangzhou. Participants from FAO, PREDICT China partner research organizations and hospitals, and other research entities and universities in South China discussed project development during the past years, China governmental agencies' disease control and prevention strategies and their zoonotic disease surveillance status, One Health approach application experiences in South China and a few East China provinces, and strategic and technical preparedness for the Ebola disease outbreak.
- Conducted project closeout meeting in Republic of Congo on Sept 10th, with participation from the Republic of Congo Minister of Health, the US Ambassador, the WHO country representative, directors from various ministries (research, agriculture, health, environment, etc.) and the global project team.

- Sub-activity 1.5.2: **Final Report Preparations**
  - Completed flyers for all of countries to communicate project activities to stakeholders, and posted flyer links on the project website: http://www.vetmed.ucdavis.edu/ohi/predict/predict_countries_and_partners.cfm
  - Compiled material and drafted the public final report.
  - Contributed content and material to the project website including project descriptions, countries and partnerships, success stories, and publications.

LOW 2: Risk Determination

- **Activity 2.1: Develop Risk Filter Strategy**
  - Sub-activity 2.1.1: **Epidemiologic Analysis of PREDICT Datasets in GAINS**
    - Combined surveillance and diagnostic test data to date and developed standardized summary variables characterizing risk. Reviewed datasets for validity and improved data quality and accuracy.
    - Conducted statistical analyses and modeling of data to begin to identify locations, host taxa, sample types, and high-risk human-animal interfaces with a high frequency of positive test results among all viral families combined.

  - Sub-activity 2.1.2: **Improve Targeted Surveillance Strategies for Influenza**
    - Revised a manuscript in final stages of co-author review, "Evolutionary dynamics and global diversity of influenza A virus", which will be submitted to *The Journal of Virology*.

Major findings are described below:

- Differences in influenza A virus mutational rates were compared by examining the nucleotide substitution rates for 11 out of 14 high-priority IAV subtypes including, H1N2, H3N2, H3N6, H3N8, H4N6, H5N1, H5N2, H6N1, H6N2, H6N8, and H9N2; mutational rates were found to be higher in East Asian countries, including China, Hong Kong, Japan, Mongolia, South Korea, and Taiwan than in other countries such as the United States and Canada, indicating a greater risk for the emergence of novel pathogenic strains in East Asia.
- Differences in selection pressures were examined by comparing the mean d_N/d_S ratios acting on individual viral subtypes; the mean d_N/d_S ratios showed little geographic variation among all 14 high-priority subtypes (H1N2, H3N2, H3N6, H3N8, H4N6, H5N1, H5N2, H6N1, H6N2, H6N8, and H9N2); mean ratios did vary among host type and results indicated that mammal specific strains exhibited higher selection pressures than avian specific strains.
- A number of factors were evaluated to determine if they could be used as predictors of subtype diversity including healthcare spending and spending growth rates per capita, pig density and increases in pig density, Gross Domestic Product and the number of strains reported per country; output from the models showed that the strongest predictors for subtype diversity at the country level were sampling effort (number of strains reported) and healthcare spending, indicating that increasing effort to identify influenza virus strains and increased public health spending in East and Southeast Asia could be critical to understand the emergence of pathogenic strains of influenza.
- The analysis identified major global gaps in influenza A virus testing and subtyping, particularly in many countries in Africa, Latin America, and Eastern Europe that will continue to hinder efforts to track the evolution and diversity of influenza viruses around the world until remedied. There is also a great need to shift countries from conducting targeted influenza A testing for specific subtypes to performing broader testing to detect all subtypes.

- Sub-activity 2.1.4: **Pilot Methods to Assess Occupational Disease Risk for Wildlife Health Workers**
  - Finished building online platforms for Thai and French versions of the survey.
  - Procured Malay translation of survey and registered University of Washington with the National Medical Research Register in Malaysia.
  - Continued to receive online survey submissions through September 9.
  - Developed protocol for self -swabbing for nasal samples.
  - Finalized agreement with Quest diagnostics to obtain and ship samples.

- Finalized shipping and sampling protocol for US-based participants providing blood and nasal samples with input from UC Davis, Columbia, and Metabiota, including self-swabbing for nasal samples, and laid foundations for biosampling in DRC.
- Shipped out sampling kits to US-based participants with instructions on self-nasal sampling and visiting Quest Diagnostics facilities for blood draws.
- Received100% of sampling kits back from US-based participants at University of Washington and placed all specimens in lab storage.
- Shipped specimens to the UC Davis lab for viral family testing.
- Met with the infectious disease physician assisting on return of results from viral family testing.
- Conducted an initial data analysis on survey results and produced final project report.

- **Activity 2.2 Optimize Models for Diversity of Disease Emergence**
  - Sub-activity 2.2.1: **Refine, Test and Exploit Geographical and Temporal 'Hotspot' Models**

    Deep Forest (DF)
    - Completed biodiversity surveys in Brazil and Malaysia (Sabah).
    - Continued virodiversity exploratory analysis of DF data.
    - Continued Quality Assurance/Quality Control processes (GAINS checking).
    - Completed Deep Forest Human Contact Surveys for all sites in Malaysia (Sabah).
    - Developed Deep Forest Synthesis Document draft.
    - Completed preliminary/exploratory analysis of DFHC data in Brazil and Malaysia.
    - Completed preliminary models of spatially explicit human-animal contact at the landscape level in Malaysia and Brazil (consumption as case study).
    - Commenced evaluation and analysis of laboratory results (4 viral families to date).

    EID Hotspots
    - Completed models and ranked variables by relative influence on disease emergence risk, for both zoonotic from wildlife and vector-borne diseases.
    - Generated partial dependence plots showing relationships between predictors and disease risk.
    - Completed summary document on HSII results.
    - Completed mapping results.
    - Draft prepared for final report/publication.

    What if Scenarios
    - Completed 'What if' scenarios for:
      - Coronavirus in Thailand.

- Coronavirus in Egypt.
- Simian Foamy virus in Cameroon.
- GB virus in Bangladesh.
- Bas Congo (Rhabdo) virus in Democratic Republic of Congo.
- Hantavirus in China.
- Herpes B in Malaysia.
- Paramyxovirus in Indonesia.

Sicki

- Completed data cleaning to facilitate automatic data ingestion for web application.
- Completed preparation of 275 abstracts describing EID events (1940 -2012).
- Completed prototype of a user-friendly web application for visualization and search.

EID and Zoonotic Virus Data

- Completed and summarized zoonotic viruses and host-interface relationship analyses and completed additional analyses on associations between zoonotic viruses and host species taxonomic biodiversity.
- Host-pathogen phylogeny project (HP3): Completed analysis of data from literature to understand traits that predict the number of viruses shared with humans. Implemented new technique called (GAM) to look at the effect of specific variables on the number of viruses shared with humans.

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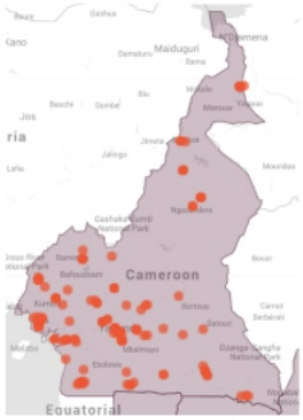
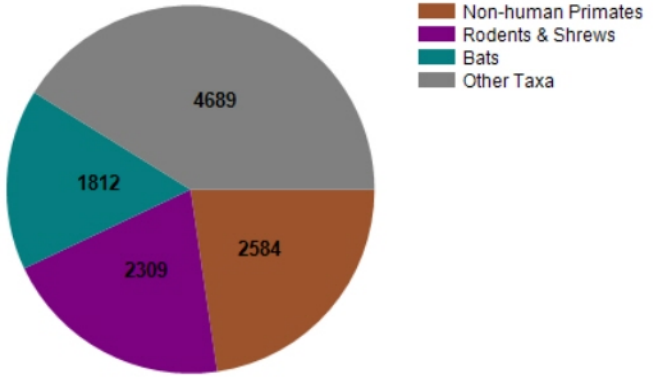
PREDICT Sampling and Testing in Cameroon

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

Sampling Locations

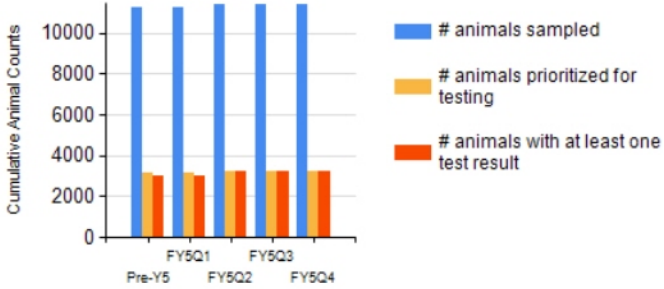


Number of Animals Sampled

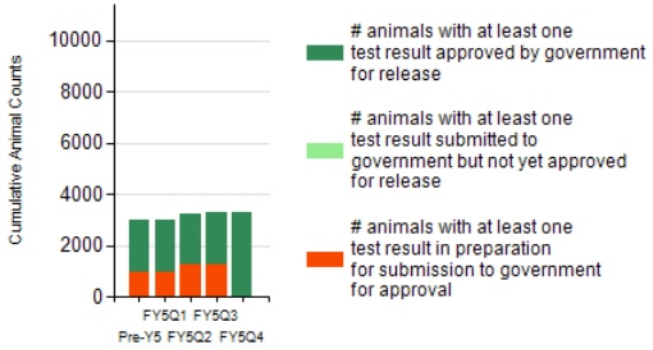


Sampling and Testing Progress

The chart does not necessarily include the samples prioritized for testing from animals for which we will attempt to sample, but for which those samples are not yet collected



Test Results Reporting Progress



For information purposes only - no action required

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PREDICT Quarter 4 Year 5 Reporting

CAMEROON

- **Significant Highlights, Results, and Success Stories:**
  - Continued assisting the Ministry of Livestock with monitoring the Monkeypox outbreak by reporting cases to OIE on the 18th July and sending a team for a follow-up visit to Sanaga Yong Rescue Centre in August, and filing an update with OIE on 24 September.
  - Participated in a meeting with the Ministry of Livestock and Regional Delegates to discuss the Monkeypox outbreak and Ebola preparedness.
  - Participated in a meeting organized by the Ministry of Livestock with field and laboratory partners to define strategies for surveillance of Ebola in wildlife and human diagnosis in laboratories.
  - At the invitation of the Ministry of Health/WHO, participated in the Ebola preparation and training workshop in Douala between the 5th and 6th August for Regional Hospital Directors and CERPLEs (Regional Coordinators for Pandemics and Epidemics of Ministry of Health), following the detection of a number of Ebola virus cases in Lagos. At the workshop, presented on reservoir and zoonotic transmission of Ebola and ongoing risk for Cameroon, assisted with the preparation of an Ebola response plan for Cameroon, and demonstrated use of USAID PPE kits (including the PREDICT training module on PPE).
  - Provided technical assistance to the Ministry of Livestock to help improve the National Surveillance System for Zoonosis including for Ebola virus during a workshop on the 18th of September. The PREDICT laboratory will serve as partner lab for this surveillance plan.
  - On the 8th August, presented on Ebola preparation with staff from the Direction for Disease Control at the first National Committee for Control of Epidemics and Pandemics meeting.
  - Worked closely with CDC CAFELTP Resident Advisor to plan and implement a training of trainers for Ebola preparation under the coordination of Ministry of Health with WHO and the University of Yaoundé.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	0	1812	1715	1715	1715	1715
Non-human Primates	0	2584	721	718	718	718

PREDICT Quarter 4 Year 5 Reporting

Other Taxa	0	4689	71	71	71	71
Rodents & Shrews	0	2309	754	754	754	754
High Risk Interface						
Contact with workers harvesting crops	0	10	10	10	10	10
In or near human dwelling(s)	0	1367	1286	1286	1286	1286
For sale in medium market (5-20 vendors)	0	101	61	61	61	61
For sale in small market (< 5 vendors)	0	50	24	24	24	24
Hunted	0	8224	883	883	883	883
Public safety hazard (e.g. threat to humans)	0	17	17	17	17	17
Sanctuary	0	1036	621	618	618	618
Free-ranging	0	375	167	167	167	167
Wild animal farm	0	1	0	0	0	0
Zoo	0	11	1	1	1	1
Contact with researchers (other than PREDICT staff)	0	1	1	1	1	1
Contact with tourists/ecotourism	0	182	171	171	171	171
Other	0	19	19	19	19	19
Total	**0**	**11394**	**3261**	**3258**	**3258**	**3258**

PREDICT Test Findings (Q4Y5):

Cameroon						
Number of animals and samples submitted by taxa	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**

Bats (40 animals, 81 samples - Liver, Oral swab, Rectal swab, Spleen)	GVFI Cameroon	PCR	Adeno, Astro, Corona, Polyoma viruses	Products for sequencing for Adeno, Astro, Corona, Polyoma viruses	Interpretation Completed, Preparation of Report for Government in Progress.	No
Bats (289 animals, 643 samples - Liver, Oral swab, Plasma, Rectal swab, Spleen)	GVFI Cameroon	PCR	Adeno, Corona, Henipa, Paramyxo, Polyoma viruses	Products for sequencing for Adeno, Corona, Paramyxo, Polyoma viruses	Adenoviruses: 1) A new Adenovirus, PREDICT_AdV-28, was found in 3 Franquet's epauletted bat (Epomops franqueti). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Adenovirus, PREDICT_AdV-29, was found in 1 Franquet's epauletted bat (Epomops franqueti). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Adenovirus, PREDICT_AdV-29, was found in 3 Woermann's fruit bat (Megaloglossus woermanni). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Adenovirus, PREDICT_AdV-30, was found in 1 Egyptian fruit bat (Rousettus aegyptiacus). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Adenovirus, PREDICT_AdV-33, was found in 3 Mouselike pipistrelle (Pipistrellus musciculus). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Adenovirus, PREDICT_AdV-34, was found in 3 White-winged serotine (Eptesicus tenuipinnis). There is no evidence at this time to suggest this virus poses a threat to human health. 7) A new Adenovirus, PREDICT_AdV-35,	Yes

					was found in 1 Cyclops roundleaf bat (Hipposideros cyclops). There is no evidence at this time to suggest this virus poses a threat to human health. 8) A new Adenovirus, PREDICT_AdV-35, was found in 2 Halcyon Horseshoe Bat (Rhinolophus alcyone). There is no evidence at this time to suggest this virus poses a threat to human health. 9) A new Adenovirus, PREDICT_AdV-35, was found in 1 Lander's horseshoe bat (Rhinolophus landeri). There is no evidence at this time to suggest this virus poses a threat to human health. 10) A new Adenovirus, PREDICT_AdV-36, was found in 3 Sundevall's Roundleaf bat (Hipposideros caffer). There is no evidence at this time to suggest this virus poses a threat to human health. 11) A new Adenovirus, PREDICT_AdV-37, was found in 1 Little wrinkle-lipped bat (Chaerephon pumila). There is no evidence at this time to suggest this virus poses a threat to human health. 12) A new Adenovirus, PREDICT_AdV-37, was found in 1 Mongalla free-tailed Bat (Mops demonstrator). There is no evidence at this time to suggest this virus poses a threat to human health. 13) A new Adenovirus, PREDICT_AdV-38, was found in 8 Cyclops roundleaf bat (Hipposideros cyclops). There is no evidence at this time to suggest this virus poses a threat to human health. 14) A new Adenovirus, PREDICT_AdV-38, was found in 1 Peter's dwarf epauletted fruit bat (Micropteropus pusillus). There is	

					no evidence at this time to suggest this virus poses a threat to human health. 15) A new Adenovirus, PREDICT_AdV-38, was found in 1 Woermann's fruit bat (Megaloglossus woermanni). There is no evidence at this time to suggest this virus poses a threat to human health. 16) A new Adenovirus, PREDICT_AdV-39, was found in 1 Cyclops roundleaf bat (Hipposideros cyclops). There is no evidence at this time to suggest this virus poses a threat to human health. 17) A new Adenovirus, PREDICT_AdV-40, was found in 1 Commerson's leaf-nosed bat (Hipposideros commersoni). There is no evidence at this time to suggest this virus poses a threat to human health. 18) A new Adenovirus, PREDICT_AdV-41, was found in 1 Commerson's leaf-nosed bat (Hipposideros commersoni). There is no evidence at this time to suggest this virus poses a threat to human health. 19) A new Adenovirus, PREDICT_AdV-41, was found in 1 Leaf-nosed bat (Hipposideros gigas). There is no evidence at this time to suggest this virus poses a threat to human health. 20) A new Adenovirus, PREDICT_AdV-42, was found in 1 Lander's horseshoe bat (Rhinolophus landeri). There is no evidence at this time to suggest this virus poses a threat to human health. 21) A new Adenovirus, PREDICT_AdV-48, was found in 4 Sundevall's Roundleaf bat (Hipposideros caffer). There is no evidence at this time to suggest this virus poses a threat to human health.	

					22) A new Adenovirus, PREDICT_AdV-49, was found in 6 Sundevall's Roundleaf bat (Hipposideros caffer). There is no evidence at this time to suggest this virus poses a threat to human health. 23) A new Adenovirus, PREDICT_AdV-50, was found in 3 Sundevall's Roundleaf bat (Hipposideros caffer). There is no evidence at this time to suggest this virus poses a threat to human health. 24) A new Adenovirus, PREDICT_AdV-53, was found in 1 Egyptian fruit bat (Rousettus aegyptiacus). There is no evidence at this time to suggest this virus poses a threat to human health. 25) A new Adenovirus, PREDICT_AdV-54, was found in 2 Egyptian fruit bat (Rousettus aegyptiacus). There is no evidence at this time to suggest this virus poses a threat to human health. 26) A new Adenovirus, PREDICT_AdV-56, was found in 1 White-Winged Serotine (Eptesicus tenuipinnis). There is no evidence at this time to suggest this virus poses a threat to human health. 27) A new Adenovirus, PREDICT_AdV-57, was found in 1 Hairy slit-faced bat (Nycteris hispida). There is no evidence at this time to suggest this virus poses a threat to human health. 28) A new Adenovirus, PREDICT_AdV-58, was found in 2 Angolan free-tailed bat (Mops condylurus). There is no evidence at this time to suggest this virus poses a threat to human health. 29) A new Adenovirus, PREDICT_AdV-59,	

					was found in 1 Angolan free-tailed bat (Mops condylurus). There is no evidence at this time to suggest this virus poses a threat to human health. 30) A new Adenovirus, PREDICT_AdV-60, was found in 1 Rüppell's horseshoe bat (Rhinolophus fumigatus). There is no evidence at this time to suggest this virus poses a threat to human health. 31) A new Adenovirus, PREDICT_AdV-61, was found in 1 Angolan rousette (Rousettus angolensis). There is no evidence at this time to suggest this virus poses a threat to human health. 32) A new Adenovirus, PREDICT_AdV-62, was found in 1 White-Winged Serotine (Eptesicus tenuipinnis). There is no evidence at this time to suggest this virus poses a threat to human health. 33) A new Adenovirus, PREDICT_AdV-63, was found in 1 Straw-colored fruit bat (Eidolon helvum). There is no evidence at this time to suggest this virus poses a threat to human health. 34) A new Adenovirus, PREDICT_AdV-64, was found in 1 Halcyon Horseshoe Bat (Rhinolophus alcyone). There is no evidence at this time to suggest this virus poses a threat to human health. 35) A new Adenovirus, PREDICT_AdV-64, was found in 1 Lander's horseshoe bat (Rhinolophus landeri). There is no evidence at this time to suggest this virus poses a threat to human health. 36) A new Adenovirus, PREDICT_AdV-65, was found in 1 Egyptian fruit bat (Rousettus aegyptiacus). There is no	

					evidence at this time to suggest this virus poses a threat to human health. 37) A new Adenovirus, PREDICT_AdV-68, was found in 1 Cyclops roundleaf bat (Hipposideros cyclops). There is no evidence at this time to suggest this virus poses a threat to human health. 38) A strain of the known Adenovirus, Bat adenovirus isolate 1050597, was found in 1 Angolan rousette (Rousettus angolensis). There is no evidence at this time to suggest this virus poses a threat to human health. 39) A strain of the known Adenovirus, Bat adenovirus isolate 1050597, was found in 6 Egyptian fruit bat (Rousettus aegyptiacus). There is no evidence at this time to suggest this virus poses a threat to human health. 40) A strain of the known Adenovirus, Bat adenovirus isolate 1050597, was found in 2 Franquet's epauletted bat (Epomops franqueti). There is no evidence at this time to suggest this virus poses a threat to human health. 41) A strain of the known Adenovirus, Bat adenovirus isolate 1050597, was found in 1 Gambian epauletted fruit bat (Epomophorus gambianus). There is no evidence at this time to suggest this virus poses a threat to human health. 42) A strain of the known Adenovirus, Bat adenovirus isolate 1050597, was found in 1 Hammer-headed fruit bat (Hypsignathus monstrosus). There is no evidence at this time to suggest this virus poses a threat to human health.	

					43) A strain of the known Adenovirus, Bat adenovirus isolate 1050597, was found in 8 Woermann's fruit bat (Megaloglossus woermanni). There is no evidence at this time to suggest this virus poses a threat to human health. Coronaviruses: 1) A new Coronavirus, PREDICT_CoV-30, was found in 1 Angolan free-tailed bat (Mops condylurus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Coronavirus, PREDICT_CoV-30, was found in 1 Egyptian fruit bat (Rousettus aegyptiacus). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Coronavirus, PREDICT_CoV-30, was found in 1 Franquet's epauletted bat (Epomops franqueti). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Coronavirus, PREDICT_CoV-30, was found in 5 Woermann's fruit bat (Megaloglossus woermanni). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Coronavirus, PREDICT_CoV-32, was found in 1 SUNDEVALL'S ROUNDLEAF BAT (Hipposideros caffer). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Coronavirus, PREDICT_CoV-33, was found in 1 Nut-colored yellow bat (Scotophilus nux). There is no evidence at this time to suggest this virus poses a threat to human health.	

					7) A new Coronavirus, PREDICT_CoV-35, was found in 1 Angolan free-tailed bat (Mops condylurus). There is no evidence at this time to suggest this virus poses a threat to human health. 8) A new Coronavirus, PREDICT_CoV-35, was found in 7 White-bellied yellow bat (Scotophilus leucogaster). There is no evidence at this time to suggest this virus poses a threat to human health. 9) A strain of the known Coronavirus, Bat Coronavirus HKU9, was found in 1 Egyptian fruit bat (Rousettus aegyptiacus). There is no evidence at this time to suggest this virus poses a threat to human health. 10) A strain of the known Coronavirus, Bat Coronavirus HKU9, was found in 1 Straw-colored fruit bat (Eidolon helvum). There is no evidence at this time to suggest this virus poses a threat to human health. 11) A strain of the known Coronavirus, Chaerephon Bat coronavirus/Kenya/KY22/2006, was found in 1 Aellen's pipistrelle (Pipistrellus inexspectatus). There is no evidence at this time to suggest this virus poses a threat to human health. 12) A strain of the known Coronavirus, Chaerephon Bat coronavirus/Kenya/KY22/2006, was found in 11 Angolan free-tailed bat (Mops condylurus). There is no evidence at this time to suggest this virus poses a threat to human health. 13) A strain of the known Coronavirus, Chaerephon Bat	

					coronavirus/Kenya/KY22/2006, was found in 3 Gambian epauletted fruit bat (Epomophorus gambianus). There is no evidence at this time to suggest this virus poses a threat to human health. 14) A strain of the known Coronavirus, Chaerephon Bat coronavirus/Kenya/KY22/2006, was found in 1 Peter's dwarf epauletted fruit bat (Micropteropus pusillus). There is no evidence at this time to suggest this virus poses a threat to human health. 15) A strain of the known Coronavirus, Chaerephon Bat coronavirus/Kenya/KY22/2006, was found in 2 Straw-colored fruit bat (Eidolon helvum). There is no evidence at this time to suggest this virus poses a threat to human health. 16) A strain of the known Coronavirus, Chaerephon Bat coronavirus/Kenya/KY22/2006, was found in 1 White-bellied yellow bat (Scotophilus leucogaster). There is no evidence at this time to suggest this virus poses a threat to human health. 17) A strain of the known Coronavirus, Chaerephon Bat coronavirus/Kenya/KY22/2006, was found in 1 Woermann's fruit bat (Megaloglossus woermanni). There is no evidence at this time to suggest this virus poses a threat to human health. 18) A strain of the known Coronavirus, Eidelon bat Coronavirus, was found in 1 African yellow bat (Scotophilus dinganii). There is no evidence at this time to suggest this virus poses a threat to human health.	

					19) A strain of the known Coronavirus, Eidelon bat Coronavirus, was found in 1 Angolan free-tailed bat (Mops condylurus). There is no evidence at this time to suggest this virus poses a threat to human health. 20) A strain of the known Coronavirus, Eidelon bat Coronavirus, was found in 1 Egyptian fruit bat (Rousettus aegyptiacus). There is no evidence at this time to suggest this virus poses a threat to human health. 21) A strain of the known Coronavirus, Eidelon bat Coronavirus, was found in 9 Straw-colored fruit bat (Eidolon helvum). There is no evidence at this time to suggest this virus poses a threat to human health. 22) A strain of the known Coronavirus, Human Coronavirus 229E, was found in 1 Sundevall's Roundleaf bat (Hipposideros caffer). This is a strain of the known alphacoronavirus Human Coronavirus 229E (Accession Number NC_002645) found in bats. This human 229E virus is known to cause respiratory illness in people. 23) A strain of the known Coronavirus, Kenya/BtKY56/BtKY55, was found in 2 Franquet's epauletted bat (Epomops franqueti). There is no evidence at this time to suggest this virus poses a threat to human health. 24) A strain of the known Coronavirus, Kenya/BtKY56/BtKY55, was found in 9 Gambian epauletted fruit bat (Epomophorus gambianus). There is no evidence at this time to suggest this virus	

					poses a threat to human health. 25) A strain of the known Coronavirus, Kenya/BtKY56/BtKY55, was found in 5 Peter's dwarf epauletted fruit bat (Micropteropus pusillus). There is no evidence at this time to suggest this virus poses a threat to human health. 26) A strain of the known Coronavirus, Kenya/BtKY56/BtKY55, was found in 1 White-bellied yellow bat (Scotophilus leucogaster). There is no evidence at this time to suggest this virus poses a threat to human health. Paramyxoviruses: 1) A new Paramyxovirus, PREDICT_PMV-15, was found in 1 Angolan free-tailed bat (Mops condylurus). There is no evidence at this time to suggest this virus poses a threat to human health. Polyomaviruses: 1) A new Polyomavirus, PREDICT_PyV-10, was found in 5 Egyptian fruit bat (Rousettus aegyptiacus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Polyomavirus, PREDICT_PyV-11, was found in 2 Sundevall's Roundleaf bat (Hipposideros caffer). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Polyomavirus, PREDICT_PyV-12, was found in 14 Sundevall's Roundleaf bat (Hipposideros caffer). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Polyomavirus, PREDICT_PyV-	

					13, was found in 3 Sundevall's Roundleaf bat (Hipposideros caffer). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Polyomavirus, PREDICT_PyV-14, was found in 1 Egyptian fruit bat (Rousettus aegyptiacus). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Polyomavirus, PREDICT_PyV-14, was found in 27 Sundevall's Roundleaf bat (Hipposideros caffer). There is no evidence at this time to suggest this virus poses a threat to human health. 7) A new Polyomavirus, PREDICT_PyV-15, was found in 1 Greater long-fingered bat (Miniopterus inflatus). There is no evidence at this time to suggest this virus poses a threat to human health. 8) A new Polyomavirus, PREDICT_PyV-16, was found in 1 Egyptian fruit bat (Rousettus aegyptiacus). There is no evidence at this time to suggest this virus poses a threat to human health. 9) A new Polyomavirus, PREDICT_PyV-16, was found in 3 Lander's horseshoe bat (Rhinolophus landeri). There is no evidence at this time to suggest this virus poses a threat to human health. 10) A new Polyomavirus, PREDICT_PyV-17, was found in 8 Cyclops roundleaf bat (Hipposideros cyclops). There is no evidence at this time to suggest this virus poses a threat to human health. 11) A new Polyomavirus, PREDICT_PyV-18, was found in 1 Mouselike pipistrelle (Pipistrellus musciculus). There is no	

					evidence at this time to suggest this virus poses a threat to human health. 12) A new Polyomavirus, PREDICT_PyV-19, was found in 1 White-Winged Serotine (Eptesicus tenuipinnis). There is no evidence at this time to suggest this virus poses a threat to human health. 13) A new Polyomavirus, PREDICT_PyV-20, was found in 1 Large slit-faced bat (Nycteris grandis). There is no evidence at this time to suggest this virus poses a threat to human health. 14) A new Polyomavirus, PREDICT_PyV-21, was found in 3 Lander's horseshoe bat (Rhinolophus landeri). There is no evidence at this time to suggest this virus poses a threat to human health. 15) A new Polyomavirus, PREDICT_PyV-22, was found in 2 Egyptian fruit bat (Rousettus aegyptiacus). There is no evidence at this time to suggest this virus poses a threat to human health. 16) A new Polyomavirus, PREDICT_PyV-23, was found in 1 Egyptian fruit bat (Rousettus aegyptiacus). There is no evidence at this time to suggest this virus poses a threat to human health. 17) A new Polyomavirus, PREDICT_PyV-24, was found in 3 Egyptian fruit bat (Rousettus aegyptiacus). There is no evidence at this time to suggest this virus poses a threat to human health. 18) A new Polyomavirus, PREDICT_PyV-25, was found in 2 Egyptian fruit bat (Rousettus aegyptiacus). There is no evidence at this time to suggest this virus poses a threat to human health.	

					19) A new Polyomavirus, PREDICT_PyV-26, was found in 1 Egyptian fruit bat (Rousettus aegyptiacus). There is no evidence at this time to suggest this virus poses a threat to human health. 20) A new Polyomavirus, PREDICT_PyV-26, was found in 1 Franquet's epauletted bat (Epomops franqueti). There is no evidence at this time to suggest this virus poses a threat to human health. 21) A new Polyomavirus, PREDICT_PyV-27 , was found in 1 Egyptian fruit bat (Rousettus aegyptiacus). There is no evidence at this time to suggest this virus poses a threat to human health. 22) A new Polyomavirus, PREDICT_PyV-29, was found in 1 Sundevall's Roundleaf bat (Hipposideros caffer). There is no evidence at this time to suggest this virus poses a threat to human health. 23) A new Polyomavirus, PREDICT_PyV-33, was found in 1 Angolan rousette (Rousettus angolensis). There is no evidence at this time to suggest this virus poses a threat to human health. 24) A new Polyomavirus, PREDICT_PyV-38, was found in 1 Lander's horseshoe bat (Rhinolophus landeri). There is no evidence at this time to suggest this virus poses a threat to human health. 25) A new Polyomavirus, PREDICT_PyV-8, was found in 1 Dja slit-faced bat (Nycteris major). There is no evidence at this time to suggest this virus poses a threat to human health.	

					26) A new Polyomavirus, PREDICT_PyV-8, was found in 3 Large slit-faced bat (Nycteris grandis). There is no evidence at this time to suggest this virus poses a threat to human health. 27) A new Polyomavirus, PREDICT_PyV-9, was found in 1 Sundevall's Roundleaf bat (Hipposideros caffer). There is no evidence at this time to suggest this virus poses a threat to human health. 28) The known bat Polyomavirus, Chaerephon Polyomavirus 1, was found in 1 Angolan free-tailed bat (Mops condylurus). There is no evidence at this time to suggest this virus poses a threat to human health.	
Rodents & Shrews (6 animals, 21 samples - Blood drop, Colon, Kidney, Liver, Lung, Oral swab, Rectal swab, Small intestine, Spleen)	GVFI Cameroon	PCR	Adeno, Entero, Herpes, Orthopox, Pox viruses	Products for sequencing for Adeno, Entero, Herpes, Orthopox viruses	Interpretation Completed, Preparation of Report for Government in Progress for Adeno, Entero and Herpes viruses. Interpretation pending for Orthopoxvirus	No
Rodents & Shrews (53 animals, 103 samples - Blood (whole), Blood drop, Liver, Oral swab, Rectal swab, Spleen)	GVFI Cameroon	PCR	Adeno, Corona, Herpes, Pox viruses	Products for sequencing for Adeno, Herpes viruses	Adenoviruses: 1) A new Adenovirus, PREDICT_AdV-17, was found in 1 Marsh cane-rat (Thryonomys swinderianus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Adenovirus, PREDICT_AdV-17, was found in 1 Rusty-bellied brush-furred rat (Lophuromys sikapusi). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Adenovirus, PREDICT_AdV-18, was found in 2 Unidentified shrew within the Soricidae family (Soricidae sp.). There is no evidence at this time to suggest this	Yes

					virus poses a threat to human health. 4) A new Adenovirus, PREDICT_AdV-19, was found in 1 Unidentified soft-furred mouse within the praomys genus of rodents (Praomys sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Adenovirus, PREDICT_AdV-20, was found in 1 House mouse (Mus musculus). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Adenovirus, PREDICT_AdV-21, was found in 2 Unidentified soft-furred mouse within the praomys genus of rodents (Praomys sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 7) A new Adenovirus, PREDICT_AdV-22, was found in 2 Shaggy swamp rat (Dasymys rufulus). There is no evidence at this time to suggest this virus poses a threat to human health. 8) A new Adenovirus, PREDICT_AdV-22, was found in 1 Unidentified rodent within the Mus genus (Mus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 9) A new Adenovirus, PREDICT_AdV-23, was found in 1 Kemp's gerbil (Tatera kempi). There is no evidence at this time to suggest this virus poses a threat to human health. 10) A new Adenovirus, PREDICT_AdV-24, was found in 6 Fire-bellied brush-furred rat (Lophuromys nudicaudus). There is no evidence at this time to suggest this virus	

					poses a threat to human health. 11) A new Adenovirus, PREDICT_AdV-24, was found in 1 White-bellied brush-furred rat (Uranomys ruddi). There is no evidence at this time to suggest this virus poses a threat to human health. 12) A new Adenovirus, PREDICT_AdV-25, was found in 2 Unidentified soft-furred mouse within the praomys genus of rodents (Praomys sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 13) A new Adenovirus, PREDICT_AdV-44, was found in 2 Shaggy swamp rat (Dasymys rufulus). There is no evidence at this time to suggest this virus poses a threat to human health. 14) A new Adenovirus, PREDICT_AdV-44, was found in 1 Unidentified soft-furred mouse within the praomys genus of rodents (Praomys sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 15) A new Adenovirus, PREDICT_AdV-45, was found in 2 Unidentified rodent within the Muridae family (Muridae sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 16) A new Adenovirus, PREDICT_AdV-46, was found in 1 Big-eared swamp rat (Malacomys longipes). There is no evidence at this time to suggest this virus poses a threat to human health. 17) A new Adenovirus, PREDICT_AdV-51, was found in 1 Shaggy swamp rat (Dasymys rufulus). There is no evidence at this time to suggest this virus poses a	

					threat to human health. 18) A new Adenovirus, PREDICT_AdV-74, was found in 1 House mouse (Mus musculus). There is no evidence at this time to suggest this virus poses a threat to human health. Herpesviruses: 1) A new Herpesvirus, PREDICT_HV-44, was found in 1 Unidentified shrew within the Soricidae family (Soricidae sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Herpesvirus, PREDICT_HV-46, was found in 1 Unidentified shrew within the Soricidae family (Soricidae sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Herpesvirus, PREDICT_HV-47, was found in 3 Unidentified shrew within the Soricidae family (Soricidae sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Herpesvirus, PREDICT_HV-48, was found in 1 Unidentified shrew within the Soricidae family (Soricidae sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Herpesvirus, PREDICT_HV-49, was found in 1 Unidentified shrew within the Soricidae family (Soricidae sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 7) The known Herpesvirus, Murid Herpesvirus 1, was found in 1 House mouse (Mus musculus). There is no evidence at this time to suggest this virus poses a threat to human health.	

Non-human Primates (106 animals, 117 samples - Blood drop, Buffy coat, Liver, Muscle, Oral swab, Rectal swab, Skin, Spleen)	GVFI Cameroon	PCR	Alpha, Arena, Boca, Bunya, Corona, Filo, Flavi, Herpes, Influenzas, Paramyxo, Pox, Simian Foamy viruses	Products for sequencing for Alpha, Boca, Herpes viruses	Alphaviruses: 1) The known Alphavirus, Chikungunya virus, was found in 1 Sacred baboon (Papio hamadryas). This is the known Alphavirus Chikungunya virus found in a baboon. Chikungunya is a viral disease that is transmitted to people by mosquitoes and can cause fever and severe joint pain. Most patients feel better within a week following onset of illness. Bocaviruses: 1) The known Bocavirus, Gorilla Bocavirus-1, was found in 1 Gorilla (Gorilla gorilla). There is no evidence at this time to suggest this virus poses a threat to human health. Herpesviruses: 1) A strain of the known Herpesvirus, Papiine Herpesvirus 1, was found in 1 Mandrill (Mandrillus sphinx). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A strain of the known Herpesvirus, Papiine Herpesvirus 1, was found in 2 Mona monkey (Cercopithecus mona). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A strain of the known Herpesvirus, Papiine Herpesvirus 1, was found in 1 Patas monkey (Erythrocebus patas). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A strain of the known Herpesvirus, Papiine Herpesvirus 1, was found in 1 Preuss's monkey (Cercopithecus preussi). There is no evidence at this time to suggest this virus poses a threat to human health.	Yes

					5) A strain of the known Herpesvirus, Papiine Herpesvirus 1, was found in 5 Sacred baboon (Papio hamadryas). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A strain of the known Herpesvirus, Papiine Herpesvirus 1, was found in 2 Tantalus monkey (Cercopithecus tantalus). There is no evidence at this time to suggest this virus poses a threat to human health. 7) A new Herpesvirus, PREDICT_HV-22, was found in 1 Greater spot-nosed monkey (Cercopithecus nictitans). There is no evidence at this time to suggest this virus poses a threat to human health. 8) A new Herpesvirus, PREDICT_HV-22, was found in 4 Preuss's monkey (Cercopithecus preussi). There is no evidence at this time to suggest this virus poses a threat to human health. 9) A new Herpesvirus, PREDICT_HV-27, was found in 1 Preuss's monkey (Cercopithecus preussi). There is no evidence at this time to suggest this virus poses a threat to human health. 10) A new Herpesvirus, PREDICT_HV-27, was found in 1 Sacred baboon (Papio hamadryas). There is no evidence at this time to suggest this virus poses a threat to human health. 11) A strain of the known Herpesvirus, Cercopithecine herpesvirus 12, was found in 1 Tantalus monkey (Cercopithecus tantalus). There is no evidence at this time to suggest this virus poses a threat to human health.	

					12) A strain of the known Herpesvirus, Gorilla lymphocryptovirus 1, was found in 30 Common chimpanzee (Pan troglodytes). There is no evidence at this time to suggest this virus poses a threat to human health. 13) A strain of the known Herpesvirus, Gorilla lymphocryptovirus 1, was found in 3 Gorilla (Gorilla gorilla). There is no evidence at this time to suggest this virus poses a threat to human health.	
Non-human Primates (1 animals, 1 samples - Buffy coat)	GVFI Cameroon	PCR	Herpes viruses	All negative		No

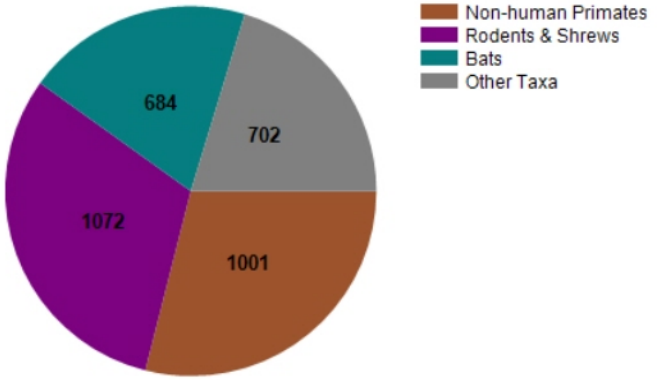
USAID FROM THE AMERICAN PEOPLE | PREDICT

PREDICT Sampling and Testing in Congo, Democratic Republic Of

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

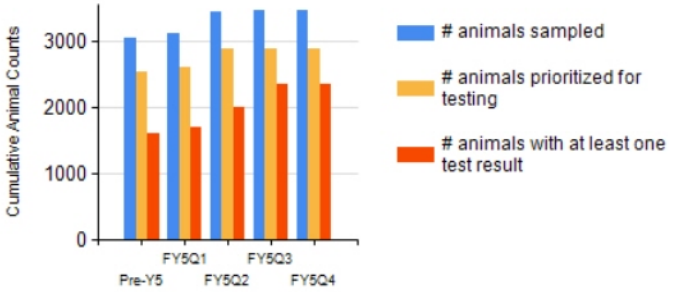
Sampling Locations

Number of Animals Sampled

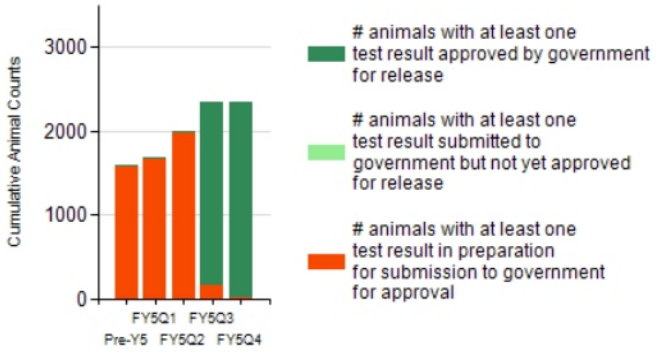


Sampling and Testing Progress

The chart does not necessarily include the samples prioritized for testing from animals for which we will attempt to sample, but for which those samples are not yet collected



Test Results Reporting Progress



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DEMOCRATIC REPUBLIC OF CONGO

- **Significant Highlights, Results, and Success Stories:**
  - Tested the first human samples from suspected cases of VHF from Boende, Equator province, DRC at the project laboratory. Two of the eight samples tested positive and were confirmed by sequencing for Ebola Zaire using PREDICT protocols. These results allowed the DRC Government to officially declare the Ebola Outbreak and to set up an outbreak response plan.
  - Submitted the Ebola positive sequences from the Boende outbreak to the Genbank database.
  - Project laboratory staff were included as members of the scientific and laboratory committee of the National Commission for Ebola Outbreak Response.
  - Continued to assist in VHF outbreak activities by testing samples of suspected cases from all over the country.
  - Supported the Boende Ebola outbreak response by providing a PCR machine for the field mobile laboratory (SmartCycler) and other materials and consumables (gloves, biohazard bags, etc.).
  - Trained two staff members from the Republic of Congo on the PREDICT laboratory protocols
  - Supported training of an engineer from INRB on the maintenance of the Liquid Nitrogen generator to enable sustainable maintenance.
  - The project laboratory manager attended the WHO training session on the shipment of dangerous goods on August 18-21 in Brazzaville, Republic of Congo.
  - Two project staff members attended the PREDICT review meeting in Brazzaville, Republic of Congo, which was attended by various Ministries, the US Ambassador, and other government partners.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	0	684	678	661	661	661
Non-human Primates	6	1001	844	793	793	779
Other Taxa	0	702	446	17	17	17
Rodents & Shrews	0	1072	919	901	901	901

PREDICT Quarter 4 Year 5 Reporting

High Risk Interface						
Contact with workers harvesting crops	0	14	14	14	14	14
In or near human dwelling(s)	0	465	461	445	445	445
For sale in large market (> 20 vendors)	0	59	53	43	43	43
For sale in small market (< 5 vendors)	0	6	6	6	6	6
Hunted	1	2376	1882	1385	1385	1384
Private wildlife collection or pet	0	31	17	25	25	25
Raiding crops	0	1	0	0	0	0
Temporary holding facility	0	1	1	1	1	0
Sanctuary	1	219	190	187	187	179
Zoo	0	38	38	38	38	38
Contact with park personnel/intensive wildlife management area	4	17	3	1	1	0
Contact with tourists/ecotourism	0	120	110	115	115	112
Other	0	112	112	112	112	112
Total	**6**	**3459**	**2887**	**2372**	**2372**	**2358**

PREDICT Test Findings (Q4Y5):

Congo, Democratic Republic Of						
Number of animals and samples submitted by taxa	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Rodents & Shrews (64 animals, 96 samples - Blood drop, Colon,	INRB	PCR	Adeno, Alpha, Arena, Corona, Hanta, Herpes, Polyoma viruses	Products for sequencing for Adeno,	Adenoviruses: 1) A new Adenovirus, PREDICT_AdV-76, was found in 1 Defua rat (Dephomys defua). There	Yes

Liver, Oral swab, Rectal swab, Spleen)				Polyoma viruses	is no evidence at this time to suggest this virus poses a threat to human health. 2) A strain of the known Adenovirus, Murine adenovirus 2, was found in 1 Big-eared swamp rat (Malacomys longipes). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A strain of the known Adenovirus, Murine adenovirus 2, was found in 1 Giant pouched rat (Cricetomys emini). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A strain of the known Adenovirus, Murine adenovirus 2, was found in 2 Unidentified member of the Rodentia order (Rodentia sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A strain of the known Adenovirus, Murine adenovirus 2, was found in 1 Unidentified rat within the cricetomys genus (Cricetomys sp.). There is no evidence at this time to suggest this virus poses a threat to human health. Polyomaviruses: 1) A new Polyomavirus, PREDICT_PyV-28, was found in 5 Gambian sun squirrel (Heliosciurus gambianus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Polyomavirus, PREDICT_PyV-30, was found in 1 Marsh cane-rat (Thryonomys swinderianus). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Polyomavirus, PREDICT_PyV-32, was found in 1 Unidentified rat within the cricetomys genus (Cricetomys sp.). There is no evidence at this time to suggest this virus	

					poses a threat to human health. 4) A new Polyomavirus, PREDICT_PyV-34, was found in 1 Unidentified broad-footed thicket rat within the thamnomys genus (Thamnomys). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Polyomavirus, PREDICT_PyV-34, was found in 5 Unidentified rodent in the Thryonomys genus (Thryonomys sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Polyomavirus, PREDICT_PyV-35, was found in 1 Fire-footed rope squirrel (Funisciurus pyrropus). There is no evidence at this time to suggest this virus poses a threat to human health. 7) A new Polyomavirus, PREDICT_PyV-36, was found in 2 Unidentified rat within the cricetomys genus (Cricetomys sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 8) A new Polyomavirus, PREDICT_PyV-37, was found in 1 Unidentified member of the Rodentia order (Rodentia sp.). There is no evidence at this time to suggest this virus poses a threat to human health.	
Ungulates (1 animals, 1 samples - Blood drop)	INRB	PCR	Adeno viruses	All negative		Yes
Non-human Primates (56 animals, 57 samples - Blood drop, Buffy coat, Feces, Oral swab, Rectal swab)	INRB	PCR	Astro, Corona, Entero, Herpes, Retrovirus - Lentivirus genus viruses	Products for sequencing for Astro, Entero, Herpes, viruses	Enteroviruses: 1) A strain of the known Enterovirus, Human Enterovirus B, was found in 5 Common chimpanzee (Pan troglodytes). This is a strain of the known enterovirus, Human Enterovirus B, found in a chimpanzee. Enteroviruses are common human pathogens that can cause a wide range of disease, from mild respiratory illness to central nervous system disease. PREDICT investigators are currently further	Yes

					characterizing this virus. 2) A strain of the known Enterovirus, Human Enterovirus C, was found in 10 Common chimpanzee (Pan troglodytes). This is a strain of the known enterovirus, Human Enterovirus C, found in a chimpanzee. Enteroviruses are common human pathogens that can cause a wide range of disease, from mild respiratory illness to central nervous system disease. PREDICT investigators are currently further characterizing this virus. Sequencing pending for Astro, Herpes viruses	
Non-human Primates (278 animals, 290 samples - Blood drop, Buffy coat, Colon, Feces, Liver, Lung, Oral swab, Rectal swab, Spleen)	INRB	PCR	Boca, Corona, Entero, Henipa, Herpes, Orthopox, Pox, Simian Foamy viruses	Product for sequencing for Entero, Herpes, Simian Foamy viruses	Interpretation Completed, Preparation of Report for Government in Progress.	No
Rodents & Shrews (41 animals, 66 samples - Blood drop, Liver, Oral swab, Rectal swab, Spleen)	INRB	PCR	Boca, Bunya, Hanta, Herpes, Orthopox, Paramyxo, Polyoma, Pox, Rhabdo viruses	Products for sequencing for Herpes, Polyoma viruses	Interpretation Completed, Preparation of Report for Government in Progress.	No
Bats (54 animals, 104 samples - Oral swab, Rectal swab)	INRB	PCR	Corona, Hanta, Henipa, Rhabdo viruses	All negative		No
Bats (8 animals, 11 samples - Liver, Oral swab, Rectal swab, Spleen)	INRB	PCR	Corona, Hanta viruses	Products for sequencing detected for Coronaviruses	Coronaviruses: 1) A strain of the known Coronavirus, Kenya/BtKY56/BtKY55, was found in 2 Peter's dwarf epauletted fruit bat (Micropteropus pusillus). There is no evidence at this time to suggest this virus poses a threat to human health.	Yes
Ungulates (1 animals, 1 samples - Oral swab)	INRB	PCR	Paramyxo viruses	All negative		No

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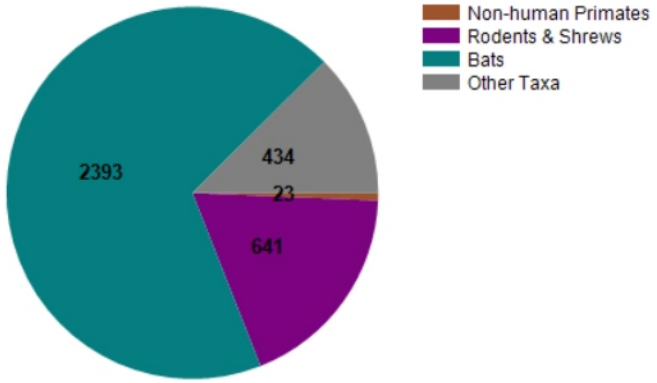
PREDICT Sampling and Testing in Gabon

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

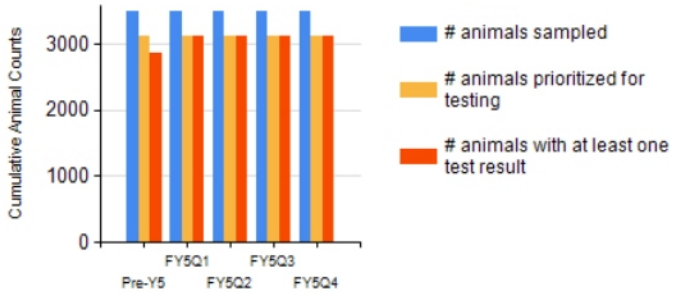
Sampling Locations

Number of Animals Sampled

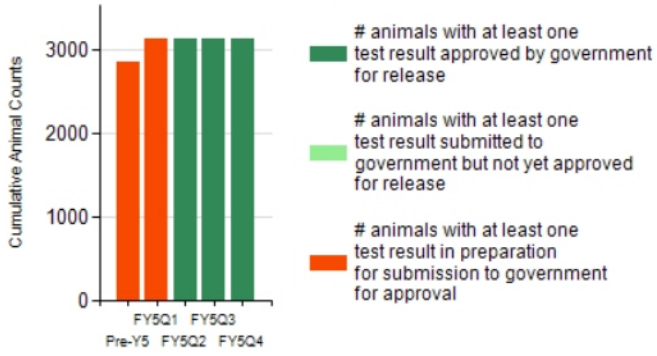


Sampling and Testing Progress

The chart does not necessarily include the samples prioritized for testing from animals for which we will attempt to sample, but for which those samples are not yet collected



Test Results Reporting Progress



For information purposes only - no action required

PREDICT Quarter 4 Year 5 Reporting

GABON

- **Significant Highlights, Results, and Success Stories:**
  - Completed all viral family testing and confirmed results via cloning and sequencing.
  - All results submitted to government partners in the Ministry of Health and the Ministry of Water and Forest were approved for public release.
  - Supported confirmatory testing for Ebola Zaire virus during the current DRC outbreak.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	0	2393	2034	2034	2034	2034
Non-human Primates	0	23	23	23	23	23
Other Taxa	0	434	433	433	433	433
Rodents & Shrews	0	641	637	637	637	637
High Risk Interface						
In or near human dwelling(s)	0	397	396	396	396	396
Hunted	0	286	286	286	286	286
Free-ranging	0	15	15	15	15	15
Contact with park personnel/intensive wildlife management area	0	171	171	171	171	171
Contact with tourists/ecotourism	0	340	340	340	340	340
Other	0	2282	1919	1919	1919	1919
Total	**0**	**3491**	**3127**	**3127**	**3127**	**3127**

PREDICT Test Findings (Q4Y5):

Gabon						
Number of animals and	**Diagnostic**	**Diagnostics**	**Pathogen family genus**	**Results**	**Pathogen discovery**	**Approved by**

PREDICT Quarter 4 Year 5 Reporting

samples submitted by taxa	lab	method	screening or specific virus			government for release
Rodents & Shrews (113 animals, 171 samples - Feces, Oral swab)	CIRMF	PCR	Adeno, Astro, Herpes viruses	Products for sequencing for Adeno, Astro, Herpes viruses	Adenoviruses: 1) A new Adenovirus, PREDICT_AdV-73, was found in 5 House mouse (Mus musculoides). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Adenovirus, PREDICT_AdV-74, was found in 5 House mouse (Mus musculoides). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Adenovirus, PREDICT_AdV-75, was found in 1 African smoky mouse (Heimyscus fumosus). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Adenovirus, PREDICT_AdV-75, was found in 50 House mouse (Mus musculoides). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Adenovirus, PREDICT_AdV-75, was found in 12 Soft-furred rat (Praomys tullbergi). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Adenovirus, PREDICT_AdV-75, was found in 1 Stella wood mouse (Hylomyscus stella). There is no evidence at this time to suggest this virus poses a threat to human health. 7) A new Adenovirus, PREDICT_AdV-75, was found in 4 Unidentified rodent within the Hylomyscus genus of mice (Hylomyscus sp.). There is no evidence at this time to suggest this virus poses a	Yes

					threat to human health. 8) A new Adenovirus, PREDICT_AdV-75, was found in 1 Unidentified white-toothed shrew within the Crocidura genus (Crocidura sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 9) A new Adenovirus, PREDICT_AdV-75, was found in 1 wood mouse (Hylomyscus parvus). There is no evidence at this time to suggest this virus poses a threat to human health. Astroviruses: 1) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-110, was found in 2 African smoky mouse (Heimyscus fumosus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-110, was found in 1 Big-eared swamp rat (Malacomys longipes). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-110, was found in 1 Goliath Shrew (Crocidura goliath). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-110, was found in 65 House mouse (Mus musculoides). There is no evidence at this time to suggest this virus poses a threat to human health.	

					5) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-110, was found in 10 Soft-furred rat (Praomys tullbergi). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-110, was found in 1 Stella wood mouse (Hylomyscus stella). There is no evidence at this time to suggest this virus poses a threat to human health. 7) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-110, was found in 5 Unidentified rodent within the Hylomyscus genus of mice (Hylomyscus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 8) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-121, was found in 1 Goliath Shrew (Crocidura goliath). There is no evidence at this time to suggest this virus poses a threat to human health. 9) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-121, was found in 10 House mouse (Mus musculoides). There is no evidence at this time to suggest this virus poses a threat to human health. 10) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-121, was found in 3 Soft-furred rat (Praomys tullbergi). There is no evidence at this time to suggest this virus poses a threat to human health. Herpesviruses:	

					1) A new Herpesvirus, PREDICT_HV-49, was found in 1 House mouse (Mus musculoides). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Herpesvirus, PREDICT_HV-49, was found in 3 Soft-furred rat (Praomys tullbergi). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Herpesvirus, PREDICT_HV-99, was found in 1 Big-eared swamp rat (Malacomys longipes). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Herpesvirus, PREDICT_HV-99, was found in 2 House mouse (Mus musculoides). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Herpesvirus, PREDICT_HV-99, was found in 1 Soft-furred rat (Praomys tullbergi). There is no evidence at this time to suggest this virus poses a threat to human health.	
Bats (789 animals, 789 samples - liver | spleen, liver,spleen)	CIRMF	PCR	Arena, Bunya, Corona, Filo, Hanta, Henipa, Influenzas, Orthopox, Paramyxo, Parapox, Polyoma, Rhabdo viruses	Products for sequencing for Paramyxo, Polyoma viruses	Interpretation Completed, Preparation of Report for Government in Progress.	No
Rodents & Shrews (1 animals, 1 samples - Oral swab)	CIRMF	PCR	Herpes viruses	Product for sequencing for Herpes viruses	Interpretation Completed, Preparation of Report for Government in Progress.	No
Ungulates (9 animals, 9 samples - liver | spleen)	CIRMF	PCR	Orbi viruses	Products for sequencing for Orbi viruses	Orbiviruses: 1) A new Orbivirus, PREDICT_Orbi-2, was found in 3 Blue duiker (Cephalophus monticola). There is no evidence at this	Yes

					time to suggest this virus poses a threat to human health. 2) A new Orbivirus, PREDICT_Orbi-2, was found in 5 Peter's duiker (Cephalophus callipygus). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Orbivirus, PREDICT_Orbi-3, was found in 1 Red river hog (Potamochoerus porcus). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Orbivirus, PREDICT_Orbi-5, was found in 3 Blue duiker (Cephalophus monticola). There is no evidence at this time to suggest this virus poses a threat to human health.	
Other Mammals (5 animals, 5 samples - liver | spleen)	CIRMF	PCR	Orbi viruses	Products for sequencing for Orbi viruses	Orbiviruses: 1) A new Orbivirus, PREDICT_Orbi-4, was found in 5 White-bellied pangolin (Phatasginus tricuspis). There is no evidence at this time to suggest this virus poses a threat to human health.	Yes
Bats (32 animals, 32 samples - liver | spleen)	CIRMF	PCR	Polyoma viruses	Products for sequencing for Polyoma viruses	Polyomaviruses: 1) A new Polyomavirus, PREDICT_PyV-14, was found in 4 Leaf-nosed bat (Hipposideros gigas). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Polyomavirus, PREDICT_PyV-22, was found in 4 Greater long-fingered bat (Miniopterus inflatus). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Polyomavirus, PREDICT_PyV-23, was found in 5 Greater long-fingered bat (Miniopterus inflatus). There is no evidence at this time to suggest this virus poses a	Yes

					threat to human health. 4) A new Polyomavirus, PREDICT_PyV-25, was found in 4 Sundevall's roundleaf bat (Hipposideros caffer). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Polyomavirus, PREDICT_PyV-9, was found in 11 Egyptian fruit bat (Rousettus aegyptiacus). There is no evidence at this time to suggest this virus poses a threat to human health.	

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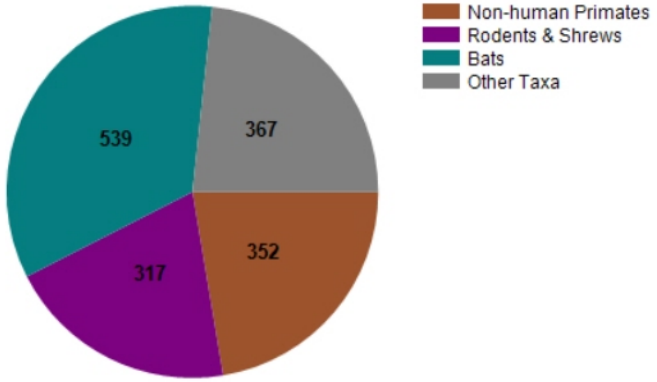
PREDICT Sampling and Testing in Congo, Republic Of

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

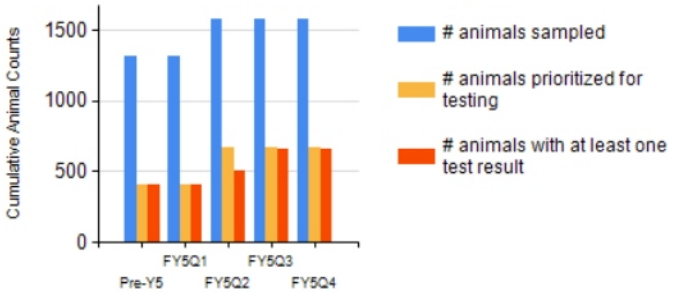
Sampling Locations

Number of Animals Sampled

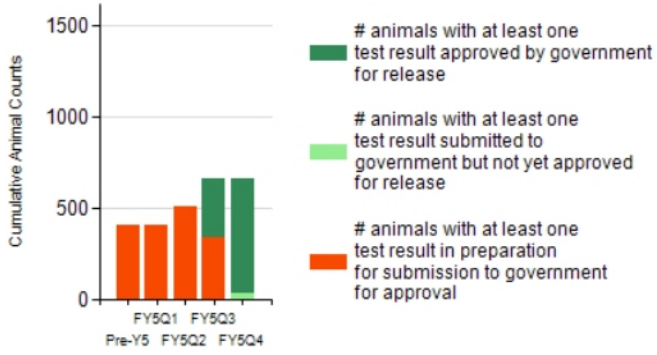


Sampling and Testing Progress

The chart does not necessarily include the samples prioritized for testing from animals for which we will attempt to sample, but for which those samples are not yet collected



Test Results Reporting Progress



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PREDICT Quarter 4 Year 5 Reporting

REPUBLIC OF CONGO

- **Significant Highlights, Results, and Success Stories:**
  - Organized and held a PREDICT closeout meeting on Sept 10th, attended by various ministries (research, agriculture, health, environment, etc.) and global PREDICT team members.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	0	539	212	212	212	212
Non-human Primates	0	352	253	253	253	253
Other Taxa	0	367	21	15	15	15
Rodents & Shrews	0	317	182	181	181	149
High Risk Interface						
In or near human dwelling(s)	0	166	148	148	148	129
For sale in large market (> 20 vendors)	0	113	113	107	107	98
For sale in medium market (5-20 vendors)	0	9	9	8	8	7
For sale in small market (< 5 vendors)	0	144	8	8	8	8
Hunted	0	427	77	77	77	77
Private wildlife collection or pet	0	4	4	4	4	1
Free-ranging	0	536	244	244	244	244
Contact with researchers (other than PREDICT staff)	0	42	21	21	21	21
Contact with tourists/ecotourism	0	1	0	0	0	0
Contact with workers in extractive	0	132	44	44	44	44

industry						
Other	0	1	0	0	0	0
Total	**0**	**1575**	**668**	**661**	**661**	**629**

PREDICT Test Findings (Q4Y5):

Congo, Republic Of						
Number of animals and samples submitted by taxa	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Bats (45 animals, 85 samples - Brain, Feces, Liver, Lung, Oral swab, Rectal swab)	UC Davis Wildlife Diagnostic Lab	PCR	Adeno, Arena, Astro, Bunya, Corona, Entero, Hanta, Henipa, Herpes, Influenzas, Lyssa, Orbi, Paramyxo, Parapox, Phlebo, Rhabdo, Seadorna viruses	Products for sequencing for Astro, Corona, Herpes, Orbi, Paramyxo, Phlebo, Rhabdo viruses	Astroviruses: 1) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-29, was found in 1 Greater long-fingered bat (Miniopterus inflatus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-30, was found in 1 Greater long-fingered bat (Miniopterus inflatus). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-31, was found in 1 Persian Trident Bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Astrovirus within the	Yes

					genus Mamastrovirus, PREDICT MAstV-32, was found in 1 Greater long-fingered bat (Miniopterus inflatus). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-33, was found in 1 Persian Trident Bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-34, was found in 1 Greater long-fingered bat (Miniopterus inflatus). There is no evidence at this time to suggest this virus poses a threat to human health. 7) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-35, was found in 1 Greater long-fingered bat (Miniopterus inflatus). There is no evidence at this time to suggest this virus poses a threat to human health. 8) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-36, was found in 1 Greater long-fingered bat (Miniopterus inflatus). There is no evidence at this time to suggest this virus poses a threat to human health. 9) A new Astrovirus within the genus Mamastrovirus, PREDICT	

					MAstV-37, was found in 1 Greater long-fingered bat (Miniopterus inflatus). There is no evidence at this time to suggest this virus poses a threat to human health. 10) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-38, was found in 1 Greater long-fingered bat (Miniopterus inflatus). There is no evidence at this time to suggest this virus poses a threat to human health. 11) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-39, was found in 1 Greater long-fingered bat (Miniopterus inflatus). There is no evidence at this time to suggest this virus poses a threat to human health. 12) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-40, was found in 1 Greater long-fingered bat (Miniopterus inflatus). There is no evidence at this time to suggest this virus poses a threat to human health. 13) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-41, was found in 1 Noack's roundleaf bat (Hipposideros ruber). There is no evidence at this time to suggest this virus poses a threat to human health. 14) A new Astrovirus within the	

					genus Mamastrovirus, PREDICT MAstV-42, was found in 1 Persian Trident Bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 15) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-43, was found in 1 Persian Trident Bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 16) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-44, was found in 1 Broad-headed pipistrelle (Hypsugo crassulus). There is no evidence at this time to suggest this virus poses a threat to human health. 17) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-45, was found in 1 Noack's roundleaf bat (Hipposideros ruber). There is no evidence at this time to suggest this virus poses a threat to human health. 18) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-45, was found in 1 Unidentified leaf-nosed bat within the Hipposideros genus (Hipposideros sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 19) A new Astrovirus within the genus Mamastrovirus, PREDICT	

					MAstV-46, was found in 1 Noack's roundleaf bat (Hipposideros ruber). There is no evidence at this time to suggest this virus poses a threat to human health. 20) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-47, was found in 1 Noack's roundleaf bat (Hipposideros ruber). There is no evidence at this time to suggest this virus poses a threat to human health. 21) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-48, was found in 1 Sundevall's roundleaf bat (Hipposideros caffer). There is no evidence at this time to suggest this virus poses a threat to human health. 22) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-49, was found in 1 Unidentified leaf-nosed bat within the Hipposideros genus (Hipposideros sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 23) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-50, was found in 1 African trident bat (Triaenops afer). There is no evidence at this time to suggest this virus poses a threat to human health. 24) A new Astrovirus within the	

					genus Mamastrovirus, PREDICT MAstV-50, was found in 3 Persian Trident Bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 25) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-51, was found in 1 Persian Trident Bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 26) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-52, was found in 2 Persian Trident Bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 27) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-53, was found in 1 African trident bat (Triaenops afer). There is no evidence at this time to suggest this virus poses a threat to human health. 28) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-54, was found in 11 Persian Trident Bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 29) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-81, was found in 1 Persian Trident Bat (Triaenops persicus). There is no evidence	

					at this time to suggest this virus poses a threat to human health. Coronaviruses: 1) A new Coronavirus, PREDICT_CoV-20, was found in 1 Noack's roundleaf bat (Hipposideros ruber). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Coronavirus, PREDICT_CoV-21, was found in 1 African trident bat (Triaenops afer). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Coronavirus, PREDICT_CoV-28, was found in 1 Greater long-fingered bat (Miniopterus inflatus). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Coronavirus, PREDICT_CoV-29, was found in 4 Persian Trident Bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A strain of the known Coronavirus Kenya/KY33/2006, was found in 3 Greater long-fingered bat (Miniopterus inflatus). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A strain of the known Coronavirus, Human Coronavirus	

					229E, was found in 1 Noack's roundleaf bat (Hipposideros ruber). This is a strain of the known alphacoronavirus Human Coronavirus 229E (Accession Number NC_002645) found in bats. This human 229E virus is known to cause respiratory illness in people. 7) A strain of the known Coronavirus, Human Coronavirus 229E, was found in 1 Sundevall's roundleaf bat (Hipposideros caffer). This is a strain of the known alphacoronavirus Human Coronavirus 229E (Accession Number NC_002645) found in bats. This human 229E virus is known to cause respiratory illness in people. 8) A strain of the known Coronavirus, Human Coronavirus 229E, was found in 1 Unidentified leaf-nosed bat within the Hipposideros genus (Hipposideros sp.). This is a strain of the known alphacoronavirus Human Coronavirus 229E (Accession Number NC_002645) found in bats. This human 229E virus is known to cause respiratory illness in people. Herpesviruses: 1) A new Herpesvirus, PREDICT_HV-14, was found in 1 Tiny pipistrelle (Pipistrellus nanulus). There is no evidence at this time to suggest this virus poses a threat to human health.	

					2) A new Herpesvirus, PREDICT_HV-15, was found in 1 Persian Trident Bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. Orbiviruses: 1) A new Orbivirus, PREDICT_Orbi-1, was found in 1 Banana pipistrelle (Neoromicia nana). There is no evidence at this time to suggest this virus poses a threat to human health. Paramyxoviruses: 1) A new Paramyxovirus, PREDICT_PMV-11, was found in 1 Persian Trident Bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Paramyxovirus, PREDICT_PMV-12, was found in 1 Persian Trident Bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Paramyxovirus, PREDICT_PMV-16, was found in 2 Persian Trident Bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Paramyxovirus, PREDICT_PMV-19, was found in 1 Greater long-fingered bat (Miniopterus inflatus). There is no evidence at this time to suggest this virus poses a threat to human health.	

					5) A new Paramyxovirus, PREDICT_PMV-24, was found in 2 Noack's roundleaf bat (Hipposideros ruber). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Paramyxovirus, PREDICT_PMV-26, was found in 2 Persian Trident Bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. Phleboviruses: 1) A new Phlebovirus, PREDICT_Phlebo-1, was found in 1 Greater long-fingered bat (Miniopterus inflatus). This is a new highly divergent Phlebovirus, within the Bunyavirus family, found in a bat. These viruses are transmitted by insect vectors (mostly sand flies and ticks) and some have been linked to disease in humans. While we have not demostrated actual infection, the detection of this virus in lung may suggest the bat is truly infected. PREDICT investigators are further characterizing this virus. Rhabdoviruses: 1) A new Rhabdovirus, PREDICT_RbdV-1, was found in 1 Noack's roundleaf bat (Hipposideros ruber). This is a new Rhabdovirus found in a bat. This virus is related to a group of insect transmitted Rhabdoviruses. Some members	

					of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are continuing to characterize this virus. 2) A new Rhabdovirus, PREDICT_RbdV-2, was found in 1 Persian Trident Bat (Triaenops persicus). This is a new Rhabdovirus found in a bat. This virus is related to a group of insect transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are continuing to characterize this virus. 3) A new Rhabdovirus, PREDICT_RbdV-3, was found in 1 Dark-brown serotine (Neoromicia brunnea). This is a new Rhabdovirus found in a bat. This virus is related to a group of insect transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are continuing to characterize this virus. 4) A new Rhabdovirus, PREDICT_RbdV-4, was found in 1 Noack's roundleaf bat (Hipposideros ruber). This is a new Rhabdovirus found in a bat.	

					This virus is related to a group of insect transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are continuing to characterize this virus.	
Non-human Primates (24 animals, 44 samples - Liver, Lung)	UC Davis Wildlife Diagnostic Lab	PCR	Adeno, Alpha, Astro, Boca, Corona, Filo, Hanta, Henipa, Herpes, Rhabdo, Simian Foamy viruses	Product for sequencing detected for Adeno, Herpes, Simian Foamy viruses	Adenoviruses: 1) A strain of the known Adenovirus, Human Adenovirus F, was found in 1 moustached monkey (Cercopithecus cephus). This is a strain of the known Adenovirus Human Adenovirus F (also known as Adenovirus serotypes 40 or 41) (Genbank Accession no. L19443) found in a non-human primate. In humans this virus is associated with acute gastroenteritis, most commonly in children. The disease is self-limiting in immunocompetent individuals and asymptomatic infections are common. Herpesviruses: 1) A strain of the known Herpesvirus, Papiine Herpesvirus 1, was found in 3 moustached monkey (Cercopithecus cephus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Herpesvirus, PREDICT_HV-18, was found in 2 Greater spot-nosed monkey (Cercopithecus nictitans). There is no evidence at this time to suggest this virus poses a threat to human health.	Yes

					3) A new Herpesvirus, PREDICT_HV-19, was found in 1 Greater spot-nosed monkey (Cercopithecus nictitans). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Herpesvirus, PREDICT_HV-19, was found in 1 moustached monkey (Cercopithecus cephus). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Herpesvirus, PREDICT_HV-24, was found in 1 Grey-cheeked mangabey (Lophocebus albigena). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Herpesvirus, PREDICT_HV-27, was found in 5 Greater spot-nosed monkey (Cercopithecus nictitans). There is no evidence at this time to suggest this virus poses a threat to human health. Simian Foamy viruses: 1) A new strain of the known Simian Foamy virus, Cercopithicine Foamy virus, was found in 3 moustached monkey (Cercopithecus cephus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A strain of the known Simian	

					Foamy virus, Macaque Foamy virus, was found in 1 Greater spot-nosed monkey (Cercopithecus nictitans). There is no evidence at this time to suggest this virus poses a threat to human health.	
Rodents & Shrews (3 animals, 5 samples - Liver, Lung)	UC Davis Wildlife Diagnostic Lab	PCR	Astro, Corona, Hanta, Herpes viruses	All negative		Yes
Bats (22 animals, 43 samples - Oral swab, Rectal swab)	INRB	PCR	Corona, Hanta viruses	Products for sequencing for Coronaviruses	Coronaviruses: 1) A strain of the known Coronavirus, Kenya/BtKY56/BtKY55, was found in 1 Franquet's epauletted bat (Epomops franqueti). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A strain of the known Coronavirus, Kenya/BtKY56/BtKY55, was found in 1 Straw-colored fruit bat (Eidolon helvum). There is no evidence at this time to suggest this virus poses a threat to human health.	No
Non-human Primates (16 animals, 32 samples - Oral swab, Rectal swab)	INRB	PCR	Corona, Simian Foamy viruses	Products for sequencing for Corona, Simian Foamy viruses	Coronavirus sequencing pending Simian Foamy viruses: 1) A strain of the known Simian Foamy virus, Cercopithicine Foamy virus, was found in 3 Agile mangabey (Cercocebus agilis). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A strain of the known Simian Foamy virus, Cercopithicine Foamy virus, was found in 1	No

					Crowned monkey (Cercopithecus pogonias). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A strain of the known Simian Foamy virus, Cercopithicine Foamy virus, was found in 5 Greater spot-nosed monkey (Cercopithecus nictitans). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A strain of the known Simian Foamy virus, Cercopithicine Foamy virus, was found in 1 Mantled guereza (Colobus guereza). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A strain of the known Simian Foamy virus, Cercopithicine Foamy virus, was found in 3 Mona monkey (Cercopithecus mona). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A strain of the known Simian Foamy virus, Cercopithicine Foamy virus, was found in 2 Moustached monkey (Cercopithecus cephus). There is no evidence at this time to suggest this virus poses a threat to human health.	
Rodents & Shrews (6 animals, 12 samples - Oral swab, Rectal swab)	INRB	PCR	Hanta viruses	All negative		No

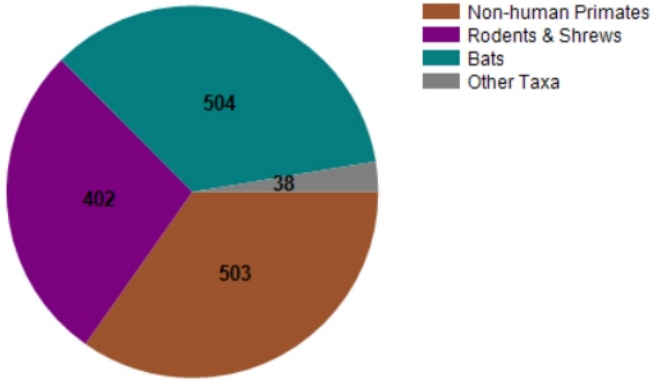
USAID FROM THE AMERICAN PEOPLE | PREDICT

PREDICT Sampling and Testing in Rwanda

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

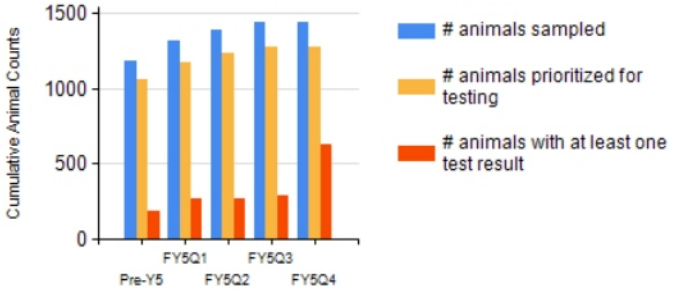
Sampling Locations

Number of Animals Sampled

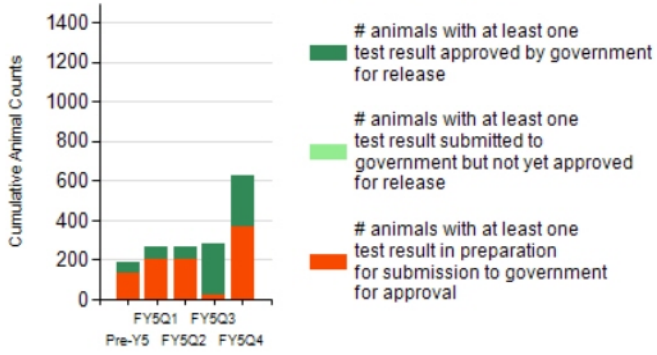


Sampling and Testing Progress

The chart does not necessarily include the samples prioritized for testing from animals for which we will attempt to sample, but for which those samples are not yet collected



Test Results Reporting Progress



For information purposes only - no action required

PREDICT Quarter 4 Year 5 Reporting

RWANDA

- **Significant Highlights, Results, and Success Stories:**
  - Invited to participate in a Rwanda Epidemic Preparedness and Response Plan meeting with governmental sectors to collectively discuss topics relevant to the threat of Ebolavirus, including: Core Functions and Responsibilities; Preparedness; Alert Management; Field Investigation and Field Response Monitoring and Evaluation.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	0	504	503	317	317	145
Non-human Primates	4	503	452	277	277	83
Other Taxa	0	38	0	0	0	0
Rodents & Shrews	0	402	323	37	37	37
High Risk Interface						
Contact with workers harvesting crops	0	25	25	25	25	0
In or near human dwelling(s)	0	338	337	148	148	86
Hunted	1	24	20	21	21	21
Private wildlife collection or pet	0	1	1	1	1	1
Raiding crops	0	27	12	2	2	0
Temporary holding facility	0	13	13	12	12	10
Sanctuary	0	9	8	4	4	3
Contact with park personnel/intensive wildlife management area	0	269	255	214	214	0

PREDICT Quarter 4 Year 5 Reporting

Contact with researchers (other than PREDICT staff)	0	185	185	0	0	0
Contact with tourists/ecotourism	3	344	309	176	176	122
Contact with workers in extractive industry	0	10	10	6	6	0
Other	0	202	103	22	22	22
Total	**4**	**1447**	**1278**	**631**	**631**	**265**

PREDICT Test Findings (Q4Y5):

Rwanda						
Number of animals and samples submitted by taxa	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Bats (172 animals, 335 samples - Oral swab, Rectal swab)	UC Davis Wildlife Diagnostic Lab	PCR	Arena, Bunya, Corona, Filo, Hanta, Henipa, Influenzas, Lyssa, Nipah , Paramyxo, Rhabdo, Seadorna viruses	Products for sequencing for Coronaviruses	Interpretation Completed, Preparation of Report for Government in Progress.	No
Non-human Primates (35 animals, 101 samples - Blood (whole), Blood clot, Buffy coat, Cerebrospinal fluid, Colon, Nasal swab, Oral swab, Pericardial fluid, Peritoneal fluid, Plasma, Pleural fluid, Rectal swab, Red blood cells, Serum, Small intestine, Spleen, Tissue, Urine/urogenital swab)	UC Davis Wildlife Diagnostic Lab	PCR	Arena, Boca, Bunya, Corona, Filo, Flavi, Henipa, Herpes, Influenzas, Orthopox, Paramyxo, Parapox, Retrovirus - Lentivirus genus viruses	Products for sequencing for Herpes, Retrovirus - Lentivirus genus viruses	Interpretation Completed, Preparation of Report for Government in Progress.	No

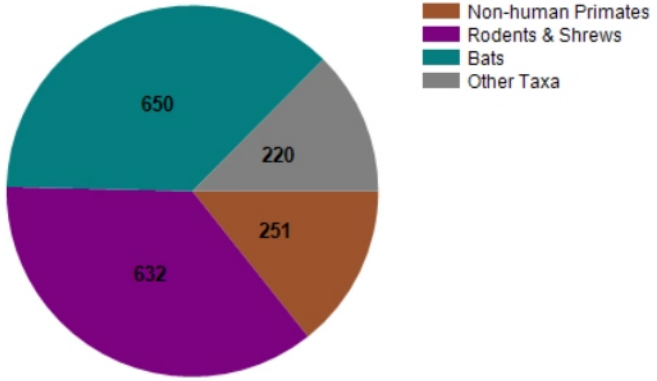
USAID FROM THE AMERICAN PEOPLE | PREDICT

PREDICT Sampling and Testing in Tanzania, United Republic Of

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

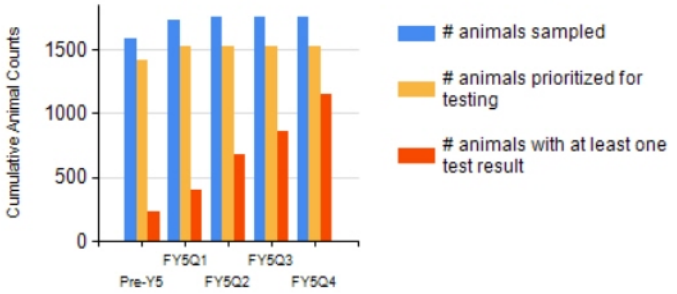
Sampling Locations

Number of Animals Sampled

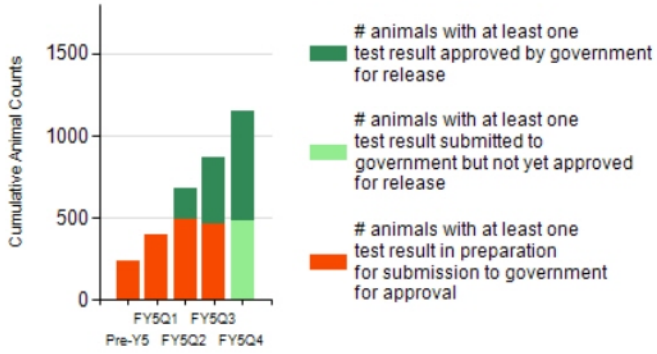


Sampling and Testing Progress

The chart does not necessarily include the samples prioritized for testing from animals for which we will attempt to sample, but for which those samples are not yet collected



Test Results Reporting Progress



For information purposes only - no action required

PREDICT Quarter 4 Year 5 Reporting

TANZANIA

- **Significant Highlights, Results, and Success Stories:**
  - Completed the human-animal contact survey with hunters and bushmeat consumers in villages bordering Ruaha National Park and protected areas to characterize risks for viral spillover, amplification, and spread at this interface. In total, 69 people were interviewed across nine villages.
  - Shared reports of test results with government ministries.
  - Supported the strengthening of One Health platforms and partnerships with Tanzania National Parks, Sokoine University of Agriculture, and Tanzania Wildlife Research Institute through training and capacity building exercises in ecosystem health. This included training in demographic surveys and monitoring of animal populations (African buffalo herds), chemical immobilization, biological sample collection, and application of satellite collars to 10 adult buffaloes.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	0	650	650	610	610	222
Non-human Primates	0	251	243	0	0	0
Other Taxa	0	220	9	7	7	7
Rodents & Shrews	0	632	627	533	533	444
High Risk Interface						
Raiding markets	0	9	9	8	8	8
In or near human dwelling(s)	0	878	878	782	782	395
Hunted	0	269	66	63	63	36
Preying on livestock or their food	0	15	0	0	0	0
Raiding crops	0	265	259	213	213	173

Contact with park personnel/intensive wildlife management area	0	122	122	0	0	0
Contact with tourists/ecotourism	0	89	89	55	55	43
Contact with workers in extractive industry	0	50	50	29	29	18
Other	0	56	56	0	0	0
Total	**0**	**1753**	**1529**	**1150**	**1150**	**673**

PREDICT Test Findings (Q4Y5):

Tanzania, United Republic Of						
Number of animals and samples submitted by taxa	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Rodents & Shrews (142 animals, 215 samples - Feces, Oral swab, Rectal swab)	SUA Predict Lab/UC Davis Wildlife Diagnostic Lab	PCR	Alpha, Arena, Astro, Bunya, Corona, Flavi, Hanta, Influenzas, Paramyxo, Rhabdo viruses	Products for sequencing for Arena, Astro, Corona, Paramyxo viruses	Interpretation Completed, Preparation of Report for Government in Progress.	No
Other Mammals (7 animals, 7 samples - Rectal swab)	SUA Predict Lab/UC Davis Wildlife Diagnostic Lab	PCR	Alpha, Arena, Bunya, Corona, Flavi, Hanta, Influenzas, Paramyxo, Rhabdo viruses	All negative		No
Bats (387 animals, 387 samples - Feces, Rectal swab)	SUA Predict Lab/UC Davis Wildlife Diagnostic Lab	PCR	Arena, Astro, Bunya, Corona, Filo, Hanta, Henipa, Influenzas, Lyssa, Nipah , Paramyxo, Rhabdo, Seadorna viruses	Products for sequencing for Astro, Corona, Influenzas, Paramyxo viruses	Interpretation Completed, Preparation of Report for Government in Progress.	No
Bats (91 animals, 91 samples - Feces, Rectal swab)	SUA Predict Lab/UC Davis	PCR	Arena, Astro, Bunya, Corona, Henipa, Influenzas, Paramyxo,	Products for sequencing for Astro, Corona,	Astroviruses: 1) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-130, was	Yes

	Wildlife Diagnostic Lab		Rhabdo viruses	Influenza viruses	found in 1 Straw-colored fruit bat (Eidolon helvum). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-131, was found in 1 Straw-colored fruit bat (Eidolon helvum). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-132, was found in 1 Unidentified bat within the chiroptera order (Chiroptera). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-133, was found in 3 Straw-colored fruit bat (Eidolon helvum). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-134, was found in 1 Straw-colored fruit bat (Eidolon helvum). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-139, was found in 2 African sheath-tailed bat (Coleura afra). There is no evidence at this time to suggest this virus poses a threat to human health. 7) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-160, was found in 1 Unidentified bat within the Chiroptera order (Chiroptera sp.). There is no	

					evidence at this time to suggest this virus poses a threat to human health. 8) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-161, was found in 1 Unidentified bat within the Chiroptera order (Chiroptera sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 9) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-176, was found in 2 Persian trident bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 10) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-177, was found in 1 Persian trident bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 11) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-178, was found in 1 Persian trident bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 12) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-179, was found in 1 Persian trident bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 13) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-180, was found in 1 Persian trident bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health.	

					14) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-181, was found in 1 Persian trident bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 15) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-182, was found in 1 Persian trident bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 16) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-188, was found in 1 Straw-colored fruit bat (Eidolon helvum). There is no evidence at this time to suggest this virus poses a threat to human health. 17) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-191, was found in 1 Unidentified guano bat within the Tadarida genus (Tadarida sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 18) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-201, was found in 3 Persian trident bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 19) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-202, was found in 2 Persian trident bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 20) A new Astrovirus within the genus	

					Mamastrovirus, PREDICT MAstV-203, was found in 1 Persian trident bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 21) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-205, was found in 1 Persian trident bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 22) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-52, was found in 1 African sheath-tailed bat (Coleura afra). There is no evidence at this time to suggest this virus poses a threat to human health. 23) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-52, was found in 4 Persian trident bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 24) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-54, was found in 6 Persian trident bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 25) This is new Astrovirus in a bat within the genus Mamastrovirus. There is no evidence at this time to suggest this virus poses a threat to human health, was found in 1 Persian trident bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. Coronaviruses: 1) A new Coronavirus, PREDICT_CoV-21,	

					was found in 9 Persian trident bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Coronavirus, PREDICT_CoV-21, was found in 2 Persian trident bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Coronavirus, PREDICT_CoV-21, was found in 1 Unidentified guano bat within the Tadarida genus (Tadarida sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Coronavirus, PREDICT_CoV-63, was found in 9 Persian trident bat (Triaenops persicus). This is a new coronavirus found in bats belonging to the alphacoronavirus genus. While divergent enough to be considered a new virus, it is genetically related to the human virus Human Coronavirus NL63. NL63 is known to cause various respiratory infections particularly in children, the elderly and immunocompromized, and thus PREDICT investigators are further characterizing this virus. 5) A strain of the known Coronavirus, Chaerephon Bat coronavirus/Kenya/KY22/2006, was found in 6 Unidentified guano bat within the Tadarida genus (Tadarida sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A strain of the known Coronavirus, Chaerephon Bat coronavirus/Kenya/KY41/2006, was found in 1 Unidentified guano bat within the Tadarida genus (Tadarida sp.). There is no evidence at	

					this time to suggest this virus poses a threat to human health. 7) A strain of the known Coronavirus, Eidelon bat Coronavirus, was found in 1 Persian trident bat (Triaenops persicus). There is no evidence at this time to suggest this virus poses a threat to human health. 8) A strain of the known Coronavirus, Eidelon bat Coronavirus, was found in 24 Straw-colored fruit bat (Eidolon helvum). There is no evidence at this time to suggest this virus poses a threat to human health. 9) A strain of the known Coronavirus, Eidelon bat Coronavirus, was found in 1 Unidentified guano bat within the Tadarida genus (Tadarida sp.). There is no evidence at this time to suggest this virus poses a threat to human health. Influenzas: 1) The known Influenza virus, Influenza A, was found in 2 Straw-colored fruit bat (Eidolon helvum). This is the known virus Influenza A found in bats. Influenza viruses are important pathogens in humans and animals. PREDICT investigators are currently in the process of subtyping this virus and characterizing the full genome.	
Rodents & Shrews (8 animals, 8 samples - Oral swab)	SUA Predict Lab/UC Davis Wildlife Diagnostic Lab	PCR	Arena, Astro viruses	Products for sequencing for Astro viruses	Astroviruses: 1) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-115, was found in 1 Multimammate rat (Mastomys natalensis). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-116, was found in 1 Long tailed field mouse (Apodemus sylvaticus). There is no evidence at this time to suggest this virus poses a threat to human	Yes

					health. 3) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-129, was found in 1 Long tailed field mouse (Apodemus sylvaticus). There is no evidence at this time to suggest this virus poses a threat to human health.	
Bats (9 animals, 9 samples - Oral swab)	SUA Predict Lab/MUWRP	PCR	Influenzas, Rhabdo viruses	All negative		No
Rodents & Shrews (107 animals, 107 samples - Oral swab)	SUA Predict Lab/MUWRP	PCR	Influenzas, Rhabdo viruses	All negative		No

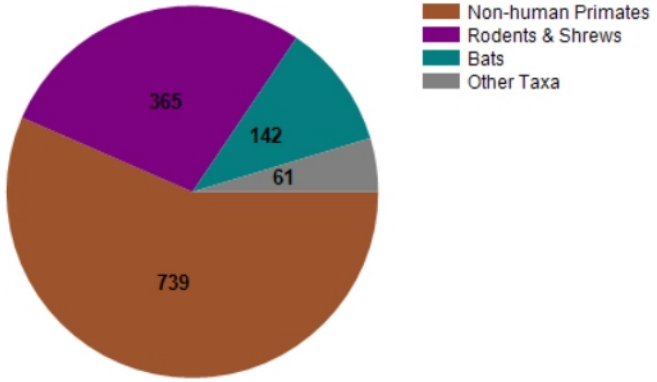
USAID FROM THE AMERICAN PEOPLE | PREDICT

PREDICT Sampling and Testing in Uganda

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

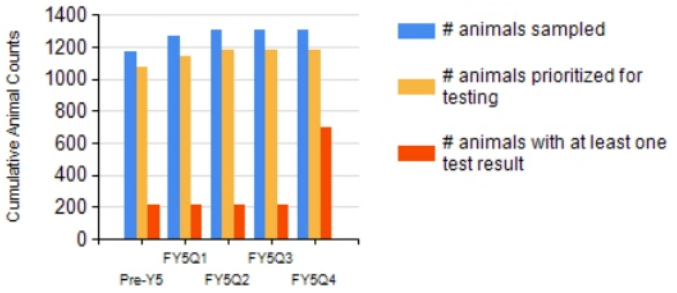
Sampling Locations

Number of Animals Sampled

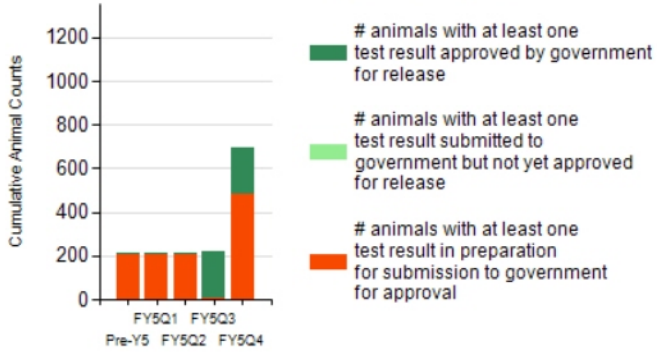


Sampling and Testing Progress

The chart does not necessarily include the samples prioritized for testing from animals for which we will attempt to sample, but for which those samples are not yet collected



Test Results Reporting Progress



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PREDICT Quarter 4 Year 5 Reporting

UGANDA

- **Significant Highlights, Results, and Success Stories:**
  - Made significant progress on testing of samples collected for the Deep Forest project: tested 965 samples from 321 animals using PCR protocols for 4 viral families. Preliminary results indicate a combined prevalence of viruses in samples of approximately 2.38% (23/965), with 25 separate detections of 9 distinct viruses.
  - Completed extensive data entry on test results completed of more than 22,000 individual test results uploaded to GAINS.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	0	142	125	91	91	25
Non-human Primates	2	739	731	285	285	68
Other Taxa	0	61	19	19	19	19
Rodents & Shrews	0	365	302	300	300	98
High Risk Interface						
In or near human dwelling(s)	0	252	244	209	209	46
Hunted	0	36	29	28	28	28
Preying on livestock or their food	0	4	3	2	2	2
Public safety hazard (e.g. threat to humans)	0	32	16	15	15	15
Raiding crops	0	5	5	4	4	4
Temporary holding facility	0	30	30	30	30	30
Sanctuary	0	47	47	0	0	0
Free-ranging	0	150	88	85	85	48

PREDICT Quarter 4 Year 5 Reporting

Zoo	0	60	60	0	0	0
Contact with park personnel/intensive wildlife management area	0	228	227	218	218	23
Contact with researchers (other than PREDICT staff)	0	9	9	0	0	0
Contact with tourists/ecotourism	2	429	419	104	104	14
Other	0	25	0	0	0	0
Total	**2**	**1307**	**1177**	**695**	**695**	**210**

PREDICT Test Findings (Q4Y5):

Uganda						
Number of animals and samples submitted by taxa	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Non-human Primates (390 animals, 390 samples - Saliva)	UC Davis Wildlife Diagnostic Lab	PCR	Alpha, Arena, Bunya, Corona, Flavi, Hanta, Herpes, Influenzas, Paramyxo, Rhabdo, Simian Foamy viruses	Products for sequencing for Herpes, Simian Foamy viruses	Interpretation Completed, Preparation of Report for Government in Progress.	No
Bats (66 animals, 198 samples - Blood (whole), Oral swab, Rectal swab, Urine/urogenital swab)	Center for Infection and Immunity, Columbia University	PCR	Corona, Filo, Influenzas, Paramyxo viruses	Products for sequencing for Corona, Paramyxo viruses	Interpretation Completed, Preparation of Report for Government in Progress.	No
Rodents & Shrews (266 animals, 767 samples - Blood (whole), Oral swab, Rectal swab, Urine, Urine/urogenital swab)	Center for Infection and Immunity, Columbia University	PCR	Corona, Filo, Influenzas, Paramyxo viruses	Products for sequencing for Corona, Paramyxo viruses	Interpretation Completed, Preparation of Report for Government in Progress.	No
Rodents & Shrews (1 animals, 1 samples - Feces)	UC Davis Wildlife Diag. Lab	PCR	Hanta viruses	All negative		No

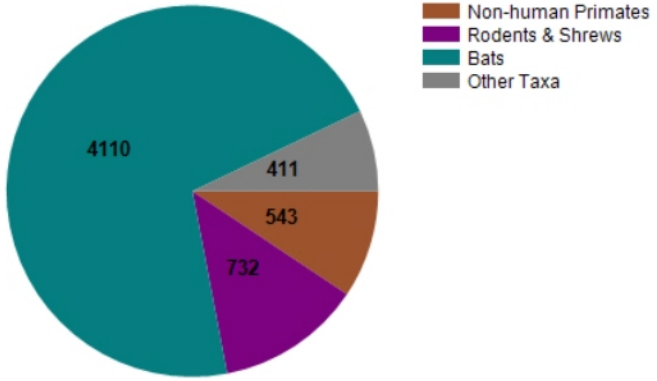
USAID FROM THE AMERICAN PEOPLE | PREDICT

PREDICT Sampling and Testing in Bangladesh

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

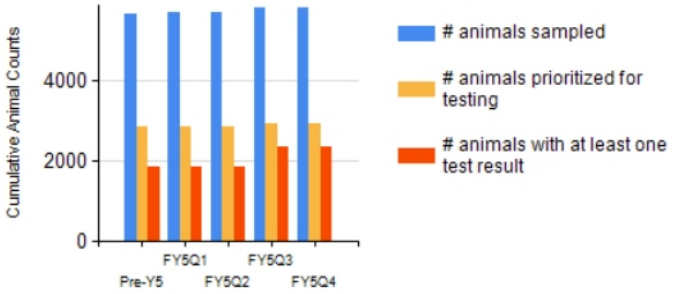
Sampling Locations

Number of Animals Sampled

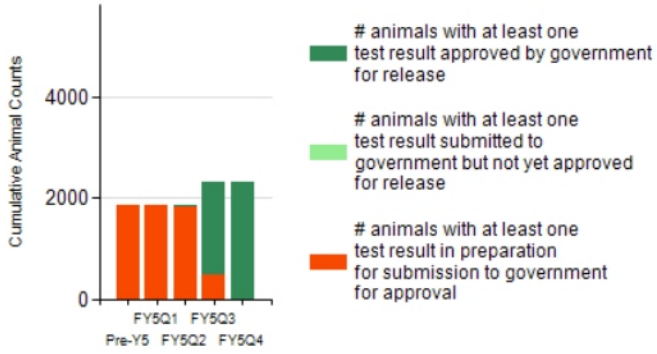


Sampling and Testing Progress

The chart does not necessarily include the samples prioritized for testing from animals for which we will attempt to sample, but for which those samples are not yet collected



Test Results Reporting Progress



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PREDICT Quarter 4 Year 5 Reporting

BANGLADESH

- **Significant Highlights, Results, and Success Stories:**
  - Tested 458 fecal samples from rhesus macaques for up to 8 viral families/genera. Families tested included: adenoviruses, herpesviruses, orbiviruses, picobirnavirus, and posavirus.
    - Discovered one new virus from a novel viral family in the Mononegavirales order.
    - Detected 137 viruses in 270 macaques: 135 previously unknown viruses, and two are known viruses.
  - Conducted viral family testing on 428 rodent samples and detected 21 adenoviruses, 1 influenza-A virus, 1 astrovirus and 1 West Nile virus.Met with Government partners to share test results, and received approval from the Bangladesh authorities to publicly release test results.
  - Participated in the National One Health coordination meeting.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	0	4110	1829	1416	1416	1416
Non-human Primates	0	543	492	482	482	462
Other Taxa	0	411	26	26	26	26
Rodents & Shrews	0	732	592	426	426	426
High Risk Interface						
Raiding markets	0	135	79	0	0	0
In or near human dwelling(s)	0	4843	2704	2256	2256	2236
Raiding crops	0	40	7	0	0	0
Free-ranging	0	567	71	71	71	71
Contact with tourists/ecotourism	0	23	23	23	23	23
Other	0	188	55	0	0	0
Total	**0**	**5796**	**2939**	**2350**	**2350**	**2330**

PREDICT Test Findings (Q4Y5):

Bangladesh						
Number of animals and samples submitted by taxa	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Bats (676 animals, 989 samples - Oral swab, Rectal swab, Urine, Urine/urogenital swab)	Center for Infection and Immunity, Columbia University	PCR	Adeno, Astro, Boca, Corona, Herpes, Nipah , Paramyxo, Polyoma viruses	Products for sequencing for Adeno, Astro, Boca, Corona, Herpes, Nipah Paramyxo, Polyoma viruses	Adenoviruses: 1) A new Adenovirus, PREDICT_AdV-1, was found in 1 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Adenovirus, PREDICT_AdV-10, was found in 1 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Adenovirus, PREDICT_AdV-11, was found in 4 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Adenovirus, PREDICT_AdV-12, was found in 1 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Adenovirus, PREDICT_AdV-3, was found in 8 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Adenovirus, PREDICT_AdV-4, was found in 1 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 7) A new Adenovirus, PREDICT_AdV-5, was	Yes

					found in 43 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 8) A new Adenovirus, PREDICT_AdV-6, was found in 2 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 9) A new Adenovirus, PREDICT_AdV-7, was found in 12 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 10) A new Adenovirus, PREDICT_AdV-8, was found in 19 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 11) A new Adenovirus, PREDICT_AdV-9, was found in 7 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 12) A strain of the known Adenovirus, Bat adenovirus -1, was found in 29 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 13) The known Adenovirus, Bat adenovirus -1, was found in 47 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 14) The known Adenovirus, Fowl Adenovirus E, was found in 1 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. Astroviruses: 1) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-1, was found in 3 Indian flying fox (Pteropus giganteus). There is	

					no evidence at this time to suggest this virus poses a threat to human health. 2) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-2, was found in 1 Indian flying fox (Pteropus giganteus). There is no evidence at this time 3) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-3, was found in 10 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-4, was found in 3 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-5, was found in 2 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-6, was found in 14 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. Bocaviruses: 1) The known Bocavirus, Human Bocavirus-1, was found in 1 Indian flying fox (Pteropus giganteus). This is the known virus Human Bocavirus-1 (Genbank Accession no. DQ000496) found for the first time in a bat. Bocaviruses commonly infect the respiratory and gastrointestinal tracts of young animals and humans, however the significance of their association with disease is currently unknown. It is unclear how this human virus came to be present in a bat, however we have observed this species of bat drinking from water that is known	

					to be contaminated with human and domestic animal waste and may be the source of infection (http: //mbio.asm.org/content/4/5/e00598-13). 2) The known Bocavirus, Human Bocavirus-2, was found in 1 Indian flying fox (Pteropus giganteus). This is the known virus Human Bocavirus-2 (Genbank Accession no. FJ170278) found for the first time in a bat. Bocaviruses commonly infect the respiratory and gastrointestinal tracts of young animals and humans, however the significance of their association with disease is currently unknown. It is unclear how this human virus came to be present in a bat, however we have observed this species of bat drinking from water that is known to be contaminated with human and domestic animal waste and may be the source of infection (http: //mbio.asm.org/content/4/5/e00598-13). Coronaviruses: 1) A new Coronavirus, PREDICT_CoV-16, was found in 13 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Coronavirus, PREDICT_CoV-17, was found in 53 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A strain of the known Coronavirus, Betacoronavirus 1, was found in 1 Indian flying fox (Pteropus giganteus). This a strain of the known virus Betacoronavirus 1 in a bat. This virus is known to infect multiple host species including people, horses, cows and pigs. In people this virus is a cause of the common cold. 4) A strain of the known Coronavirus, Infectious bronchitis virus (IBV), was found in 1 Indian flying fox (Pteropus giganteus). There is no evidence at	

					this time to suggest this virus poses a threat to human health. Herpesviruses: 1) A new Herpesvirus, PREDICT_HV-1, was found in 31 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Herpesvirus, PREDICT_HV-10, was found in 80 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Herpesvirus, PREDICT_HV-11, was found in 4 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Herpesvirus, PREDICT_HV-12, was found in 106 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Herpesvirus, PREDICT_HV-13, was found in 161 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Herpesvirus, PREDICT_HV-2, was found in 12 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 7) A new Herpesvirus, PREDICT_HV-3, was found in 1 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 8) A new Herpesvirus, PREDICT_HV-4, was found in 28 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health.	

					9) A new Herpesvirus, PREDICT_HV-5, was found in 2 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 10) A new Herpesvirus, PREDICT_HV-6, was found in 1 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 11) A new Herpesvirus, PREDICT_HV-7, was found in 10 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 12) A new Herpesvirus, PREDICT_HV-8, was found in 173 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 13) A new Herpesvirus, PREDICT_HV-9, was found in 3 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. Nipahviruses : 1) A new Paramyxovirus, PREDICT_PMV-27, was found in 13 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. Paramyxoviruses: 1) A new Paramyxovirus in the Rubulovirus genus, PREDICT_PMV-2, was found in 2 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Paramyxovirus in the Rubulovirus genus, PREDICT_PMV-3, was found in 2 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health.	

					3) A new Paramyxovirus in the Rubulovirus genus, PREDICT_PMV-4, was found in 1 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Paramyxovirus in the Rubulovirus genus, PREDICT_PMV-5, was found in 3 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Paramyxovirus in the Rubulovirus genus, PREDICT_PMV-6, was found in 10 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Paramyxovirus in the Rubulovirus genus, PREDICT_PMV-7, was found in 2 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 7) A new Paramyxovirus, PREDICT_PMV-1, was found in 1 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 8) A new Paramyxovirus, PREDICT_PMV-10, was found in 2 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 9) A new Paramyxovirus, PREDICT_PMV-8, was found in 1 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 10) A new Paramyxovirus, PREDICT_PMV-9, was found in 2 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health.	

					Polyomaviruses: 1) A new Polyomavirus, PREDICT_PyV-1, was found in 1 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Polyomavirus, PREDICT_PyV-2, was found in 7 Indian flying fox (Pteropus giganteus). There is no evidence at this time to suggest this virus poses a threat to human health.	
Non-human Primates (458 animals, 458 samples - Feces, Urine)	Center for Infection and Immunity, Columbia University	PCR	Adeno, Alpha, Arena, Astro, Boca, Bunya, Corona, Entero, Filo, Flavi, Hanta, Henipa, Herpes, Influenzas, Lyssa, Orthopox, Papilloma, Paramyxo, Parapox, Phlebo, Polyoma, Pox, Retrovirus - Lentivirus genus , Rhabdo, Seadorna, Simian Foamy viruses	Products for sequencing for Adeno, Astro, Boca, Corona, Entero, Herpes, Papilloma, Polyoma, Rhabdo, Simian Foamy viruses	Adenoviruses: 1) A new Adenovirus, PREDICT_AdV-55, was found in 6 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Adenovirus, PREDICT_AdV-69, was found in 1 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Adenovirus, PREDICT_AdV-72, was found in 3 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A strain of the known Adenovirus, Human Adenovirus F, was found in 3 Rhesus macaque (Macaca mulatta). This is a strain of the known Adenovirus Human Adenovirus F (also known as Adenovirus serotypes 40 or 41) (Genbank Accession no. L19443) found in a non-human primate. In humans this virus is associated with acute gastroenteritis, most commonly in children. The disease is self-limiting in immunocompetent individuals and asymptomatic infections are common. 5) A strain of the known Adenovirus, Human Adenovirus G, was found in 54 Rhesus macaque (Macaca mulatta). This is a strain of the known Adenovirus Human Adenovirus G (Genbank Accession no. JN1639921) found in macaques. These viruses are found in both humans and non-	Yes

					human primates. Little is known about the human strains, however some have been associated with gastroenteritis, and others are believed to have origins in primates (suggesting zoonotic spillover). Astroviruses: 1) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-111, was found in 2 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-112, was found in 1 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-113, was found in 1 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-117, was found in 1 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-118, was found in 1 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-122, was found in 7 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 7) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-123, was found	

					in 2 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 8) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-124, was found in 1 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 9) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-125, was found in 10 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 10) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-126, was found in 4 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 11) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-127, was found in 1 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 12) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-128, was found in 1 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 13) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-137, was found in 1 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 14) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-57, was found in 1 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus	

					poses a threat to human health. 15) A strain of the known Astrovirus, Mamastrovirus-1, was found in 1 Rhesus macaque (Macaca mulatta). This is a strain of the known virus Mamastrovirus-1 found in a bat. This virus is known to cause acute gastroenteritis in humans. Given that this bat was by handled people prior to sampling it is possible that this virus came from the people. 16) A strain of the known Astrovirus, Mamastrovirus-5, was found in 2 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 17) A strain of the known Astrovirus, Mamastrovirus-5, was found in 1 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 18) A strain of the known Astrovirus, Mamastrovirus-6, was found in 3 Rhesus macaque (Macaca mulatta). This is a strain of the known virus Mamastrovirus-6 (Genbank Accession No. JF742759, FJ222451) found in non-human primates. There is some evidence to suggest that certain strains within this species can cause respiratory and gastrointestinal illness in people, and therefore warrants further investigation. PREDICT investigators are currently further characterizing this virus. Bocaviruses: 1) A new Bocavirus, PREDICT_BoV-1, was found in 6 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A strain of the known Bocavirus, Human Bocavirus-3, was found in 1 Rhesus macaque (Macaca mulatta). This is a strain of the known	

					virus Human Bocavirus-3 (Genbank Accession no. EU918736) found in a non-human primate. Bocaviruses commonly infect the respiratory and gastointestinal tracts of young animals and humans, however the significance of their association with disease is currently unknown. Coronaviruses: 1) A new Coronavirus, PREDICT_CoV-49, was found in 1 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Coronavirus, PREDICT_CoV-50, was found in 1 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. Enteroviruses: 1) A strain of the known Enterovirus, Human Enterovirus B, was found in 2 Rhesus macaque (Macaca mulatta). This is a strain of the known enterovirus, Human Enterovirus B found in a macaque. Enteroviruses are common human pathogens that can cause a wide range of disease, from mild respiratory illness to central nervous system disease. PREDICT investigators are currently further characterizing this virus. Herpesviruses: 1) A strain of the known Herpesvirus, Macacine herpesvirus 4/Asia, was found in 24 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. Papillomaviruses: 1) A new papillomavirus, PREDICT_PapV-1, was found in 1 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. Polyomaviruses: 1) A new Polyomavirus, PREDICT_PyV-31, was	

					found in 3 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A strain of the known Polyomavirus, Human BK Polyomavirus, was found in 6 Rhesus macaque (Macaca mulatta). This is a strain of the known Polyomavirus Human BK Polyomavirus (Genbank Accession No. NC_001538) found in a non-human primate. This virus is widespread in humans and has also been reported in non-human primates. In people, it rarely causes significant disease except in immunocompromised individuals. Rhabdoviruses: 1) A new Rhabdovirus, PREDICT_RbdV-14, was found in 1 Rhesus macaque (Macaca mulatta). This is a new Rhabdovirus found in a non-human primate. This virus is related to a group of insect transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are currently further characterizing this virus. 2) A new Rhabdovirus, PREDICT_RbdV-15, was found in 1 Rhesus macaque (Macaca mulatta). This is a new Rhabdovirus found in a non-human primate. This virus is related to a group of insect transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are currently further characterizing this virus. Simian Foamy viruses: 1) A strain of the known Simian Foamy virus, Macaque Foamy virus, was found in 42 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health.	

Non-human Primates (4 animals, 4 samples - Rectal swab)	ICDDR,B Lab	PCR	Astro, Bunya, Corona, Flavi, Influenzas, Rhabdo viruses	All negative		Yes
Rodents & Shrews (66 animals, 66 samples - Rectal swab)	ICDDR,B Lab	PCR	Astro, Bunya, Flavi, Influenzas viruses	Products for sequencing for Astro, Flavi, Influenzas viruses	Interpretation pending for astroviruses. Sequencing pending for flaviviruses. Interpretation Completed, Preparation of Report for Government in Progress for Influenza.	No
Rodents & Shrews (426 animals, 461 samples - Oral swab, Rectal swab, Urine/urogenital swab)	ICDDR,B Lab	PCR	Astro, Bunya, Corona, Flavi, Hanta, Influenzas, Paramyxo, Rhabdo viruses	All negative		Yes
Carnivores (5 animals, 5 samples - Feces, Rectal swab)	ICDDR,B Lab	PCR	Astro, Bunya, Corona, Flavi, Influenzas, Rhabdo viruses	All negative		Yes
Other Mammals (20 animals, 22 samples - Feces, Rectal swab, Urine/urogenital swab)	ICDDR,B Lab	PCR	Astro, Bunya, Corona, Flavi, Hanta, Influenzas, Paramyxo, Rhabdo viruses	All negative		Yes
Other Taxa (1 animals, 1 samples - Rectal swab)	ICDDR,B Lab	PCR	Astro, Bunya, Corona, Flavi, Influenzas, Rhabdo viruses	All negative		Yes
Non-human Primates (458 animals, 458 samples - Feces, Urine)	Center for Infection and Immunity, Columbia University	PCR	Caliciviruses viruses	All negative		Yes

Non-human Primates (5 animals, 5 samples - Feces)	Center for Infection and Immunity, Columbia University	Sequencing	Orbi viruses	Product for sequencing for Orbi viruses	Orbiviruses: 1) A new Orbivirus, PREDICT_Orbi-6, was found in 5 Rhesus macaque (Macaca mulatta). There is no evidence at this time to suggest this virus poses a threat to human health.	Yes

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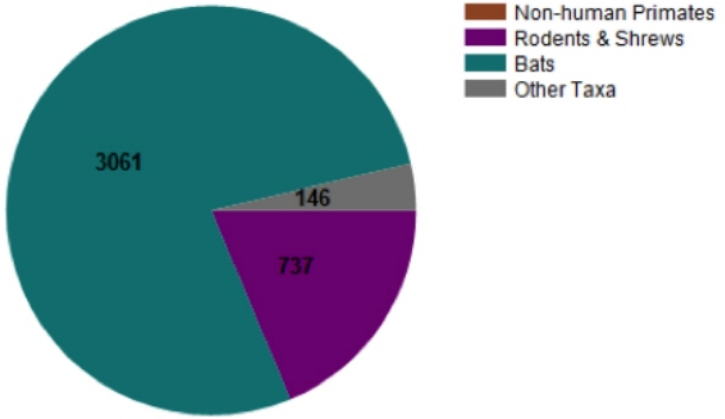
PREDICT Sampling and Testing in China

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

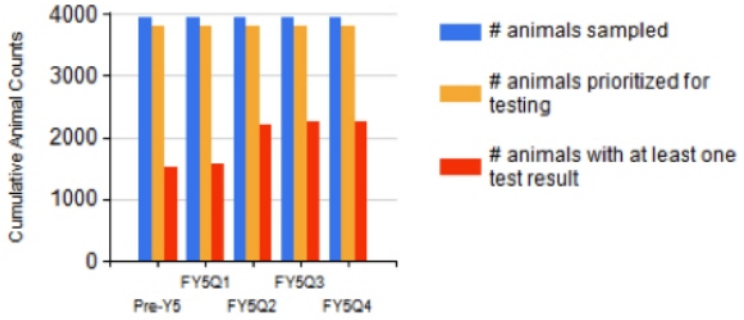
Sampling Locations

Number of Animals Sampled

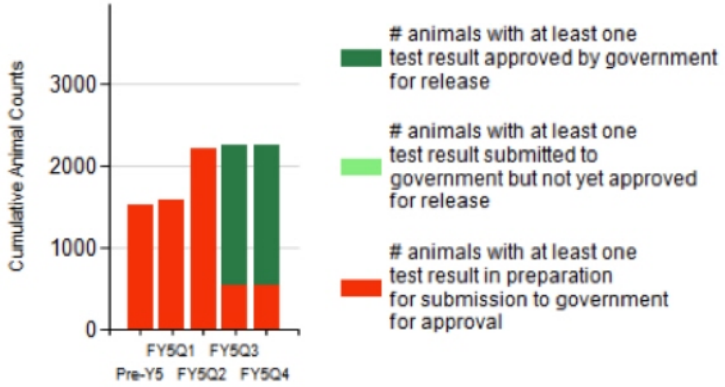


Sampling and Testing Progress

The chart does not necessarily include the samples prioritized for testing from animals for which we will attempt to sample, but for which those samples are not yet collected



Test Results Reporting Progress



For information purposes only - no action required

PREDICT Quarter 4 Year 5 Reporting

CHINA

- **Significant Highlights, Results, and Success Stories:**
  - Completed serology tests of samples from high-risk cohorts at the Guangdong Institute of Public Health (GDIPH) and Guangdong Center for Disease Control (GDCDC).
  - Piloted a human data collection tool collecting data from 187 human samples tested using PREDICT protocols with the GDIPH/GDCDC and GAINS teams. The tool includes information on sample collection, patient background, test results and interpretation, normative test methods, and results.
  - Visited Guangxi Provincial Center for Disease Control and Prevention in Nanning and met with (b)(6) (b)(6) and agreed to follow up collaborative potentials in extended encephalitis surveillance at the border between Guangdong and Guangxi provinces.
  - Conducted project review meetings with all China partners.
  - Held a forum on "Surveillance and Epidemiology Research of Zoonotic Diseases and Application of 'One Health' in Disease Control and Prevention in South China" through joint efforts with country partners in Guangzhou. Participants from FAO and PREDICT China engaged research organizations and sentinel hospitals, and other selective research entities and universities in South China participated in a wide exchange on a variety of topics including: PREDICT China project development during the past years, China governmental agencies' disease control and prevention strategies and zoonotic disease surveillance status, One Health approach application experiences in South China as well as few East China provinces, and strategic and technical preparedness for the Ebola disease outbreak.
  - Met with various country partners to ensure continuation of activities and renewal of all collaborative agreements.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	0	3061	3061	1720	1720	1186
Other Taxa	0	146	17	17	17	12
Rodents & Shrews	0	737	737	525	525	522

PREDICT Quarter 4 Year 5 Reporting

High Risk Interface						
Contact during religious activities	0	107	107	107	107	0
Contact with workers harvesting crops	0	644	644	235	235	40
In or near human dwelling(s)	0	594	594	393	393	393
For sale in large market (> 20 vendors)	0	191	64	0	0	0
Hunted	0	174	174	9	9	0
Preying on livestock or their food	0	93	93	93	93	93
Raiding crops	0	76	76	26	26	26
Free-ranging	0	422	422	324	324	318
Wild animal farm	0	253	253	253	253	253
Contact with tourists/ecotourism	0	1307	1305	739	739	560
Contact with workers in extractive industry	0	83	83	83	83	37
Total	**0**	**3944**	**3815**	**2262**	**2262**	**1720**

PREDICT Test Findings (Q4Y5):

China						
Number of animals and samples submitted by taxa	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Bats (210 animals, 350 samples - Oral swab, Rectal swab)	Wuhan Institute of Virology, CAS	PCR	Astro viruses	All negative		No
Rodents & Shrews (37 animals, 74 samples - Oral swab, Rectal swab)	Wuhan Institute of Virology, CAS	PCR	Astro viruses	All negative		No

China						
Number of samples tested	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Human (99)	GDCDC	PCR	Arena, Hanta, Seadorna, Flavi, and Filoviruses	Product for sequencing for Hantavirus	Interpretation Completed, Preparation of Report for Government in Progress	No
Human (5)	GDCDC	PCR	Alphaviruses	All negative		No
Human (94)	GDCDC	PCR	Paramyxo, Bunya, Corona, Phlebo, Rhabdo, and Entero viruses	Products for sequencing for Paramyxo and Entero viruses	Interpretation Completed, Preparation of Report for Government in Progress	No

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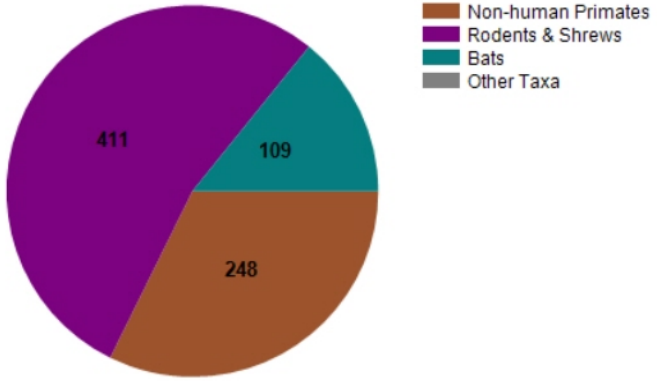
PREDICT Sampling and Testing in Nepal

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

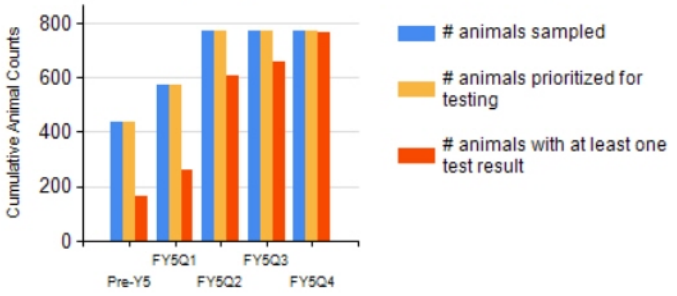
Sampling Locations

Number of Animals Sampled

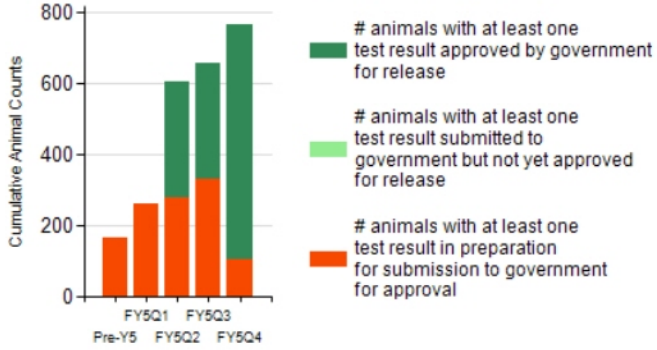


Sampling and Testing Progress

The chart does not necessarily include the samples prioritized for testing from animals for which we will attempt to sample, but for which those samples are not yet collected



Test Results Reporting Progress



For information purposes only - no action required

PREDICT Quarter 4 Year 5 Reporting

NEPAL

- **Significant Highlights, Results, and Success Stories:**
  - Completed viral family testing including fecal and urine specimens from 105 macaques sampled at temple sites and shipped 106 cDNA specimens and 19 products for sequencing to UC Davis for confirmatory sequencing and testing.
  - Submitted all viral family test results to GAINS.
  - Shared a second test results report with ministry and host country partners at the Department of National Parks and Wildlife Conservation, Animal Health Directorate, Epidemiology and Disease Control Division, Department of Health Services, and USAID Nepal and obtained approval for public release of results.
  - Completed the human-animal contact survey at the informal settlement and temple sites where samples were collected from rodents, shrews, and nonhuman primates and interviewed a total of 384 individuals. During the survey, an Android-based data collection application was pilot tested enabling real time data visualization and feedback from the research team.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	0	109	109	108	108	108
Non-human Primates	0	248	248	248	248	143
Rodents & Shrews	0	411	411	409	409	409
High Risk Interface						
In or near human dwelling(s)	0	520	520	517	517	517
Public safety hazard (e.g. threat to humans)	0	248	248	248	248	143
Total	**0**	**768**	**768**	**765**	**765**	**660**

PREDICT Test Findings (Q4Y5):

Nepal						
Number of animals and samples submitted by taxa	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Rodents & Shrews (295 animals, 427 samples - Oral swab, Rectal swab)	CMDN and UC Davis	PCR	Alpha, Corona, Flavi, Hanta, Influenzas, Seadorna viruses	Products for sequencing for Corona, Hanta viruses	Interpretation Completed, Preparation of Report for Government in Progress	No
Rodents & Shrews (9 animals, 9 samples - Oral swab)	CMDN/Intrepid Nepal	PCR	Alpha, Arena, Hanta, Paramyxo, Rhabdo viruses	All negative		Yes
Non-human Primates (36 animals, 36 samples - Saliva)	CMDN and UC Davis	PCR	Arena, Bunya, Filo, Flavi, Influenzas, Seadorna viruses	All negative		No
Rodents & Shrews (85 animals, 94 samples - Oral swab, Rectal swab)	CMDN and UC Davis	PCR	Arena, Bunya, Hanta, Paramyxo, Rhabdo viruses	Products for sequencing for Paramyxo, Rhabdo viruses	Paramyxoviruses: 1) A new Paramyxovirus, PREDICT_PMV-54, was found in 6 Asian house shrew (Suncus murinus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Paramyxovirus, PREDICT_PMV-55, was found in 1 Black rat (Rattus rattus). This is a new paramyxovirus within the morbillivirus genus found in a rodent. The genus morbillivirus contains many significant pathogens for humans and animals, and therefore this virus warrants further investigation. PREDICT investigators are continuing to characterize this virus. Rhabdoviruses: 1) A new Rhabdovirus, PREDICT_RbdV-5, was found in 1 House shrew (Suncus murinus). This is a new Rhabdovirus found in a house shrew. This virus is related to a group of insect	Yes

					transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are continuing to characterize this virus.	
Non-human Primates (105 animals, 106 samples - Feces, Urine)	CMDN/Intrepid Nepal	PCR	Corona, Henipa, Influenzas, Paramyxo, Retrovirus - Lentivirus genus viruses	All negative		No
Non-human Primates (38 animals, 38 samples - Saliva)	CMDN/Intrepid Nepal	PCR	Corona, Filo, Henipa, Influenzas, Paramyxo, Retrovirus - Lentivirus genus viruses	Products for sequencing for Influenzas, Paramyxoviruses	Paramyxoviruses: 1) A strain of the known Paramyxovirus, Human Parainfluenzavirus 3, was found in 1 Rhesus macaque (Macaca mulatta). This is a strain of the known virus Human Parainfluenzavirus 3 (GenBank Accession No. KJ672616) in the family Paramxyoviruses, found in a macaque. Human parainfluenza viruses are major causes of lower respiratory tract infections in infants and elderly persons. This virus has been previously found in other non-human primates, but further studies are needed to determine whether it is transmitted between humans and non-human primates. PREDICT investigators are currently further characterizing this virus.	Yes
Non-human Primates (12 animals, 12 samples - Saliva)	UC Davis Wildlife Diagnostic Lab	PCR	Retrovirus - Lentivirus genus , Simian Foamy viruses	All negative		Yes

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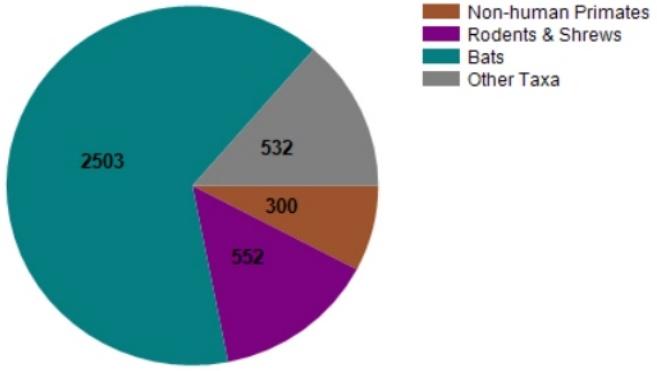
PREDICT Sampling and Testing in Cambodia

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

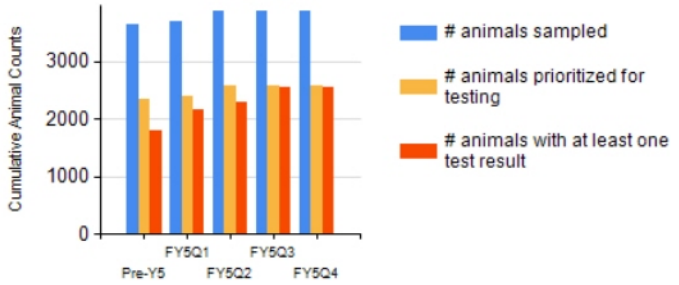
Sampling Locations

Number of Animals Sampled

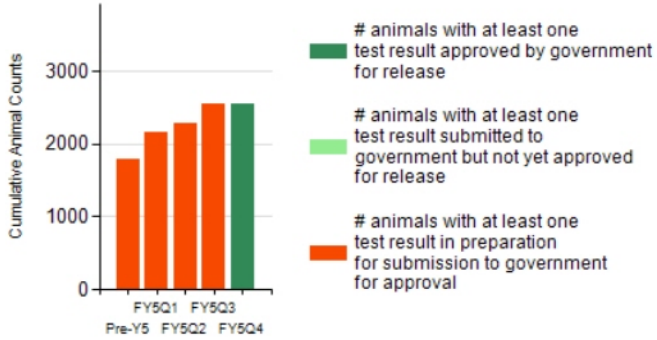


Sampling and Testing Progress

The chart does not necessarily include the samples prioritized for testing from animals for which we will attempt to sample, but for which those samples are not yet collected



Test Results Reporting Progress



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PREDICT Quarter 4 Year 5 Reporting

CAMBODIA

- **Significant Highlights, Results, and Success Stories:**
  - Presented test results from over 7,000 samples from 3,185 animals to the Royal Government of Cambodia and obtained approvals for public release: 54 viruses were detected in 170 animals, of which 21 were known viruses and 33 are new. The known viruses were in the Astro-, Corona-, Entero-, Herpes, and Simian Foamy virus families, and the novel viruses in the Arena, Astro, Corona, Flavi, Herpes, Paramyxo, and Seadorna families.
  - Conducted 14 meetings in 11 provinces to present project findings and discuss the risks of zoonotic diseases from wildlife to communities that had been involved in surveillance. A total of 165 men and 248 women participated in the meetings. Local authorities concluded the meetings by advising their villagers to try to minimize contact with wild animals through reduction of high-risk hunting and trade activities and to improve their meat hygiene practices in order to reduce the risk of contracting a disease from wildlife.
  - Khmer Project Coordinator presented on “Zoonotic Disease Surveillance at the Wildlife-Human Interface in Cambodia” at the Society for Conservation Biology Asia Annual Conference. The presentation highlighted anthropogenic activities, such as wildlife hunting, trade, and land-use change that are key factors for zoonotic disease emergence in the region and discussed the extensive relationship-building, surveillance, and capacity building conducted at these interfaces through the USAID PREDICT project in Cambodia. The talk was well received, unique within the conference program, and demonstrated the need for further cross-sectoral collaboration and information sharing regarding linkages between intact ecosystems and human and animal health.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	0	2503	1448	1411	1411	1411
Non-human Primates	0	300	264	264	264	264
Other Taxa	0	532	376	376	376	376
Rodents & Shrews	0	552	491	491	491	491
High Risk Interface						

Contact during religious activities	0	43	43	43	43	43
In or near human dwelling(s)	0	1083	567	567	567	567
For sale in large market (> 20 vendors)	0	84	64	64	64	64
For sale in medium market (5-20 vendors)	0	95	1	1	1	1
For sale in small market (< 5 vendors)	0	1	0	0	0	0
For sale in restaurant	0	347	217	213	213	213
Hunted	0	1869	1355	1322	1322	1322
Private wildlife collection or pet	0	1	1	1	1	1
Raiding crops	0	99	99	99	99	99
Rehabilitation center	0	8	8	8	8	8
Sanctuary	0	28	20	20	20	20
Free-ranging	0	2	2	2	2	2
Zoo	0	4	4	4	4	4
Contact with tourists/ecotourism	0	169	144	144	144	144
Other	0	54	54	54	54	54
Total	**0**	**3887**	**2579**	**2542**	**2542**	**2542**

PREDICT Test Findings (Q4Y5):

Cambodia						
Number of animals and samples submitted by taxa	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Bats (479 animals, 939 samples - Brain, Feces, Liver, Lung, Oral swab, Rectal	Institut Pasteur Cambodia	PCR	Arena, Astro, Corona, Filo, Flavi, Hanta, Lyssa, Paramyxo, Seadorna viruses	Products for sequencing for Astro, Corona, Flavi, Paramyxo,	Astroviruses: 1) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-13, was found in 1 Unidentified bat within the	Yes

swab, Spleen, Urine, Urine/urogenital swab, Whole body)				Seadorna viruses	Roussetus genus (Rousettus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-167, was found in 1 Lesser Asiatic yellow bat (Scotophilus kuhlii). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-20, was found in 3 Unidentified evening bat within the Scotophilus genus (Scotophilus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-22, was found in 1 Shamel's horseshoe bat (Rhinolophus shameli). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-23, was found in 1 Black-bearded tomb bat (Taphozous melanopogon). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-24, was found in 8 Lesser Asiatic yellow bat (Scotophilus kuhlii). There is no evidence at this time to suggest this virus poses a threat to human health. 7) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-24, was found in 1 Unidentified evening bat within the Scotophilus genus (Scotophilus sp.). There is no evidence at this time to suggest this virus	

					poses a threat to human health. 8) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-25, was found in 2 Greater false vampire bat (Megaderma lyra). There is no evidence at this time to suggest this virus poses a threat to human health. 9) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-26, was found in 1 Large-eared roundleaf bat (Hipposideros pomona). There is no evidence at this time to suggest this virus poses a threat to human health. 10) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-27, was found in 2 Horsfield's myotis (Myotis horsfieldii). There is no evidence at this time to suggest this virus poses a threat to human health. 11) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-28, was found in 14 Horsfield's myotis (Myotis horsfieldii). There is no evidence at this time to suggest this virus poses a threat to human health. 12) A strain of Astrovirus, Bat Astrovirus Ms/HK61/CHN/2007, was found in 3 Lesser Asiatic yellow bat (Scotophilus kuhlii). There is no evidence at this time to suggest this virus poses a threat to human health. 13) A strain of Astrovirus, Bat Astrovirus Ms/HK61/CHN/2007, was found in 2 Unidentified bat within the Vespertilionidae family of Vespertilionid bats (Scotophilus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 14) A strain of Astrovirus, Bat Astrovirus	

					Ms/HK61/CHN/2007, was found in 1 Unidentified evening bat within the Scotophilus genus (Scotophilus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 15) A strain of Astrovirus, Bat Astrovirus Ms/sy10/CHN/2008, was found in 4 Lesser Asiatic yellow bat (Scotophilus kuhlii). There is no evidence at this time to suggest this virus poses a threat to human health. 16) A strain of Astrovirus, Bat Astrovirus Ms/sy10/CHN/2008, was found in 3 Unidentified bat within the Vespertilionidae family of Vespertilionid bats (Scotophilus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 17) A strain of Astrovirus, Bat Astrovirus Ms/sy10/CHN/2008, was found in 10 Unidentified evening bat within the Scotophilus genus (Scotophilus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 18) A strain of Astrovirus, Bat Astrovirus Myr/Anhui/A900/2005, was found in 3 Horsfield's myotis (Myotis horsfieldii). There is no evidence at this time to suggest this virus poses a threat to human health. 19) A strain of Astrovirus, Bat Astrovirus Sk/HK63/CHN/2007, was found in 1 Lesser Asiatic yellow bat (Scotophilus kuhlii). There is no evidence at this time to suggest this virus poses a threat to human health. 20) A strain of Astrovirus, Bat Astrovirus Sk/HK63/CHN/2007, was found in 1 Unidentified bat within the Vespertilionidae family of Vespertilionid bats (Scotophilus sp.). There is no evidence at this time to suggest this virus poses a threat to human health.	

					21) A strain of Astrovirus, Bat Astrovirus Sk/HK63/CHN/2007, was found in 1 Unidentified evening bat within the Scotophilus genus (Scotophilus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 22) A strain of Astrovirus, Bat Astrovirus Tm/Guangxi/LD145/2007, was found in 1 Black-bearded tomb bat (Taphozous melanopogon). There is no evidence at this time to suggest this virus poses a threat to human health. 23) A strain of Astrovirus, Bat Astrovirus Tm/Guangxi/LD153/2007, was found in 2 Black-bearded tomb bat (Taphozous melanopogon). There is no evidence at this time to suggest this virus poses a threat to human health. Coronaviruses: 1) A new Coronavirus, PREDICT_CoV-22, was found in 2 Unidentified nectar bat within the Macroglossus genus (Macroglossus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Coronavirus, PREDICT_CoV-24, was found in 2 Greater short-nosed fruit bat (Cynopterus sphinx). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Coronavirus, PREDICT_CoV-24, was found in 4 Lesser short-nosed fruit bat (Cynopterus brachyotis). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Coronavirus, PREDICT_CoV-24, was found in 1 Northern tailess fruit bat (Megaerops niphanae). There is no evidence at this time to	

					suggest this virus poses a threat to human health. 5) A new Coronavirus, PREDICT_CoV-24, was found in 1 Unidentified bat within the Roussetus genus (Rousettus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Coronavirus, PREDICT_CoV-24, was found in 3 Unidentified fruit bat within the Cynopterus genus (Cynopterus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 7) A new Coronavirus, PREDICT_CoV-25, was found in 1 Shamel's horseshoe bat (Rhinolophus shameli). There is no evidence at this time to suggest this virus poses a threat to human health. 8) A new Coronavirus, PREDICT_CoV-34, was found in 1 Coromandel pipistrelle (Pipistrellus coromandra). There is no evidence at this time to suggest this virus poses a threat to human health. 9) A new Coronavirus, PREDICT_CoV-35, was found in 3 Lesser Asiatic yellow bat (Scotophilus kuhlii). There is no evidence at this time to suggest this virus poses a threat to human health. 10) A strain of the known Coronavirus, Bat Coronavirus HKU9, was found in 2 Unidentified nectar bat within the Macroglossus genus (Macroglossus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 11) A strain of the known Coronavirus, BtCoV/512, was found in 1 Coromandel pipistrelle (Pipistrellus coromandra). There is no evidence at this time to suggest this virus	

					poses a threat to human health. 12) A strain of the known Coronavirus, BtCoV/512, was found in 26 Lesser Asiatic yellow bat (Scotophilus kuhlii). There is no evidence at this time to suggest this virus poses a threat to human health. 13) A strain of the known Coronavirus, Porcine epidemic diarrhea virus, was found in 2 Horsfield's myotis (Myotis horsfieldii). There is no evidence at this time to suggest this virus poses a threat to human health. Flaviviruses: 1) A new Flavivirus, PREDICT_Flavi-1, was found in 1 Unidentified evening bat within the Scotophilus genus (Scotophilus sp.). This is a new virus within the genus Flavivirus (family Flaviviridae) found in a bat. However, the current phylogenetic placement of this virus within the Flavivirus genus is unclear. PREDICT investigators are continuing to characterize this virus to further classify it. Paramyxoviruses: 1) A new Paramyxovirus, PREDICT_PMV-13, was found in 1 Horsfield's myotis (Myotis horsfieldii). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Paramyxovirus, PREDICT_PMV-13, was found in 2 Unidentified bat within the Vespertilionidae family of Vespertilionid bats (Scotophilus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Paramyxovirus, PREDICT_PMV-13, was found in 3 Unidentified evening bat within the Scotophilus genus (Scotophilus sp.). There is no evidence at this time to suggest this virus poses a threat to human health.	

					4) A new Paramyxovirus, PREDICT_PMV-22, was found in 1 Long-winged tomb bat (Taphozous longimanus). There is no evidence at this time to suggest this virus poses a threat to human health. Seadornaviruses: 1) A new virus in the Seadornavirus genus, PREDICT_SdV-1, was found in 1 Unidentified evening bat within the Scotophilus genus (Scotophilus sp.). This is a new virus in the Seadornavirus genus (Reo viral family) found in the feces of an insectivorous bat. This virus is likely to be insect transmitted, because all known virses in this genus are transmitted by mosquitos. Members of this genus have been associated with variable disease in animals and people, however it is unclear if this virus has the potential to cause disease in people and warrants further investigation. PREDICT investigators are continuing to characterize this virus.	
Rodents & Shrews (306 animals, 1231 samples - Feces, Heart, Kidney, Liver, Lung, lung,kidney, Oral swab, Rectal swab, Spleen)	Institut Pasteur Cambodia	PCR	Arena, Astro, Filo, Lyssa, Paramyxo viruses	Products for sequencing for Arena, Astro, Paramyxo viruses	Arenaviruses: 1) A new Arenavirus, PREDICT_ArenaV-2, was found in 1 Polynesian rat (Rattus exulans). This is a new Arenavirus found in a rodent. It is unknown if this virus could be a threat to human health, however, many Arenaviruses are significant human pathogens and can cause viral hemorrhagic fevers. PREDICT investigators are currently further characterizing this virus. Astroviruses: 1) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-183, was found in 5 Brown rat (Rattus norvegicus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-183, was found in 4 Polynesian rat (Rattus exulans).	Yes

					There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-19, was found in 1 Lesser rice-field rat (Rattus losea). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A strain of the known Astrovirus, Mamastrovirus-25, was found in 7 Brown rat (Rattus norvegicus). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A strain of the known Astrovirus, Mamastrovirus-25, was found in 2 Polynesian rat (Rattus exulans). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A strain of the known Astrovirus, Mamastrovirus-25, was found in 4 Ricefield rat (Rattus argentiventer). There is no evidence at this time to suggest this virus poses a threat to human health. 7) A strain of the known Astrovirus, Mamastrovirus-25, was found in 1 Unidentified rodent in the Rattus genus (Rattus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. Paramyxoviruses: 1) A new Paramyxovirus, PREDICT_PMV-20, was found in 1 Brown rat (Rattus norvegicus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Paramyxovirus, PREDICT_PMV-20, was found in 4 Polynesian rat (Rattus exulans). There is no evidence at this time to suggest this virus poses a threat to human health.	

					3) A new Paramyxovirus, PREDICT_PMV-28, was found in 1 Unidentified rodent in the Rattus genus (Rattus sp.). There is no evidence at this time to suggest this virus poses a threat to human health.	
Bats (30 animals, 53 samples - Feces, Oral swab, Rectal swab, Urine, Urine/urogenital swab)	Institut Pasteur Cambodia	PCR	Astro, Corona, Hanta, Paramyxo, Reo viruses	Products for sequencing for Astro, Corona, Paramyxo viruses	Interpretation Completed, Preparation of Report for Government in Progress	No
Non-human Primates (24 animals, 26 samples - Feces, Liver, Lung, Oral swab, Rectal swab, Saliva, Small intestine, Spleen)	Institut Pasteur Cambodia	PCR	Astro, Corona, Entero, Herpes, Simian Foamy viruses	Products for sequencing for Astro, Corona, Entero, Herpes, Simian Foamy viruses	Astroviruses: 1) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-138, was found in 1 Northern pig-tailed macaque (Macaca leonina). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-21, was found in 1 Long-tailed macaque (Macaca fascicularis). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-56, was found in 1 Long-tailed macaque (Macaca fascicularis). There is no evidence at this time to suggest this virus poses a threat to human health. Coronaviruses: 1) A new Coronavirus, PREDICT_CoV-31, was found in 2 Pygmy slow loris (Nycticebus pygmaeus). There is no evidence at this time to suggest this virus poses a threat to human health. Enteroviruses: 1) A strain of the known Enterovirus, Human Enterovirus C, was found in 1 Long-tailed macaque (Macaca fascicularis). This is a strain	Yes

					of the known enterovirus, Human Enterovirus C, found in a macaque. Enteroviruses are common human pathogens that can cause a wide range of disease, from mild respiratory illness to central nervous system disease. PREDICT investigators are currently further characterizing this virus. Herpesviruses: 1) A new Herpesvirus, PREDICT_HV-25, was found in 1 Asian slow loris (Nycticebus bengalensis). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Herpesvirus, PREDICT_HV-25, was found in 4 Pygmy slow loris (Nycticebus pygmaeus). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A strain of the known Herpesvirus, Macacine herpesvirus 4/Asia, was found in 1 Indochinese silvered langur (Trachypithecus germaini). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A strain of the known Herpesvirus, Macacine herpesvirus 4/Asia, was found in 5 Long-tailed macaque (Macaca fascicularis). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A strain of the known Herpesvirus, Macacine herpesvirus 4/Asia, was found in 4 Northern pig-tailed macaque (Macaca leonina). There is no evidence at this time to suggest this virus poses a threat to human health. Simian Foamy viruses: 1) A new strain of the known Simian Foamy virus, Macaque Foamy virus, was found in 1 Black-shanked douc (Pygathrix nigripes). There is no evidence at this time to suggest this virus poses a threat to human health.	

					2) A strain of the known Simian Foamy virus, Macaque Foamy virus, was found in 3 Long-tailed macaque (Macaca fascicularis). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A strain of the known Simian Foamy virus, Macaque Foamy virus, was found in 2 Northern pig-tailed macaque (Macaca leonina). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A strain of the known Simian Foamy virus, SFVHpi, was found in 2 Pileated gibbon (Hylobates pileatus). There is no evidence at this time to suggest this virus poses a threat to human health.	
Rodents & Shrews (40 animals, 72 samples - Liver, Lung, Oral swab, Rectal swab, Spleen)	Institut Pasteur Cambodia	PCR	Astro, Hanta, Lyssa, Paramyxo viruses	Products for sequencing for Astroviruses	Interpretation Completed, Preparation of Report for Government in Progress.	No
Carnivores (5 animals, 16 samples - Liver, Lung, Oral swab, Rectal swab, Spleen)	Institut Pasteur Cambodia	PCR	Corona, Lyssa viruses	All negative		Yes
Ungulates (9 animals, 20 samples - Liver, liver,lung, Lung, Oral swab, Rectal swab, Spleen)	Institut Pasteur Cambodia	PCR	Corona, Lyssa viruses	All negative		Yes
Non-human Primates (26 animals, 26 samples - Colon, Saliva)	Institut Pasteur Cambodia	PCR	Herpes, Simian Foamy viruses	Products for sequencing for Herpes, Simian Foamy viruses	Interpretation Completed, Preparation of Report for Government in Progress.	No
Other Mammals (2 animals, 7 samples - Liver, Lung, Oral, & Rectal swabs, Spleen)	Institut Pasteur Cambodia	PCR	Lyssa viruses	All negative		Yes

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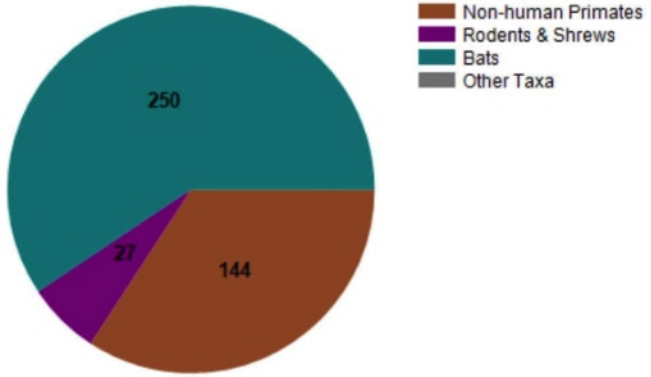
PREDICT Sampling and Testing in Indonesia

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

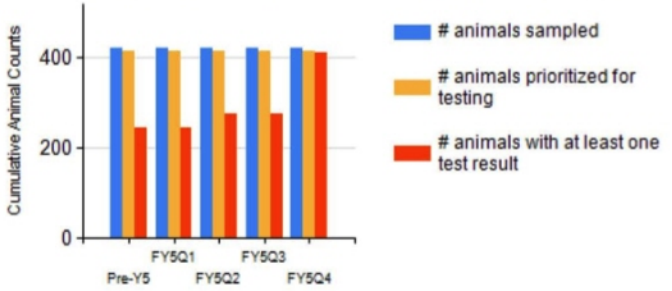
Sampling Locations

Number of Animals Sampled

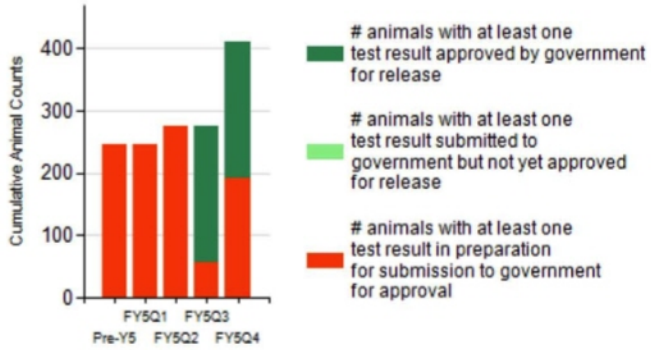


Sampling and Testing Progress

The chart does not necessarily include the samples prioritized for testing from animals for which we will attempt to sample, but for which those samples are not yet collected



Test Results Reporting Progress



For information purposes only - no action required

PREDICT Quarter 4 Year 5 Reporting

INDONESIA

- **Significant Highlights, Results, and Success Stories:**
  - Received recognition from the Ministry of Health, Ministry of Agriculture, and Ministry of Forestry as in-country experts in surveillance of pathogens in humans and wildlife.
  - Completed the Bandung Hospitalized, Bandung Cluster, Sumba Non Malaria, Papua, Dengue Study, and Sumba Population Studies.
  - In collaboration with FAO ECTAD Indonesia, the PRC-IPB project team organized and conducted technology transfer and training for the Ministry of Agriculture's National Veterinary Laboratories (Disease Investigation Center (DIC) Wates-Yogyakarta and DIC Lampung-Sumatera) to implement viral family testing protocols for poultry and livestock specimens.
  - The Eijkman PREDICT team organized and conducted virology training for the Ulin Hospital and University of Lambung Mangkurat, Banjarmasin; this engagement led to the establishment of a collaboration between the hospital and Eijkman; the team continues to work towards establishing collaborations with various health institutions and universities in Bali.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	0	250	249	245	245	90
Non-human Primates	0	144	139	139	139	124
Rodents & Shrews	0	27	27	27	27	5
High Risk Interface						
In or near human dwelling(s)	0	37	37	37	37	37
For sale in large market (> 20 vendors)	0	158	157	153	153	41
Sanctuary	0	4	4	4	4	0
Contact with researchers (other than PREDICT staff)	0	31	31	31	31	17

Contact with tourists/ecotourism	0	191	186	186	186	124
Total	**0**	**421**	**415**	**411**	**411**	**219**

PREDICT Test Findings (Q4Y5):

Indonesia						
Number of animals and samples submitted by taxa	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Bats (98 animals, 98 samples - Oral swab)	Microbiology and Immunology Lab, PSSP-IPB	PCR	Arena, Astro, Corona, Filo, Flavi, Henipa, Influenzas, Paramyxo, Rhabdo, Seadorna viruses	Products for sequencing for Astro, Corona, Paramyxo viruses	Interpretation Completed, Preparation of Report for Government in Progress..	No
Non-human Primates (15 animals, 15 samples - Feces, Serum)	Microbiology and Immunology Lab, PSSP-IPB	PCR	Arena, Corona, Filo, Flavi, Herpes, Influenzas, Orthopox, Paramyxo, Parapox, Retrovirus - Lentivirus genus viruses	Products for sequencing for Herpesviruses	Herpesviruses: 1) A strain of the known Herpesvirus, Macacine herpesvirus 4/Asia, was found in 2 Crested black macaque (Macaca nigra). There is no evidence at this time to suggest this virus poses a threat to human health.	No
Rodents & Shrews (16 animals, 44 samples - Blood clot, Oral swab, Prepucial swab, Serum, Trachea, Urine/urogenital swab)	Microbiology and Immunology Lab, PSSP-IPB	PCR	Arena, Corona, Hanta, Influenzas, Paramyxo viruses	All negative		No
Rodents & Shrews (11 animals, 18 samples - Blood clot, Urine/urogenital swab)	Primate Research Center, Bogor Agricultural University	PCR	Arena, Corona, Hanta, Influenzas, Paramyxo viruses	Products for sequencing for Paramyxo viruses	Interpretation Completed, Preparation of Report for Government in Progress..	No
Bats (29 animals, 30 samples - Blood clot, Spleen)	Primate Research Center, Bogor Agricultural	PCR	Seadorna viruses	All negative		No

	University					

Indonesia						
Number of samples tested	**Diagnostic lab**	**Diagnostic Method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Human - Bandung Hospitalized (n=154)	Eijkman Institute	PCR	Seadornavirus, Paramyxovirus, Arenavirus, Hantavirus, Coronavirus, Henipavirus, Filovirus, Rhabdovirus, Herpesvirus, Enterovirus, Bocavirus, Orbivirus,	Product for sequencing for Herpesvirus positive	This is the known virus Human herpesvirus-6 in the betaherpesvirus subfamily and Roseolovirus genus, detected in a serum sample from a person with a fever.	Yes
Human - Bandung Cluster (n-102)	GDCDC	PCR	Seadornavirus, Paramyxovirus, Arenavirus, Hantavirus, Coronavirus, Henipavirus, Filovirus, Rhabdovirus, Herpesvirus, Enterovirus, Bocavirus, Orbivirus,	Product for sequencing for Enterovirus positive	This is a strain of the known enterovirus, Human Enterovirus A strain coxsackie A6, found in a person with a fever. Enteroviruses are common human pathogens that can cause a wide range of disease, from mild respiratory illness to central nervous system disease	Yes
Human - Bandung Cohort (n-209)	GDCDC	PCR	Seadornavirus, Paramyxovirus, Arenavirus, Hantavirus, Coronavirus, Henipavirus, Filovirus, Herpesvirus, Enterovirus, Orbivirus,	Product for sequencing for Enterovirus positive (n=1)	Interpretation completed, Preparation of Report for Government in Progress.	No
Human - Sumba Non Malaria (n=42)	GDCDC	PCR	Seadornavirus, Paramyxovirus, Arenavirus, Hantavirus,	Herpesvirus positive (n=1)	Interpretation completed, Preparation of Report for Government in Progress.	No

			Coronavirus, Henipavirus, Filovirus, Rhabdovirus, Herpesvirus, Enterovirus, Bocavirus, Polyomavirus, Orbivirus, Adenovirus			
Human - Sumba Population (n=75)	GDCDC	PCR	Seadornavirus, Paramyxovirus, Arenavirus, Hantavirus, Coronavirus, Henipavirus, Filovirus, Rhabdovirus, Herpesvirus, Enterovirus, Bocavirus, Polyomavirus, Orbivirus, Adenovirus	Product for sequencing for Herpesvirus positive	Interpretation completed, Preparation of Report for Government in Progress.	No
Human - Papua (n=54)	GDCDC	PCR	Seadornavirus, Paramyxovirus, Arenavirus, Hantavirus, Coronavirus, Henipavirus, Filovirus, Rhabdovirus, Herpesvirus, Enterovirus, Polyomavirus, Orbivirus, Adenovirus	All negative		No
Human - Dengue like illness study from Indonesian Archipelago (n=53)	GDCDC	PCR	Seadornavirus, Paramyxovirus, Arenavirus, Hantavirus, Coronavirus, Henipavirus, Filovirus,	All negative		No

			Rhabdovirus, Herpesvirus, Enterovirus, Bocavirus, Orbivirus,			
Human - Dengue like illness study from RSPI (n=30)	GDCDC	PCR	Seadornavirus, Paramyxovirus, Arenavirus, Hantavirus, Coronavirus, Henipavirus, Filovirus, Rhabdovirus, Herpesvirus, Enterovirus, Bocavirus, Orbivirus,	Product for sequencing for Herpesvirus positive	This is the known virus Human herpesvirus-6 in the betaherpesvirus subfamily and Roseolovirus genus, detected in a serum sample from a person with a fever.	Yes
Human - Dengue like illness study from Banjarmasin (n=19)	GDCDC	PCR	Seadornavirus, Paramyxovirus, Arenavirus, Hantavirus, Coronavirus, Henipavirus, Filovirus, Rhabdovirus, Herpesvirus, Enterovirus, Bocavirus, Orbivirus,	All negative		No
Human - NonStudy Specimen (n=53)	GDCDC	PCR	Seadornavirus, Paramyxovirus, Arenavirus, Hantavirus, Coronavirus, Henipavirus, Filovirus, Herpesvirus, Enterovirus, Bocavirus, Polyomavirus, Adenovirus	Products for sequencing for Paramyxo, entero,, herpes and , boca viruses	Interpretation completed, Preparation of Report for Government in Progress for Parmyxoviruses.. interpretation pending for herpes, boca and enetero viruses	No

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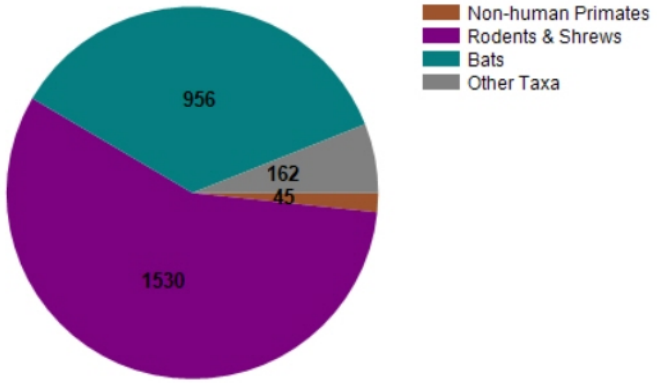
PREDICT Sampling and Testing in Lao Peoples Democratic Republic

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

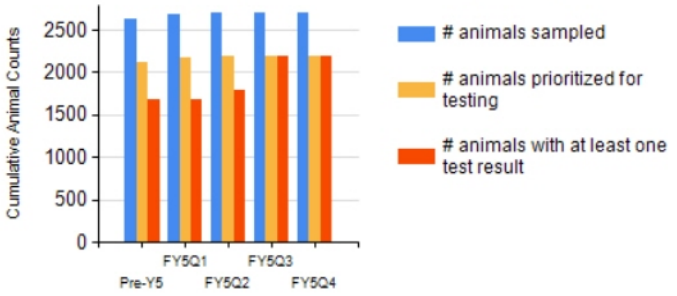
Sampling Locations

Number of Animals Sampled

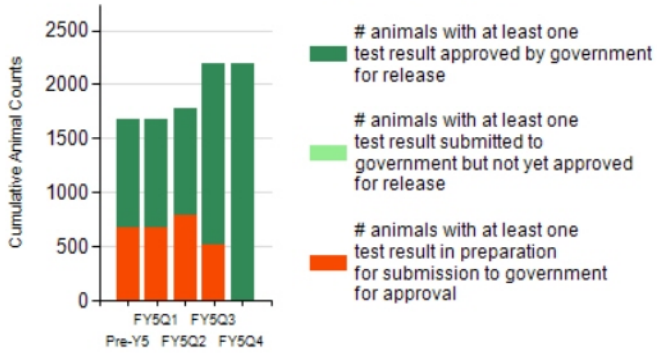


Sampling and Testing Progress

The chart does not necessarily include the samples prioritized for testing from animals for which we will attempt to sample, but for which those samples are not yet collected



Test Results Reporting Progress



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PREDICT Quarter 4 Year 5 Reporting

LAOS

- **Significant Highlights, Results, and Success Stories:**
  - Completed testing and test result interpretations on all remaining prioritized specimens.
  - Submitted the 3rd results report submitted to government partners and obtained permission for public release of data.
  - At the request of the government, developed and shared a PREDICT findings and recommendations document.
  - Held 1 central level and 4 provincial level government One Health meetings to share project findings and discuss potential solutions for reducing zoonotic spillover risk from wildlife. Participants included government representatives from the public health, agriculture and forestry, natural resource and environment, and industry and commerce sectors and market managers from sites identified as significant wildlife-human disease spillover and transmission interfaces. In total, 22 people attended the central level meeting and 73 people attended the provincial meetings.
  - Analyzed data from 4 years of surveys of wildlife trade in markets across Lao PDR and initiated assessment and characterization studies on potential disease risk.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	0	956	946	946	946	946
Non-human Primates	0	45	44	44	44	44
Other Taxa	0	162	122	122	122	122
Rodents & Shrews	0	1530	1075	1075	1075	1075
High Risk Interface						
In or near human dwelling(s)	0	6	6	6	6	6
For sale in large market (> 20 vendors)	0	1890	1582	1582	1582	1582
For sale in medium market (5-20	0	164	149	149	149	149

vendors)						
For sale in small market (< 5 vendors)	0	53	44	44	44	44
Hunted	0	556	382	382	382	382
Private wildlife collection or pet	0	1	1	1	1	1
Private sale	0	6	6	6	6	6
Zoo	0	16	16	16	16	16
Contact with tourists/ecotourism	0	1	1	1	1	1
Total	**0**	**2693**	**2187**	**2187**	**2187**	**2187**

PREDICT Test Findings (Q4Y5):

Lao Peoples Democratic Republic						
Number of animals and samples submitted by taxa	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Bats (9 animals, 17 samples - Oral swab, Rectal swab)	Institut Pasteur Cambodia	PCR	Astro viruses	Products for sequencing for Astro viruses	Interpretation Completed, Preparation of Report for Government in Progress..	No
Bats (26 animals, 33 samples - Oral swab, Rectal swab)	Institut Pasteur Cambodia	PCR	Astro, Corona, Flavi, Influenzas viruses	Products for sequencing for Astro, Corona viruses	Astroviruses: 1) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-13, was found in 4 Unidentified bat within the Roussetus genus (Rousettus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-16, was found in 1 Unidentified bat	Yes

					within the Roussetus genus (Rousettus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-17, was found in 1 Leschenault's rousette (Rousettus leschenaultii). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-184, was found in 1 Unidentified bat within the Roussetus genus (Rousettus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-185, was found in 1 Unidentified bat within the Roussetus genus (Rousettus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-186, was found in 1 Unidentified bat within the Roussetus genus (Rousettus sp.). There is no evidence at this time to suggest this virus poses a	

					threat to human health. 7) A strain of the known Astrovirus, Mamastrovirus-19, was found in 1 Great evening bat (Ia io). There is no evidence at this time to suggest this virus poses a threat to human health. Coronaviruses: 1) A new Coronavirus, PREDICT_CoV-23, was found in 5 Unidentified bat within the Roussetus genus (Rousettus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A strain of the known Coronavirus, Bat Coronavirus HKU9, was found in 1 Cave nectar bat (Eonycteris spelaea). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A strain of the known Coronavirus, Bat Coronavirus HKU9, was found in 7 Unidentified bat within the Roussetus genus (Rousettus sp.). There is no evidence at this time to suggest this virus poses a threat to human health.	
Rodents & Shrews (5 animals, 5 samples - Rectal swab, Urine/urogenital swab)	Institut Pasteur Cambodia	PCR	Astro, Flavi, Paramyxo viruses	Products for sequencing for Astro viruses	Astroviruses: 1) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-114, was found in 1 Long-tailed giant rat (Leopoldamys sabanus).	Yes

					There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-135, was found in 1 Unidentified flying squirrel within the Hylopetes genus of rodent (Hylopetes sp.). There is no evidence at this time to suggest this virus poses a threat to human health.	
Bats (12 animals, 12 samples - Oral swab, Rectal swab)	Institut Pasteur Cambodia/National Animal Health Centre	PCR	Corona viruses	Products for sequencing for Corona viruses	Coronaviruses: 1) A new Coronavirus, PREDICT_CoV-23, was found in 1 Unidentified bat within the Roussetus genus (Rousettus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Coronavirus, PREDICT_CoV-53, was found in 5 Horsfield's leaf-nosed bat (Hipposideros larvatus). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Coronavirus, PREDICT_CoV-56, was found in 1 Unidentified fruit bat within the Cynopterus genus (Cynopterus sp.). There is no evidence at this time to suggest this virus poses a threat to human health.	Yes

					4) A strain of the known Coronavirus, Bat Coronavirus HKU9, was found in 1 Cave nectar bat (Eonycteris spelaea). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A strain of the known Coronavirus, Bat Coronavirus HKU9, was found in 4 Unidentified bat within the Roussetus genus (Rousettus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A strain of the known Coronavirus, BtCoV/Hipposideros/Ractcha-67/THA/2007, was found in 2 Horsfield's leaf-nosed bat (Hipposideros larvatus). There is no evidence at this time to suggest this virus poses a threat to human health.	
Bats (10 animals, 10 samples - Rectal swab)	National Animal Health Centre	PCR	Corona, Rhabdo viruses	Products for sequencing for Corona viruses	Coronaviruses: 1) A new Coronavirus, PREDICT_CoV-23, was found in 1 Unidentified bat within the Roussetus genus (Rousettus sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A strain of the known Coronavirus, Bat Coronavirus HKU9, was found in 3 Unidentified bat within the Roussetus genus (Rousettus	No

					sp.). There is no evidence at this time to suggest this virus poses a threat to human health.	
Rodents & Shrews (13 animals, 17 samples - Kidney, Liver, Lung, Oral swab, Rectal swab, Spleen)	National Animal Health Centre	PCR	Corona, Rhabdo viruses	All negative		No
Carnivores (5 animals, 5 samples - Lung, Oral swab, Rectal swab)	National Animal Health Centre	PCR	Corona viruses	All negative		No
Non-human Primates (3 animals, 3 samples - Saliva, Urine/urogenital swab)	Institut Pasteur Cambodia	PCR	Herpes, Simian Foamy viruses	Products for sequencing for Herpes, Simian Foamy viruses	Herpesviruses: 1) A strain of the known Herpesvirus, Macacine herpesvirus 4/Asia, was found in 3 Northern pig-tailed macaque (Macaca leonina). There is no evidence at this time to suggest this virus poses a threat to human health. Simian Foamy viruses: 1) A strain of the known Simian Foamy virus, Macaque Foamy virus, was found in 1 Northern pig-tailed macaque (Macaca leonina). There is no evidence at this time to suggest this virus poses a threat to human health.	Yes

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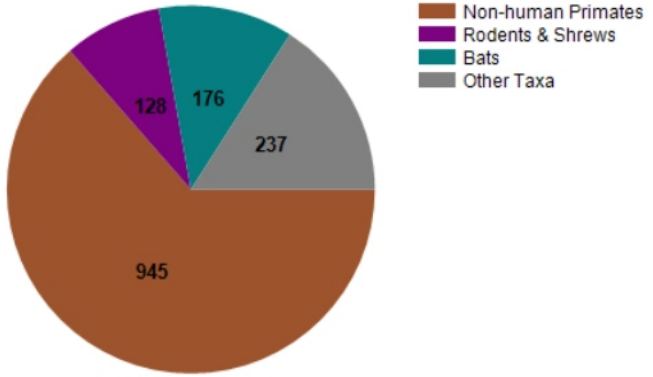
PREDICT Sampling and Testing in Malaysia, Peninsular

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

Sampling Locations

Number of Animals Sampled



Sampling and Testing Progress

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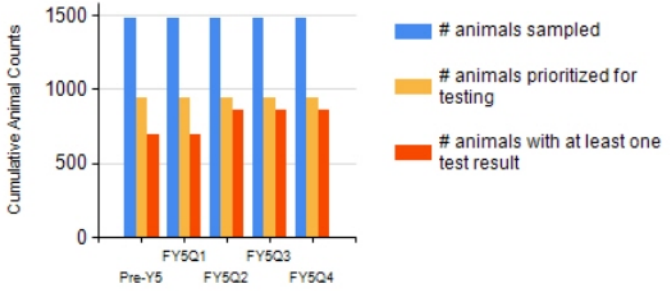
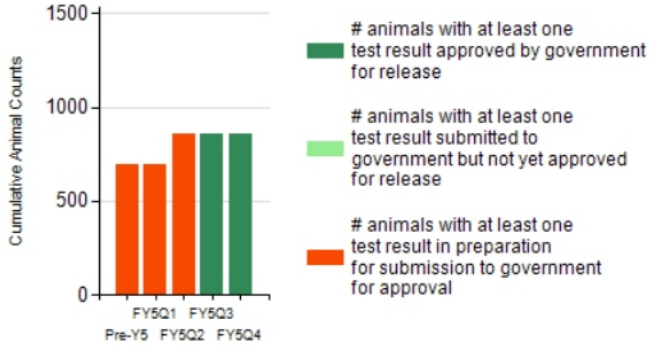


Test Results Reporting Progress



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PREDICT Quarter 4 Year 5 Reporting

MALAYSIA
Peninsular Malaysia

- **Significant Highlights, Results, and Success Stories:**
  - Signed MOA between EHA, GV, and the Malaysian government.
  - Completed testing of all rectal, urine, and throat swabs from all bats, rodents, and non-human primates (NHPs) collected on Peninsular Malaysia for priority viral families.
  - Shared all test results submitted to GAINS with government partners and obtained approval for public release of results on HealthMap.
  - Completed testing of 136 archived Orang Asli (one of Malaysia's Indigenous Peoples) samples from patients with acute febrile illness at the National Public Health Laboratory for Arena, Corona, Filo, Paramyxo, Hanta, Seadorna, Astro, Retro, Influenza, SFV, Herpes, Entero, Flavi, Henipa, Alpha, Phlebo, Orbi, Lyssa, Rhabdo, and Bunya viral families/genera.
  - Worked with the FAO BioSecurity Coordinator to advise the Department of Wildlife and National Parks (PERHILITAN) on the construction of their new Forensic and Disease Laboratory, to be operational in April 2015, to ensure the lab is certified as a BSL-2 laboratory and meets ISO 17025 requirements.
  - Provided information to the Ministry of Health on Ebola preparedness and had follow-up discussions.
  - Worked with the Ministry of Health to initiate use of the Universal Control at the National Public Health Laboratory to screen human samples for flavivirus, and begin planning to incorporate use of Universal Control into their protocol for screening patients with unknown virus.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	0	176	176	165	165	165
Non-human Primates	0	945	602	534	534	534
Other Taxa	0	237	38	37	37	36

Rodents & Shrews	0	128	127	125	125	125
High Risk Interface						
Wildlife trade transport	0	203	28	28	28	28
Contact with workers harvesting crops	0	225	87	87	87	87
In or near human dwelling(s)	0	759	568	495	495	494
Private wildlife collection or pet	0	5	5	5	5	5
Public safety hazard (e.g. threat to humans)	0	57	41	41	41	41
Rehabilitation center	0	15	9	9	9	9
Contact with park personnel/intensive wildlife management area	0	143	140	131	131	131
Contact with tourists/ecotourism	0	79	65	65	65	65
Total	**0**	**1486**	**943**	**861**	**861**	**860**

PREDICT Test Findings (Q4Y5):

Malaysia, Peninsular						
Number of animals and samples submitted by taxa	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Non-human Primates (9 animals, 26 samples - Oral swab, Rectal swab, Urine/urogenital swab)	Veterinary Research Institute Ipoh, Department of Veterinary Services	PCR	Simian Foamy viruses	All negative		No

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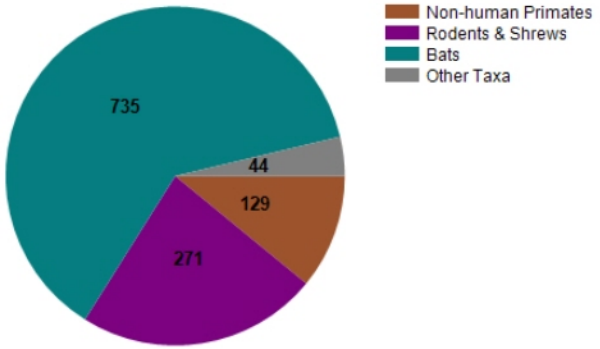
PREDICT Sampling and Testing in Malaysia, Sabah

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

Sampling Locations

Number of Animals Sampled



Sampling and Testing Progress

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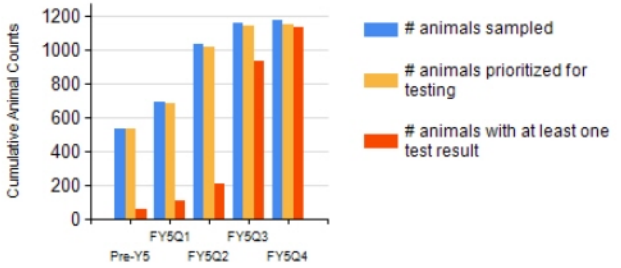
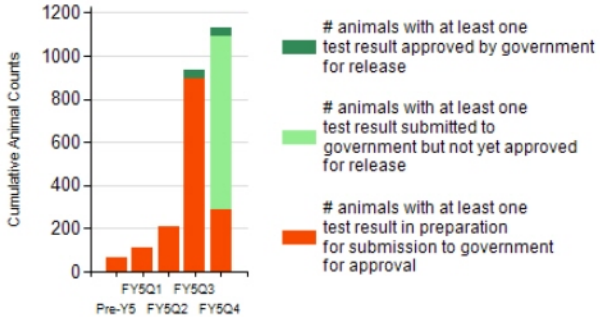


Test Results Reporting Progress



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MALAYSIA
Sabah

- **Significant Highlights, Results, and Success Stories:**
  - Completed testing of all rectal, urine, and throat swabs from all bats, rodents, and NHPs collected on Sabah, including Deep Forest specimens, for priority viral families.
  - Shared all test results submitted to GAINS with government partners through 3 separate reports and obtained approval for public release of results from the first report.
  - Continued to work collaboratively and oversee activities at the Wildlife Health, Genetic and Forensic Lab.
  - Presented on the PREDICT and IDEEAL projects at the Malaysian Palm Oil Conference; the presentation was well received and was followed up by an article in the Star newspaper detailing the progress and importance of both projects.
  - Provided information to Department of State Health Sabah on Ebola preparedness.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	0	735	735	717	717	0
Non-human Primates	14	129	125	122	122	38
Other Taxa	0	44	22	22	22	4
Rodents & Shrews	0	271	271	271	271	0
High Risk Interface						
Contact with workers harvesting crops	2	256	245	242	242	0
In or near human dwelling(s)	3	63	58	58	58	0
Raiding crops	0	215	210	206	206	0
Rehabilitation center	0	5	4	3	3	0

PREDICT Quarter 4 Year 5 Reporting

Sanctuary	0	10	9	8	8	0
Zoo	0	3	3	3	3	1
Contact with park personnel/intensive wildlife management area	9	600	598	586	586	41
Contact with researchers (other than PREDICT staff)	0	7	7	7	7	0
Contact with tourists/ecotourism	0	19	19	19	19	0
Total	**14**	**1179**	**1153**	**1132**	**1132**	**42**

PREDICT Test Findings (Q4Y5):

Malaysia, Sabah						
Number of animals and samples submitted by taxa	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Bats (166 animals, 234 samples - Oral swab, Rectal swab, Urine/urogenital swab)	Wildlife Health, Genetic and Forensic Laboratory, Sabah Wildlife Department	PCR	Adeno, Arena, Astro, Corona, Filo, Flavi, Hanta, Henipa, Herpes, Influenzas, Paramyxo, Rhabdo viruses	Products for sequencing for Herpesviruses	Interpretation Completed, Preparation of Report for Government in Progress..	No
Non-human Primates (34 animals, 62 samples - Feces, Oral swab, Rectal swab, Urine/urogenital swab)	Wildlife Health, Genetic and Forensic Laboratory, Sabah Wildlife Department	PCR	Adeno, Arena, Astro, Boca, Corona, Entero, Filo, Flavi, Henipa, Herpes, Influenzas, Paramyxo, Retrovirus - Lentivirus genus , Rhabdo viruses	Products for sequencing for Adeno, Entero, Herpes viruses	Interpretation Completed, Preparation of Report for Government in Progress..	No
Rodents & Shrews (112 animals, 333 samples -	Wildlife Health,	PCR	Adeno, Arena, Astro, Corona, Filo, Flavi,	Products for sequencing for	Interpretation Completed, Preparation of Report for Government in Progress..	No

Oral swab, Rectal swab, Urine/urogenital swab)	Genetic and Forensic Laboratory, Sabah Wildlife Department		Hanta, Henipa, Herpes, Influenzas, Paramyxo, Rhabdo viruses	Herpesviruses		
Carnivores (2 animals, 6 samples - Oral swab, Rectal swab, Urine/urogenital swab)	Wildlife Health, Genetic and Forensic Laboratory, Sabah Wildlife Department	PCR	Adeno, Arena, Astro, Corona, Filo, Flavi, Hanta, Henipa, Herpes, Influenzas, Paramyxo, Rhabdo viruses	Products for sequencing for Herpesviruses	Sequencing pending	No
Ungulates (1 animals, 3 samples - Oral swab, Rectal swab, Urine/urogenital swab)	Wildlife Health, Genetic and Forensic Laboratory, Sabah Wildlife Department	PCR	Adeno, Arena, Astro, Corona, Filo, Flavi, Hanta, Henipa, Herpes, Influenzas, Paramyxo, Rhabdo viruses	All negative		No
Other Mammals (1 animals, 3 samples - Oral swab, Rectal swab, Urine/urogenital swab)	Wildlife Health, Genetic and Forensic Laboratory, Sabah Wildlife Department	PCR	Adeno, Arena, Astro, Corona, Filo, Flavi, Hanta, Henipa, Herpes, Influenzas, Paramyxo, Rhabdo viruses	Products for sequencing for Herpesviruses	Interpretation Completed, Preparation of Report for Government in Progress..	No
Bats (372 animals, 1043 samples - Blood (whole), Oral swab, Rectal swab, Red blood cells, Serum, Urine/urogenital swab)	Center for Infection and Immunity, Columbia University	PCR	Corona, Filo, Influenzas, Paramyxo viruses	Products for sequencing for Paramyxo viruses	Interpretation Completed, Preparation of Report for Government in Progress..	No
Non-human Primates (30 animals, 123 samples - Oral swab, Plasma, Rectal swab, Serum, Urine/urogenital swab)	Center for Infection and Immunity, Columbia University	PCR	Corona, Filo, Influenzas, Paramyxo viruses	All negative		No

Rodents & Shrews (39 animals, 163 samples - Blood (whole), Oral swab, Rectal swab, Serum, Urine/urogenital swab)	Center for Infection and Immunity, Columbia University	PCR	Corona, Filo, Influenzas, Paramyxo viruses	All negative		No
Other Mammals (1 animals, 5 samples - Blood (whole), Oral swab, Rectal swab, Serum, Urine/urogenital swab)	Center for Infection and Immunity, Columbia University	PCR	Corona, Filo, Influenzas, Paramyxo viruses	All negative		No

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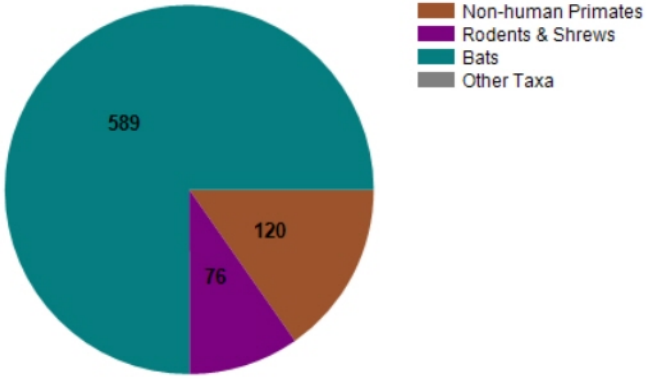
PREDICT Sampling and Testing in Thailand

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

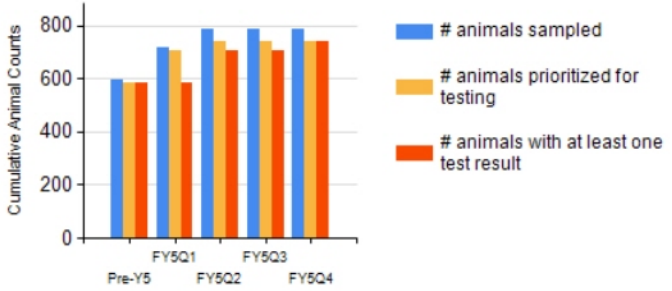
Sampling Locations

Number of Animals Sampled

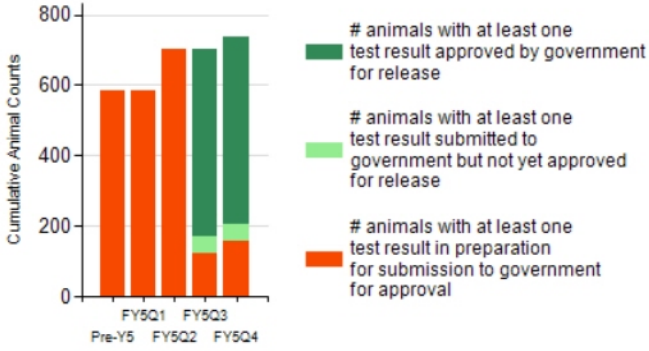


Sampling and Testing Progress

The chart does not necessarily include the samples prioritized for testing from animals for which we will attempt to sample, but for which those samples are not yet collected



Test Results Reporting Progress



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THAILAND

- **Significant Highlights, Results, and Success Stories:**
  - Project laboratory was designated as the reference laboratory for Ebola virus testing in humans, and the project filovirus PCR protocols are being used as a screening and confirmatory assay in Ebola preparedness and response plans.
  - Presented a project overview during a visit at the laboratory by the US Senate staff (Senate Committee on Appropriations, Subcommittee on Agriculture, Rural Development, Food and Drug Administration, and Related Agencies).
  - Completed all the test results and data submission to GAINS.
  - Country Coordinator presented the findings on coronaviruses in bats in Eastern Thailand as part of PREDICT work at the Infectious Diseases of Bats Symposium, Fort Collins, CO. Travel was funded by the Cooperative Biological Engagement Program (CBEP) of the U.S. Defense Threat Reduction Agency (DTRA). This work was submitted as a manuscript to Virology Journal and is currently in review.
  - Country Coordinator received an invitation from the WHO to be a Temporary Advisor for the Regional Director and to participate and give a lecture at the National Workshop on Human Rabies Prophylaxis, organized by Department of Medical Care, Ministry of Health, Myanmar.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	0	589	577	577	577	461
Non-human Primates	0	120	85	85	85	0
Rodents & Shrews	0	76	76	76	76	72
High Risk Interface						
Contact during religious activities	0	33	21	21	21	21
Contact with park personnel/intensive wildlife management area	0	175	175	175	175	174
Contact with	0	118	118	118	118	0

researchers (other than PREDICT staff)						
Contact with tourists/ecotourism	0	127	92	92	92	7
Other	0	332	332	332	332	331
Total	**0**	**785**	**738**	**738**	**738**	**533**

PREDICT Test Findings (Q4Y5):

Thailand						
Number of animals and samples submitted by taxa	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Non-human Primates (35 animals, 105 samples - Oral swab, Rectal swab, Serum)	WHO-CC viral zoonoses, Chulalongkorn University	PCR	Corona, Influenzas, Paramyxo viruses	All negative		No

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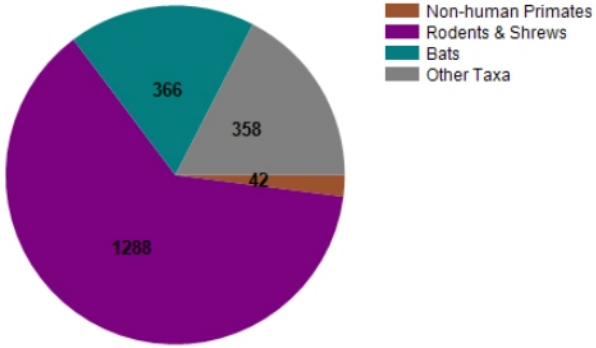
PREDICT Sampling and Testing in Vietnam

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

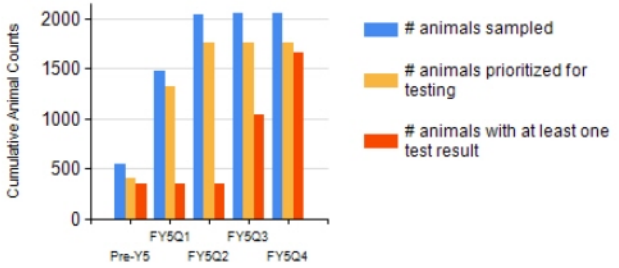
Sampling Locations

Number of Animals Sampled

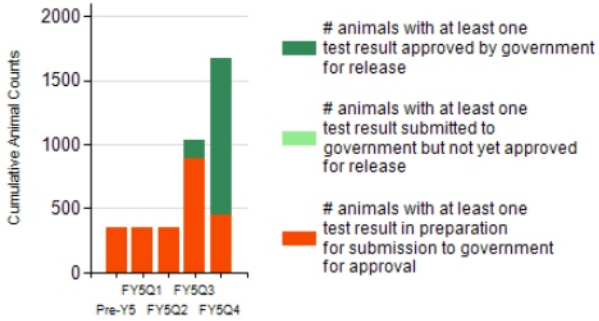


Sampling and Testing Progress

The chart does not necessarily include the samples prioritized for testing from animals for which we will attempt to sample, but for which those samples are not yet collected



Test Results Reporting Progress



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VIETNAM

PREDICT Quarter 4 Year 5 Reporting

- **Significant Highlights, Results, and Success Stories:**
  - Organized a seminar series for One Health partners in the academic and research community based in Hanoi during (b)(6) visit to Vietnam from August 11-15, 2014. (b)(6) and project staff delivered a talk entitled "A Global Update on the USAID Emerging Pandemic Threats PREDICT Project: Detecting and discovering zoonotic viral pathogens in wildlife around the world", and a seminar entitled "The Gorilla Doctors: One Health in Action". The presentations were followed by discussion with students and faculty at the Hanoi School of Public Health (67 people, including: 38 students, 28 lecturers, and 1 WHO staff) and the Vietnam National University of Agriculture (23 people, including: 6 lecturers and 17 students). Meetings were also held during (b)(6) visit with the Department of Animal Health (DAH), the Faculty of Veterinary Medicine, Vietnam National University of Agriculture in Hanoi and the senior staff at the Regional Animal Health Office No. 6 Laboratory in Ho Chi Minh City.
  - Attended the first "One Health Communication Network" meeting organized in Vietnam in September. The communication network was originally established as part of the Vietnam Partnership on Avian and Human Influenza. Participants contributed to developing the mission statement and terms of reference for the One Health Communication Network. Project staff presented on the PREDICT experience and achievements in the area of One Health communication in Vietnam, highlighting both the process for sharing test results and coordinating field surveillance for pathogen detection across the environment/wildlife, public health, and animal health sectors.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	0	366	364	315	315	315
Non-human Primates	0	42	42	39	39	20
Other Taxa	13	358	79	71	71	71
Rodents & Shrews	0	1288	1280	1245	1245	817
High Risk Interface						
Contact during religious activities	0	12	12	11	11	11

PREDICT Quarter 4 Year 5 Reporting

In or near human dwelling(s)	0	354	352	304	304	304
For sale in large market (> 20 vendors)	0	372	372	363	363	363
For sale in restaurant	0	430	319	295	295	295
Private wildlife collection or pet	0	2	2	1	1	1
Private sale	0	189	189	188	188	188
Rehabilitation center	0	59	42	42	42	42
Sanctuary	0	8	7	7	7	2
Wild animal farm	0	597	452	442	442	0
Zoo	0	18	18	17	17	17
Total	**0**	**2041**	**1765**	**1670**	**1670**	**1223**

PREDICT Test Findings (Q4Y5):

Vietnam						
Number of animals and samples submitted by taxa	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Rodents & Shrews (115 animals, 165 samples - Feces, Liver, Lung, Muscle, Oral swab, Rectal swab)	UC Davis Wildlife Diagnostic Lab	PCR	Alpha, Hanta, Influenzas, Rhabdo, Seadorna viruses	Products for sequencing for Influenzas, Rhabdo viruses	Influenzas: 1) The known Influenza virus, Influenza A, was found in 3 Unidentified rat within the Rhizomyinae subfamily of bamboo rats (Rhizomys sp.). This is the known virus Influenza A found in a rodent. Influenza viruses are important pathogens in humans and animals. Given that this rodent was sampled in a restaurant, and therefore handled by people prior to sampling, it is possible that this virus came from the people. PREDICT investigators are currently in the process of subtyping this virus and characterizing the full genome.	Yes

					Rhabdoviruses: 1) A new Rhabdovirus, PREDICT_RbdV-16, was found in 2 Unidentified rat within the Rhizomyinae subfamily of bamboo rats (Rhizomys sp.). This is a new Rhabdovirus found in rodents. This virus is related to a group of insect transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are currently further characterizing this virus. 2) A new Rhabdovirus, PREDICT_RbdV-18, was found in 1 Unidentified rat within the Rhizomyinae subfamily of bamboo rats (Rhizomys sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 3) PREDICT_RbdV-17, was found in 1 Unidentified rat within the Rhizomyinae subfamily of bamboo rats (Rhizomys sp.). This is a new Rhabdovirus found in rodents. This virus is related to a group of insect transmitted Rhabdoviruses. Some members of this group have been associated with fatal encephalitis in people and animals and therefore this virus warrants further investigation. PREDICT investigators are currently further characterizing this virus.	
Bats (279 animals, 353 samples - Feces, Oral swab, Rectal swab, Urine/urogenital swab)	Regional Animal Health Office No. 6	PCR	Arena, Corona, Filo, Flavi, Henipa, Paramyxo, Rhabdo viruses	All negative		Yes
Non-human Primates (1 animals, 1 samples - Saliva)	HUA National Key Laboratory of Veterinary Biotechnology	PCR	Arena viruses	All negative		No
Non-human Primates (18 animals, 18	HUA National Key	PCR	Arena, Corona, Hanta viruses	All negative		Yes

samples - Feces, Saliva)	Laboratory of Veterinary Biotechnology					
Rodents & Shrews (2 animals, 2 samples - Feces)	HUA National Key Laboratory of Veterinary Biotechnology	PCR	Arena viruses	All negative		No
Rodents & Shrews (483 animals, 513 samples - Brain, Environmental Sample, Feces, Lung, Oral swab, Small intestine, Urine/urogenital swab)	Regional Animal Health Office No. 6	PCR	Arena, Bunya, Flavi, Hanta, Paramyxo, Rhabdo viruses	Products for sequencing for Paramyxo, Rhabdo viruses	Interpretation Completed, Preparation of Report for Government in Progress..	No
Rodents & Shrews (584 animals, 1087 samples - Brain, Kidney, Lung, Oral swab, Rectal swab, Small intestine, Spleen, Urine/urogenital swab)	Regional Animal Health Office No. 6	PCR	Arena, Bunya, Flavi, Hanta, Paramyxo viruses	Product for sequencing for Paramyxo viruses	Paramyxoviruses: 1) A new Paramyxovirus, PREDICT_PMV-58, was found in 1 Unidentified rodent in the Rattus genus (Rattus sp.). There is no evidence at this time to suggest this virus poses a threat to human health.	Yes
Bats (218 animals, 263 samples - Feces, Rectal swab, Urine/urogenital swab)	Regional Animal Health Office No. 6	PCR	Corona, Flavi, Henipa, Paramyxo, Rhabdo viruses	Products for sequencing for Corona, Paramyxo, Rhabdo viruses	Interpretation Completed, Preparation of Report for Government in Progress..	No
Carnivores (4 animals, 4 samples - Feces, Oral swab)	HUA National Key Laboratory of Veterinary Biotechnology	PCR	Corona, Flavi, Paramyxo viruses	All negative		Yes
Non-human Primates (2 animals, 6 samples - Feces, Oral swab, Rectal swab)	UC Davis Wildlife Diagnostic Lab	PCR	Filo, Influenzas, Rhabdo viruses	All negative		No
Carnivores (14 animals, 19 samples - Feces, Lung, Muscle, Oral	UC Davis Wildlife Diagnostic	PCR	Filo, Influenzas, Rhabdo viruses	All negative		No

swab, Spleen, Urine)	Lab					
Non-human Primates (19 animals, 22 samples - Environmental Sample, Feces, Oral swab, Urine/urogenital swab)	Regional Animal Health Office No. 6	PCR	Flavi viruses	All negative		No
Rodents & Shrews (27 animals, 29 samples - Feces, Muscle, Oral swab, Rectal swab)	HUA National Key Laboratory of Veterinary Biotechnology	PCR	Flavi, Paramyxo viruses	All negative		Yes

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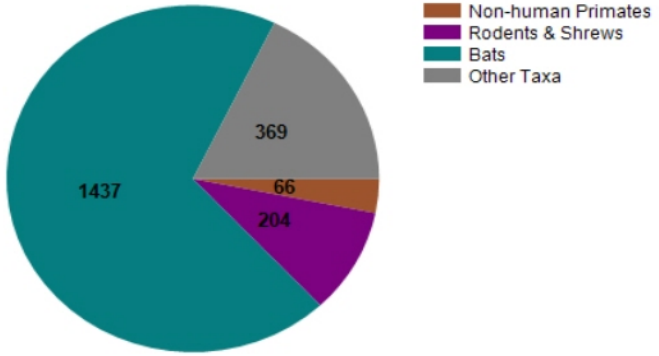
PREDICT Sampling and Testing in Brazil

The USAID Emerging Pandemic Threats PREDICT project has been working with government partners in 20 countries to develop efforts for surveillance, testing, and reporting of potential human pathogens in wildlife. This summary provides a country-level view of where wildlife sampling has been conducted to date, how sampling has been targeted on taxonomic groups of animals of high concern for human pathogens, and progress in laboratory analyses and approval of findings for sharing with the global health community.

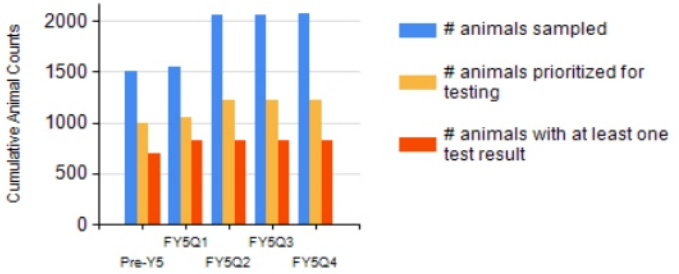
Sampling Locations

Number of Animals Sampled

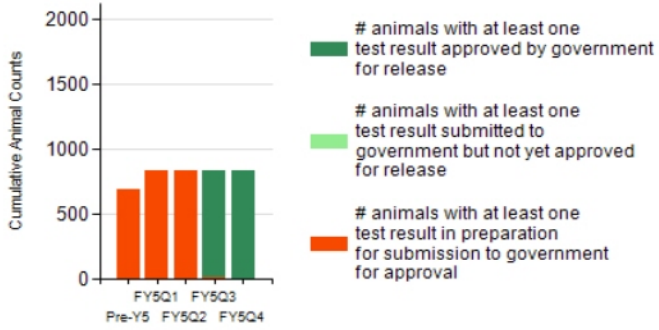


Sampling and Testing Progress

The chart does not necessarily include the samples prioritized for testing from animals for which we will attempt to sample, but for which those samples are not yet collected



Test Results Reporting Progress



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PREDICT Quarter 4 Year 5 Reporting

BRAZIL

- **Significant Highlights, Results, and Success Stories:**
  - Successfully completed laboratory testing with the exception of samples sent to an external laboratory for cloning and sequencing for confirmation of results.
  - Submitted the first test results report to the relevant ministries and received approval from the Brazilian governmental authorities for public release.
  - All approved results were submitted through GAINS to HealthMap for public release.

Summary of Surveillance Activities and Testing by Country in GAINS to date:

Taxa	Number animals sampled this quarter	Number animals sampled to date	Number of animals targeted for testing	Number of animals with at least one final test result	Number of animals with at least one test result with interpretation completed	Number of animals with at least one test result cleared for release by govt
Bats	13	1437	860	623	623	623
Non-human Primates	0	66	50	18	18	18
Other Taxa	0	369	168	98	98	98
Rodents & Shrews	0	204	138	89	89	88
High Risk Interface						
Contact during religious activities	0	54	54	8	8	8
Contact with workers harvesting crops	0	247	0	0	0	0
In or near human dwelling(s)	0	644	439	317	317	317
Preying on livestock or their food	0	2	2	0	0	0
Private wildlife collection or pet	0	60	0	0	0	0
Raiding crops	13	88	17	0	0	0
Free-ranging	0	469	311	274	274	273
Zoo	0	5	5	5	5	5
Urban forest fragment with	0	127	88	74	74	74

recreational activities						
Contact with park personnel/intensive wildlife management area	0	8	8	0	0	0
Contact with researchers (other than PREDICT staff)	0	111	107	86	86	86
Contact with workers in extractive industry	0	121	121	0	0	0
Contact with domestic animals or humans NOT likely	0	37	0	0	0	0
Other	0	103	64	64	64	64
Total	**13**	**2076**	**1216**	**828**	**828**	**827**

PREDICT Test Findings (Q4Y5):

Brazil						
Number of animals and samples submitted by taxa	**Diagnostic lab**	**Diagnostics method**	**Pathogen family genus screening or specific virus**	**Results**	**Pathogen discovery**	**Approved by government for release**
Bats (30 animals, 122 samples - Anal swab, Blood clot, Oral swab, Rectal swab, Serum, Skin)	Center for Infection and Immunity, Columbia University	PCR	Adeno, Astro, Corona, Polyoma viruses	Products for sequencing for Adeno, Astro, Corona, Polyoma viruses	Adenoviruses: 1) A new Adenovirus, PREDICT_AdV-13, was found in 1 little yellow-shouldered bat (Sturnira lilium). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Adenovirus, PREDICT_AdV-14, was found in 1 Pallas's long-tongued bat (Glossophaga soricina). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Adenovirus, PREDICT_AdV-15, was found in 2 little yellow-shouldered bat (Sturnira lilium). There is no evidence at this time to suggest this virus poses a threat to human health.	Yes

					4) A new Adenovirus, PREDICT_AdV-16, was found in 1 Pallas's long-tongued bat (Glossophaga soricina). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Adenovirus, PREDICT_AdV-16, was found in 2 Seba's short-tailed bat (Carollia perspicillata). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Adenovirus, PREDICT_AdV-16, was found in 2 Tailed tailless bat (Anoura caudifer). There is no evidence at this time to suggest this virus poses a threat to human health. Astroviruses: 1) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-7, was found in 1 Great fruit-eating bat (Artibeus lituratus). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-8, was found in 4 little yellow-shouldered bat (Sturnira lilium). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-9, was found in 3 Seba's short-tailed bat (Carollia perspicillata). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-9, was found in 1 Tailed tailless bat (Anoura	

					caudifer). There is no evidence at this time to suggest this virus poses a threat to human health. Coronaviruses: 1) A new Coronavirus, PREDICT_CoV-12, was found in 2 Tailed tailless bat (Anoura caudifer). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Coronavirus, PREDICT_CoV-13, was found in 1 Dark long-tongued bat (Lichonycteris obscura). There is no evidence at this time to suggest this virus poses a threat to human health. 3) A new Coronavirus, PREDICT_CoV-13, was found in 1 Pallas's long-tongued bat (Glossophaga soricina). There is no evidence at this time to suggest this virus poses a threat to human health. 4) A new Coronavirus, PREDICT_CoV-14, was found in 1 little yellow-shouldered bat (Sturnira lilium). There is no evidence at this time to suggest this virus poses a threat to human health. 5) A new Coronavirus, PREDICT_CoV-15, was found in 1 Great fruit-eating bat (Artibeus lituratus). There is no evidence at this time to suggest this virus poses a threat to human health. 6) A new Coronavirus, PREDICT_CoV-15, was found in 2 little yellow-shouldered bat (Sturnira lilium). There is no evidence at this time to suggest this virus poses a threat to human health. 7) A new Coronavirus, PREDICT_CoV-18, was found in 1 Unidentified bat within the Glossophaginae subfamily of	

					Leaf-nosed bats (Glossophaginae sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 8) A new Coronavirus, PREDICT_CoV-19, was found in 1 Unidentified bat within the Glossophaginae subfamily of Leaf-nosed bats (Glossophaginae sp.). There is no evidence at this time to suggest this virus poses a threat to human health. 9) A new Coronavirus, PREDICT_CoV-4, was found in 1 little yellow-shouldered bat (Sturnira lilium). There is no evidence at this time to suggest this virus poses a threat to human health. 10) A strain of the known Coronavirus, Trinidad/1FY2BA/2007, was found in 2 Seba's short-tailed bat (Carollia perspicillata). There is no evidence at this time to suggest this virus poses a threat to human health. Polyomaviruses: 1) A new Polyomavirus, PREDICT_PyV-3, was found in 1 Pallas's long-tongued bat (Glossophaga soricina). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Polyomavirus, PREDICT_PyV-4, was found in 1 Unidentified bat within the Glossophaginae subfamily of Leaf-nosed bats (Glossophaginae sp.). There is no evidence at this time to suggest this virus poses a threat to human health.	
Bats (121 animals, 174 samples - Anal swab, Blood (whole), Blood clot, Feces, Oral swab,	ICB II, University of São Paulo	PCR	Adeno, Arena, Astro, Corona, Flavi, Henipa, Herpes, Nipah , Seadorna viruses	Product for sequencing for Coronaviruses	Coronaviruses: 1) A new Coronavirus, PREDICT_CoV-4, was found in 1 Flat-faced fruit eating bat (Artibeus planirostris). There is no	Yes

Rectal swab, Serum, Urine/urogenital swab)					evidence at this time to suggest this virus poses a threat to human health.	
Bats (26 animals, 29 samples - Blood (whole), Blood clot, Feces, Oral swab, Rectal swab, Serum)	ICB II, University of São Paulo	PCR	Arena, Herpes viruses	Products for sequencing for Herpes viruses	Interpretation Completed, Preparation of Report for Government in Progress	No
Non-human Primates (4 animals, 5 samples - Oral swab, Rectal swab)	ICB II, University of São Paulo	PCR	Arena, Flavi viruses	All Negative		Yes
Rodents & Shrews (19 animals, 35 samples - Oral swab, Rectal swab)	ICB II, University of São Paulo	PCR	Arena, Astro, Entero, Flavi, Herpes, Nipah viruses	All Negative		Yes
Rodents & Shrews (4 animals, 8 samples - Liver, Lung, Serum)	Center for Infection and Immunity, Columbia University	PCR	Astro, Paramyxo viruses	Products for sequencing for Astro, Paramyxo viruses	Astroviruses: 1) A new Astrovirus within the genus Mamastrovirus, PREDICT MAstV-10, was found in 3 Cursor grass mouse (Akodon cursor). There is no evidence at this time to suggest this virus poses a threat to human health. Paramyxoviruses: 1) A new Paramyxovirus, PREDICT_PMV-21, was found in 1 Unidentified grass mouse within the Akodon genus (Akodon sp.). There is no evidence at this time to suggest this virus poses a threat to human health.	Yes
Other Mammals (16 animals, 32 samples - Oral swab, Rectal swab)	ICB II, University of São Paulo	PCR	Astro, Entero, Nipah viruses	All Negative		Yes
Bats (102 animals, 338 samples - Blood (whole), Feces, Oral swab, Rectal swab, Urine/urogenital swab)	Center for Infection and Immunity, Columbia University	PCR	Corona, Filo, Influenzas, Paramyxo viruses	Products for sequencing for Corona viruses	Interpretation Completed, Preparation of Report for Government in Progress	No
Other Mammals (34	Center for	PCR	Corona, Filo, Influenzas,	All negative		No

animals, 91 samples - Blood (whole), Feces, Oral swab, Rectal swab, Unknown, Urine/urogenital swab)	Infection and Immunity, Columbia University		Paramyxo viruses			
Rodents & Shrews (1 animals, 3 samples - Blood (whole), Oral swab, Rectal swab)	Center for Infection and Immunity, Columbia University	PCR	Filo, Influenzas, Paramyxo viruses	All negative		No
Non-human Primates (2 animals, 2 samples - Oral swab)	ICB II, University of São Paulo	PCR	Herpes viruses	Product for sequencing detected for Herpes viruses	Herpesviruses: 1) A known Herpesvirus, Sanguinus midas Lymphocryptovirus 1, was found in 1 Golden handed tamarin (Saguinus midas). There is no evidence at this time to suggest this virus poses a threat to human health. 2) A new Herpesvirus, PREDICT_HV-72 , was found in 1 Guianan/margarita island brown capuchin (Cebus apella). There is no evidence at this time to suggest this virus poses a threat to human health.	No

PREDICT Quarter 4 Year 2 Reporting

GLOBAL - US, Africa, Southeast Asia, Asia & Latin America

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General Management**
    - Utilized Executive Board, Senior Management Team and PREDICT Admin meetings to continue to facilitate the efficient accomplishment of planned activities, optimize operations, and make informed decisions.
    - Monitored sub awardees activities to ensure compliance with federal and USAID regulations and procedures.
    - Submitted PREDICT Work Plan for Yr 3.
    - Fully Executed Amendments for Yr 3 Subawards.
  - Sub-activity 1.1.2: **Fiscal Management**
    - Reviewed and approved budgets, ensuring consistency with applicable regulations and guidelines.
    - Tracked all expenditures across countries and partners to ensure fiscal responsibility and monitored country-specific and sub awardee expenditure progress.
  - Sub-activity 1.1.3: **Communication and Coordination**
    - Engaged EPT members RESPOND, PREVENT, IDENTIFY, CDC (and DELIVER) in order to improve communications and streamline coordination across all EPT projects.
    - Supported RESPOND by lending PREDICT staff to act as temporary Senior Technical Officer for RESPOND and also supported their Workshop held by the Committee for Zoonotic Disease based at the Cameroon Ministry of Livestock, Fisheries, and Animal Industries in Yaoundé to promote the 'One Health' approach amongst Ministry directors and field agents.
    - Attended the Southeast Asia and Congo Basin regional EPT meetings in Bangkok, Thailand, and Kinshasa, DRC.

- Assisted with the Epidemiology Training workshop for Thailand DNP's wildlife veterinarians in Bangkok.
- Continued working as PREDICT representative on EPT "One Health Competencies" development working groups (led by EPT partner RESPOND).
- Attended the EPT Indonesia exploratory meetings and met with USAID Mission staff and key stakeholder to be engaged in the EPT Program, which also allowed for coordination with RESPOND, DELIVER, and PREVENT.
- Other coordination meetings with focus on PREDICT coordination and strategic convening with in-country staff and partners:
    - WHO Especially Dangerous Pathogens Laboratory Network (EDPLN) meeting in Jakarta, Indonesia.
    - 1st International Congress on Pathogens at the Human-Animal Interface (ICOPHAI) at the United Nations Center in Addis Ababa, Ethiopia (in lieu of annual PREDICT meeting).
    - 1st Annual World Congress of Microbes (WCM-2011) in Beijing, China.
    - International Symposium on Emerging Infectious Diseases in Pan Pearl River Delta Region in Guangzhou, China sponsored by GDCDC.
    - Wildlife Disease Association's (WDA) 60th Annual Conference in Quebec City, Canada.
    - Annual American Veterinary Medical Association conference in St. Louis, Mo.
- WHO/OIE/FAO sponsored Global Conference on Rabies Control, in which wildlife monitoring and surveillance systems were discussed in the context of advancing a "One Health" approach to emerging infectious disease control. Led activities of the OIE's Working Group on Wildlife Diseases, including regular group conference calls, planning for the group's upcoming annual meeting and development of Yr 4 work plan to integrate emerging disease related to wildlife into OIE regulations and standards.
- Aided the World Bank in surveying wildlife disease management authorities in developing countries to determine current and needed investments for surveillance of diseases as part of a World Bank economic assessment of efficiencies and cost effectiveness of "One Health" approaches.
- Initiated Google Group WildhealthNet to continue the momentum established at the WILD training in Rwanda this summer. WildhealthNet utilizes a listserve to distribute information and encourage region-specific networking of professionals in public health, veterinary medicine and

disease ecology and provide a forum for members of this network to present case studies, ask questions and raise issues in the One Health practice from a wildlife interest perspective.

- Led the development of a "Guide to Disease Risk Assessment" to be distributed by International Union for Conservation of Nature (IUCN) and coordinated with OIE risk assessment procedures for international trade purposes early in 2012.
- Met with (b)(6) to debrief upon completion of visit to Gabon (partly as RESPOND S.T.O.) where the RESPOND-led Mentor-Forest: Sustaining Forests project was discussed with the US Fish and (b)(6) (b)(6) (b)(6)
- Participated with EPT partners (USAID, PREVENT, RESPOND) in a working group focusing on human risk associated with the extractive industries through conference calls (as needed) to refine plans for engaging the extractive industry in EPT activities; collaborated with project partners to prepare the XRAT tool for presentation to the Chinese Ministry of Health, Ministry of Foreign Affairs, USAID/China, and other partners during the EPT visit to Beijing.
- Began developing the new website for the IUCN WHSG, which will focus on facilitating discussion among the group's wildlife health expert members and provide training resources to promote capacity building in the field of wildlife health, especially in resource-limited regions.
- Assisted with updating the OIE's Database of Mammal Diseases to aggregate documentation of diseases in wildlife.
- Finalized editorial review of the manuscripts for the publication "*Health and Biodiversity – Preparing for the Future – OIE Wildlife Conference*."
- Wrote invited review on "Public Health Surveillance and Infectious Disease Detection", for special issue of journal *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* on surveillance systems, including EPT/PREDICT.
- Published "Seasonal Oscillation of Human Infection with Influenza A/H5N1 in Egypt and Indonesia" in PLoS ONE, September 2011.
- Published two papers on Parvovirus 4 and SIV Retrovirus: " 2011 Characterization of a new simian immunodeficiency virus strain in a naturally infected *Pan troglodytes troglodytes* chimpanzee with AIDS related symptoms. *Retrovirology* 2011, 8:4 http://www.retrovirology.com/content/8/1/4; "Widespread infection with homologues of human parvoviruses B19, PARV4, and human bocavirus of chimpanzees and gorillas in the wild". *Journal of Virology* 84(19):10289-96.

- Sub-activity 1.1.4: **Reporting**
  - Ensured timely reporting of activities and compliance with all USAID reporting requirements, including all financial, technical, environmental and travel reports.
  - Incorporated in-country personnel in reporting and facilitated use of financial tracking tools.

Partners: University of California, Davis (UCD), EcoHealth Alliance (EHA), Wildlife Conservation Society (WCS), Global Viral Forecasting (GVF), Smithsonian Institution (SI), RESPOND, IDENTIFY, PREVENT, CDC, DELIVER.

- **Activity 1.2 Laboratory Assistance**

  - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
    - Shipped laboratory protocols and Universal Control-1 for surveillance for 12 priority virus family-level diagnostics to another subset of collaborating labs, including: National Institute of Biomedical Research -INRB (DRC); Sokoine University of Agriculture (Tanzania); Guangdong Institute of Education -GDEI (China); ICDDR,B Animal Diagnostic Virology Lab (Bangladesh); Institute Pasteur Laboratory (Cambodia); Institute Pertanian Bogor, Primate Research Center (Indonesia); PERHILITAN Wildlife Dept. Lab (Malaysia); Chulalongkorn University Medical Hospital (Thailand); Institute of Molecular and Biotechnology-IBMB, Major University of San Andrés (Bolivia); National Institute of Health -INS and US Naval Medical Research Unit 6 - NAMRU-6 (Peru); Zoonotic Diseases Lab, Mexican Institute of Social Security -IMSS (Mexico) and University of Sao Paulo -USP (Brazil). The package will be shipped to remaining collaborating labs as soon as MOU's are in place or training in preparation to perform the viral family testing is completed.
    - Purchased primers and began screening samples for select pathogens from the PREDICT family-level protocols at CHP laboratory (Cameroon), Wuhan Institute of Virology and GDEI (China), Institute Pasteur Laboratory (Cambodia), ICDDR,B (Bangladesh), PERHILITAN Wildlife Department Lab (Malaysia), IBMB (Bolivia) and NAMRU-6 (Peru).
    - Performed laboratory site visits and held meetings in Bolivia (CENETROP - Center for Tropical Diseases, public health reference lab; LIDIVET - National Veterinary Agriculture lab; Institute of Molecular and Biotechnology, Major University of San Andrés), Peru (US NAMRU-6, Veterinary Service -SENASA labs, National Institute of Health lab -INS) and Brazil (FIOCRUZ, University of Sao Paulo); in Mexico (Facultad de Medicina Veterinaria Y Zootecnia Lab,

Universidad Nacional Autonomada de Mexico; Zoonotic Diseases Lab, Mexican Institute of Social Security) to assess needs and capacity to perform PREDICT diagnostics.

- Provided reagents and supplies and guidance on diagnostics and reagents for pathogen priorities through discussions with in country teams and collaborating labs in Cameroon, DRC, Uganda, Tanzania, Rwanda, China, Malaysia, Thailand, Vietnam, Bolivia, Peru, Mexico, Brazil.
- Continued to equip collaborating partner labs to improve viral diagnostics capacity and cold chain including at SUA (Tanzania), RAB (Rwanda) and the Brazzaville laboratory (ROC); purchased thermal cycler and electrophoresis equipment for NAHC (Laos); repurposing lab space at VRI (Malaysia) to accommodate sample testing and purchased additional equipment to augment the deployable laboratories.
- Installed Class II Biosafety Cabinet, PCR workstation and refrigerated microcentrifuge at IBMB (Bolivia) through DELIVER; continued to coordinate with DELIVER and prepare the sites to receive the GS Junior 454 Sequencer at the Institute Pasteur (Cambodia); and StirLITE liquid nitrogen plants (Tanzania, DRC).
- Continued to develop new lab and result tracking systems to be established in collaborating laboratories in Cameroon, Tanzania, Rwanda and Uganda.
- Collaborated with researchers from the University of Edinburgh to initiate a pre-extraction sample treatment to make nucleic acid extracts more suitable for deep sequencing.
- Provided specific primer sets for Lassa and arena viruses to CIRMF (Gabon) to assist in identification of the cause of a human outbreak believed to be linked to this virus.

- Sub-activity 1.2.2: **Professional Exchange and Training of Laboratory Personnel**
  - Travelled from the US to train laboratory staff members to prepare and test samples using the PREDICT protocols and Universal Control-1 at Sokoine University of Agriculture (Tanzania), Rwanda Agricultural Board (Rwanda), INRB (DRC), CHP (Cameroon) and Hanoi University of Agriculture (Vietnam).
  - Executed agreement between Institut Pasteur du Cambodge and the Department of Livestock and Fisheries of Lao PDR, for the training of three NAHC diagnostic technicians at IPC. The governments of Lao PDR and Cambodia provided export and import documents for trainees to bring PREDICT samples for testing, the month-long training will occur in Y3Q1.
  - Provided bioinformatics training to virologist for analysis of 454 results at Chulalongkorn University (Thailand).

- Combined training by IBMB and PREDICT staff (Bolivia) to train members from the PREDICT team, IBMB lab and the Public University of El Alto (School of Veterinary Medicine) on Biosafety Procedures in Laboratory Facilities.

Partners: UCD, GVF, EHA, WCS, Columbia University, DELIVER, Diagnostic Laboratories

Overall Progress Quarter 4 Year 2: Significant progress continues to be made to equip and train collaborating labs to perform diagnostic testing of wildlife samples to detect priority viral families. Equipment, protocols and reagents continue to be distributed to multiple laboratories and diagnostic testing for high priority pathogens has begun.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Rapid Survey Tool and Maps**
    - Rapid Survey Update Tool and Map updates completed by country coordinators and regional leads in countries with ongoing surveillance programs.
    - Piloted an on-line data entry program, CAPTURE, for country coordinators to enter the Rapid Survey Update information, to assess its utility for specimen, surveillance and pathogen detection data entry into GAINS.
    - Met with stakeholders and gave overview presentations to facilitate discussions pertaining to improving capacities for disease surveillance in countries and establishing a global wildlife surveillance network.
    - Conducted Latin America team meetings and site visits to facilitate developing local and regional wildlife surveillance capacity in a sustainable way.

  - Sub-activity 1.3.2.a: **Coordination of Surveillance Activities across all EPT countries**
    - Continued monthly reviews of geographic, taxonomic and interface sampling distribution for all data entered into GAINS to date to assess sample distribution and need for adapting future surveillance activities.
    - Evaluated the efficiency of sample collection from bats for pathogen discovery, establishing the minimal threshold of sample numbers that capture the majority of novel viruses available for detection in a certain area.

- Sub-activity 1.3.2.b: **Specific Surveillance Activities Completed in Current Quarter**
  - Entered data on samples from 1,561 animals into GAINS database in Y2Q4 (see Table 1).
  - Data on samples from 16,539 animals have been entered into GAINS database to date (see Table 2).
  - Highlights:
    - Met with authorities from the local office of the Pan-American Health Organization-PAHO (the Yellow Fever Program Coordinator and Office Director), to discuss concern about increasing cases of yellow fever in Bolivia, and to explore possibilities for joint sampling of primates in indigenous territories in northern Bolivia. PAHO leads shared their draft project document that summarizes details on vaccination and educational campaigns. The project is to be conducted in yellow fever-affected areas in-country. The team is identifying where they can add support to the project (PAHO would cover these activities with their own funding).
    - Assisted by the USDA-APHIS Wildlife Disease Program, PREDICT applied for a USDA grant to support training of Peruvian government staff on wildlife disease surveillance. Confirmation of the USDA grant is still pending, but a training workshop is tentatively planned for April-May 2012 in Lima in conjunction with the USDA-APHIS and the Peruvian Veterinary Service (SENASA).
    - Invited by the National Task Force in Uganda to participate in an Ebola follow-up exercise; the Task Force Wildlife Sampling Team trapped 3 primates and a bush pig, collecting 117 specimens that are awaiting testing at Makerere University Walter Reed Project laboratory.
    - Invited to a meeting chaired by the Ministry of Health in Cameroon to develop a disease control plan as part of a program initiated in 2008 by the Prime Minister to design a program for zoonotic disease control implemented at the Ministerial level. PREDICT provided technical support for the development of the meeting agenda, participant list, and moderators along with other EPT members in country. PREDICT participated in the initial interviews for the recruitment of the consultants.
    - The PREDICT Surveillance-trained staff of the Malaysian national wildlife department (PERHILITAN) were invited to participate in a recent investigation of human malaria-like cases in Malaysia organized by the Ministry of Health. *Plasmodium knowlesi* was diagnosed, and MOH invited PERHILITAN to conduct a macaque survey in the same region. This is a newly recognized human pathogen previously thought only to infect

non-human primates, and PREDICT is building on this opportunity to promote investigation and awareness of emerging zoonotic diseases.

- Invited to participate in the Malaysian Ministry of Health's tri-partite monthly zoonotic disease meetings that include scientists from PERHILITAN, Dept. of Vet Services, and MOH. This is a sign of real interdisciplinary, inter-ministerial collaboration, and the PREDICT country coordinator is the only non-Malaysian government official to be invited to these meetings.
- Visited the Cuvette Ouest region of the Republic of Congo to meet with villagers (with a particular focus on hunters) to develop and disseminate mortality reporting protocols and to inquire about areas rich with bats for later trapping missions. A total of 512 hunters were visited in 27 villages, hunters represent on average 22% of the population in this region. These villages are located in regions previously experiencing Ebola epidemics.

Table 1: PREDICT Quarter 4 Year 2 Surveillance Summary

Region	Taxa	# of Animals Sampled
Africa	primates	17
	bats	15
	rodents	14
	other	277
Asia/ Southeast Asia	primates	0
	bats	408
	rodents	67
	other	403
Latin America	primates	4
	bats	0
	rodents	9
	other	347

Table 2: PREDICT Surveillance Summary to Date

	# of Animals Sampled	# of animals with at least one sample tested*
REGION		
Africa	7825	974
Asia	1953	0
Latin America	3743	100
Southeast Asia	3018	446
TAXA		
Bats	4600	78
Birds	1703	385
Other Mammals	6391	862
Primates	1647	120
Reptiles	472	26
Rodents	1453	25
Unclassified in ITIS	106	24
Taxa not yet typed	58	0
Unknown	109	0
INTERFACE		
Confiscation	797	34
Free-ranging	6816	345
Hunter	5588	477
Market	411	0
Other	856	17
Sanctuary	849	563
Unknown	550	24
Wet markets	672	60
Totals	16,539	1,520

**Data are preliminary - GAINS templates are being updated to facilitate summary of test results data*

- Sub-activity 1.3.3: **Training of Surveillance Personnel**
  - Trained 827 field personnel and in-country collaborators.

- Focused on training in-country personnel on laboratory safety and diagnostic procedures to build local laboratory capacity to process surveillance samples; and training for field personnel and collaborators in specialized procedures unique to the type of animal and type of sample collected. Specialized topics included bat capture and sampling, rodent capture and sampling, primate sampling, necropsy, use of barcode system, laboratory methods and molecular diagnostic methods.
- Completed the Protocol on Small Carnivore Sampling Methods.
- Began developing the guide for PREDICT personnel on assisting with outbreak investigations.

PREDICT Training Results Summary by Country (As of September 30, 2011)

Country	Persons	Trainings covered various combinations of the following topics:
Asia:		
Bangladesh	5	Lab techniques in BSL2 lab, epidemiology and outbreak investigation, capture and sampling of bats
Cambodia	2	Core safety, animal capture, & sampling skills and protocols, and data collection and management, rodent and primate ID
China	2	Core safety, animal capture, & sampling skills and protocols
India	18	Core safety, animal capture & sampling, laboratory safety protocols and zoonoses
Lao PDR	41	Core safety, animal capture, & sampling skills and protocols
Malaysia	35	Core safety, PPE and biosafety, animal capture & sampling skills and protocols, bat and rodent capture, sampling and laboratory skills, packing and shipping samples, and cold chain
Vietnam	16	Core safety, animal capture, & sampling skills and protocols, and packing and shipping samples, and barcode system
Africa:		
Cameroon	53	Core safety, animal capture, & sampling skills and protocols, and specialized field sampling and laboratory skills
Congo	9	Core safety, PPE and biosafety, animal capture, & sampling skills and protocols, and bat, rodent and primate sampling, laboratory skills, data collection and cold chain
DRC	11	Core safety, animal capture, & sampling skills and protocols, and specialized field sampling and laboratory skills
Rwanda	82	Core safety, animal capture, & sampling skills and protocols, bat, rat and primate sampling, zoonoses, and ethics and responsibilities.
Tanzania	19	Core safety, animal capture, & sampling skills and protocols, bat and

		rodent sampling, and data management
Uganda	26	Core safety, animal capture, & sampling skills and protocols
Latin America:		
Bolivia	222	Core safety, animal capture, laboratory & sampling skills and protocols and zoonotic diseases, bat and rodent sampling, primate sampling, bushmeat sampling, molecular and parasite diagnostic methods, packing and shipping samples, wildlife management and disease management
Brazil	16	Core safety, animal capture, & sampling skills and protocols, bat and rodent sampling, bushmeat sampling, packing and shipping samples, maintaining cold chain, surveillance, ethics and responsibilities
Colombia	52	Core safety, animal capture, & sampling skills and protocols
Mexico	25	Core safety, animal capture, & sampling skills and protocols
Peru	193	PPE Use & biosafety, surveillance, and zoonosis risks from wildlife trade and consumption, wildlife regulations, wildlife management and disease monitoring
Total Trained	827	

PREDICT Training Materials completed (As of September 30, 2011):

Protocols

- Small Carnivore Sampling Methods (English)
- Bushmeat Sampling Methods (English, French, Spanish)
- Bat and Rodent Sampling Methods (English, French, Spanish)
- Protocol: Primates Sampling Methods (English)

Guides

- Biosafety and PPE Use (English, French, Spanish)
- Laboratory Operations (English, French, Spanish)
- For Safe Animal Capture and Sampling (English, French, Spanish)
- Packing and Shipping Biological Samples (English, Spanish)
- Implementing a Cold Chain for Safe Sample Transport and Storage (English, Spanish)
- Work Ethics, Cultural Considerations, and Sexual Harassment Prevention (English)

- Emergency Preparedness (English)
- Data Collection for Surveillance* (Spanish)

Guide PowerPoints

- Personal Protective Equipment (PPE) and Handwashing (English, French)
- Laboratory Safety (English, French)
- Animal Capture for Sampling (English, French)
- Human Safety During Animal Capture for Sampling (English, French)
- Sample Handling and Storage (English, French)
- Review of Zoonotic Pathogens of Bats and Rodents (English, French)
- Non-Human Primate Sampling*

*English version is on GAINS Web site

Partners: UCD, GVF, EHA, WCS, SI

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies**

    Amazon region Highlights

    - Acquired new sample collection technology: VTM transport medium, RNAlater, FTA cards;
    - Acquired new field equipment to facilitate cold chain and sampling of free-ranging wildlife: portable microcentrifuges, Sherman traps and liquid nitrogen dewars.

    Congo basin Highlights

    - Installed BSL 2+ IsoArk™ isolation chamber for wildlife sample handling and processing at the Rwanda Agricultural Board Animal Extension Veterinary Services Laboratory in Kigali; this is the only isolation chamber of its kind in the country.
    - Completed training of wildlife personnel in Uganda Queen Elizabeth Conservation Area on use of cellphone-based animal mortality monitoring utilizing EpiSurveyor™.

- Initiated discussions to field test a smaller version of the Virochip, a microarray based pathogen detection system that requires only minimal technology (a high resolution scanner) and allows all processing steps to be completed at room temperature.
- Ordered additional equipment to augment the deployable outbreak laboratories, including Tyvek suits, hoods and modern backpack-mounted PAPR units.

- Sub-activity 1.4.2: **Pathogen detection and discovery**

TABLE 2: Pathogen Detection Findings

# Samples submitted (type/ taxa)	Diagnostic lab	Normative diagnostics	Pathogen family screening	Results (*)	Pathogen discovery	Country
321 frozen oral/rectal swabs; blood/serum/clots, feces, and tissues frozen in either VTM or RNAlater; formalin-preserved tissues; fixed blood smears/monkeys, bats, and rodents	US NAMRU-6; National Institute of Health (INS)	Conventional RT-PCR	1. Bats: flavi, corona, arena and filovirus. 2. Primates: filo, paramyxo, flavi and coronavirus. 3. Rodents: hanta, arena, alpha and flavivirus.	Pending	Pending	Peru
1 oral and cloacal swab/birds	University of San Marcos (UNMSM)	Real Time RT-PCR	*Avian influenza/ Newcastle disease*	Negative	None	Peru
929 samples frozen dried blood spots in FTA/Protein saver cards; oral/rectal swabs, blood/serum/clots, feces, and tissues frozen in either VTM or RNAlater; formalin-preserved tissues; fixed blood smears/monkeys, bats, rodents, marsupial, xenarthra	IBMB-UMSA	Conventional and nested RT-PCR	1. Bats: flavi, corona, arena and filovirus. 2. Primates: filo, paramyxo, flavi and coronavirus. 3. Rodents: hanta, arena, alpha and flavivirus. 4. Marsupials: alphavirus. 5. Xenarthra: orthobunyavirus	Pending	Pending	Bolivia

# Samples submitted (type/ taxa)	Diagnostic lab	Normative diagnostics	Pathogen family screening	Results (*)	Pathogen discovery	Country
15 fecal samples in VTM/ monkeys and anteaters	IBMB-UMSA	Conventional RT-PCR	Norovirus, Rotavirus	Negative	None	Bolivia
18 serum/primate	Laboratorio de Virología del Instituto Nacional de Salud (INS)	ELISA	Flavivirus antibodies	Pending	Pending	Mexico
18 fecal/primate	INA	Fecal	Cryptosporidium	Pending	Pending	Mexico
254 bat samples	Columbia University	Conventional PCR	Coronavirus and Adenovirus	Presumptive positives being confirmed	Pending	Mexico
340 bat samples	Institut Pasteur du Cambodge	Conventional PCR and culture	Lyssa, Filo, Corona, Astro and Henipa viruses	Pending	Pending	Cambodia
2400 samples swabs/bat and rodent	National Animal Health Centre; Institute Pasteur du Cambodge	Conventional PCR and culture	Bats: rhabdo, filo, corona, astro, henipa viridae	Pending	Pending	Lao
3 samples packed blood cells/Sun Bear	Hanoi University of Agriculture	Conventional and RT-PCR	Flavi, Paramyxo, Corona, Herpes, and Arena virus	Pending	Pending	Vietnam
49 samples pack blood cells/Asiatic Black Bear	Hanoi University of Agriculture	Conventional and RT-PCR	Flavi, Paramyxo, Corona, Herpes, and Arena virus	Pending	Pending	Vietnam
4 samples packed blood cells, oral swab/Masked Palm Civet	Hanoi University of Agriculture	Conventional and RT-PCR	Flavi, Paramyxo, Corona, Herpes, and Arena virus	pending	pending	Vietnam
>2647 bat samples	Columbia University	Conventional PCR	Corona, Adeno, Paramyxo, Polyoma, Astro, Nipah, Arena, Hanta, Entero, Filo and Flavi virus	Presumptive positives being confirmed	Paramyxovirus sample currently being prepared for 454 sequencing for further characterization	Bangladesh
Feces in RNAlater/primates	Columbia University	Conventional PCR	Arena, Retro, Paramyxo, Filo, Flavi, Corona, Pox and Herpesvirus	Pending	None	Republic of Congo

# Samples submitted (type/ taxa)	Diagnostic lab	Normative diagnostics	Pathogen family screening	Results (*)	Pathogen discovery	Country
19 samples liver, lung in RNAlater/pigs	WCS Wildlife Disease Diagnostic Laboratory	Real Time RT-PCR	ZEBOV, CIEBOV, SEBOV, BEBOV	Negative	None	Republic of Congo
>1000 samples from various rodent, bat, and NHPs	CIRMF	Conventional and real-time RT-PCR	H1N1, corona, adeno, entero, parainfluenza, RSV, rhinovirus, aden, astro, rota, noro, sapo, alpha, arena, filo, hantavirus and RVF	Pending	N/A	Gabon
24 suspected viral hemorrhagic fever case samples	CIRMF	Conventional and real-time RT-PCR	pan-filovirus, hanta, Lassa, Ebola, Marburg , RVF, pan-arenavirus	Negative	Samples being prepared for Illumina sequencing at University of California, San Francisco	Gabon
48 bat samples	University of California, San Francisco	Virochip	all known viruses	weak positives for paramyxo, filo and henipa viruses, suggestive of divergent viruses	Analysis of Illumina sequencing is pending	Gabon
32 rodent samples	CHP-Cameroon	Conventional PCR	Arenavirus	Negative	Pending	Cameroon
97 samples/bats	CHP-Cameroon	Conventional PCR	Flavi and Filovirus	Negative	Pending	Cameroon
44 serum samples/bats	University of California, Los Angeles	ELISA	Henipavirus	Presumptive positives being confirmed	Sequencing pending of 2 suspect samples	Cameroon
1 human viral hemorrhagic fever case	University of California, San Francisco	Illumina	Non-specific priming	Positive for novel rhabdovirus	Greater than 99% of the genome has been sequenced	DRC
Normative testing of 2599 samples/humans	INRB	Conventional PCR and ELISA	Pox, retro, flavivirus, avian influenza	Presumptive positives being confirmed	None	DRC
303 rectal swabs/bats	GDEI	Conventional PCR	Astro , paramyxo viruses	Presumptive positives being confirmed	Pending	China

# Samples submitted (type/ taxa)	Diagnostic lab	Normative diagnostics	Pathogen family screening	Results (*)	Pathogen discovery	Country
1301 serum samples/humans (hunters/market workers)	GDCDC	ELISA	Filo, hanta, coronavirus	Presumptive positives being confirmed	Pending	China
28 rectal and throat swabs/civets	PERHILITAN	Conventional PCR	Coronavirus	No positives detected	None	Malaysia
398 macaques	PERHILITAN	Conventional PCR	Herpes B	Presumptive positives being confirmed	Pending	Malaysia
30 fecal samples/bats	N/A	Conventional PCR	Coronavirus	Presumptive positives being confirmed	Pending	Thailand

Congo basin Highlights

- Continued pathogen discovery on historical and fresh samples of interest from Cameroon with the first detection of SFV in Preuss's monkey and in a wild Talapoin monkey.
- Identified the emergence of a divergent Zaire Ebola virus from two DRC isolates that represents a new clade of Ebola virus, the 2 Luebo viruses are nearly identical but are not related to lineage A viruses in DRC or to descendants of the lineage B viruses encountered in the Gabon–Republic of the Congo area. Our findings strongly suggest that the outbreak did not result from viral spread from previously identified foci but from an independent viral emergence.
- Discovered a novel Rhabdovirus in a suspected viral hemorrhagic fever syndrome that originated in the DRC, Illumina-based sequencing has revealed more than 99% of the novel Rhabdovirus genome. Analysis on the L protein found that this new virus is most closely related to the Tibrogargan group (TIBV and CPV) and to a lesser extent to the two virus Bovine Ephemeral Fever virus and the Adelaide River virus of the Ephemerovirus genus. This virus appears to be novel and genetically related to arthropod-borne Rhabdoviruses, leading us to presume involvement of either a mosquito or tick vector.

Asian region Highlights

- Identified a novel paramyxovirus in a bat (PRB519-521) from Bangladesh, the sample is currently being prepared for 454 sequencing for further characterization.
- Detected avian-related viruses in bats including an avian adenovirus and avian coronavirus. Further analyses will be performed to determine whether these represent ancestral viruses

related to those currently found in birds.
    - Detected a bovine coronavirus in a bat sample that is being characterized to determine whether this is an ancestral virus or a cross-species transmission event.

Partners: UCD, GVF, Columbia University, UCSF, Blood Systems Research Institute, University of Houston, EHA, WCS, UCLA, CDC Atlanta, University of Edinburgh, University of Montpellier, Diagnostic Laboratories

- **Activity 1.5: Sample Tracking and Information Management**

    - Sub-activity 1.5.1: **Optimize surveillance data management system**
        - Piloted CAPTURE, a new tool for data entry and sharing in areas where the internet is only occasionally available. The tool, developed using a novel technology called HTML5, allows anyone with a web browser to download a data-entry form when connected, enter data when offline, and then synchronize their data with GAINS.org once reconnected to the internet. CAPTURE is currently being used to collect data for the Rapid Survey Tool Update, and feedback from this trial will allow us to improve the tool before deploying it for use in surveillance data collection.
        - Continued to encourage field staff to beta test and use the Test & Test Findings process and templates.
        - Initiated the Genomics project, which will facilitate sharing and analysis of genomic data (i.e., the RNA sequences of viruses found through testing of surveillance samples) within GAINS.org.

    - Sub-activity 1.5.2: **Establish global open access to database and procedure for dissemination of knowledge**
        - Defined and gained approval for the new GAINS security model to fully implement user-based security for GAINS data in GAINS this quarter.

Partners: WCS, EHA, UCD, GVF, Healthmap, ProMED, Yale University, Precipio

LOW 2: Risk Determination

- **Activity 2.1: Develop risk filter strategy**
  - Sub-activity 2.1.1: D**evelop a conceptual and structural framework for Extractive Industries Risk Tool**
    - The guiding principles and framework of the risk assessment tool (XRAT) were presented by USAID-Washington to USAID/China, Guangdong CDC, the Chinese Ministry of Health, Ministry of Foreign Affairs, and other partners in Beijing in support of developing a technical partnership between the US and China. The development of the technical partnership will continue into Yr 3; further development of XRAT has been suspended until the EPT Extractive Industry working group is instructed to continue.

- **Activity 2.2 Optimize models for diversity of disease emergence**
  - Sub-activity 2.2.1: **Refine and test geographical and temporal 'hotspot' models**
    - Gridded data on the global distribution of roads and global trends in human conflict, bushmeat consumption, public health services, wildlife trade and human water security to include as driving factors in a new global hotspots model and in the risk-interfaces model.
    - Launched Deep Forest Metagenomics Project in Brazil, similar approaches will be conducted in Uganda and Malaysia to facilitate comparison across sites. This project will test the EID hotspots assumption that increasing mammal diversity results in increased viral diversity.
    - Developed an exploratory model of the risk-interfaces hotspots map as an accompaniment to the global EID hotspots map. This method will allow for the quantification and testing of theoretical models of proposed drivers of disease outbreaks.
    - Continued exploring new alternative methods to produce the most accurate hotspots model.

  - Sub-activity 2.2.2: **Iteratively improve datasets**
    - Began updating the human emergence infectious disease events database. This updated database will be used to improve the ‘hotspots’ model.
    - Created a global gridded driver datasets of roads, livestock, water resources, agricultural intensification, bushmeat consumption, public health services, wildlife trade, natural disasters and human conflict areas.
    - Developed a wildlife spillover database for zoonotic diseases.

- Sub-activity 2.2.3: **Design a 'Global Vulnerability' modeling strategy**
    - Refined and completed the database of mammal virus host associations. This database includes all known mammal-virus associations from the past 70 years of literature and is being used to parameterize predictive models of viral host range and spillover risk to humans.
    - Incorporating birds in the database of host associations, this will include all pathogens in birds known to infect humans.
    - Began to include non-viral (bacteria, protozoans, fungi) host association for mammals.
    - Developed a predictive global international wildlife trade model. This model will be integrated with the global vulnerability model disease-risk, based on international trade and human travel.
    - Continued analyzing information stored in GAINS to inform sample selection for 454 testing.
    - Continued data collection from the primary peer-reviewed literature on transmission interfaces associated with zoonotic viruses and outbreaks within the past 10 years in order to characterize high risk disease transmission interfaces for zoonotic disease outbreaks.
    - Added data from grey literature (WHO, CDC and other available sources) on transmission pathways for all known zoonotic pathogens.
    - Finalized analyses to determine what transmission routes are most likely to occur given the different drivers of emerging infectious diseases.

Partners: EHA, UCD, WCS, Healthmap, CIESIN

AFRICA

CAMEROON

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Engaged in program planning for Yr 3.
    - Facilitated the Monthly Scientific Journal Club, a forum for all staff and teams from various departments to present recent activity, discuss scientific topics and subjects, and share ongoing and future plans.
    - Provided day-to-day financial management, tracked all expenditures, and monitored country-specific and subawardee expenditure progress.
    - Provided periodic updates of activities and prepared fourth quarter report for Yr 2.
  - Sub-activity 1.1.2: **Communication**
    - Hosted a meeting in Cameroon for all EPT partners to plan the regional EPT meeting with key in-country Ministerial partners and discuss assorted areas of intervention in Cameroon and strategize about government relations. This meeting was coordinated through the key contact with the Mission, (b)(6) . Other key EPT partners in country are IDENTIFY focal poin(b)(6) (b)(6) (b)(6) (b)(6) EPT, (b)(6) (b)(6) at RESPOND and (b)(6) (b)(6)
    - Assisted RESPOND in supporting a workshop held by the ad hoc Committee for Zoonotic Disease, Ministry of Livestock, Fisheries, and Animal Industries (MINEPIA) in Yaounde, promoting the 'One Health' approach amongst Ministry directors and field agents.
    - Continued to participate in objective specific working groups under the Ministry of Public Health (MINSANTE) and MINEPIA, by attending meetings and conference calls and co-developing specific protocols and documents.
    - Attended the EPT Regional Meeting held in Kinshasa, DRC. Presented Cameroon and EG activities for Yr 2 to partners and USAID participants from Washington. Partners discussed

Yr 3 EPT plans and the need for increased collaboration in activities between EPT partners at the country level. Provided a positive example of inter-EPT team collaboration.
- Travelled to DRC to conduct select training with the DRC team, and participated in wildlife surveillance activities in Kinshasa and Bascongo.
- Met with Ministry of Forest and Wildlife officials to continue to promote awareness of project activities.
- Together with IDENTIFY and the USAID Coordinator, assisted RESPOND with a 'One Health Workshop", and further promoted project advocacy with other international community members and government ministries.

- **Activity 1.2 Laboratory Assistance**

  - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
    - Collaborated with scientists from the University of Edinburgh, UK to initiate pre-extraction sample treatment methods to prepare nucleic acid extracts for deep sequencing.
    - Defined a specific sample prioritization framework for organizing the order of pathogen testing.
    - Implemented a shared file system through DropBox enabling real-time access to data for lab staff, lab managers, and headquarters lab lead.
    - Received primers for all family level virus protocols.
    - Ordered additional equipment to augment the deployable laboratories, including Tyvek suits, hoods, and modern backpack-mounted PAPR units.

  - Sub-activity 1.2.2: **Professional Exchange and Training of Laboratory Personnel**
    - Conducted training on a new lab sample data tracking system.
    - Conducted training on laboratory and serology techniques including real-time and conventional PCR, reverse transcription PCR, agarose gel electrophoresis, and ELISA.

  - Sub-activity 1.2.3: **Other Activities Contributing to Improved Laboratory Capacity**
    - Provided training to two laboratory technicians from the Yaonde Hospital on ethics, safety, basic immunology, sample processing, nucleic acid extraction and PCR to upgrade the skills of lab personnel at the request of the hospital Director.

- **Activity 1.3: Surveillance**
  - Sub-activity 1.3.1: **Rapid Survey Tool and Maps**
    - Entered rapid capacity tool data via CAPTURE interface.

  - Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
    - Continued surveillance of bush meat markets and hunter cohorts in rural villages.
    - Conducted a number of field surveillance expeditions to select field sites and sanctuaries (detailed in the table below), and collected specimens from primates, bats, rodents and a few non-priority taxa. Samples from non-priority taxa were obtained through the participatory sample collection network from community members who collect samples from a broad range of hunted animals.

Sample Collection and Status:

Sample location	Taxa	Interface	# of Animals Sampled	# of Samples Collected	Current Location	Diagnostic Laboratory	Tests Requested
Belabo, Cameroon	Primates	Rescue sanctuary animals	11	23	GVF Yaounde	GVF Yaounde	Retroviruses, Filoviruses,
Djoum, Cameroon	Carnivores	Hunted	2	2	GVF Yaounde	GVF Yaounde	NA
Djoum, Cameroon	Pangolins	Hunted	2	2	GVF Yaounde	GVF Yaounde	NA
Djoum, Cameroon	Reptiles	Hunted	1	1	GVF Yaounde	GVF Yaounde	NA
Djoum, Cameroon	Rodents	Hunted	1	1	GVF Yaounde	GVF Yaounde	Arenaviruses, Hantaviruses, Poxviruses, Alphaviruses
Djoum, Cameroon	Ungulates	Hunted	6	6	GVF Yaounde	GVF Yaounde	NA
Limbe, Cameroon	Primates	Rescue sanctuary animals	32	99	GVF Yaounde	GVF Yaounde	Retroviruses, Filoviruses,

Sample location	Taxa	Interface	# of Animals Sampled	# of Samples Collected	Current Location	Diagnostic Laboratory	Tests Requested
Lomie, Cameroon	Carnivores	Hunted	1	1	GVF Yaounde	GVF Yaounde	NA
Lomie, Cameroon	Pangolins	Hunted	1	1	GVF Yaounde	GVF Yaounde	NA
Lomie, Cameroon	Primates	Hunted	1	1	GVF Yaounde	GVF Yaounde	Retroviruses, Filoviruses,
Lomie, Cameroon	Reptiles	Hunted	7	7	GVF Yaounde	GVF Yaounde	NA
Lomie, Cameroon	Rodents	Hunted	18	18	GVF Yaounde	GVF Yaounde	Arenaviruses, Hantaviruses, Poxviruses, Alphaviruses
Lomie, Cameroon	Ungulates	Hunted	27	27	GVF Yaounde	GVF Yaounde	NA
Ngaoundere, Cameroon	Rodents	Free-ranging	5	54	GVF Yaounde	GVF Yaounde	Arenaviruses, Hantaviruses, Poxviruses, Alphaviruses
Ngoila, Cameroon	Carnivores	Hunted	5	5	GVF Yaounde	GVF Yaounde	NA
Ngoila, Cameroon	Pangolins	Hunted	4	4	GVF Yaounde	GVF Yaounde	NA
Ngoila, Cameroon	Primates	Hunted	14	14	GVF Yaounde	GVF Yaounde	Retroviruses, Filoviruses,
Ngoila, Cameroon	Reptiles	Hunted	1	1	GVF Yaounde	GVF Yaounde	NA
Ngoila, Cameroon	Rodents	Hunted	17	17	GVF Yaounde	GVF Yaounde	Arenaviruses, Hantaviruses, Poxviruses, Alphaviruses
Ngoila, Cameroon	Ungulates	Hunted	61	61	GVF Yaounde	GVF Yaounde	NA
Nyabissan, Cameroon	Bats	Free-ranging	3	28	GVF Yaounde	GVF Yaounde	Flaviviruses, Filoviruses, Coronavirues, Paramyxoviruses
Nyabissan, Cameroon	Birds	Free-ranging	7	21	GVF Yaounde	GVF Yaounde	NA

Sample location	Taxa	Interface	# of Animals Sampled	# of Samples Collected	Current Location	Diagnostic Laboratory	Tests Requested
Nyabissan, Cameroon	Carnivores	Hunted	12	12	GVF Yaounde	GVF Yaounde	NA
Nyabissan, Cameroon	Hyrax	Hunted	4	4	GVF Yaounde	GVF Yaounde	NA
Nyabissan, Cameroon	Pangolins	Hunted	7	7	GVF Yaounde	GVF Yaounde	NA
Nyabissan, Cameroon	Primates	Hunted	23	23	GVF Yaounde	GVF Yaounde	Retroviruses, Filoviruses,
Nyabissan, Cameroon	Reptiles	Hunted	7	7	GVF Yaounde	GVF Yaounde	
Nyabissan, Cameroon	Rodents	Hunted	12	12	GVF Yaounde	GVF Yaounde	Arenaviruses, Hantaviruses, Poxviruses, Alphaviruses
Nyabissan, Cameroon	Ungulates	Hunted	31	31	GVF Yaounde	GVF Yaounde	NA
Poli, Cameroon	Bats	Free-ranging	8	90	GVF Yaounde	GVF Yaounde	Flaviviruses, Filoviruses, Coronavirues, Paramyxoviruses
Poli, Cameroon	Birds	Free-ranging	6	19	GVF Yaounde	GVF Yaounde	Paramyxovirus
Poli, Cameroon	Rodents	Free-ranging	22	264	GVF Yaounde	GVF Yaounde	Arenaviruses, Hantaviruses, Poxviruses, Alphaviruses
Saasa Mbersi, Cameroon	Bats	Free-ranging	13	150	GVF Yaounde	GVF Yaounde	Flaviviruses, Filoviruses, Coronaviruses, Paramyxoviruses
Saasa Mbersi, Cameroon	Rodents	Free-ranging	3	84	GVF Yaounde	GVF Yaounde	Arenaviruses, Hantaviruses, Poxviruses, Alphaviruses
Yaounde, Cameroon	Primates	Rescue sanctuary animals	28	162	GVF Yaounde	GVF Yaounde	Retroviruses, Filoviruses,

- Sub-activity 1.3.3: **Training of Personnel for Surveillance Activities**

- Travelled to DRC to train staff and collaborators from the Institut National de Recherche Biomedicale (INRB).

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of New Technologies**
    - Initiated discussions to field test a smaller version of the Virochip, a microarray based pathogen detection system that requires only minimal technology (a high resolution scanner), and allows all processing steps to be completed at room temperature.
    - Delivered, optimized and evaluated the new universal control and protocols for testing viruses at the family level; new pathogen tests that have been initiated include pox, paramyxo, hanta and arena viruses.

  - Sub-activity 1.4.2: **Pathogen Diagnostics and Discovery Submission**
    - Implemented pathogen discovery strategies, including the distribution of samples to pathogen discovery partners in the USA and Europe.
    - Established protocols for filov, flavi, arena and hanta viruses. Protocols for alpha, paramyxo and corona are being tested.
    - Continued pathogen discovery on historical and fresh samples with the first detection of Simian Foamy Virus (SFV) in Preuss's monkey and in a wild Talapoin monkey.
    - Screened 32 rodent samples for Arenaviruses using the protocol and universal control 1; all were negative.
    - Screened 97 bat samples for Flavi and Filoviruses using the protocol and universal control 1; all were negative.
    - Tested for *Plasmodium* parasite in non-human primates using primers of mDNA fragments of the *laverania* sub-genus in 184 DNA templates extracted from DBS; detected 3 presumptive positive samples.
    - Tested 44 bat serum samples for henipaviruses; results pending.

  - Sub-activity 1.4.3: **Training of Personnel in New Technologies and Pathogen Detection and Discovery**
    - Trained laboratory personnel on new pan-viral protocols.

- **Activity 1.5: Sample Tracking and Information Management**

- Sub-activity 1.5.1: **Surveillance Data Management**
  - Assisted DRC and Gabon staff with GAINS data entry and submission.

Overall Progress for LOW 1: Wildlife Pathogen Detection:

Unanticipated or Unplanned Successes

- Senior staff in Cameroon met regularly with Ministry of Health officials and participated in the weekly MOH disease surveillance meetings, where outbreak and surveillance statistics were presented. Due to increase in epidemic emergence in Cameroon, the MOH has established a weekly epidemiological meeting at the Division of Disease Control. Key health sector partners in the country were invited to be part of this task force, including WHO and UNICEF country representatives, representatives of other international organizations, representatives of other Ministries such as Livestock, and other representatives of key health groups in the country. Our senior staff in Cameroon has been officially invited by the MOH to integrate into this group, and our team contributes to this effort technically. The objective of these weekly epidemiological meetings is to review and analyze all recent country-level data on disease surveillance and outbreaks on a weekly basis, and to produce a weekly epidemiological report used by the MOH for organizing response, and shared electronically with all stakeholders.

Challenges & Obstacles

- A key laboratory scientist left the organization to pursue a PhD in Germany, and the administration and lab managers are actively recruiting for this post. The team is also working to identify the most efficient method for ensuring timely input of laboratory results into GAINS.

Partners: Government of Cameroon, CDC Atlanta, University of Edinburgh, Blood Systems Research Institute, University of San Francisco, RESPOND, IDENTIFY, the Embassy of United States in Cameroon

DEMOCRATIC REPUBLIC OF CONGO

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**

  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Managed day-to-day project activities in Kinshasa and in the field, ensuring that all activities were implemented according to the work plan.
    - Engaged in program planning for Yr 3.
    - Provided day-to-day financial management, tracked all expenditures, and monitored country-specific and subawardee expenditure progress.

  - Sub-activity 1.1.2: **Communication**
    - Held monthly meetings with the USAID Mission, RESPOND, the IDENTIFY WHO Office, and the CDC mission (especially the Monkeypox project).
    - Participated in weekly surveillance meetings at the Ministry of Health with other partners working in the health sector (Doctors without borders, UNICEF) and held regular meetings with the DRC Ministry of Health, especially the [redacted] Continued working closely with the Director of the National Program for MPX and Viral Hemorrhagic Fevers at the [redacted] Held se[redacted]h in country stakeholders: the [redacted], the [redacted] the [redacted] and the [redacted]o discuss the PREDICT program.
    - Held several meetings with in country stakeholders including the Director of the National Laboratory (INRB), the Director of the Central African Regional Program for Environment at USAID mission, the focal point for PACEBCO project (Congo Basin Ecosystems Conservation Support Program), the Administrator of the Central Veterinary Laboratory, and the Kinshasa Provincial Veterinary Office.

- **Activity 1.2 Laboratory Assistance**

  - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
    - Through DELIVER received a new liquid nitrogen generator, installation expected in Q1Y3.
    - Restored field laboratory (maintained by the Defense Threat Reduction Agency (DTRA) and shared by PREDICT) for animal sampling in Kole; provided consumables and basic supplies for wild rodent and bat capture and processing.
    - Hired a new Laboratory Manager, to work intermittently in Kinshasa and Kole, and supervise pathogen testing, general lab and data management, logistics, and development of any necessary MOUs.
    - Completed set up of a separated Clean PCR room, containing the new PCR work station and a new refrigerator/freezer for all reagents necessary for PCR preparations.
    - Acquired a refrigerated centrifuge and two dry heating blocs for DNA/RNA extractions.
    - Updated or finalized Standard Operating Procedures (SOP) for a number of laboratory techniques: DNA extraction from blood and body fluids, DNA extraction from dried blood spots (DBS), DNA extraction from tissue, purification of viral RNA, purification of total RNA from RNA protect stabilized (RNA Later) animal blood, and proper usage of RNA Later.

  - Sub-activity 1.2.2: **Professional Exchange and Training of Laboratory Personnel**
    - Continued weekly laboratory management meetings with the Director of the INRB to discuss future laboratory activities in pathogen discovery and outbreak response.
    - Continued weekly scientific exchanges with discussions on laboratory techniques and sharing of scientific articles.

  - Sub-activity 1.2.3: **Other Activities Contributing to Improved Laboratory Capacity –**
    - Finalized two MOUs for collaborations with the CARPE consortium (Conservation International, WWF, WCS), and the Laboratoire d'Ecologie et Gestion des Ressources Animales – Kisangani, and the School of Veterinary Medicine at the University of Lubumbashi, and the Centre de Surveillance de la Biodiversite, at the University of Kisangani.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Rapid Survey Tool and Maps**
    - Updated the Rapid Survey Tool and map with input from officials from the Ministry of Environment and Agriculture, the INRB, and the Central Veterinary Laboratory.

  - Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
    - Collected samples from recently confiscated or long-term captive (post-confiscation) human-habituated Mountain and Grauer's gorillas at request of Institute for the Conservation of Nature (ICCN).
    - Began to receive DBS from bonobos entering the Sanctuary "Lola ya Bonobo" in Kinshasa
    - Provided complete PPE kits and sampling material to the Project PICBOU (WWF CARPO) for collection of non-invasive samples (feces) from wild bonobos in the locality of Bolobo, Bandundu Province.
    - Collected 157 human samples (crust, vesicles, and eye swabs) for suspected monkeypox (MPX) cases from our project site in the Sankuru District and throughout the country via the direction of MPX and VHFs and other local partners.

Sample Collection and Status:

Sample Location	Taxa (one line Per taxa)	Interface(s)	#of Animals sampled	# of Samples Collected	Current Location	Diagnostic Laboratory (lists,)	Tests requested
DRC	Birds	Hunted/Butchered	5	23	INRB/Kinshasa		
DRC	Bats	Hunted/Butchered	2	4	INRB/Kinshasa		Filoviruses, Flaviviruses, Henipaviruses
DRC	Carnivores	Hunted/butchered	1	2	INRB/Kinshasa		
DRC	Genets/Civets	Hunted/Butchered	19	67	INRB/Kinshasa		Arenaviruses, Hantavirues, Alphaviruses
DRC	Insectivores	Hunted/Butchered	4	7	INRB/Kinshasa		Arenaviruses, Hantavirues,

Sample Location	Taxa (one line Per taxa)	Interface(s)	#of Animals sampled	# of Samples Collected	Current Location	Diagnostic Laboratory (lists,)	Tests requested
							Alphaviruses
DRC	Rodents sp.	Hunted/Butchered	13	28	INRB/Kinshasa		Arenaviruses, Hantavirues, Alphaviruses
DRC	Large Terrestrial Rodents	Hunted/Butchered	24	102	INRB/Kinshasa		Arenaviruses, Hantavirues, Alphaviruses
DRC	Rats and Mice/Rodents	Hunted/Butchered	135	512	INRB/Kinshasa		Arenaviruses, Hantavirues, Alphaviruses
DRC	Squirrels/Rodents	Hunted/Butchered	71	266	INRB/Kinshasa		Arenaviruses, Hantavirues, Alphaviruses
DRC	Mongoose	Hunted/Butchered	9	36	INRB/Kinshasa		Arenaviruses, Hantavirues, Alphaviruses
DRC	Pangolins	Hunted/Butchered	19	71	INRB/Kinshasa		
DRC	Non-Human Primates	Hunted/Butchered	185	754	INRB/Kinshasa		Filoviruses, Retrovirues, Herpes
DRC	Prosimiens	Hunted/Butchered	27	92	INRB/Kinshasa		
DRC	Ungulates	Hunted/Butchered	96	305	INRB/Kinshasa		
DRC	Non-Human Primates, Rodents, Squirrels	Hunted/Butchered	24	183	INRB/Kinshasa		Arenaviruses, Hantavirues, Alphaviruses
DRC	Bats	Captured	49	421*			Filoviruses, Flaviviruses, Henipaviruses
DRC	Non-Human Primates	Wildlife trade	7	41	INRB/Kinshasa		Filoviruses, Retrovirues, Herpes
TOTAL			**627**	**2338**			

- Sub-activity 1.3.3: **Training of Personnel for Surveillance Activities**
  - Trained individuals in Kole, Sankuru District, Kasai Oriental Province, Kinshasa (INRB) and Kisantu, Bas Congo Province and staff veterinarian from the Mountain Gorilla Veterinary Project on safety and sampling protocols.
  - Provided refresher trainings for wildlife and monkeypox surveillance in three health zones in Sankuru District and Kasai Oriental Provice for the upcoming field activities.

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**

  - Sub-activity 1.4.1: **Introduction of New Technologies**
    - Delivered new universal controls and protocols for viral testing at the family level.

  - Sub-activity 1.4.2: **Pathogen Diagnostics and Discovery Submission**
    - Tested eight domestic dog samples for rhabdoviruses: five dogs from Bas Congo, two from Kinshasa, and one from Bandundu; all samples were negative.
    - Continued testing human samples for various pathogens, including H1N1, corononavirus, adenovirus, enterovirus, parainfluenza virus, RSV, rhinovirus, adenovirus, astrovirus, rotavirus, norovirus, sapovirus, filovirus, arenavirus, alphavirus, hantavirus and Rift valley fever virus.
    - Sent 24 samples from suspected viral hemorrhagic fever cases in DRC for Illumina sequencing at the US collaborating lab, University of California, San Francisco; these specimens had tested negative for all know VHF-causing agents at other labs.
    - Identified a novel virus from a specimen collected during a VHF outbreak; sequencing results indicate it is a new rhabdovirus genetically related to arthropod-borne rhabdoviruses.
    - Identified a newly emerged clade of the Ebola virus in DRC, a divergent strain of Zaire Ebola Virus nearly identical, though not related to lineage A viruses known in DRC and descendants of the lineage B viruses encountered in the Gabon–Republic of the Congo area.

Other Progress for LOW 1: Wildlife Pathogen Detection:

Unanticipated or Unplanned Successes

- Published on the emergence of the divergent Zaire Ebola virus from two DRC isolates that represents a new clade of Ebola virus in the Journal of Infectious Disease.

Challenges & Obstacles

- We have encountered significant and unexpected problems with importing goods into DRC due to changes in local policy regarding tax exemption for non-governmental organizations. The Ministry of Finance has recently nullified all existing tax exemption agreements and is now establishing new agreements with all partners in country, thus obtaining the paperwork to have items released from customs has taken much longer than anticipated.

Revised Plan to Accomplish Goals

- We have received reagents and equipment from the INRB for extraction of RNA/DNA, while we await capability to import goods from abroad. We are also exploring more efficient routes to obtain necessary equipment and supplies by working with local partners to utilize their equipment and supplies in interim periods when we are unable to access materials.
- We are working to expand our animal sampling network by establishing new collaborative relationships and Memorandums of Understanding with local and international partners.

Partners: Kinshasa School of Public Health, INRB, Ministry of Health, the CARPE consortium Conservation International, WWF, Laboratoire d'Ecologie et Gestion des Ressources Animales - Kisangani and the School of veterinary medicine at the University of Lubumbashi, Centre de Surveillance de la Biodiversite at the University of Kisangani.

LOW 3: Outbreak Response Capacity Building

No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND

- Tested 24 samples from suspected VHF cases from DRC.
- Assisted with a multi-disciplinary team to conduct investigations on 12 suspected cases of Viral Hemorrhagic Fever reported from Kapolowe health zone in Katanga province (South-East),
- Identified an isolated case (an adult fisherman) of Lassa Fever from the Dungu health zone in

Oriental Province (laboratory confirmation).The investigation was conducted by Medecins Sans Frontieres, who collected the samples and shared them directly with DRC government authorities and reference labs.

EQUATORIAL GUINEA

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General Management**
    - Continued establishment of administrative mechanism with local authorities in Equatorial Guinea (EG) and Cameroon.
    - Made contact with the IDENTIFY counterpart based in Malabo at the EPT regional meeting and established a dialogue regarding a visit and collaboration in the country.
  - Sub-activity 1.1.3: **Communication**
    - Initial development of a Memorandum of Understanding has been shared with partners at the Bioko Biodiversity Protection Program and Drexel University and is still under review. The MOU will facilitate permit and authorizations necessary for sample collection in EG for post-PREDICT activities.
- **Activity 1.3: Surveillance**
  - Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
    - Formulated and submitted sample strategy and administrative documents to Ministry of Wildlife for permits for surveillance post PREDICT activities.
    - Suspended all activities for Yr 3.

Partners: Bioko Biodiversity Protection Program and Drexel University; University of Malabo.

GABON

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Continued day-to-day management, program planning and oversight of the program.
    - Engaged in program planning for Yr 3.
    - Provided day-to-day financial management, tracked all expenditures, and monitored country-specific and subawardee expenditure progress.
  - Sub-activity 1.1.3: **Communication**
    - Provided coordination with partners regarding public health partnerships in countries to facilitate paired human-wildlife sampling strategy.
- **Activity 1.2 Laboratory Assistance**
  - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
    - Received primers for testing Lassa fever virus.
    - Defined specific sample prioritization framework for organizing the order of pathogen testing.
    - Implemented a shared file system through DropBox enabling real-time access to data for lab staff, lab managers, and headquarters lab lead.
    - Ordered primers for all of the family level virus protocols, including primers for filo, flavi, paramyxo, corona, arena, hanta, alpha, pox and retro viruses.
    - Ordered additional equipment to augment the deployable laboratories, including Tyvek suits, hoods, and modern backpack-mounted PAPR units.
  - Sub-activity 1.2.2: **Professional Exchange and Training of Laboratory Personnel**
    - Approved budgets for hire of a scientist and a technician to increase diagnostic capacity.

- Sub-activity 1.2.3: **Other Activities Contributing to Improved Laboratory Capacity**
  - Assisted the Ministry of Health (MoH) in collecting data from provinces and district health officers, acting as a reference center, and aiding in analyzing diagnostic samples.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
    - Conducted one field surveillance expedition, in Aboumi, Haut Ogooué to investigate an epidemic of suspected Peste des Petits Ruminants (PPR) among goats.

Sample Collection and Status:

Sample Location	Taxa (one line per taxa)	Interface(s)	# of Animals Sampled	# of Samples Collected	Current Location	Diagnostic Laboratory (list lab(s))	Tests Requested
Pointe Noire	Chimpanzee	Epidemic	12	13	CIRMF		Polio
Aboumi	Capra	Epidemic	3	10	CIRMF		None
Grotte du Faucon	Hipposideros gigas		73	164	CIRMF		Filovirus, Flavivirus, Henipavirus

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**

  - Sub-activity 1.4.1: **Introduction of New Technologies**
    - Initiated discussions to field test a smaller version of the Virochip, a microarray based pathogen detection system that requires only minimal technology (a high resolution scanner) and allows all processing steps to be completed at room temperature.
    - Delivered new universal controls and protocols for testing viruses at the family level; new pathogen tests that have been initiated include pox, paramyxo, hanta and arena viruses.

  - Sub-activity 1.4.2: **Pathogen Diagnostics and Discovery Submission**
    - Tested samples for H1N1, coronona, adeno, entero, parainfluenza virus, RSV, rhinovirus, adeno, astro, rota, noro, sapo, alpha, arena, filo, hantavirus and RVF.

- Received samples from DRC, and conducted molecular testing at the Emerging Viral Diseases Unit (UMVE) where all samples tested negative.

Other Progress for LOW 1: Wildlife Pathogen Detection:

Unanticipated or Unplanned Successes

- Molecular biology results are currently being verified for reporting purposes. PREDICT partners at CIRMF have received many samples from suspected cases of Hemorrhagic fever from Congo and DRC. These samples were negative for all the viruses that typically cause Hemorrhagic fevers, and will be sent to PREDICT collaborators for pathogen discovery.

Challenges & Obstacles

- Field trips were delayed and fewer animal samples were collected, therefore laboratory technicians are processing samples already on site. The French and Gabonese national holiday schedule (all of the month of August) also limited sampling efforts.

Partners: International Center for Medical Research (CIMRF); National Parks System, Ministry of Health, University of California, San Francisco

LOW 3: Outbreak Response Capacity Building

No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND

- Assisted in Central African regional outbreaks, including testing of 24 samples from suspected VHF cases from DRC.
- Assisted in the response to an outbreak in Likuala, Northern Congo through the testing of clinical samples - In total the Centre International de Recherches Médicales de Franceville (CIRMF) received 19 samples which were all negative for Chikungunya, Dengue, Yellow Fever, Rift Valley Fever, West Nile, Zika and O'Nyong Nyong viruses.
- Assisted in Central African regional outbreaks, including epidemics of unknown origin in DRC and RoC via the testing of 45 clinical samples.
- Participated in an investigation of an outbreak of "Peste des Petits Ruminants" PPR in goats in Gabon.

REPUBLIC OF CONGO

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Provided day-to-day management and oversight of the program and facilitated the efficient accomplishment of planned objectives.
    - Assessed and revised detailed work plan for Year 3.
    - Provided day-to-day financial management, tracked all expenditures, and monitored country-specific and subawardee expenditure progress.
    - Hired driver and one field staff (based in Brazzaville, RoC).

  - Sub-activity 1.1.3: **Communication**
    - Met with (b)(6) (b)(6) and PREDICT point of contact (PoC) at the U.S. Embassy in Brazzaville, upon his request.
    - Maintained frequent (at least weekly) email and/or phone contact with (b)(6) (b)(6) (b)(6) (b)(6), Brazzaville to provide updates on field and laboratory activities.
    - Conducted monthly email communications with (b)(6) (b)(6) (b)(6) (b)(6) National Institute of Allergic and Infectious Diseases. Topics of discussion included the workplan for the use of assays to screen for filovirus antibodies in large-scale disease surveillance.
    - Conducted bi-monthly email or phone communications with (b)(6) and (b)(6) (b)(6) (b)(6) National Institute of Allergic and Infectious Diseases, National Institute of Health, Rocky Mountain Labs (NIAID/NIH/RML).
    - Met with (b)(6) (b)(6) at the request of (b)(6) at the U.S. Embassy in Brazzaville.
    - Met with (b)(6) (b)(6) and provided overview of activities and a tour of the office and project laboratory.

- Met with PREVENT regarding possible studies in markets & elsewhere at the EPT Congo basin work planning meeting in Kinshasa.
- Met with RESPOND to discuss the Forest-MENTOR Program and our potential contribution to that program in Gabon.
- Met with (b)(6) in the Congo Basin regarding their potential support to in country institutions.
- Conducted monthly communication with EPT partners from PREVENT to discuss potential future collaborations and sample testing strategies; ongoing discussions will continue with (b)(6) and her colleagues including (b)(6) (b)(6)
- Held discussions with EPT partners and PREDICT Cameroon to add the John Hopkins University Center for Immunization Research (JHU-CIR) Cameroon lab as additional diagnostic laboratory for wildlife samples procured in country.

- **Activity 1.2 Laboratory Assistance**

  - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
    - Developed a diagnostic strategy for 166 great ape fecal samples and 23 great ape tissue samples utilizing Mass Tag and consensus PCR, 454 pyrosequencing and general pathogen discovery techniques.

  - Sub-activity 1.2.2: **Professional Exchange and Training of Laboratory Personnel**
    - Provided support and additional training in diagnostic techniques to scientists from partners NIH/NIAID/RML, PHAC and Tulane University.

- **Activity 1:3: Surveillance**

  - Sub-activity 1.3.1: **Rapid Survey Tool and Maps**
    - Initiated the update of the rapid survey tool.

  - Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
    - Continued the sampling of hunted bush meat at a second site, the village of Libongo, in north-central RoC. Note that samples were taken from species outside the taxon target

range, including duikers and hogs, as these species have been implicated as important in the epidemiology of Ebolavirus.

- Met with 512 hunters in 27 villages in the Cuvette Ouest region, a region previously experiencing Ebola epidemics to identify new locations of bats roosting sites (caves, mines, etc) for future surveillance and sampling as well as to reinforce hunter reporting in the cases of wildlife morbidity or mortality events.

Sample Collection and Status:

Sample Location	Taxa (one line per taxa)	Interface(s)	# of Animals Sampled	# of Samples Collected	Current Location	Diagnostic Laboratory (list lab(s))	Tests Requested
Libonga village	Artiodactyla	Hunter	40	342	ZDTL	ZDTL	EBOV (porcine) MARV, (porcine)
Libonga village	Carnivora	Hunter	6	54	ZDTL		
Libonga village	Rodentia	Hunter	10	90	ZDTL	ZDTL	Monkeypox,
Libonga village	Primates	Hunter	15	133	ZDTL	ZDTL	Monkeypox, Chikungunya Flaviviridae, EBOV, MARV
Libonga village	Suidae	Hunter	1	9	ZDTL	ZDTL	EBOV
Libonga region	Megachiroptera	Free-ranging	90	616	ZDTL	ZDTL and NIH Rocky Mountain Labs	Filovirus

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**
  - Sub-activity 1.4.1: **Introduction of New Technologies**
    - Explored the performance of different fecal surveillance approaches in large tropical

landscapes and examined a set of different approaches applied to fecal gorilla sampling as a model system. Our results show a hybrid sampling method that combines traditional transect and directed reconnaissance sampling methods optimizes the number of fecal samples collected, estimates of species density, and efficiency.

- Sub-activity 1.4.2: **Pathogen Diagnostics and Discovery Submission**
  - Discussed acquiring the universal primers and with NIH RML to acquire a conventional PCR machine so that universal primers can be used in the Brazzaville laboratory.
  - Validated monkey pox PCR protocols for in-country analysis.

- Sub-activity 1.4.3: **Training of Personnel in New Technologies and Pathogen Detection and Discovery**
  - Worked with Laboratory Technician to develop a pathogen testing priority list for bats, primates and rodents at the Brazzaville laboratory.

Partners: Center for Infection and Immunity at Columbia University, Tulane University, RoC National Public Health Laboratory; RoC Ministry of Health; U.S. National Institute of Allergic and Infectious Diseases; U.S. National Institute of Health, Rocky Mountain Labs; Public Health Agency of Canada, Special Pathogens Project; EPT partners.

Overall Progress for LOW 1: Wildlife Pathogen Detection

Challenges & Obstacles

- Cold chain is still limited in the RoC, as liquid nitrogen is still transported from Kinshasa, DRC, thus limiting sample collection and the types of analyses that can be performed.
- Challenges with communication technologies in the Loungou village region prevented real time information and data flow from the field to the BZV office.
- Employee health issues resulted in a temporary cessation of bushmeat sampling at Loungou village.

Revised Plan to Accomplish Goals

- Commence sampling at Loungou village

RWANDA

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Provided daily management and oversight for all activities, including field work.
    - Tracked all project expenses and ensured consistency with the country budget; stored receipts; reported monthly financial expenditures.

  - Sub-activity 1.1.3: **Communication**
    - Maintained standing offer for in-person meeting(s) with (b)(6) (b)(6) to update Mission on activities throughout the quarter, and meetings requested when Country Lead(s) were in Rwanda.
    - Conducted daily to weekly in-person and electronic mail communications with (b)(6) (b)(6) (b)(6) (b)(6) to report on mountain gorilla clinical interventions and preliminary gross pathology reports, and to coordinate wildlife surveillance activities
    - Conducted weekly communications (telephone, email) with Director of Ministry of Agriculture/Animal Resources Extension (b)(6) and Ministry of Agriculture/Animal Resources Extension Director of Veterinary Services (b)(6) on improvements at the Ministry's animal health diagnostic laboratory facility in Rubilizi, Kigali for wildlife sample storage and processing and set-up ofoffice space for PREDICT.
    - Communicated with Kigali Health Institute/Environment Unit in Kibuye to coordinate bat surveillance activities.
    - Communicated with National University of Rwanda (b)(6) to coordinate bat, primate and rodent surveillance activities.
    - Met with (b)(6) (b)(6) (b)(6) to provide updates on PREDICT activities in the field and to report on progress in improvements at animal health diagnostic laboratory.

- **Activity 1.2 Laboratory Assistance**

  - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
    - Completed minor modifications of existing space at Ministry of Agriculture/Animal Resources Extension Veterinary Services diagnostic virology laboratory at Rubilizi, Kigali to allow wildlife sample storage and processing capacity.
    - Installed new isolation chamber with existing in-house biosafety cabinet inside; installed minus 80C chest freezer and laboratory refrigerator; installed new air-conditioning units.
    - Helped set up virology laboratory for wildlife sampling, including moving new and existing equipment (e.g. centrifuges, gel doc) to improve work flow; inventoried available and needed standard laboratory supplies.

  - Sub-activity 1.2.2: **Professional Exchange and Training of Laboratory Personnel**
    - Trained existing (n=3) and volunteer (n=2) Ministry of Agriculture and laboratory and field technicians on PCR protocols, from raw sample processing through cDNA production step.

  - Sub-activity 1.2.3: **Other Activities Contributing to Improved Laboratory Capacity**
    - Coordinated with Ministry of Agriculture/Animal Resources Extension Director and Animal Resources Extension – Veterinary Services Lab Director on hiring technician for virology lab to process wildlife samples, and on stocking the laboratory with essential supplies.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Rapid Survey Tool and Maps**
    - Received instructions and began process of updating Rapid Survey Tool.

  - Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
    - Conducted clinical interventions and necropsies on wild human-habituated mountain gorillas in Volcanoes National Park.
    - Conducted initial health assessment and obtained biological samples from a confiscated infant mountain gorilla.

- Held multiple coordination meetings with Rwanda Development Board/Tourism & Conservation and National University of Rwanda to plan wildlife sampling activities in and around Akagera and Nyungwe National Parks, and in Kibuye, Huye and Rubavu districts.
- Met with Ministry of Agriculture district veterinarians in Bugesera to receive latest information on undiagnosed domestic goat disease outbreak in Burundi, and to offer wildlife surveillance upon request.

Sample Collection and Status:

Sample Location	Taxa (one line per taxa)	Interface(s)	# of Animals Sampled	# of Samples Collected	Current Location	Diagnostic Laboratory (list lab(s))	Tests Requested
Akagera National Park	Bat	Peri-domestic	25	85	Ministry of Health Animal Resources Extension Veterinary Services Lab, Rubilizi, Kigali	Makerere University	TBD
Nyungwe National Park	Primate	Ecotourism	46	86	Ministry of Health Animal Resources Extension Veterinary Services Lab, Rubilizi, Kigali	Makerere University	TBD
Musanze	Bat	Ecotourism; peri-urban	45	188	Ministry of Health	Makerere University	TBD

					Animal Resources Extension Veterinary Services Lab, Rubilizi, Kigali		
Volcanoes National Park	Primate	Ecotourism	10	84	MGVP Field Lab, Musanze, Rwanda	Makerere University	TBD

- Sub-activity 1.3.3: **Training of Personnel for Surveillance Activities**
  - Trained 18 personnel and partners on safety and sampling protocols.
  - Assisted RESPOND with its WILD training in Akagera National Park.

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**

  - Sub-activity 1.4.1: **Introduction of New Technologies**
    - Introduced purpose and use of BSL 2+ IsoArk™ isolation chamber for wildlife sample processing.

Other Progress for LOW 1: Wildlife Pathogen Detection:

Unanticipated or Unplanned Successes

- Country coordinator attended the first international Congress on Pathogens at the Human Animal Interface (ICOPHAI) in Addis Ababa, Ethiopia, supported by USAID/PREDICT.

Revised Plan to Accomplish Goals

- Prioritize surveillance activities (target taxa, interfaces) in Year 3 on primates and bats at ecoutourism, peri-domestic and peri-urban interfaces.
- Hire a laboratory technician to be stationed in virology laboratory at Ministry of Agriculture Animal Resources Extension Veterinary Services Laboratory to ensure wildlife sample processing for diagnostics.

- Process all wildlife specimens to cDNA, and send cDNA to Makerere University Walter Reed Project, Kampala, Uganda for known viral pathogen screening.

Partners: Ministry of Agriculture Animal Resources Extension; Rwanda Development Board/Tourism & Conservation Veterinary Unit; National University of Rwanda; Ministry of Health/Epidemic and Infectious Diseases Division; Umutara Polytechnic University, Makerere University Walter Reed Project.

TANZANIA

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Provided day-to-day management and oversight of the project.
    - Finalized necessary infrastructure improvements in preparation for the installation of the DELIVER procured liquid nitrogen generator to solidify the cold chain.
    - Tracked all expenditures to ensure fiscal responsibility and modified budgets to accommodate operational costs.

  - Sub-activity 1.1.3: **Communication**
    - Maintained regular project briefings and correspondence with in-country partners at the Ministry of Health and Social Welfare, the Ministry of Livestock and Fisheries Development (MoLDF), the MoLDF Central Veterinary Laboratory, the Ministry of Natural Resources and Tourism, the National Institute of Medical Research, the Tanzania National Parks.
    - Communication with the USAID Mission has been suspended per Mission request. When an appropriate Mission contact and communication plan is identified and agreed upon between (b)(6) (b)(6) formal correspondence and updates will resume.

- Maintained communication with RESPOND (b)(6) (b)(6) (b)(6) to identify synergies between the projects in country.
- Maintained communications with the District, Regional and Municipal officers, and conducted visits with Village Chairman in targeted surveillance areas to provide official briefing on surveillance activities.
- Hosted Project Director and capacity building team lead in Iringa and Morogoro, to assess progress and discuss plans for Yr 3.

- **Activity 1.2 Laboratory Assistance**

  - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
    - Installed equipment in the new laboratory facility at SUA including an ultra-low temperature freezer, real time PCR machine, conventional PCR equipment, biosafety cabinet and all necessary supplies to enable commencement of pathogen testing activities.

  - Sub-activity 1.2.2: **Professional Exchange and Training of Laboratory Personnel**
    - Continued the supervision and remote training of in-country laboratory technicians stationed at SUA through weekly Skype meetings and Basecamp.
    - Provided on-site training for the SUA lab team to support laboratory set-up and installation of equipment, and conduct refresher trainings on nucleic acid extractions, PCR protocols, data management, biosafety, and cold chain.

  - Sub-activity 1.2.3: **Other Activities Contributing to Improved Laboratory Capacity**
    - Approved a Memorandum of Understanding (MOU) with the Makerere University Walter Reed Project (MUWRP) in Kampala, Uganda facilitating the transfer of biological materials from SUA to Makerere. MUWRP will act as the lead diagnostic hub for the Tanzania team until the new in-country lab at SUA develops the capacity for viral family pathogen testing.
    - Initiated plans to strengthen field surveillance and laboratory coordination through brief site visits and workshops designed to introduce field and lab teams to surveillance and pathogen testing activities.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Rapid Survey Tool and Maps**
    - Tested the use of the new CAPTURE interface and initiated the 2011 Rapid Survey Tool.

  - Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
    - Launched active surveillance of wild and commensal rodents in the Ruaha Ecosystem targeting the peri-domestic and crop-raiding interfaces identified as high risk for rodent-transmitted disease.
    - Continued the media surveillance pilot project investigating local media sources (newspapers, radio, TV) for evidence of disease events, and reporting to GAINS and HealthMap.

Sample Collection and Status:

Sample Location	Taxa (one line per taxa)	Interface(s)	# of Animals Sampled	# of Samples Collected	Current Location	Diagnostic Laboratory (list lab(s))	Tests Requested
Ruaha	Mastomys	Crop-raiding/ Boma & peridomestic village	71	190	SUA lab	MUWRP	Arenavirus and filovirus
Ruaha	Praomys	Crop-raiding/ Boma & peridomestic village	4	13	SUA lab	MUWRP	Arenavirus and filovirus
Ruaha	Malacomys	Crop-raiding/ Boma & peridomestic village	1	3	SUA lab	MUWRP	Arenavirus and filovirus
Ruaha	Hylomyscus	Crop-raiding/ Boma & peridomestic village	1	3	SUA lab	MUWRP	Arenavirus and filovirus
Ruaha	Myomys	Crop-raiding/ Boma &	3	10	SUA lab	MUWRP	Arenavirus and filovirus

		peridomestic village					
Ruaha	Heimyscus	Crop-raiding/ Boma & peridomestic village	1	2	SUA lab	MUWRP	Arenavirus and filovirus
Ruaha	Domestic	Crop-raiding/ Boma & peridomestic village	1	4	SUA lab	MUWRP	Arenavirus and filovirus
Active Surveillance Total			**82**	**235**			
Ruaha	Ungulates	Crop-raiding/ Hunter	31	153	SUA lab	TBD	TBD
Ruaha	Rodents	Hunter	2	11	SUA lab	TBD	TBD
Ruaha	Carnivores	Depredation/ peridomestic	18	91	SUA lab	TBD	TBD
Ruaha	Primates	Crop-raiding	4	20	SUA lab	TBD	TBD
Opportunistic Surveillance Total			**55**	**275**			

- Sub-activity 1.3.3: **Training of Personnel for Surveillance Activities**
  - Conducted training on cold chain and geographic positioning systems with the field team.

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**

  - Sub-activity 1.4.2: **Pathogen Diagnostics and Discovery Submission**
    - Continued working towards necessary export/import permits for transfer of specimens to the collaborating laboratory MUWRP in Uganda.
    - Submitted 235 specimens from 82 rodents along with 275 additional wildlife specimens from opportunistic sampling activities to the SUA laboratory for processing and ultimately transfer to Uganda for pathogen testing.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Surveillance Data Management**
    - Initiated barcode tracking of specimens from field to laboratory, and linkage of barcodes to sample/specimen IDs in GAINS
    - Began planning to develop a Laboratory Information Management System to complement GAINS and data tracking through regional laboratory network.

Other Progress for LOW 1: Wildlife Pathogen Detection:

Unanticipated or Unplanned Successes

- Country coordinator attended the first international Congress on Pathogens at the Human Animal Interface (ICOPHAI) in Addis Ababa, Ethiopia, supported by USAID/PREDICT.

Challenges & Obstacles

- Delivery of cold chain and sampling equipment took much longer than expected to arrive; field team was not equipped for active surveillance until the end of this quarter.

Revised Plan to Accomplish Goals

- Opportunistic collection of samples from the hunter and bushmeat market interfaces will continue, but with adjustments in approach to better target specimens at highest-risk interfaces that are still viable for viral testing under project protocols.
- Sample processing is active at the in-country SUA lab and will continue uninterrupted as new samples are delivered.
- Discussions with the Tanzania Wildlife Research Institute on accessing archived wildlife samples prioritized for pathogen testing will resume.

Partners: Sokoine University of Agriculture (SUA),HALI Project, SUA Pest Management Centre, National Institute of Medical Research (NIMR), Muhimbili University Health and Allied Sciences, Ministry of Health and Social Welfare, Ministry of Natural Resources and Tourism, Ministry of Livestock and Fisheries Development (MoLFD), MoLFD Central Veterinary Laboratory, Tanzania National Parks, Tanzania Wildlife Research Institute, Mountain Gorilla Veterinary Project, Makerere University Walter Reed Project (MUWRP)

UGANDA

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Provided day-to-day management and oversight of the country.
    - Tracked all expenditures in-country and ensured charges were consistent with budget.
  - Sub-activity 1.1.3: **Communication**
    - Met on several occasions with (b)(6) (b)(6), who started in the position this quarter and is based in the USAID Mission, first in early August to brief him on objectives and introduce him to personnel, and then several times since both opportunistically and at his request to apprise him of PREDICT activities.
    - (b)(6) (b)(6) (b)(6) (b)(6) (b)(6) (b)(6) on permit issues and planned wildlife surveillance activities.
    - Coordinated and communicated with (b)(6) (b)(6) (b)(6) (b)(6) on tasks necessary to establishing MUWRP laboratory as a regional center for project diagnostics.
    - Coordinated and communicated with Makerere University College of Veterinary Medicine (b)(6) on minor refurbishment of Africa Institute for Strategic Animal Resources and Development (AFRISA) facilities on College of Veterinary Medicine campus for project co location.
    - Coordinated with, and participated in meetings with the Ministry of Health's National Task Force on its closing of the 2010 Yellow Fever outbreak investigation and follow-up risk assessment of the 2011 Ebola virus outbreak investigations; shared reports and information internally as appropriate to project (b)(6) (b)(6) (b)(6) attendance at Task Force meetings.

- **Activity 1.2 Laboratory Assistance**

  - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
    - Worked with MUWRP to identify potential Africa-based distributors of essential laboratory supplies for implementing known pathogen testing protocols.
    - Continued work on minor modifications of existing space at Makerere University's Africa Institute for Strategic Animal Resource Services and Development (AFRISA) to improve capacity for wildlife sample storage and processing.

  - Sub-activity 1.2.2: **Professional Exchange and Training of Laboratory Personnel**
    - Participated in training on laboratory safety organized by the MUWRP's Influenza Surveillance Laboratory.

  - Sub-activity 1.2.3: **Other Activities Contributing to Improved Laboratory Capacity**
    - Negotiated terms and signed revision of Independent Contractor Agreement with MUWRP's Influenza Surveillance Laboratory for wildlife zoonoses diagnostics in Yr 3.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Rapid Survey Tool and Maps**
    - Initiated the Rapid Survey Tool update.

  - Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
    - Participated in the 2011 Ebolavirus outbreak post-outbreak risk assessment including collecting samples from trapped and hunted wildlife for Ebolavirus testing and banking for additional diagnostic testing.

Sample Collection and Status:

Sample Location	Taxa (one line per taxa)	Interface(s)	# of Animals Sampled	# of Samples Collected	Current Location	Diagnostic Laboratory (list lab(s))	Tests Requested
Hoima	Primate	Human – wildlife conflict	1	5	PREDICT storage at MUWRP, Kampala	**MUWRP**	**TBD**
Luwero	Primate	Human wildlife conflict	7	87	PREDICT storage at MUWRP, Kampala	**MUWRP**	**TBD**
Luwero	Suidae	Human wildlife conflict	1	15	PREDICT storage at MUWRP, Kampala	**MUWRP**	**TBD**
Luwero	Bat	Human wildlife conflict	1	8	PREDICT storage at MUWRP, Kampala	**MUWRP**	**TBD**

- Sub-activity 1.3.3: **Training of Personnel for Surveillance Activities**
  - Led 3-day training with partners in Musanze, Rwanda on bat capture, handling and sampling protocols.
  - Completed the first training/testing phase of the Animal Mortality Monitoring Program (AMMP) in Queen Elizabeth Conservation Area (QECA). QECA staff were challenged to to test the functioning and utility of the mobile phone/EpiSurveyor system for reporting dead animals by finding and reporting through mobile phones the discovery of 150 test targets distributed inside QECA.

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**

  - Sub-activity 1.4.2: **Pathogen Diagnostics and Discovery Submission**
    - Transferred all wildlife samples collected to date from liquid nitrogen to -80 freezer located at MUWRP laboratory for diagnostic testing.

Other Progress for LOW 1: Wildlife Pathogen Detection:

Unanticipated or Unplanned Successes

- Country coordinator attended the first international Congress on Pathogens at the Human Animal Interface (ICOPHAI) in Addis Ababa, Ethiopia, supported by USAID/PREDICT.

Challenges & Obstacles

- Lack of a revised MOU with Uganda Wildlife Authority (UWA) continued to impede our ability to conduct systematic wildlife surveillance.

Revised Plan to Accomplish Goals

- Prioritized surveillance activities (target taxa, interfaces) in Yr 3 on primates and bats at ecotourism, peri-domestic and peri-urban interfaces.

Partners: MGVP, Uganda Wildlife Authority; Makerere University College of Veterinary Medicine; Makerere University Walter Reed Project, Uganda Ministry of Health, CDC Uganda, Africa Field Epidemiology Network.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  - Initiated planning for intensive surveillance effort in Bwindi region to contribute data to modeling team starting in Yr 3.

Partners: MGVP, Uganda Wildlife Authority

LOW 3: Outbreak Response Capacity Building

- Participated in the risk assessment exercise follow-up to the Ebolavirus outbreak investigation at the request of the Ministry of Health's National Task Force; PREDICT served on the Wildlife

Surveillance Team during the risk assessment, and collected samples for Ebola diagnostics and other zoonotic pathogen surveillance.

SE ASIA

CAMBODIA

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Provided effective day-to-day management and oversight of the program activities and administrative procedures in order to accomplish planned objectives.
    - Continued to streamline operational efficiency by researching local suppliers and agents for equipment and laboratory consumables required for PREDICT activities.
    - Prepared and submitted workplan and budget for Yr 3.

  - Sub-activity 1.1.3: **Communication**
    - Communicated with the USAID Mission in Cambodia, (b)(6) by telephone and email to provide updates, to coordinate activities and upcoming events.
    - Met with (b)(6) (b)(6) and discussed potential areas for future collaboration and support of the Wildlife Health Strategic Plan for Cambodia.
    - Met with PREVENT staff visiting Cambodia to discuss high-risk interfaces and where and how we can collaborate in these areas.
    - Participated in the monthly Cambodian Zoonoses Technical Working Group meeting, intended for Cambodian government, multilaterals, NGOs and research institutions to share updates on outbreaks and surveillance activities regarding zoonoses in the country.
    - Attended the USAID/PIOET-organized EPT regional coordination and planning meeting in Bangkok to build a shared vision for EPT for Yr 3 country and regional work plans.

- Met with (b)(6) (b)(6) under the Royal Cambodian Government's Department of Animal Health and Production (DAHP) to discuss PREDICT linking with the Royal University of Phnom Penh (RUPP) Animal Science course to raise awareness of wildlife health and disease and increase student involvement in the work. Updated (b)(6) (b)(6) on PREDICT findings to-date.

- **Activity 1.2 Laboratory Assistance**

  - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
    - Consulted with Institut Pasteur du Cambodge (IPC) to procure the necessary reagents to continue diagnostic testing on bat samples.
    - Continued to coordinate with DELIVER on purchasing and placement of a Roche sequencer at the IPC, for pathogen discovery.

  - Sub-activity 1.2.2: **Professional Exchange and Training of Laboratory Personnel**
    - Confirmed the placement of a NAVRI-nominated staff member at the IPC to train in wildlife zoonoses diagnostics in Yr 3

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Rapid Survey Tool and Maps**
    - Met with non-government local human and animal health agencies to collect comprehensive data for the Rapid Tool Update.

  - Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
    - Surveillance of activities at high-risk interfaces: wildlife trade in markets and hunting in villages in western, southern and northeastern Cambodia to establish potential new sampling sites.
    - Collected samples from bats and rodents and two reptiles in western and northern Cambodia hunted by villagers for consumption, detailed in the table below. On the first visit to a new sampling site in Sam Roung, Battambang Province, 2 Monitor lizards were sampled. Although not a focus species for sampling this was done to build support for the project and a working relationship with the villagers as a 73 yr old man walked two miles from his hut to bring them to us to sample. Samples were collected for archive, and the villagers were educated on the focus of the project to sample bats, rodents and

primates. This approach paid off as on the next visit to the village, the same villager enabled sampling of 79 bats that he had captured.

Sample Collection and Status:

Sample Location	Taxa (one line per taxa)	Interface(s)	# of Animals Sampled	# of Samples Collected	Current Sample Location	Diagnostic Laboratory (list lab(s))	Tests Requested
Prey Toch, Battambang Province	Chiroptera	Hunted	8	22	WCS, Phnom Penh, Cambodia	Institut Pasteur du Cambodge	PCR for: Rhabdoviridae, Filoviridae, Coronaviridae, Astroviridae, henipaviruses
Tmatboey, Preah Vihear Province	Chiroptera	Hunted	43	86	WCS, Phnom Penh, Cambodia	Institut Pasteur du Cambodge	PCR for: Rhabdoviridae, Filoviridae, Coronaviridae, Astroviridae, henipaviruses
Sam Roung, Battambang Province	Chiroptera	Hunted	80	171	WCS, Phnom Penh, Cambodia	Institut Pasteur du Cambodge	PCR for: Rhabdoviridae, Filoviridae, Coronaviridae, Astroviridae, henipaviruses
	Rodentia	Hunted	2	4	WCS, Phnom Penh, Cambodia	Institut Pasteur du Cambodge	None planned as yet
	Reptilia	Hunted	2	6	WCS, Phnom Penh, Cambodia		None planned as yet

- Sub-activity 1.3.3: **Training of Personnel for Surveillance Activities**
  - Continued and expanded training of national staff
  - Initiated discussions with NAVRI for a training workshop for government veterinarians in Yr 3 on wildlife zoonoses.

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**

  - Sub-activity 1.4.2: **Pathogen Diagnostics and Discovery**
    - Submitted 340 archived bat specimens to the Institut Pasteur du Cambodge for family-level PCR testing for Lyssa, Filo, Corona, Astro and Henipa viruses, and cell inoculation of tissues for virus isolation is also being performed.

Overall Progress for LOW 1: Wildlife Pathogen Detection:

Challenges & Obstacles
- Severe flooding limited access to some areas for surveillance activities.

Revised Plan to Accomplish Goals
- Continue to strengthen relationships with Forestry Administration Wildlife Health staff and NAVRI and initiate relationships with the Animal Science Faculty and students at the Royal University of Phnom Penh.
- Identify new areas for risk-interface assessments.

Partners: Ministry of Agriculture Fisheries and Forestry (MAFF), National Veterinary Research Institute (NAVRI), Forestry Administration; Institut Pasteur du Cambodge (IPC), Angkor Centre for Conservation and Biodiversity (ACCB)

LAO PDR

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Provided effective day-to-day management and oversight of the program activities and administrative procedures in order to accomplish planned objectives.
    - Continued to streamline operational efficiency by researching local suppliers and agents for equipment and laboratory consumables required for activities.

  - Sub-activity 1.1.3: **Communication**
    - Communicated with the (b)(6) (b)(6) by telephone and email to give updates, coordinate meetings and upcoming events.
    - Attended the USAID/PIOET-organized EPT regional coordination and planning meeting in Bangkok to build a shared vision for EPT as a program for Yr 3 country and regional work plans.
    - Met with (b)(6) (b)(6) working with Armed Forces Research Institute of Medical Sciences (AFRIMS) laboratory in Bangkok to investigate potential collaborative opportunities. While there was very limited overlap in the current programmatic focus of activities (AFRIMS focused on rickettsial and other non-viral pathogens), AFRIMS offered introduction to colleagues at Chulalongkorn University where they have been focusing their laboratory capacity development.
    - Attended the Lao Surveillance Working Group meeting at WHO office and presented an update on wildlife surveillance activities in countryto staff members from WHO, FAO, CDC, and animal and human health government representatives.
    - Met with (b)(6) to provide an update on current and planned activities that was received positively by the Ambassador.
    - Co-hosted a workshop with the National Animal Health Centre (NAHC) entitled “Emerging Zoonoses in Wildlife” to raise awareness on emerging zoonoses from wildlife and high-risk interfaces for targeted disease surveillance. This first-ever workshop on the topics of wildlife health and disease was attended by 25 Lao government staff members from the animal health, forestry and wildlife enforcement sectors, National Emerging Infectious Disease Coordination Office (NEIDCO), Nabong

Agricultural College, and international program staff from WHO, FHI360 (development NGO), DAI and FAO. Participants were also trained surveillance protocols Lao government participants reported the workshop paved the way for excellent cooperation on wildlife surveillance in the provinces.

- Attended a "One Health" Workshop coordinated by WHO and Lao PDR government's NEIDCO with approximately 200 participants from the Lao government animal health, human health and forestry officials and several NGO's and multilaterals from the region. (b)(6) (b)(6) (b)(6) presented an update on the collaborative wildlife health surveillance work with Predict demonstrating the Lao government's ownership of the project.
- Briefed (b)(6) (b)(6) (b)(6) (b)(6) (b)(6) Yr 3 work plan.

- **Activity 1.2 Laboratory Assistance**

  - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
    - Procured new conventional PCR and electrophoresis machines for the National Animal Health Centre (NAHC) to perform family-level virus testing.
    - Purchased Qiagen kits for RNA extraction from wildlife pathogen samples for the laboratory.

  - Sub-activity 1.2.2: **Professional Exchange and Training of Laboratory Personnel**
    - Coordinated the execution of an agreement between Institut Pasteur du Cambodge (IPC), PREDICT and the Department of Livestock and Fisheries of Lao PDR, for the training of 3 NAHC diagnostic technicians at IPC, a recognized BSL3 facility with expert training, biosafety and wildlife diagnostic experience. The governments of Lao PDR and Cambodia provided export and import documents for trainees to bring samples from Lao PDR to Cambodia for testing. The month-long training will occur in Q1 of Yr 3.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Rapid Survey Tool and Maps**
    - Downloaded CAPTURE software for new Rapid Survey tool update and began updating with information already available
    - Met with non-government local human and animal health agencies to collect comprehensive data for the Rapid Tool update.

- Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
  - Explored additional sampling at high-risk interfaces (wildlife trade in markets, hunting) in villages in northern and southern Lao PDR Collected samples at wet-markets in new and previously identified sites, as detailed in the table below.

Sample Collection and Status:

Sample Location	Taxa (one line per taxa)	Interface(s)	# of Animals Sampled	# of Samples Collected	Current Location	Diagnostic Laboratory (list lab(s))	Tests Requested
Vang Vieng, Vientiane Province	Chiroptera	Wet-market	245	980	NAHC, Vientiane	Institut Pasteur du Cambodge and NAHC	PCR for: Rhabdoviridae, Filoviridae, Coronaviridae, Astroviridae, Henipaviruses
Vang Vieng, Vientiane Province	Rodentia	Wet-market	88	352	NAHC, Vientiane	Institut Pasteur du Cambodge and NAHC	PCR for: Hantavirus Arenaviridae
Vang Vieng, Vientiane Province	Carnivora (Civet)	Wet-market	4	16	NAHC, Vientiane	NAHC	TBD
Muang Feuang, Vientiane Province	Chiroptera	Wet-market	68	276	NAHC, Vientiane	Institut Pasteur du Cambodge and NAHC	PCR for: Rhabdoviridae, Filoviridae, Coronaviridae, Astroviridae, Henipaviruses
Muang Feuang, Vientiane Province	Rodentia	Wet-market	29	116	NAHC, Vientiane	Institut Pasteur du Cambodge and NAHC	PCR for: Hantavirus Arenaviridae

Muang Feuang, Vientiane Province	Carnivora (Civet)	Wet-market	1	4	NAHC, Vientiane	NAHC	TBD
Kasi, Vientiane Province	Chiroptera	Wet-market	39	156	NAHC, Vientiane	Institute Pasteur, Cambodia and NAHC	PCR for: Rhabdoviridae, Filoviridae, Coronaviridae, Astroviridae, Henipaviruses
Kasi, Vientiane Province	Rodentia	Wet-market	11	44	NAHC, Vientiane	Institut Pasteur du Cambodge and NAHC	PCR for: Hantavirus Arenaviridae

- Sub-activity 1.3.3: **Training of Personnel for Surveillance Activities**
  - Trained 2 NAHC staff members and 2 students from the Science Faculty and (b)(6) (b)(6) on sampling and surveillance protocols.

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**

  - Sub-activity 1.4.2: **Pathogen Diagnostics and Discovery**
    - Began RNA extraction from 2400 bat and rodent swab samples collected in Yr 2 to be submitted to Institute Pasteur Laboratory Cambodia in Q1, Yr 3 for family-level viral testing. Bat samples will be tested rhabdo, filo, corona, astro and henipa viruses and rodent samples for hanta and arena viruses.

Overall Progress for LOW 1: Wildlife Pathogen Detection:

Unanticipated or Unplanned Successes

- Began development of collaborative market surveys with PREVENT and maintained good communications with other EPT partners.

Challenges & Obstacles

- Severe flooding limited access to some areas where risk-interface assessments were planned.

Revised Plan to Accomplish Goals

- Assist in sample organization and coordination of NAHC staff to IPC.
- Establish areas for training collaboration with RESPOND.
- Identify students from the National University of Lao PDR to participate in surveillance activities.

Partners: Ministry of Agriculture and Forestry (MoAF), National Animal Health Centre (NAHC), Department of Livestock and Fisheries (DLF), Department of Forest Resource Conservation (DFRC), Department of Forest Inspection (DoFI), National Emerging Infectious Disease Coordination Office (NEIDCO) of the Ministry of Health (MoH), Institut Pasteur du Cambodge (IPC), National University of Laos

MALAYSIA

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Coordinated with the Department of Wildlife and National Parks (PERHILITAN) to plan and execute sampling trips.
    - Continued to finalize agreement between PERHILITAN and Veterinary Research Institute (VRI, Ministry of Agriculture) to transport samples between the institutions for testing.
    - Communicated the importance of working closely with PERHILITAN to the Ministry of Health (MOH) and Department of Veterinary Services (DVS)), to build bridges among these agencies through regular meetings with senior officials.
    - Began meeting planning with PERHILITAN and IDENTIFY to discuss ways to assist PERHILITAN with laboratory capacity building and potential integration into the regional laboratory network.
    - Formalized collaboration with VRI to act as the primary diagnostic laboratory and serve as a

reference laboratory for collaborating labs in SE Asia.
- Worked with MOH to develop SOPs for the Hunter Health Project to cover logistics for sampling trips, consent process, guidelines for working with the target communities and handling of samples.
- Began discussions with MOH and the National Public Health Laboratory (NPHL) on management and testing of human samples.
- Began negotiations to start wildlife sampling in Sabah with Sabah Wildlife Department (SWD).
- Met with University Malaysia Sarawak colleagues to discuss the possibility of initiating activities in Sarawak.

- Sub-activity 1.1.3: **Communication**
  - Briefed Economic Officer at the US Embassy on Yr 3 Work Plan and provided progress report.
  - Held periodic meetings with USAID/RDMA.
  - Met with USAID/RDMA and RESPOND during the EPT Bangkok meeting to briefly discuss paring university training with training of government staff from PERHILITAN, MOH and DVS.
  - Met with government partners and university groups to discuss zoonotic disease.
  - Finalized agreement with DVS to provide a veterinarian to join PREDICT and PERHILITAN on sampling trips. This individual will be based at VRI.
  - Met with the Director General of MOH in New York and discussed EPT activities in Malaysia.

- **Activity 1.2 Laboratory Assistance**

  - Sub-activity 1.2.1: Improved Diagnostic Infrastructure
    - Maintained excellent cold chain between sample collection, transportation in liquid nitrogen and storage in -80 freezers.
    - Continued working to ensure similar facilities are available for samples to be stored at VRI and NPHL.
    - Moved the EasyMag extraction robot, provided by DELIVER for VRI in Ipoh, to the new BSL3 laboratory.
    - Increased capacity and efficiency for nucleic acid extraction at PERHILITAN with the MiniMag extraction robot.

- Sub-activity 1.2.2: **Professional Exchange and Training of Laboratory Personnel**
  - Continued to work closely with PERHILITAN to develop protocols for receiving, handling, storing, processing and testing wildlife samples.

- Sub-activity 1.2.3: **Other Activities Contributing to Improved Laboratory Capacity**
  - Extracted nucleic acid from 76 urine swab samples collected from bats and rodents to screen for Leptospirosis with the new test PERHILITAN is developing, as reported last quarter.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Rapid Survey Tool and Maps**
    - Continued collection of new and more detailed information for the Rapid Tool update.

  - Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
    - Identified first 3 areas where the hunter health project will begin: Gua Musang in Kelantan, Kuala Lipis in Pahang and Kuala Kangsar in Perak.
    - Visited Krau Wildlife Reserve to evaluate logistical requirements and select pristine, disturbed and semi-disturbed sampling sites.
    - Sampled at semi-disturbed and disturbed sites at Sungkai Wildlife Reserve, as detailed in the table below.

Sample Collection and Status:

Sample Location	Taxa	Interface(s)	# of Animals Sampled	# of Samples Collected	Current Location	Diagnostic Laboratory	Tests Requested
Sungkai Wildlife Reserve	Bats	Semi Disturbed	6	82	PERHILITAN	PERHILITAN/ VRI	NA
Sungkai Wildlife Reserve	Rodents	Semi Disturbed	9	140	PERHILITAN	PERHILITAN/ VRI	NA
Kampung Menderang	Bats	Disturbed	26	15	PERHILITAN	PERHILITAN/ VRI	NA

bordering Sungkai Wildlife Reserve							
Kampung Menderang bordering Sungkai Wildlife Reserve	Rodents	Disturbed	1	377	PERHILITAN	PERHILITAN/ VRI	NA
Total			**42**	**612**			

- Sub-activity 1.3.3: **Training of Personnel for Surveillance Activities**
  - Held trainings on bat and rodent sampling and retro orbital bleeding of small animals.

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**

- Sub-activity 1.4.2: **Pathogen Diagnostics and Discovery Submission**
  - Began screening 28 rectal and throat swabs from 14 civets for Coronaviruses using PREDICT protocols and control, no positives were detected.
  - Extracted DNA from throat and urine samples from 392 Long Tailed Macaques (*Macaca fascicularis*) and 6 Pig-tailed Macaques (*Macaca nemestrina)* that were culled by PERHILITAN
  - Screened 796 samples for Herpes B. Sequencing of positive PCR samples is ongoing.
  - Transferred 903 aliquots of various sample types from *Macaca fascicularis* to university groups in Malaysia for Chikungunya, Dengue and *Plasmodium knowlesi* screening. All were negative for Chikungunya by PCR, 10 showed positive bands for *Plasmodium knowlesi* and one tested positive for neutralizing antibodies of Sylvatic Dengue. Confirmation of results and testing is ongoing.

Partners: Department of Wildlife and National Parks (PERHILITAN); Ministry of Health Malaysia (MOH); Veterinary Research Institute (VRI); University Putra Malaya; University of Malaya; University Kebangsaan Malaysia; Sabah Wildlife Department (SWD); Institute for Tropical Biology and Conservation, University Malaysia Sabah

Overall Progress for LOW 1: Wildlife Pathogen Detection:

Unanticipated or Unplanned Successes

- Continued following 2 human outbreaks of *Plasmodium knowlesi (*one in Kelantan and 1 in Pinang) and at the request of MOH; PERHILITAN performed 2 trips to collect samples from Long Tailed Macaques and are screening samples and developing a probe for rapid diagnosis of *Plasmodium knowlesi*. Members of the PERHILITAN team carrying out the sampling had received training and were following the sampling protocols by PREDICT.

THAILAND

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Attended the USAID Emerging Pandemic Threats (EPT) Program South East and South Asian Regional Meeting to discuss and coordinate Yr 3 Work Plans.
    - Attended the EID Preparedness Forum meeting to better facilitate cross-EPT communication.
    - Discuss future collaborations with PREVENT on human-animal interface for pathogen risk.
    - Developed and submitted Yr 3 Work Plan.
  - Sub-activity 1.1.3: **Communication**
    - Communicated weekly with staff from Department of Natural Parks, Wildlife and Plant Conservation (DNP) on wildlife surveillance planning and on pathogen detection from wildlife specimens.
    - Communicated with the USAID/RDMA via phone or in-person visits to give regular updates.
    - Agreement reached with Chulalongkorn University and U.S. Department of Defense to establish a pathogen identification center and satellite network in Thailand and Southeast Asia.

- **Activity 1.2 Laboratory Assistance**

  - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
    - Received synthetic universal positive control and PREDICT protocols.
    - Signed Biological Sample Sharing and Submission and Diagnostic Data-sharing agreement.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.3: **Training of Personnel for Surveillance Activities**
    - Attended RESPOND's EID Preparedness Forum monthly.

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**

  - Sub-activity 1.4.1: **Introduction of New Technologies**
    - Continued use of jr454 (Roche) next-generation sequencing technology for viral discovery on clinical samples collected from wildlife.

  - Sub-activity 1.4.2: **Pathogen Diagnostics and Discovery Submission**
    - Began testing 2 bat specimens (pooled urine and saliva) using the jr454 platform.
    - Tested bat feces for Coronaviruses using protocols and control and follow-up confirmation of results and additional testing is ongoing.
    - Began testing of selected specimens for filoviruses using Predict protocols and control.

  - Sub-activity 1.4.3: **Training of Personnel in New Technologies and Pathogen Detection and Discovery**
    - Continued bioinformatic development/support with Chulalongkorn University to analyze obtained results.

Partners: Chulalongkorn University; Department of Natural Parks, Wildlife and Plant Conservation (DNP)

VIETNAM

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Provided effective day-to-day management and oversight of the program activities and administrative procedures to accomplish planned objectives.
    - Prepared and submitted workplan and budget for Yr 3.
    - Hired an additional member for the field team, (b)(6) (b)(6)
  - Sub-activity 1.1.3: **Communication**
    - Maintained regular communication with (b)(6) and (b)(6) (b)(6) (b)(6) via telephone, email and through in-person meetings when requested.
    - Executed Agreement for Collaboration with the Faculty of Veterinary Medicine, Hanoi University of Agriculture (HUA) for implementation of diagnostics in Northern Vietnam.
    - Executed Memorandum of Agreement with the Vietnamese central government Department of Animal Health (under the Ministry of Agriculture and Rural Development) for the implementation of activities in partnership with Vietnamese government veterinary services and laboratories throughout Vietnam
    - Presented on "*Wildlife Disease Surveillance*" at the *Regional Laboratory Network Workshop on Diagnostic and Characterization of Priority and Emerging Diseases in Swine*, Ho Chi Minh City, hosted by the Department of Animal Health, and co-funded by IDENTIFY, EU and CSIRO Australia.
    - Presented at the RESPOND Emerging Infectious Diseases (EID) Forum, Bangkok, Thailand, on "*The role of the Illegal wildlife trade in the distribution and transmission of zoonotic diseases from wildlife to humans"*.
    - Travelled with (b)(6) (b)(6) and (b)(6) to visit sampling interfaces in northern Vietnam, including Animals Asia Bear Rescue Centre at Tam Dao National Park and the Vietnamese government's Soc Son Rescue Centre that rescue wildlife confiscated from the illegal wildlife trade.
    - Attended the USAID/PIOET-organized EPT regional coordination and planning meeting in Bangkok to build a shared vision for EPT as a program and share Yr 3 country and regional work plans.
    - Assisted with planning and organizing the *"First Regional Wildlife Pathology Workshop"*. to be hosted

by the Faculty of Veterinary Medicine, Hanoi University of Agriculture (HUA), with funding and training development by PREDICT.

- **Activity 1.2 Laboratory Assistance**

  - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
    - Obtained essential equipment to implement diagnostic partner laboratories, including: Sanyo MDF 237 -30 Freezer, Eppendorf Minispin Plus Centrifuge, IKA Genius 3 Vortex (x2), Eppendorf Research Plus 8 Channel 10-100 UL Pipette, Eppendorf Research Plus 8 Channel 0.5-10UL Pipette for HUA and Regional Animal Health Office No. 6, Ho Chi Minh City. Supplied all reagents and consumables for sample testing to HUA.

  - Sub-activity 1.2.2: **Professional Exchange and Training of Laboratory Personnel**
    - PREDICT staff from the US travelled to HUA to introduce the PREDICT protocols and Universal Control, provide training to use the family-level protocols to test for Flavi, Paramyxo, Corona, Herpes and Arena viruses and discuss the biosafety aspects of performing diagnostics to detect zoonotic pathogens in samples from wildlife.
    - Introduced the concept of “One Health”, wildlife/human interfaces and the sampling strategy for Vietnam to the heads of all veterinary departments during a seminar at HUA.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
    - Visited Lam Dong and Dong Nai Provinces, southern Vietnam, to meet with the Provincial People’s Committee, the Sub Department of Animal Health, and the Forest Protection Department to discuss sampling on wildlife farms as soon as central level government agreements are finalized.
    - Visited wildlife farms in Lam Dong Province to obtain a better understanding of the husbandry practices, species and size of farms prior to developing sampling protocols.
    - Received samples, detailed in the table below, including from two sun bears donated by a local NGO, Animals Asia, that were used for training laboratory staff at HUA on PREDICT diagnostic protocols, thus utilizing samples of lower value to the project for training and saving valuable, target species samples for when protocols are fully implemented.

Sample Collection and Status:

Sample Location	Taxa (one line per taxa)	Interface(s)	# of Animals Sampled	# of Samples Collected	Current Location	Diagnostic Laboratory (list lab(s))	Tests Requested
Tam Dao National Park, Vietnam	Ursidae[1]	Wildlife farm	69	106	Infectious Disease Laboratory, Faculty of Veterinary Medicine, HUA	Infectious Disease Laboratory, Faculty of Veterinary Medicine, HUA	• Flaviviridae • Paramyxoviridae • Coronaviridae • Arenaviridae • Herpesviridae • Influenza A (only a small number to be screened, requested by Department of Animal Health)
Cuc Phuong National Park, Vietnam	Viverridae	Wildlife trade	2	18	Infectious Disease Laboratory, Faculty of Veterinary Medicine, HUA	Infectious Disease Laboratory, Faculty of Veterinary Medicine, HUA	• Paramyxoviridae • Coronaviridae • Flaviviridae • Arenaviridae • Herpesviridae • Influenza A (only a small number to be screened frequested by Department of Animal Health)

[1] These Sun Bear samples were donated by a local NGO, Animals Asia and were tested during the training workshop conducted by (b)(6) (b)(6) Use of samples from non-target taxa is appropriate as it allows us to train laboratory staff and perfect PREDICT diagnostic protocols with samples that are of lower value and save the more valuable, target species samples for when the laboratory protocols are fully implemented.

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**

  - Sub-activity 1.4.1: **Introduction of New Technologies**
    - Introduced cDNA synthesis methods, SYBRgreen staining for gels, nested PCR, use of degenerate primers, new sample preservation methods including Viral Transport Medium, RNA Later and

Whatmans FTA filter papers to the laboratory.

- Sub-activity 1.4.2: **Pathogen Diagnostics and Discovery**
  - Conducted the initial family-level screening for Flavi, Paramyxo, Corona, Herpes and Arena viruses on blood and oral swab samples from Sun and Asiatic Black Bears and Masked and Common Palm Civets; final results are pending.

- Sub-activity 1.4.3: **Training of Personnel in New Technologies and Pathogen Detection and Discovery**
  - Trained new Veterinary Intern on sample storage methods including Viral Transport Medium, RNA Later and Whatmans Filter Papers for sampling.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Surveillance Data Management**
    - Trained Veterinary Intern on using GAINS field sample data sheets.
    - Continued training on the use of the barcode software, sample ID generation and barcode creation for field sampling activities.

Overall Progress for LOW 1: Wildlife Pathogen Detection:

Unanticipated or Unplanned Successes

- Improved coordination between EPT Partners and the other USAID-funded avian influenza programs working in Vietnam following the development of the Yr 3 work plan, allowing for better planning and coordination of activities with FAO, Abt Associates and WHO.
- Introduction of the Central Desktop coordinating software for EPT partners in Vietnam to provide advanced notice regarding planned activities, including flagging potential conflicts in timing.

Challenges & Obstacles

- The ongoing development of government relationships required to execute partner agreements has taken longer than expected; however, these have been achieved and the process provided a firm basis for a long term, sustainable partnership.

Partners: Ministry of Agriculture and Rural Development (MARD), Department of Animal Health (Department of

Epidemiology, National Centre for Veterinary Diagnostics, Regional Animal Health Office 6), Forestry Directorate (Forest Protection Department (FPD), CITES Management Authority); Hanoi University of Agriculture University (HUA) - Faculty of Veterinary Science

ASIA

BANGLADESH

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Continued training a veterinarian from the Bangladesh Forest Department.
    - Obtained permission to capture additional animals and species (hares, foxes, mongooses, small fruit bats) from Bangladesh Forest Department.
    - Submitted reporting of sampling activities to Bangladesh Forest Department.
  - Sub-activity 1.1.3: **Communication**
    - Continued in-person meetings and telephone communication with USAID Mission, Bangladesh Forest Department, Ministry of Health, and Department of Livestock Services.
    - Held in-person meetings with FAO and WHO representatives on issues relating to zoonotic diseases.

  Partners: International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B); Bangladesh Forest Department (Government of Bangladesh)

- **Activity 1.2 Laboratory Assistance**
  - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
    - Continued discussions with the Bangladesh Forest Department on future diagnostic

laboratory and lab personnel training needs.
- Provided PREDICT protocols and universal Positive control to lab.
- Prepared to initiate family-level viral testing and compared PCR methods for Nipah virus to begin in Y3 at ICDDR,B laboratory.

- Sub-activity 1.2.2: **Professional Exchange and Training of Laboratory Personnel**
  - Trained Bangladesh Forest Department staff in the diagnostic laboratory.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Rapid Survey Tool and Maps**
    - Started to complete the Rapid Survey Tool and Map Update, to be finalized in Yr 3 Q1.

  - Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
    - Visited new potential sites for sampling including at Srimongol, and Moulvi-Bazar.
    - Initiated sampling of mongooses and foxes and continued surveillance of bats, rodents, shrews, hares, mongooses, and foxes, detailed in the table below.

Sample Collection and Status:

Sampling Location	Taxa	Interface(s)	# of Animals Sampled	# of Samples Collected	Current Location	Diagnostic Laboratory	Tests Requested
Ambicapur,Faridpur	Carnivore	wild	3	39	ICDDR,B	ICDDR,B	TBD
Ambicapur,Faridpur	Lagomorph	wild	13	173	ICDDR,B	ICDDR,B	TBD
Bhushirbandar,Chirirbandar, Dinajpur	Rodents	wild	2	27	ICDDR,B	ICDDR,B	TBD
Bhushirbandar,Chirirbandar, Dinajpur	Bat	wild	60	832	ICDDR,B	ICDDR,B	TBD
Bhushirbandar,Chirirbandar, Dinajpur	Shrews	wild	4	51	ICDDR,B	ICDDR,B	TBD
Dumrakandi, Faridpur	Bats	wild	100	1388	ICDDR,B	ICDDR,B	TBD
Ful pur, Mymensingh	Rodents	wild	37	475	ICDDR,B	ICDDR,B	TBD
Ful pur, Mymensingh	Carnivore	wild	1	13	ICDDR,B	ICDDR,B	TBD

Gouripur, Killa Tajpur, Mymensingh	Carnivore	wild	1	14	ICDDR,B	ICDDR,B	TBD
Gouripur, Killa Tajpur, Mymensingh	Shrews	wild	1	11	ICDDR,B	ICDDR,B	TBD
Katikatachar, Shibchar, Madaripur	Carnivore	wild	3	39	ICDDR,B	ICDDR,B	TBD
Katikatachar, Shibchar, Madaripur	Reptile	wild	1	10	ICDDR,B	ICDDR,B	TBD
Noor Nagar, Joypurhat	Rodents	wild	52	727	ICDDR,B	ICDDR,B	TBD
Noor Nagar, Joypurhat	Rodents	wild	30	380	ICDDR,B	ICDDR,B	TBD
Ramnagor,Rajbari	Rodents	wild	4	12	ICDDR,B	ICDDR,B	TBD
Ramnagor,Rajbari	Bat	wild	35	489	ICDDR,B	ICDDR,B	TBD
Ramnagor,Rajbari	Shrews	wild	1	48	ICDDR,B	ICDDR,B	TBD
Shubarampur,Faridpur	Rodents	wild	27	352	ICDDR,B	ICDDR,B	TBD
Shubarampur,Faridpur	Lagomorph	wild	7	92	ICDDR,B	ICDDR,B	TBD
Shubarampur,Faridpur	Rodent	wild	6	80	ICDDR,B	ICDDR,B	TBD
Shubarampur,Faridpur	Shrews	wild	4	52	ICDDR,B	ICDDR,B	TBD
Shubarampur,Faridpur	Shrews	wild	4	52	ICDDR,B	ICDDR,B	TBD
Total			**396**	**5356**			

- Sub-activity 1.3.3: **Training of Personnel for Surveillance Activities**
  - Trained Bangladesh Forest Department staff in capture and sampling of *Pteropus* bats.
  - Bangladesh Forest Department veterinarian attended course on Introduction to GIS.

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**

  - Sub-activity 1.4.2: **Pathogen Diagnostics and Discovery Submission**
    - Bat samples sent to at CII, Columbia University were tested using the 454 platform for pathogen discovery.

Partners: International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B); Forestry Department (Government of Bangladesh)

Overall Progress for LOW 1: Wildlife Pathogen Detection:

Unanticipated or Unplanned Successes

- Obtained a sizable number of rodent and hare samples despite the large number of problems encountered.

Challenges & Obstacles

- Community perceptions about rodent, hare, and carnivore capture and release is that these animals are pests and should be destroyed.
- Due to the high human population density, the traps are frequently disturbed, thus due to shortage or inadequate animal traps, additional traps are currently being obtained.
- Lack of permission and permits to sample certain species.
- In search of appropriate partners with the expertise for sampling primates.

Revised Plan to Accomplish Goals

- Expanding surveillance to include more small carnivores and primates.
- Adding new sampling sites for Yr 3.

CHINA

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Continued coordination with collaborating partners at all sites (Guangzhou, Wuhan and Shanghai).
    - Hired full-time technician to assist with sample collecting in Guangzhou.
    - Initiated standard operating procedures for all financial activities that follow both USAID and Chinese guidelines.

- **Activity 1.2 Laboratory Assistance**
  - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
    - Delivered the Universal Control and protocols to the Guangdong Entomological Institute (GDEI) and Wuhan Institute of Virology (WIV).

  - Sub-activity 1.2.2: **Professional Exchange and Training of Laboratory Personnel**
    - Hired 2 new staff members for the GDEI laboratory and field team to be trained to assist in field collection and sample testing.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Rapid Survey Tool and Maps**
    - Began to complete the Rapid Survey Tool and Map for the first time in China, to be finalized in Yr 3 Q1.

  - Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
    - Continued animal sampling with a focus on rodents and bats within Guangdong Province, detailed in the table below.

Sample Collection and Status:

Sample Location	Taxa	Interface(s)	# of Animals Sampled	# of Samples Collected	Current Location	Diagnostic Laboratory	Tests Requested
Guangdong	Rodents	Wild	24	127	Guangzhou	GDEI lab	Hantavirus
Guangdong	Bats	Wild	6	280	Guangzhou	GDEI lab	Hantavirus, Coronavirus, Henipavirus
Shanyang,Shanxi	Bats	Wild	11	22	ECNU	WIV	Astrovirus, Coronavirus, henipavirus, filovirus
Ankang, Shanxi	Bats	Wild	35	70	ECNU	WIV	Astrovirus, Coronavirus, henipavirus,

							filovirus
Hanzhong, Shanxi	Bats	Wild	6	12	ECNU	WIV	Astrovirus, Coronavirus, henipavirus, filovirus
Shangluo, Shanxi	Bats	Wild	46	92	ECNU	WIV	Astrovirus, Coronavirus, henipavirus, filovirus
Total			**128**	**603**			

- Sub-activity 1.3.3: **Training of Personnel for Surveillance Activities**
  - Conducted training of field personnel on sample collection, handling, transport and storage following standardized protocols; wildlife restraint and anesthesia; personnel and animal safety protocols.
  - Shared protocols with GDEI on Bat and Rodent Sampling Methods, Primate Sampling Methods, and Biosafety and PPE Use.

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**

  - Sub-activity 1.4.1: **Introduction of New Technologies**
    - Implemented family-level PCR protocols to screen for Coronaviruses at GDEI; and samples being tested using new protocols at WIV.

  - Sub-activity 1.4.2: **Pathogen Diagnostics and Discovery Submission**
    - Used family-level protocols to test 303 bat rectal samples for Astro, Corona and Paramyxo viruses; additional testing and sequencing for confirmation of astro and paramyovirus PCR positives is ongoing and to identify potential viral sequences.
    - Serologic testing of 1,301 human samples is ongoing to test for Filo, Hanta, and Corona virus antibodies.
    - Testing of rodent samples for Hantavirus and Henipavirus in bats is ongoing.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Surveillance Data Management**

- Guangdong CDC requesting permission to enter human testing results into GAINS database.

Partners: East China Normal University (ECNU); Centers for Disease Control and Prevention of Guangdong Province (GDCDC); Wuhan Institute for Virology (WIV); Guangdong Entomological Institute/South China Institute for Endangered Animals (GDEI).

Overall Progress for LOW 1: Wildlife Pathogen Detection:

Revised Plan to Accomplish Goals

- To understand the distribution of bat Astroviruses, the sequence data from previously sampled bats will be combined with current and future samples to construct a phylogenetic tree; this will elucidate the relationships among the Astroviruses (usually quite diverse within a population) and bats.

LATIN AMERICA

BOLIVIA

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Provided effective day-to-day management and oversight of in-country program and administrative procedures.
    - Formalized agreement with the Institute of Molecular Biology and Biotechnology (IBMB-UMSA) on the policy for sample sharing (e.g., molecular protocols, test controls, isolates, etc.), as well as intellectual property for publications.
  - Sub-activity 1.1.3: **Communication**
    - Kept USAID mission informed regarding communications with governmental agencies and in-country partners, through emails and phone calls maintained with (b)(6) (b)(6)

- **Activity 1.2 Laboratory Assistance**

    - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
        - Received a biological safety cabinet, a filtered PCR enclosure, and a refrigerated microcentrifuge to IBMB lab through DELIVER with support from the USAID mission.
        - Received protocols and universal control for viral family-level testing, prioritized viral families to be tested for each priority wildlife taxa.

    - Sub-activity 1.2.2: **Professional Exchange and Training of Laboratory Personnel**
        - Led a training on "Biosafety Procedures in Laboratory Facilities" including twelve staff from PREDICT, IBMB-UMSA lab, and the Public University of El Alto (School of Veterinary Medicine).

    - Sub-activity 1.2.3: **Other Activities Contributing to Improved Laboratory Capacity**
        - Completed technical visits to in-country laboratories (CENETROP, LIDIVET and IBMB-UMSA).
        - Diagnostic leads addressed the laboratories' concerns and questions and discussed opportunities for sustained assistance and assessed technical needs and diagnostic infrastructure for pathogen discovery.

- **Activity 1.3: Surveillance**

    - Sub-activity 1.3.1: **Rapid Survey Tool and Maps**
        - Tested new software for updating the Rapid Survey Tool and map.

    - Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
        - Met with the Yellow Fever Program Coordinator from the local branch of the Pan-American Health Organization to discuss the increase in cases of yellow fever and explore possibilities for joint sampling of sentinel primates in indigenous territories in northern Bolivia.
        - Met with leaders and community members of San Luis Chico indigenous community to present outcomes of a two-month sampling campaign conducted in Tsimán-Mosetén territories during Q3.
        - Expanded sampling efforts by joining field demographic and taxonomic studies underway in northern Bolivia (i.e., Madidi National Park, agricultural lands and forests in Sara Ana, Alto Beni) and sampled 11 rodents and marsupials in collaboration with the Bolivian Fauna Collection team (University of San Andrés). Although marsupials and xenarthra are not priority taxa for PREDICT opportunistic sampling

was performed to study the role these species may be playing in the maintenance and transmission of certain local zoonotic viruses (i.e. Mayaro-like viruses, Oropouche fever bunyavirus).

- Received permits from the General Directorate of Biodiversity for exporting bat samples for pathogen discovery to CII-Columbia University in New York.

Sample Collection and Status:

Sample Location	Taxa (one line per taxa)	Interface(s)	# of Animals Sampled	# of Samples Collected	Current Location	Diagnostic Laboratory (list lab(s))	Tests Requested
Quillacollo (Cochabamba), Urkupiña festivity	Primate	Wildlife Trade	1	13	Ultra-low freezer at IBMB-UMSA	IBMB-UMSA	Samples stored until screening for: (first round) Filovirus, Paramyxovirus, Flavivirus, Coronavirus, Arenavirus, and *Salmonella* spp./ (second round) Retrovirus, Herpesvirus, Poxvirus, Orthobunyavirus, others.
Las Pampas market (Cochabamba)	Primate	Wildlife Trade	1	9	Ultra-low freezer at IBMB-UMSA	IBMB-UMSA	Samples stored until screening for: (first round) Filovirus, Paramyxovirus, Flavivirus, Coronavirus, Arenavirus, and *Salmonella sp.*/ (second round) Retrovirus, Herpesvirus, Poxvirus, Orthobunyavirus,

							others.
Sara Ana (Alto Beni)	Rodents	Free-ranging wild caught	6	157	Ultra-low freezer at IBMB-UMSA	IBMB-UMSA	Samples stored until screening for: Hantavirus, Arenavirus, Alphavirus, Flavivirus.
Campus of the University of San Andrés (La Paz)	Rodents	Free-ranging wild caught (rodent control program)	3	49	Ultra-low freezer at IBMB-UMSA	IBMB-UMSA	Samples stored until screening for: Hantavirus, Arenavirus, Alphavirus, Flavivirus.
Madidi National Park	Rodents	Free-ranging wild caught	4	71	Ultra-low freezer at IBMB-UMSA	IBMB-UMSA	Samples stored until screening for: Hantavirus, Arenavirus, Alphavirus, Flavivirus.
Madidi National Park	Marsupial	Free-ranging wild caught	1	10	Ultra-low freezer at IBMB-UMSA	IBMB-UMSA	Samples stored until screening for: Alphavirus (Mayaro fever)
La Senda Verde Wildlife Rescue Center (Coroico District, La Paz)	Primates	Donations of wild pets by private owners to rescue centers	17	294	Ultra-low freezer at IBMB-UMSA	IBMB-UMSA	Samples stored until screening for: (first round) Filovirus, Paramyxovirus, Flavivirus, Coronavirus, and Arenavirus/ (second round) Retrovirus, Herpesvirus, Poxvirus, Orthobunyavirus, others.
Machía Wildlife Rescue Center (Villa Tunari,	Primates	Donations of wild pets by private owners	12	23	Ultra-low freezer at IBMB-UMSA	IBMB-UMSA	Samples already processed for Rotavirus,

Cochabamba)		to rescue centers					Norovirus and *Salmonella* spp.
Inti Wara Yassi Community (Cochabamba)	Primate	Donations of wild pets by private owners to rescue centers	1	1	Ultra-low freezer at IBMB-UMSA	IBMB-UMSA	Samples already processed for Rotavirus, Norovirus and *Salmonella* spp.
Inti Wara Yassi Community (Cochabamba)	Xenarthra (anteater)	Rescued wildlife	1	1	Ultra-low freezer at IBMB-UMSA	IBMB-UMSA	Samples stored until screening for: Orthobunyavirus (Oropouche fever)
Carmen Pampa (La Paz)	Bats	Free-ranging wild caught	27	94	IBMB-UMSA	Columbia University	Pathogen discovery
Espejillos (Santa Cruz)	Bats	Free-ranging wild caught	43	232	IBMB-UMSA	Columbia University	Pathogen discovery

- Sub-activity 1.4.1: **Training of Personnel for Surveillance Activities**
  - Organized a training workshop in Carmen Pampa for veterinary students from Loyola University and Carmen Pampa Rural Academic Unit of the Bolivian Catholic University; trained 3 collaborators from UPEA University and IBMB-UMSA lab and undergraduate students from the Public University of El Alto on safety and sampling protocols.
  - Spoke at a seminar on “Wildlife Management and Conservation” organized by the Public University of El Alto (School of Veterinary Medicine, UPEA). The audience included 55 veterinary students from UPEA University.

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**

  - Sub-activity 1.4.2: **Pathogen Diagnostics and Discovery**
    - Submitted 929 samples from 117 individuals from priority taxa to the Institute of Molecular Biology and Biotechnology (IBMB-UMSA) for archiving and viral family testing.
    - Screened 15 fecal samples from healthy and symptomatic monkeys and anteaters at rescue centers, for rotavirus and norovirus infections by molecular methods at IBMB lab, all were negative.

Overall Progress for LOW 1: Wildlife Pathogen Detection:

Challenges & Obstacles

- The lack of availability of certain molecular reagents needed for family-level testing, and higher costs and delays incurred from importations, limited our capacity for pathogen testing in the current quarter.
- Although a DGB permit was recently granted for exporting a subset of bat samples to CII-Columbia University in the USA, exporting wildlife samples from Bolivia continues to be a major obstacle for pathogen confirmation at reference labs abroad.

Revised Plan to Accomplish Goals

- Work closely with partner laboratories to assist in the set-up of protocols for viral family-level testing.
- Building on strong relations with the General Directorate of Biodiversity (DGB) to explore possibilities for diagnostic confirmation using reference labs abroad.

Partners: National Animal Health Service (SENASAG); Ministry of Public Health and Sports (Departmental Services of Health-SEDES, and National Zoonoses Program); General Directorate of Biodiversity (DGB); Institute of Molecular Biology and Biotechnology-IBMB (Major University of San Andrés); National Center for Tropical Diseases (CENETROP); Pan-American Health Organization (PAHO); National Institute of Health Laboratories (INLASA, Ministry of Health); Veterinary Research and Diagnostic Laboratory (LIDIVET); Veterinary Research and Diagnostic Laboratory Cochabamba (LIDIVECO); Public University of El Alto (UPEA, Bacteriology Lab); Municipality of El Alto (Zoonosis Unit); Tsimán-Mosetén Indigenous Council (CRTM) and local communities (Asunción del Quiquibey and San Luis Chico); Takana Indigenous Council (CIPTA) and local communities (San Silvestre, Tumupasa); San José de Uchupiamonas indigenous community; “La Senda Verde” Wildlife Rescue Center; Municipal Zoo “Vesty Pakos” (La Paz city); Inti Wara Yassi Community; Amazon Conservation Association Bolivia (ACA); Bolivian Bat Conservation Program (BIOTA/partner EHA); DELIVER.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
    - Improved a report on the characterization of wildlife trade in Bolivia, to be presented to government agencies in year 3.

BRAZIL

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Provided effective day-to-day management and oversight of in-country program and administrative procedures.

  - Sub-activity 1.1.3: **Communication**
    - Organized and participated in a meeting held at Oswaldo Cruz Foundation (FIOCRUZ) laboratory in Rio de Janeiro.

- **Activity 1.2 Laboratory Assistance**

  - Sub-activity 1.2.2: Professional Exchange and Training of Laboratory Personnel
    - Visited the Malaria laboratory at Instituto Nacional de Pesquisas da Amazonia (INPA); planning to exchange laboratory expertise and technology.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Rapid Survey Tool and Maps**.
    - Initiated Rapid Survey Tool Update and will finalize next quarter.

  - Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**

    - Assisted in the program design for monitoring sentinel primate populations (*Alouatta spp*.) for yellow fever surveillance in Rio Grande do Sul (southern Brazil), as part of a collaborative study with the Rio Grande do Sul Directorate of Public Health.
    - Refined schedule and methods for joint exploration surveys to unaltered areas of the Amazon rainforest with INPA staff.

- Completed two expedition trips to remote sites of the Amazon in north-western Brazil (km 200 of the State Road BR-319, and several sites along Jatapu River), in conjunction with INPA and the Federal University of Espírito Santo.
- Continued to supply material for sampling carnivores to our partner Biotropicos in Minas Gerais, Brazil. Large carnivores are frequently hunted for their pelts and because they may attack livestock. Sampling large carnivores allows us to investigate pathogens in animals that humans are likely to hunt.
- Conducted opportunistic sampling in pristine sites to study the role marsupials, and xenarthra may be playing in the maintenance and transmission of certain local zoonotic viruses (i.e., Mayaro-like alphaviruses and Oropouche fever bunyavirus, respectively). Birds were sampled for training purposes as part of a collaborative study with INPA.

Sample Collection and Status:

Sample Location	Taxa	Interface(s)	# of Animals Sampled	# of Samples Collected	Current Location	Diagnostic Laboratory	Tests Requested
Minas Gerais	Carnivores	Free ranging	2	8	NB3-ICB II	NB3-ICB II	TBD
Morro Reuter	Primates	Free ranging	14	54	NB3-ICB II	NB3-ICB II	TBD
Manaus/Amazon	Primates	Free ranging	7	28	NB3-ICB II	NB3-ICB II	TBD
Manaus/Amazon	Bats	Free ranging	8	32	NB3-ICB II	NB3-ICB II	TBD
State Road BR-319 km 200	Bats	Free-ranging wild caught	102	682	WCPL-USP	NB3-ICB II; UC Davis	Flavivirus, Arenavirus, Coronavirus and Filovirus.
State Road BR-319 km 200	Primate	Free-ranging wild caught	1	13	WCPL-USP	NB3-ICB II; UC Davis	Filovirus, Paramyxovirus, Flavivirus, Coronavirus, and Arenavirus
State Road BR-319 km 200	Rodents	Free-ranging wild caught	3	32	WCPL-USP	NB3-ICB II; UC Davis	Hantavirus, Arenavirus, Alphavirus, Flavivirus.
State Road BR-	Xenarthra	Free-ranging	2	31	WCPL-USP	NB3-ICB II; UC	Orthobunyavirus

319 km 200	(armadillo)	wild caught				Davis	(Oropouche fever).
State Road BR-319 km 200	Birds	Free-ranging wild caught	12	48	WCPL-USP	NB3-ICB II; UC Davis	TBD
Jatapu River	Bats	Free-ranging wild caught	44	572	WCPL-USP	NB3-ICB II; UC Davis	Flavivirus, Arenavirus, Coronavirus and Filovirus.
Jatapu River	Primates	Free-ranging wild caught	5	65	WCPL-USP	NB3-ICB II; UC Davis	Filovirus, Paramyxovirus, Flavivirus, Coronavirus, Arenavirus.
Jatapu River	Rodents	Free-ranging wild caught	18	234	WCPL-USP	NB3-ICB II; UC Davis	Hantavirus, Arenavirus, Alphavirus, Flavivirus
Jatapu River	Marsupials	Free-ranging wild caught	15	195	WCPL-USP	NB3-ICB II; UC Davis	Alphavirus (Mayaro fever)
Jatapu River	Birds	Free-ranging wild caught	1	4	WCPL-USP	NB3-ICB II; UC Davis	TBD
Total			**235**	**2000**			

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**

  - Sub-activity 1.4.1: **Introduction of New Technologies**
    - Purchased new sampling collection technology for field work including liquid nitrogen dewars, FTA and protein saver cards, VTM transport medium.

Partners: ICB II Virology Laboratory, Wildlife Comparative Pathology Lab (WCPL), Faculty of Veterinary Medicine, and Preventive Medicine Department at University of São Paulo; Criadouro Conservacionista; at University of São Paulo; Biotropicos; Brasilia University (UNB); National Research Institute of Amazonia (INPA); Authorization and Information System on Biodiversity (SISBIO); National Center for Research and Conservation of Brazilian Primates; Institute “Chico Mendes” of Conservation and Biodiversity (ICMBIO); Federal University of

Amazonia (UFAM); Mamirauá Institute of Sustainable Development, Tefé City; Piagaçu Institute of Sustainable Development; Laboratory of Biodiversity in Public Health at Oswaldo Cruz Foundation (FIOCRUZ); Amazonas Institute; Rio Grande do Sul Directorate of Public Health; Federal University of Espírito Santo.

Overall Progress for LOW 1: Wildlife Pathogen Detection:

Challenges & Obstacles

- Sampling bats in urban Manaus is dangerous due to high crime in the area; therefore, the team has moved the urban sampling site to the city fringe.
- ICB II is awaiting the new RNA extraction machine from DELIVER which will greatly increase lab capacity.

Revised Plan to Accomplish Goals

- A field trip is planned in October for sampling bats, primates and rodents in Manaus at the ZB2 forest fragment with bat and rodent taxonomists and biologists from our in-country partner organizations.
- One lab technician will be working on the family-level viral testing on samples obtained during the first two years, and another will work on the new samples from Yr 3.
- During Yr 3, prioritize expeditions to unaltered sites of the Amazon and cancel previous plans for sampling hunter-killed wildlife in Mamirauá and Piagaçu-Purus Sustainable Reserves.

COLOMBIA

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Successfully transferred management from EcoHealth Alliance (EHA) to Wildlife Conservation Society (WCS) team for Yr 3.

- Formalized agreements with the local Association of Wildlife Veterinarians (AVVS), for collaborative work on reviewing the current national and international regulations regarding wildlife disease monitoring and surveillance.

- Sub-activity 1.1.3: **Communication**
  - Met with USAID Colombia Mission PoC to discuss progress of project.
  - Maintained frequent communications with stakeholders.

- **Activity 1.2 Laboratory Assistance**

  - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
    - Purchased laboratory equipment for long-term storage of wildlife samples to be housed at Javeriana Pontiff University to increase the local capacity for disease surveillance.

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**

  - Sub-activity 1.4.2: **Pathogen Diagnostics and Discovery Submission**
    - Submitted18 serum samples from primates for Flavivirus serology.
    - Provided the lab at Universidad de Antioquía the Sharing and Submission and Diagnostic Data Sharing Policy to complete additional diagnostic analyses to sign.

Partners: Fundación Universitaria San Martín (FUSM), Bogotá; Laboratorio de Virología del Instituto Nacional de Salud (INS), Virology Lab of the National Health Institute; Universidad de Antioquía; Fundación Colombiana de Estudios de Parásitos (FUNCEP); Instituto Colombiano Agropecuario (ICA); Association of Wildlife Veterinarians (AVVS); Ministry of Environment; Ministry of Agriculture; Ministry of Public Health; the local Association of Wildlife Veterinarians (AVVS); Javeriana Pontiff University; Corporaciones Autónomas Regionales.

Overall Progress for LOW 1: Wildlife Pathogen Detection:

Challenges & Obstacles
- Obtaining permits has been the main limitation for wildlife sampling in Colombia.
- Capacity for in-country sample diagnosis is limited to those diseases that are prevalent and identified as risk

focusing on Leptospirosis, Leishmaniasis, Malaria, Venezuelan Equine Encephalitis, East Equine Encephalitis and West Nile Virus.

Revised Plan to Accomplish Goals

- As PREDICT will likely no longer be working in Colombia, the team will work to ensure that the universal controls and PCR protocols are sent to the partner laboratories at Instituto Nacional de Salud (INS) and Instituto Colombiano Agropecuario (ICA) in order to build in-country capacity.
- Work with government agencies to define conditions and timelines for supporting the establishment of an inter-ministerial alliance for wildlife disease surveillance, as well as expected products (reports, training, others).

MEXICO

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**

  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Began process to obtain new export permits for 454 sequencing at Columbia University.
    - Facilitated the visits of the diagnostics lead and regional coordinator with potential partner laboratories at Universidad Nacional Autónoma de México (UNAM) and the lab at Instituto Mexicano de Seguro Social (IMSS).
    - Developed and submitted Yr 3 Work Plan.

  - Sub-activity 1.1.3: **Communication**
    - Met with new USAID Mexico Mission PoC and staff.
    - Held a meeting with staff from various government agencies -- Comisión Nacional de Salud Animal (Wildlife Health Commission), Comisión Nacional de Áreas Naturales Protegidas (Commission for Protected Natural Areas) de la Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT), and Secretaría de Ganadería, Agricultura, Desarrollo Rural, Pesca y Alimentación (SAGARPA) to explain the wildlife pathogen detection policies.

- **Activity 1.2 Laboratory Assistance**

  - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
    - The universal control and PCR protocols were received; this will allow initiation of family-level pathogen detection in wildlife.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Rapid Survey Tool and Maps**
    - Updated Rapid Survey Tool with CAPTURE Program.

  - Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
    - Coordinated activities at both sampling sites in Calakmul, Campeche and Lacandona, Chiapas.

Sample Collection and Status:

Sample Location	Taxa	Interface(s)	# of Animals Sampled	# of Samples Collected	Current Location	Diagnostic Laboratory	Tests Requested
Lacandona	Bat	Livestock/ pasture	14	57	FMVZ	IMSS	TBD
Lacandona	Rodent	Livestock/ pasture	1	4	FMVZ	IMSS	TBD
Lacandona	Bat	Forest	7	35	FMVZ	IMSS	TBD
Lacandona	Bat	Forest	9	35	FMVZ	IMSS	TBD
Lacandona	Bat	Forest	23	115	FMVZ	IMSS	TBD
Lacandona	Bat	Livestock/ pasture	15	75	FMVZ	IMSS	TBD
Lacandona	Rodent	Livestock/ pasture	3	15	FMVZ	IMSS	TBD
Lacandona	Bat	Forest	11	55	FMVZ	IMSS	
Lacandona	Bat	Forest	7	35	FMVZ	IMSS	TBD
Lacandona	Bat	Forest	2	10	FMVZ	IMSS	TBD

Lacandona	Rodent	Forest	2	10	FMVZ	IMSS	TBD
Calakmul	Bat	Forest	9	43	FMVZ, UNAM	IMSS	TBD
Calakmul	Bat	Forest	21	103	FMVZ, UNAM	IMSS	TBD
Calakmul	Bat	Forest	9	40	FMVZ, UNAM	IMSS	TBD
Calakmul	Bat	Urban	51	253	FMVZ, UNAM	IMSS	TBD
Calakmul	Bat	Urban	34	164	FMVZ, UNAM	IMSS	TBD
Calakmul	Rodent	Urban	12	60	FMVZ, UNAM	IMSS	TBD
Calakmul	Bat	Livestock/ pasture	11	52	FMVZ, UNAM	IMSS	TBD
Calakmul	Rodent	Livestock/ pasture	6	30	FMVZ, UNAM	IMSS	TBD
Calakmul	Rodent	Urban	3	15	FMVZ, UNAM	IMSS	TBD
Calakmul	Bat	Forest	15	75	FMVZ, UNAM	IMSS	TBD
Total			**265**	**1281**			

Partners: Instituto de Ecología and the Veterinary Diagnostic Lab of Facultad de Medicina Veterinaria y Zootecnia (FMVZ) at the Universidad Nacional Autónoma de México (UNAM); the Mexican Institute of Social Security (IMSS).

PERU

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General and Fiscal Management and Reporting**
    - Formalized agreement with the US NAMRU-6 lab on policy for sample sharing (e.g., molecular protocols, test controls, isolates, etc.), as well as intellectual property for publications. Similar agreement with the National Institute of Health (INS) is awaiting review and approval by INS' Scientific Committee.
    - Formalized memorandum of understanding for collaborative work with the following institutions: Loreto Office of the National Veterinary Service (SENASA); Loreto and Tumbes Regional Directorates of Public Health (DIRESAs); Loreto Regional Directorate of Trade, Tourism and Traditional Crafts (DIRCETURA); Faculty of Biological Sciences, National University of Trujillo.

  - Sub-activity 1.1.3: **Communication**
    - Presented formal reports to the following institutions on surveillance of primates in the wildlife trade conducted from April to July 2011: DIRCETURA Loreto; "Isla de los Monos" and "Varillal" Wildlife Rescue Centers; Amazon Shelter NGO.
    - Submitted seven (7) scientific abstracts for poster and oral presentations in a Symposium about "Primatology in Peru: History, Present and Future Perspectives", to be held from October 2011 in Lima city.
    - Prepared a draft summary report on advances in zoonotic disease surveillance at wetmarkets for government agencies (i.e., General Directorate of Forestry and Wildlife-DGFFS; Municipality of Lima) and partners in Yr 3. This report will include an overview of potential health risks associated with the illegal wildlife trade in Peru.

- **Activity 1.2 Laboratory Assistance**

    - Sub-activity 1.2.1: **Improved Diagnostic Infrastructure**
        - Assisted by NAMRU-6's laboratory staff, prepared an itemized list of necessary supplies for RNA extraction and diagnostics.
        - Purchased primers for molecular screening for 7 priority viral families at partner labs National Institute of Health-INS and US NAMRU-6.

    - Sub-activity 1.2.2: **Professional Exchange and Training of Laboratory Personnel**
        - Protocols and universal controls were transferred to partner labs for viral family-level testing.

    - Sub-activity 1.2.3: **Other Activities Contributing to Improved Laboratory Capacity**
        - Completed technical visits to in-country laboratories (INS-Iquitos, and US NAMRU-6 in Lima) from July 18 to 25, 2011. The diagnostic team had the opportunity to assess in situ technical needs and diagnostic infrastructure for pathogen discovery at the labs, address lab concerns and questions, and discussed opportunities for sustained assistance and close follow up with partners; as a result remarkable progress was made toward the development of local capacity, and laboratory infrastructure to begin viral family testing.
        - Prioritized viral families to be tested for each wildlife taxa, and estimated costs for family-level testing on stored and newly acquired samples.
        - Obtained authorization from the Faculty of Biological Sciences (National University of Trujillo) to use their laboratory facilities for necropsies on fresh wildlife carcasses discarded from local markets.

- **Activity 1.3: Surveillance**

    - Sub-activity 1.3.1: **Rapid Survey Tool and Maps**
        - Updated Rapid Survey Tool by testing software developed by the IM team (CAPTURE).

    - Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
        - Met with National Institute of Health-INS after a hantavirus outbreak occurred in Iquitos to discuss possibilities for joint sampling of rodents in northern Amazonia, and for expanding pathogen testing on rodent samples routinely collected by INS.

- Met with Loreto Executive Division of Environmental Health-DESA and Loreto Regional Directorate of Health-DIRESA to offer field assistance in the recent hantavirus outbreak in Iquitos, and to explore possibilities for conducting more comprehensive pathogen screening on rodent samples.
- Presented a formal request to the Loreto Directorate of Trade, Tourism and Traditional Crafts (DIRCETURA Loreto), to sample animals from the wildlife trade that are assigned in custody to Quistococha Zoo (Iquitos).
- Began a new surveillance effort on vampire bats in conjunction with SENASA staff (National Rabies Control Program) in Loreto. The team is refining mist-netting methods to be used along the Iquitos-Nauta road.
- Planned new rodent sampling activties with the Pucallpa Reference Lab (Executive Division of Environmental Health-DESA) in peri-urban areas across central Peruvian Amazonia, where fresh rodent carcasses will be discarded by the regional Leptospirosis Control Program.

Sample Collection and Status:

Sample Location	Taxa (one line per taxa)	Interface(s)	# of Animals Sampled	# of Samples Collected	Current Location	Diagnostic Laboratory (list lab(s))	Tests Requested
Tumbes	Primates	Active surveillance at market	3	9	Stored at US NAMRU-6	NAMRU-6	Samples stored until screening for: (first round) Filovirus, Paramyxovirus, Flavivirus, Coronavirus, Arenavirus / (second round) Retrovirus, Herpesvirus, Poxvirus, Orthobunyavirus, others.
	Rodent	Active surveillance at market	1	3	Stored at US NAMRU-6	NAMRU-6	Samples stored until screening for: Hantavirus, Arenavirus, Alphavirus, and Flavivirus.
Puerto Maldonado	Primates	Wildlife Trade	4	19	Stored at US NAMRU-6	NAMRU-6	Samples stored until screening for: (first round) Filovirus, Paramyxovirus, Flavivirus, Coronavirus, Arenavirus / (second round) Retrovirus, Herpesvirus, Poxvirus, Orthobunyavirus, others.

Bahuaja Sonene National Park (Madre de Dios Region)	Bats	Free-ranging wild caught	59	200	Stored at US NAMRU-6	NAMRU-6; INS Iquitos	Samples stored until screening for: Flavivirus, Arenavirus, Coronavirus and Filovirus.
	Rodents	Free-ranging wild caught	1	7	Stored at US NAMRU-6	NAMRU-6; INS Iquitos	Samples stored until screening for: Hantavirus, Arenavirus, Alphavirus, and Flavivirus.
Iquitos	Primates	Captivity	8	72	Stored at US NAMRU-6	NAMRU-6; INS	Samples stored until screening for: (first round) Filovirus, Paramyxovirus, Flavivirus, Coronavirus, Arenavirus / (second round) Retrovirus, Herpesvirus, Poxvirus, Orthobunyavirus, others.

- Sub-activity 1.3.2: **Specific Surveillance Activities Completed in Current Quarter**
  - USDA-APHIS Wildlife Disease Program signed a cooperative agreement to support training of government staff on wildlife disease surveillance. A training workshop will be held in Yr 3 in collaboration with Peru USDA-APHIS office and the Peruvian Veterinary Service (SENASA).
  - Trained 4 field staff on "Emergency management of injuries caused by ophidians and arachnids", given by (b)(6) (b)(6) organized by WCS Tambopata Landscape Conservation Program in WCS headquarters Lima, prior to an expedition to unexplored areas of Tambopata Natural Reserve (Madre de Dios region, southern Peru) (see attached tables for details).

- **Activity 1.4: Technology Development and Pathogen Detection and Discovery**

  - Sub-activity 1.4.1: **Introduction of New Technologies**
    - Purchased new sample collection technology including VTM transport medium, RNAlater, FTA cards and field equipment including portable microcentrifuge, Sherman traps for sampling free-ranging rodents in Loreto.

  - Sub-activity 1.4.2: **Pathogen Diagnostics and Discovery**
    - Transferred 321 samples from 77 individuals to US NAMRU-6 lab for viral family testing.

- **Activity 1.5: Sample Tracking and Information Management**

    - Sub-activity 1.5.1: **Surveillance Data Management**
        - Revised datasheet templates and questionnaires to be used in a survey study at wet markets for gathering information on hygiene and work practices in animal markets.

Overall Progress for LOW 1: Wildlife Pathogen Detection:

Unanticipated or Unplanned Successes

- Two events that occurred in current quarter are particularly relevant:
  1) General Office of Epidemiology (National Ministry of Public Health) initiated formalization of support at a national scale and requested the Tumbes Regional Health Office to assist teams during surveillance activities and facilitate access to government laboratory facilities.
  2) US APHIS Wildlife Disease Program signed a cooperative agreement to develop a training workshop on wildlife disease surveillance for government staff, together with the Peruvian Veterinary Service (SENASA) and USDA/APHIS Peru office.

Challenges & Obstacles

- The lack of availability of molecular reagents and higher costs and delays incurred from importations limited the beginning of pathogen testing in the current quarter.
- The export of wildlife samples continues to be a major obstacle for pathogen confirmation at reference labs abroad.

Revised Plan to Accomplish Goals

- Taking advantage of increased collaborations with key agencies (the General Office of Epidemiology, National Ministry of Public Health; and the National Institute of Health-INS) will explore possibilities for special permission for exporting aliquots and sequences to reference laboratories abroad.

Partners: National Animal Health Service (SENASA); US Naval Medical Research Unit Six (NAMRU-6); National Institute of Health (INS); General Office of Epidemiology, National Ministry of Health; Faculty of Veterinary Medicine, National Major University of San Marcos (UNMSM); Loreto Regional Executive Division of Environmental Health (DESA); Ucayali Regional Directorate of Health (DIRESA Pucallpa); Ucayali Regional Executive Division of Forestry and Wildlife (DEFFS Pucallpa); Regional offices of Technical Administrations of Forestry and Wildlife (ATFFS Piura, Tumbes, Lambayeque, Lima); Regional Directorate of Trade, Tourism and Traditional Crafts-DIRCETURA Loreto; Loreto Regional Management

Program of Forestry Resources and Wildlife (PRMRFFS); Veterinary Institute of Tropical and Highland Research (IVITA-UNMSM); Municipal Park Service of Lima (SERPAR); Parque Natural Zoo (Pucallpa); “El Buen Pastor” Zoo Park (Lima); “Ikama Peru” Rescue and Rehabilitation Center (Loreto); Faculty of Biological Sciences, National University of Trujillo; National University of Tumbes; School of Veterinary Medicine, University “Alas Peruanas” (Pucallpa); Faculty of Biological Sciences, University “Pedro Ruiz Gallo” (Lambayeque); “Isla de los Monos” Wildlife Rescue Center (Iquitos); “Varillal” Wildlife Recue Center (Iquitos); Amazon Shelter NGO (Puerto Maldonado); “Wildlife & Fish” Zoo Breeding Farm (Lambayeque), Municipal Administration of the “Parque de las Leyendas” Zoo (PAPTAL); Huachipa Zoo (Lima); vendors at wetmarkets of Pucallpa, Tumbes, Piura, and Iquitos cities.