

**From:** Jonna Mazet <jkmazet@ucdavis.edu>  
**To:** Alisa Pereira <apereira@usaid.gov>  
**CC:** AOTR/Grant Manager Andrew Clements <AClements@usaid.gov>; Cara Chrisman <cchrisman@usaid.gov>; Predict inbox <predict@ucdavis.edu>; Tracey Goldstein <tgoldstein@ucdavis.edu>  
**Sent:** 8/2/2019 8:14:01 PM  
**Subject:** PREDICT Sample Disposition Summary as of July 30 2019

Dear Alisa,

As promised, we are providing an in-progress update on sample disposition plans. Though it may seem that there are a lot of labs in the progress/planning stage, most of the clarifications we are seeking are due to the vague language some used in reporting back to us, so we just want to get things super clear. We'll have another update on those soon. For close-out, we will also provide final disposition, contact person in charge of sample maintenance and access, and security details on how the samples are locked down or deactivated.

See below & have a nice weekend,  
Jonna

The ability of collaborating PREDICT laboratories to securely and appropriately store PREDICT samples beyond 30 September 2019 has been assessed. To date 21 laboratories in 16 countries have solid plans to securely store and appropriately maintain samples. Three laboratories from 3 countries have plans to transfer samples to appropriate secure laboratories before 30 September 2019. Further clarification and work to securely store and appropriately maintain samples beyond 30 September 2019 or to transfer samples to appropriate secure laboratories before 30 September 2019 is in process for 22 laboratories in 13 countries, and we will keep you apprised of that process through regular updates.

A summary is provided below by laboratory grouping and indicating sample numbers stored in each laboratory by taxa group.

#### **I. Laboratories securely and appropriately storing samples beyond 30 September 2019**

##### **Bangladesh:**

IEDCR: Total samples = 50,867, Human = 10,293, Wildlife = 37,908, Domestic/Livestock = 2,666

ICDDR,b: Total samples = 6,910, all wildlife

##### **Cambodia**

IPC: Total samples = 52,647, Human = 14,543, Wildlife = 22,131, Domestic/Livestock = 15,973

##### **China**

Wuhan Institute of Virology: Total samples = 11,051, Human = 3,000, Wildlife = 8,051

Institute of Microbiology, CAS: Total samples = 1,202, all wildlife

##### **Indonesia**

Eijkman Institute: Total samples = 4,718, all human

Institute Pertanian Bogor - IPB: Total samples = 19,468, all wildlife

##### **Myanmar**

LBVD: Total samples = 12,363, Wildlife = 10,761, Domestic/Livestock = 1,602

##### **Thailand**

Chulalongkorn University: Total samples = 35,700, Human = 9,269, Wildlife = 24,630, Domestic/Livestock = 1,801

## Vietnam

NIHE: Total samples = 8,428, Human = 6,348, Wildlife = 2,080

## Côte d'Ivoire

IPCI: Total samples = 7,479, Human = 4,770, Wildlife = 2,709

## Egypt

National Research Center: Total samples = 6,750, Human = 1,460, Wildlife = 5,290

## Ghana

Noguchi Laboratory: Total samples = 6,526, Human = 6,213, Wildlife = 313

## Jordan

Jordan University of Science and Technology: Total samples = 15,148, Human = 7,588, Wildlife = 7,560

## Kenya

Institute of Primate Research: Total samples = 12,328, Human = 2,913, Wildlife = 5,817, Camels = 3,598

## Nepal

CMDN: Total samples = 25,2170, Human = 12,214, Wildlife = 12,956

## Senegal

UCAD: Total samples = 4,484, all human

ISRA: Total samples = 3,742, all wildlife

## Tanzania

Ifakara Health Institute: Total samples = 9,226, all human

Humans: 9,226

Sokoine University of Agriculture: Total samples = 23,272, Wildlife = 22,124, Domestic/Livestock = 1,148

## Uganda

UVRI: Total samples = 23,574, Human = 7,888, Wildlife = 14,855, Camels = 831

## **II. Laboratories transferring samples to appropriate laboratories by 30 September 2019**

### Ghana

Accra Vet Lab: Total samples = 8,632, all wildlife, to be transferred to Noguchi Laboratory

### Guinea

Viral Hemorrhagic Fever Laboratory: Total samples = 15,128, Wildlife = 13,242, Domestic/Livestock = 1,886; Wildlife samples to be transferred to UC Davis, Domestic/Livestock samples to be destroyed

### Uganda

Makerere University: Total samples = 2,082, all wildlife; To be transferred to UVRI

## **III. Receiving clarification or solidifying appropriate plans for samples storage or shipment by 30 September 2019**

### China

GDCDC: Total samples = 1,266, all human

Yunnan Institute: Unclear if PREDICT samples are stored at this location

### Lao PDR



NAHL: Total samples = 11,416, all wildlife

NCLE: Total samples = 1,276, all human

#### Malaysia

Wildlife Health, Genetic and Forensic Lab, Sabah Wildlife Department, Sabah: Total samples = 22,558, all wildlife

Kota Kinabalu Public Health Lab, Sabah: Total samples = 104, all human

National Public Health Lab, Sungai Buloh: Total samples = 9,804, all human

National Wildlife Forensic Lab, Kuala Lumpur: Total samples = 27,672, Wildlife = 22,328,

Domestic/Livestock = 5,344

#### Mongolia

SCVL: Total samples = 6,000, all wild birds

#### Myanmar

DMR: Total samples = 6,358, all human

#### Vietnam

VNUA: Total samples = 2,404, all wildlife

RAHO6: Total samples = 8,632, all wildlife

#### Cameroon

CRESAR: Total samples = 45,446, Human = 4,890, Wildlife = 40,556

#### Côte d'Ivoire

LANADA: Total samples = 3,630, all domestic/livestock; Collected by FAO

#### DRC

INRB: Total samples = 22,148, Human = 2,743, Wildlife = 19,320, Domestic/Livestock = 85

MGVP laboratory in Goma: Plan is to transfer samples

#### Ethiopia

Addis Ababa University: Total samples = 2,123, all wildlife

Ethiopia Public Health Institute: Total samples = 1,805, all human

#### India

Sanjay Gandhi Institute: Total samples = 728, Human = 625, Wildlife = 103

#### Liberia

National Public Health Institute: Total samples = 14,484, all wildlife

#### Republic of Congo

INRB: Total samples = 10,389, all wildlife

#### Rwanda

Rwanda Agriculture Board Laboratory: Total samples = 11,240, Human = 3,953, Wildlife = 7,287

#### Sierra Leone

UNIMAK: Total samples = 34,893, Wildlife = 20,835, Domestic/Livestock = 14,058, Domestic/Livestock = 1,148

# PREDICT FY18Q2 GHSA

## Phase I Semi-Annual Report

All Phase I countries will submit progress reports on GHSA implementation on a semi-annual basis. At this time Phase II countries will report annually, using a separate template. The US Embassy in each country is responsible for preparing and submitting the required progress reports to the interagency. To aid USAID Missions in completing their report utilizing implementing partner activities and progress, USAID asks implementing partners to submit semi-annual reports for Phase I countries. Partners will be requested report on specific progress toward raising a country's capacity levels. As previously mentioned, the focus of USAID's GHSA work is to make progress on the AP capacity levels measured by [WHO's JEE tool](#).

The timeline for FY18 is below. Due to ad hoc reporting and effective project monitoring, USAID may need to adjust the reporting schedule, but will do its best to give advance notice. Reports are due to the USAID GHSA Washington team and the project AOR.

Report	Due Date
FY18Q2 Mid-year Progress Report	April 16, 2018
FY18Q4 End of the Year Progress Report	September 14, 2018

### Notes:

- The FY18 Q2 reporting timeline is from October 1, 2017-March 31, 2018
- The FY18 Q4 reporting timeline is from April 1, 2018-September 30, 2018
- For more information on action packages, capacity levels and indicators, please use the JEE Tool:  
[http://apps.who.int/iris/bitstream/10665/204368/1/9789241510172\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/204368/1/9789241510172_eng.pdf)
- Please see the attached document titled "Additional Information on the Joint External Evaluation Level of Capacity Score Descriptions," which provides supplementary information on many of the capacity levels.
- Send relevant pictures with captions/photo credit to enhance reporting
- Please fill all sections of the template for relevant countries, including Sections 2-4 after the chart.

## Africa

Country
1. <a href="#">Burkina Faso</a>
2. <a href="#">Cameroon</a>
3. <a href="#">Cote d'Ivoire</a>
4. <a href="#">Ethiopia</a>
5. <a href="#">Guinea</a>
6. <a href="#">Kenya</a>
7. <a href="#">Liberia</a>
8. <a href="#">Mali</a>
9. <a href="#">Senegal</a>
10. <a href="#">Sierra Leone</a>
11. <a href="#">Tanzania</a>
12. <a href="#">Uganda</a>

## Asia

Country
1. <a href="#">Bangladesh</a>
2. <a href="#">India</a>
3. <a href="#">Indonesia</a>
4. <a href="#">Vietnam</a>

## Burkina Faso

### SECTION 1: SUMMARY OF HEALTH SECURITY CAPACITIES AND CHANGES IN CAPACITY

1 USAID's GHSA Technical Focus Areas	2 GHSA Indicator	3 Specific progress made toward capacity level	4 Comments
<b>Antimicrobial Resistance (AMR)</b>	P.3.1 Antimicrobial resistance detection		
	P.3.2 Surveillance of infections caused by AMR pathogens		
	P.3.3 Healthcare associate infection (HCAI) prevention and control programs		
	P.3.4 Antimicrobial stewardship activities		
<b>Zoonotic Disease</b>	P.4.1: Surveillance systems in place for priority zoonotic diseases/pathogens		
	P.4.2: Veterinary or Animal Health Workforce		
	P.4.3: Mechanisms for responding to infectious zoonosis and potential zoonosis		
<b>Biosafety and Biosecurity</b>	P.6.2: BSS training and practices (focused on animal health)		
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national program		

	P.7.2 National vaccine access and delivery		
<b>Laboratory Systems Strengthening</b>	D.1.1: Laboratory testing for detection of priority diseases (focused on animal health)		
	P.1.2: Specimen referral and transport system (focused on animal health)		
	D.1.4: Laboratory Quality System (focused on animal health)		
<b>Real Time Surveillance</b>	D.2.1 Indicator and event based surveillance systems		
	D.2.2 Interoperable, interconnected, electronic real-time reporting system		
	D.2.3 Analysis of surveillance data		
	D.2.4 Syndromic surveillance systems		
<b>Reporting</b>	D.3.1 System for efficient reporting to WHO, FAO and OIE		
	D.3.2 Reporting network and protocols in country		
<b>Workforce Development</b>	D.4.1: Human resources are available to implement IHR core capacity requirements		
<b>Preparedness</b>	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented		

	R.1.2 Priority public health risks and resources are mapped and utilized		
<b>Medical Countermeasures and Personnel Deployment</b>	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency R.4.2 System is in place for sending and receiving health personnel during a public health emergency		
<b>Risk Communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc)		
	R.5.2 Internal and partner communication and coordination		
	R.5.3 Public communication		
	R.5.4 Communication engagement with affected communities		
	R.5.5 Dynamic listening and rumor management		
<b>Other relevant Action Package (fill in)</b>	(fill in appropriate indicator)		

**Section 2: Major success stories/notable achievements**

**Cameroon**

**SECTION 1: SUMMARY OF HEALTH SECURITY CAPACITIES AND CHANGES IN CAPACITY**

1	2	3	4
USAID's GHSA Technical Focus Areas	GHSA Indicator	Specific progress made toward capacity level	Comments

<b>Antimicrobial Resistance (AMR)</b>	P.3.1 Antimicrobial resistance detection		
	P.3.2 Surveillance of infections caused by AMR pathogens		
	P.3.3 Healthcare associated infection (HCAI) prevention and control programs		
	P.3.4 Antimicrobial stewardship activities		
<b>Zoonotic Disease</b>	P.4.1: Surveillance systems in place for priority zoonotic diseases/pathogens	<p>PREDICT worked with ministry partners from livestock, health, wildlife, and environmental sectors (MINEPIA, MINSANTE, MINFOF, and MINEPDED) to strengthen multi-sectoral collaboration and to put One Health in action for surveillance of priority zoonotic diseases in the South Region of Cameroon. Working to bolster capacity for surveillance in wildlife (an area in need of improvement in Cameroon's JEE), PREDICT sampled 590 animals (bats and rodents in and around people's houses, and primates and rodents in bushmeat markets) in two trade-hub towns attracting buyers from larger urban centers and neighboring countries since October 2017. In addition, PREDICT's ongoing syndromic surveillance of febrile patients at Meyomessala and Sangmelima District hospitals and community surveillance of high-risk individuals in these communities has resulted in biological samples and behavioral/demographic data from 246 patients. Samples are safely stored at the Ministry of Defense Military Health Research Centre (CRESAR), a national lab, for testing for priority zoonoses and other emerging threats. To identify zoonotic disease transmission risks and potential intervention strategies, PREDICT's behavioral risk team conducted interviews and focus groups with 74</p>	<p>PREDICT's zoonotic disease surveillance is strategically designed to train, equip, and enable surveillance personnel to collect data for both priority zoonoses (filo-, influenza viruses) and emerging and re-emerging pathogens in vulnerable and high-risk areas. Shared animal and human surveillance data and findings help catalyze formal information sharing between animal and human surveillance systems. In addition, surveillance activities engage local communities in high-risk areas for disease transmission and emergence and fosters improved recognition of zoonotic diseases and awareness of transmission pathways and prevention and control options.</p> <p>To date, the PREDICT/Cameroon team has conducted over 430 behavioral risk interviews, sampled over 3,400 wildlife and 246 people, and completed zoonotic disease testing for 2,656 animals and 165 humans.</p>



		<p>individuals this period with community members at zoonotic disease surveillance sites. Data from these interviews is undergoing analysis.</p> <p>PREDICT participated in multi-sectoral meetings to develop strategic surveillance plans for priority zoonoses (rabies and avian influenza), and to develop the evaluation process for epidemiological surveillance networks for animal diseases in Cameroon using the FAO Surveillance Evaluation Tool (SET).</p>	
	P.4.2: Veterinary or Animal Health Workforce	<p>PREDICT continued to strengthen Cameroon's animal health workforce by providing training opportunities that address challenges to current and future animal health professionals (a target area identified in the JEE). PREDICT provided hands-on training opportunities for government staff from the central, regional, divisional, and sub-divisional levels to advance skills in biosafety; animal handling and sampling; safe sample transport and storage; and viral detection. Training was also provided to surveillance staff from the ministries of livestock, wildlife &amp; forestry and environment (from the national, regional and district levels) to support the national surveillance system, to strengthen local capacity for zoonotic disease surveillance, and to strengthen mechanisms for responding to zoonotic disease threats. In addition, the PREDICT lab team at CRESAR trained eight interns (Cameroon's future health workforce) in molecular biology techniques, laboratory safety, biosafety and PPE, and biosecurity. These trainings are enhancing their capabilities for safely detecting priority zoonoses and emerging viral threats.</p>	<p>PREDICT Cameroon's primary animal health workforce collaborators are the Ministry of Forestry and Wildlife, the Central Veterinary Laboratory, the National Program for the Control and Fight Against Emerging and Remerging Zoonoses (National Program for Zoonoses), and researchers from the University of Douala and the University of Maroua. PREDICT provides opportunities for student training through field and lab internships on all aspects of zoonotic disease surveillance: detection, prevention, response, and control. In collaboration with the National Veterinary Laboratory and the National Program for Zoonoses, PREDICT supports investigations for outbreak and animal-die off events, through testing of field samples at the PREDICT lab at CRESAR.</p>
	P.4.3: Mechanisms for responding to infectious zoonosis and potential zoonosis	<p>PREDICT continued to work with EPT-2 partners (P&amp;R, FAO, OHCEA) in the operationalization of the One Health Strategic</p>	



		<p>Plan and support of multi-sectoral coordination mechanisms for zoonotic disease surveillance, prevention and response. PREDICT contributed to the development of strategic surveillance plans for priority zoonoses (rabies and avian influenza) and the evaluation process for the epidemiological surveillance networks for animal diseases in Cameroon using FAO's Surveillance Evaluation Tool (SET).</p> <p>On 20-21 February 2018, PREDICT conducted two meetings in Sangmelima and Ebolowa to share PREDICT results with 10 government officials and 47 (all female) bushmeat sellers. These meetings help improve multi-sectoral information sharing from the national to subnational level, while also addressing zoonotic disease risk communication at the community level, as bushmeat sellers were sensitized on zoonotic disease infection risks, and provided opportunities to discuss potential risk mitigation strategies.</p>	
<b>Biosafety and Biosecurity</b>	P.6.2: BSS training and practices (focused on animal health)		
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national program		
	P.7.2 National vaccine access and delivery		
<b>Laboratory Systems Strengthening</b>	D.1.1: Laboratory testing for detection of priority diseases (focused on animal health)	<p>PREDICT's partner lab at the Military Health Research Center (CRESAR) in Yaoundé completed testing of samples from 331 individuals (211 wildlife and 120 humans) this period. Since the start of the project CRESAR has tested 5,462 samples from 2,821</p>	<p>PREDICT's partner lab at CRESAR, a national lab, is equipped to perform the full range of activities required for safe detection of priority zoonotic diseases and emerging viral threats to global health security. PREDICT is actively testing animal and human samples at CRESAR, which also serves as a</p>

		individuals (2,656 animals; 165 humans). All samples were tested for priority zoonotic diseases using PREDICT protocols for filoviruses (including Ebola and Marburg), influenza viruses (including HPAI), coronaviruses, and paramyxoviruses. All confirmed results are shared with ministry partners for approval prior to release, which provides opportunities for data sharing and coordination across human and animal health laboratory partners (an area targeted in Cameroon's JEE).	key training center for students and professionals, including government staff from other nodes in the national lab system (LANAVET, LNSP). PREDICT supports CRESAR in strengthening detection and surveillance capabilities across both the human and animal sectors, in providing referral services to the national lab system, and by contributing integral data for surveillance reporting.
	P.1.2: Specimen referral and transport system (focused on animal health)		
	D.1.4: Laboratory Quality System (focused on animal health)		
<b>Real Time Surveillance</b>	D.2.1 Indicator and event based surveillance systems		
	D.2.2 Interoperable, interconnected, electronic real-time reporting system		
	D.2.3 Analysis of surveillance data		
	D.2.4 Syndromic surveillance systems		
<b>Reporting</b>	D.3.1 System for efficient reporting to WHO, FAO and OIE	Findings from One Health surveillance for priority zoonotic diseases were routinely shared with all government partners to improve multisectoral communication and data flows. PREDICT shared results from CRESAR laboratory testing of animal surveillance samples collected between July 2015 – December 2017 with government partners (ministries responsible for health, livestock, research, defense, wildlife and environment and the National Zoonoses Program).	When test results and project findings are approved for public release by the Cameroon Government, they may be viewed in an interactive map at <a href="http://www.data.predict.global">www.data.predict.global</a>

	D.3.2 Reporting network and protocols in country		
<b>Workforce Development</b>	D.4.1: Human resources are available to implement IHR core capacity requirements	This period, PREDICT trained 44 individuals, including project staff, government staff, and eight students, in core skills required for safe and effective zoonotic disease surveillance and disease detection. During collaborative One Health surveillance with government partners, PREDICT continued to provide hands-on training opportunities for government staff from the central, regional, divisional, and sub divisional levels to engage in biosafety, handling, and sampling; safe sample transport and storage; and viral detection. These trainings connected government staff from various ministries with field-based activities using the One Health approach and enhanced their skills for improved implementation of zoonotic disease surveillance and outbreak response. PREDICT lab internships were also provided to two postgraduate students for training and mentorship in laboratory safety and disease detection, providing them the opportunity to gain invaluable in-service experience in a premier national laboratory.	PREDICT provides ongoing opportunities to current and future animal and human health professionals (students, interns) using the One Health approach. In addition, field activities engage and involve animal health professionals providing opportunities to strengthen skills in zoonotic disease surveillance and detection with hands-on learning for safe capture and sampling of wildlife, cold chain and safe sample transport, and viral detection at collaborating labs. National One Health focal points and local government staff are involved in field surveillance activities, and PREDICT engages with them to ensure operationalization of the One Health approach.
<b>Preparedness</b>	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented		
	R.1.2 Priority public health risks and resources are mapped and utilized		
<b>Medical Countermeasures and Personnel Deployment</b>	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency		
	R.4.2 System is in place for sending and receiving health personnel during a public		

	health emergency		
<b>Risk Communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc.)		
	R.5.2 Internal and partner communication and coordination		
	R.5.3 Public communication		
	R.5.4 Communication engagement with affected communities		
	R.5.5 Dynamic listening and rumor management		
<b>Other relevant Action Package (fill in)</b>	(fill in appropriate indicator)		

## Section 2: Major success stories/notable achievements

***From One Health strategic plans to One Health in action: Zoonotic disease surveillance in the South Region, Cameroon.*** Southern Cameroon is a region where people have a long history of bushmeat hunting for subsistence, and is now known as a major bushmeat trade hub, attracting buyers from urban centers and neighboring countries. Increased bushmeat trade, combined with intensified animal production and landscape changes due to a hydroelectric dam and industrial rubber plantations, makes Southern Cameroon a hotspot for high-risk interfaces between animals and humans. Through effective partnerships across animal and human sectors, and successful stakeholder engagement, PREDICT is showcasing the One Health approach for zoonotic disease surveillance and working with national and subnational partners from human and animal health sectors to operationalize One Health in this critical region for zoonotic disease transmission and spread. By integrating human biological surveillance and behavioral risk investigations with wildlife surveillance that is focused in sites of increasing animal-human contact and high risk interfaces for zoonotic disease transmission, PREDICT is helping Cameroon to build capacity for zoonotic disease detection, prevention, and response. Hospital surveillance of patients presenting with syndromes of interest, and community surveillance of people with high-risk exposure to wildlife, is being implemented in collaboration with staff at Sangmélina and Meyomessala district hospitals who have been trained in PREDICT protocols for sample collection and processing, waste management, biosafety, PPE use, and the ethics of human subject research. Hospital personnel, with ongoing support from PREDICT staff, collect, maintain cold chain, and pack specimens for safe transport to the PREDICT lab at the Military Health Research Center (CRESAR), a core part of Cameroon's national laboratory system, where they are tested for priority zoonotic diseases such as Ebola and influenza, as well as for emerging viral threats that may cause the next health disaster in the Central Africa region. In addition to increasing the capacity of hospital staff for disease surveillance, PREDICT/Cameroon significantly improved hospital waste management through



the repair of the Sangmélima District Hospital incinerator, decreasing local risk to humans and the environment, a critical step towards improved biosafety and security for this important health facility.

*From the beginning of the world, humans have been the nearest partners with animals; humans were always eating bushmeat but I don't know if there were so many diseases. Now it is important to work with the different sectors to protect animal and human health, we are all called to work together with a new One Health approach to assure the future of our children.*

- The Delegate of the Ministry of Forests and Wildlife (MINFOF), Mvila Department, South Province (translated from French)

PREDICT's integrated One Health surveillance in the South Region supports Cameroon's national surveillance system by enabling health professionals from the animal and human health sectors to work together in the field and to strengthen their core skills and capacity for zoonotic disease surveillance. Perhaps more than any other investments to date, this work is directly impacting capacity gains in areas highlighted as challenges in the country's JEE, most critically across all indicators in the Zoonotic Disease action package.



*PREDICT/Cameroon and Sangmélima District Hospital staff visit the incinerator that was restored by PREDICT. This improvement allows for safe hospital waste management, decreasing biohazard contamination risks to humans and the environment.  
Photo: PREDICT/Cameroon*

***From detection to prevention: Community-based risk communication in Sangmelima and Ebolowa, Cameroon.***

On 20-21 February 2018, in Sangmelima and Ebolowa, PREDICT/Cameroon conducted meetings with 10 officials from a Divisional Delegation of Wildlife and Livestock and community bushmeat sellers, a group in frequent contact with wild animals and therefore at higher risk for zoonotic disease. These two meetings allowed PREDICT to share government-approved surveillance results with communities, and resulted in the sensitization of 47 female bushmeat sellers on zoonotic disease infection risks, including valuable discussions about potential risk mitigation strategies. Many women in this region of Cameroon have been involved with selling bushmeat since childhood, and for some, this has been their livelihood for decades. Understandably, most would not be able to leave the trade and their only source of income. One of the bushmeat sellers at this meeting summarized this with her own words (translated):

*“If we are told to stop, we will still always come back to this activity because this is how we feed our families.”*

PREDICT encouraged those present to adopt simple mitigation techniques to reduce the risk of zoonotic disease transmission, advising the women to avoid handling or butchering fresh meat if their hands are cut or scratched, to always have soap and water nearby to wash immediately in case they are cut during butchering, to avoid contact with wildlife bodily fluids (using impermeable plastic to wrap meat during transport), to avoid contact with dead animals found in the forest, and to keep wildlife carcasses or bushmeat out of reach of children. PREDICT’s surveillance test results and risk reduction strategies were well received by community members, and the government representatives present at the meetings took the opportunity to recognize the value of in-service training opportunities provided by PREDICT to local staff in wildlife disease surveillance.

*“We really thank the PREDICT team for coming to talk to us about the risks we are facing and different sickness that we can catch from animals. We have been selling bushmeat for many years, it is our source of income so we cannot abandon it and we will make sure advice from this meeting becomes practical. We are very happy.”*

- *A bushmeat seller at the meeting.*



*The Divisional Delegate of Wildlife (Myilla) with Ebolowa bushmeat sellers, express their appreciation after a PREDICT sensitization meeting for the prevention of zoonotic disease transmission. Photo: PREDICT/Cameroon*

Section 3: Challenges and potential solutions (if applicable)  
NA

Section 4: Outbreak response (if applicable)  
NA

## Cote D'Ivoire

### SECTION 1: SUMMARY OF HEALTH SECURITY CAPACITIES AND CHANGES IN CAPACITY

1	2	3	4
USAID's GHSA	GHSA	Specific progress made toward capacity	Comments

Technical Focus Areas	Indicator	level	
Antimicrobial Resistance (AMR)	P.3.1 Antimicrobial resistance detection		
	P.3.2 Surveillance of infections caused by AMR pathogens		
	P.3.3 Healthcare associate infection (HCAI) prevention and control programs		
	P.3.4 Antimicrobial stewardship activities		
Zoonotic Disease	P.4.1: Surveillance systems in place for priority zoonotic diseases/pathogens	<p>This period, PREDICT continued to put One Health in action, integrating animal and human health sectors in field-based activities (an area highlighted for strengthening in CIV's JEE) through syndromic surveillance of febrile patients at Bonon Hospital and in the Sergent Konankro community, and wildlife sampling in surrounding villages and forests. Samples were collected from nine patients and 58 animals (1-2<sup>nd</sup> October 2017) and safely transported to the PREDICT partner laboratories Institut Pasteur du Côte d'Ivoire (IPCI) and Laboratoire National d'Appui au Developpement Agricole (LANADA), where they are stored in -80°C freezers in preparation for zoonotic disease testing. In January 2018, the team continued to work with local animal and human health partners and community members to identify and map high-risk human/animal interfaces for zoonotic disease transmission, notably after finding multi-specific bat colonies in hollow tree trunks. These sites are now included in zoonotic disease surveillance plans. PREDICT also worked to identify potential zoonotic disease risk reduction and intervention strategies targeting high-risk practices and behaviors.</p>	<p>The PREDICT/CIV team consists of physicians, veterinarians, biologists, sociologists and nurses working with physicians of the Bonon Hospital in the western central region of the country, extending Côte d'Ivoire's surveillance system to high-risk areas for zoonotic disease transmission.</p> <p>To date, the PREDICT/CIV team has conducted over 50 behavioral risk interviews, sampled over 400 wildlife and 11 people, and completed zoonotic disease testing for 335 animals.</p>



		<p>The team conducted interviews and focus groups, and worked with the One Health team to characterize sites for sampling. These interactions also serve to create linkages with chiefs of the villages and with representatives of many associations of workers in risk areas, critical inroads for building trust and garnering support for zoonotic disease monitoring in these at-risk areas for viral spillover and spread.</p> <p>Also this period, PREDICT worked with the Robert Koch Institute (RKI) to strengthen coordination for zoonotic disease testing at LANADA, which is working with RKI to conduct surveillance in remote trans-border sites (Tai forest, Comoé) in CIV. An agreement was prepared and is now being signed to include samples collected by RKI in PREDICT's testing for priority zoonotic diseases and other emerging threats, while RKI screens these samples and samples collected by PREDICT for Lassa, Hanta and Orthopoxvirus due to circulation of these agents along the Ivorian border. This collaboration is effectively building core capacity for zoonotic disease detection in LANADA and extending the national surveillance system's reach to new areas and to monitor multiple disease threats.</p> <p>Additionally, on December 6, 2017 PREDICT CIV staff attended the USAID GHSA Implementation Partner Meeting in Côte d'Ivoire and other GHSA/ FETP workshops. PREDICT improved One Health information sharing by delivering project reports to the Technical Secretariat of GHSA, the USAID mission, and others critical coordinating groups working on animal and human health such as the Wildlife and Game / Hunting Resources Directorate (OIPR), and the</p>	
--	--	--	--

		Direction of Veterinary Services.	
	P.4.2: Veterinary or Animal Health Workforce	<p>PREDICT and other partners have been working with the Wildlife and Game / Hunting Resources Directorate (OIPR) during One Health surveillance activities along the edges and inside the Marahoué National Park area. OIPR rangers accompany the PREDICT team on field visits, are received training in biosafety and PPE use, safe animal handling and sampling, and carcass disposal protocols. Through this work, OIPR rangers are provided opportunities to enhance disease surveillance skills and as a result are now considering establishing a wildlife monitoring system in the park.</p> <p>This period, PREDICT trained three new veterinarians in wildlife surveillance directly contributing to improvements in the animal health workforce, an area targeted for strengthening in the country's JEE. All three received trained in biosafety and PPE, laboratory safety, and cold chain management; and training is ongoing. One of the trainees, the head of the avian influenza viral laboratory, will supervise the LANADA team's testing of project samples for priority zoonoses and emerging threats, putting skills learned from the trainings in action and sharing knowledge with others in the national lab system. One young veterinarian has joined the PREDICT field team, while the third trainee will continue to work in the laboratory on disease detection.</p>	
	P.4.3: Mechanisms for responding to infectious zoonosis and potential zoonosis	PREDICT contributed expertise in One Health surveillance, viral detection, and multisectoral information sharing at workshops for the development of the national health security plan in CIV. At the invitation of the Coordinating Unit, PREDICT provided expertise in and a vision of the One Health approach to surveillance for priority zoonoses	

		and emerging threats. From December 18 to 22 2017, PREDICT CIV took part in the development of the National Health Safety Plan initiated by the INHP (National Institute of Public Health) held by ministry of Health and other partners in Yamoussoukro. On November 21 <sup>st</sup> , 2017, PREDICT CIV contributed its expertise to the National Pathogen Classification Validation Workshop in Côte d'Ivoire. PREDICT CIV team also contributed to review of the pathogen classification system and evaluated the prioritization of microorganisms during a workshop at IPCI on the 17th December 2017.	
<b>Biosafety and Biosecurity</b>	P.6.2: BSS training and practices (focused on animal health)		
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national program		
	P.7.2 National vaccine access and delivery		
<b>Laboratory Systems Strengthening</b>	D.1.1: Laboratory testing for detection of priority diseases (focused on animal health)	PREDICT is actively working with partner laboratories LANADA and IPCI to improve capacity and data and information sharing between animal and human health sectors. To date, samples have been tested from 335 animals. Results from zoonotic disease testing are planned for sharing (once approved for release by authorities) with the laboratory network, including several LANADA labs across the country (Abidjan-central, Yamoussoukro, Bouaké, Korhogo), ensuring that findings and information penetrate from the national to district levels. Both PREDICT partner labs were also directly strengthened this period through provision of laboratory equipment and training and mentorship in	

		zoonotic disease detection techniques.	
	P.1.2: Specimen referral and transport system (focused on animal health)		
	D.1.4: Laboratory Quality System (focused on animal health)		
<b>Real Time Surveillance</b>	D.2.1 Indicator and event based surveillance systems	PREDICT took part in the 2 <sup>nd</sup> December 2017 workshop on monitoring animal biodiversity and integrated surveillance of zoonoses organized by the CDC Field Epidemiology Training Program (FETP) Frontline. The workshop aimed at developing an integrated surveillance system for zoonosis by the different structures in charge of this surveillance within the framework of One Health approach following the recommendations of the Joint External Evaluation and the prioritization of zoonotic diseases to be monitored in Côte d'Ivoire (anthrax, salmonellosis, rabies, highly pathogenic avian influenza, bovine / human tuberculosis, hemorrhagic fever, brucellosis, echinococcosis, cysticercosis and fever Rift Valley).	
	D.2.2 Interoperable, interconnected, electronic real-time reporting system		
	D.2.3 Analysis of surveillance data		

	D.2.4 Syndromic surveillance systems		
<b>Reporting</b>	D.3.1 System for efficient reporting to WHO, FAO and OIE		
	D.3.2 Reporting network and protocols in country		
<b>Workforce Development</b>	D.4.1: Human resources are available to implement IHR core capacity requirements	This period, PREDICT trained 16 individuals (4 females and 12 males) in core skills required for One Health surveillance. Trainings included members of CIV's national health system and were supported by hands-on opportunities to put skills in practice during wildlife capture and syndromic surveillance activities.	
<b>Preparedness</b>	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented		
	R.1.2 Priority public health risks and resources are mapped and utilized		
<b>Medical Countermeasures and Personnel Deployment</b>	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency		
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency		
<b>Risk Communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc.)		
	R.5.2 Internal and partner communication and coordination		

	R.5.3 Public communication		
	R.5.4 Communication engagement with affected communities		
	R.5.5 Dynamic listening and rumor management		
<b>Other relevant Action Package (fill in)</b>	(fill in appropriate indicator)		

## Section 2: Major success stories/notable achievements

**One Health surveillance for zoonotic disease threats in the Marahoué region.** Bonon Urban Health Center is housed within the community of Bouaflé in the Marahoué Region of Cote d'Ivoire. This clinic is located along the edge of the Marahoué National Park and serves as a catchment area for the villagers living in the areas identified as at-risk for zoonotic disease transmission and spread in northwestern Côte d'Ivoire (Sergent Konankro, Blaisekro, and Asproa). The Marahoué National Park borders an encroaching cocoa plantation, which creates opportunities for high-risk interfaces associated with land-use change. There are also frequent human-animal interfaces between villagers living on the edge of the park and animals within the protected natural landscape. The hunting of bushmeat is also a common practice within the region. The area is also sadly notorious for the prevalence of urban human African trypanosomiasis (HAT), unique ecotypes of *Glossina palpalis palpalis* and Buruli ulcer endemism (17 cases in 2017).

Though Bonon is a remote area with many logistical challenges (such as frequent power outages, strained relationships with park ranges/law enforcement, and safety in times of political and economic instability), PREDICT successfully built relationships and launched sampling in 2017 with partners at the Institute Pasteur of Côte d'Ivoire (IPCI). PREDICT is working in Marahoué to extend the country's surveillance for zoonotic disease threats to local clinics and surrounding areas and to strengthen subnational capacity of both the medical and animal health sectors for improved disease prevention, detection, and response. In Marahoué's Bonon Urban Health Center, the chief medical doctor, Dr. Tapé, leads a team now sampling febrile patients for priority zoonotic diseases such as Ebola and influenza (along with other emerging disease threats) in tandem with PREDICT's country coordinator, Dr. Kalpy Coulibaly.

*"...such projects as PREDICT bring hope to improve local work, diagnostic conditions and vaccine conservation and quality"*  
*-Dr. Tapé, Chief Medical Doctor at the Bonon Urban Health Center, Marahoué, Cote d'Ivoire*

Both are working together to raise awareness of emerging zoonotic diseases risks, as PREDICT engages with local villages and the Ivorian Office of Parks and Reserves (OIPR) to extend surveillance of wildlife and put One Health in action in areas where people and wildlife have frequent interactions, especially around national park borders. There are frequent clashes between park rangers and people settled within the park, as members of local community hunt within in the park boundaries and illegally harvest from cocoa plantations despite bans. Through PREDICT's work, our team has been bringing park rangers into the village helping create a dialogue and bridging the gap between rangers and the larger population, efforts that also allow community members to share conservation and health concerns about zoonotic disease risks associated with wildlife hunting, butchering, and consumption. Park rangers interested in PREDICT work have also been working with our team to strengthen their technical skills and improve their safety. To date, trainings have covered biosafety and PPE use and safe and ethical animal sampling techniques.





*Mrs. Djeneba Bamba and Dr. Eugène Koffi work together to characterize the zoonotic disease transmission risk at a planned surveillance site in Asproa in January 2018. Photo: PREDICT/CIV.*

**Working with national wildlife partners to establish zoonotic disease monitoring systems.** PREDICT met with relevant local government agencies including the Ivorian Office of Parks and Reserves (OIPR), the Zoo of Abidjan, and the Direction de la faune et des ressources cynégétiques (Directorate of Wildlife and Hunting Resources), meetings that included the heads of each institution in charge of wildlife in Côte d'Ivoire. The goal of the meeting was to bring together the diversity of stakeholders working with wildlife in-country and to discuss CIV's wildlife landscape. A critical challenge that was addressed in discussions was the need for an improved wildlife monitoring system, a challenge that PREDICT's engagement can directly support contributing to needs identified in the national JEE report. Plans for the monitoring system would be informed by PREDICT policies and zoonotic disease surveillance protocols yet implemented independently by local institutions, effectively transferring PREDICT capability to the national wildlife sector in Cote d'Ivoire. Finally, the head of the Direction de la faune et des ressources cynégétiques also requested PREDICT training for forestry officers and zoo veterinarians to strengthen their surveillance, biosafety, and animal capture, handling and sampling skills.

### **Section 3: Challenges and potential solutions (if applicable)**

Maintaining cold chain remains a challenge as surveillance sites are in remote areas with frequent power outages. PREDICT has addressed this challenge by developing a cold chain relay with freezers and refills of liquid nitrogen dewars for safe sample storage and transport and is also exploring solar as an option to address power outages.

#### Section 4: Outbreak response (if applicable)

NA

## Ethiopia

### SECTION 1: SUMMARY OF HEALTH SECURITY CAPACITIES AND CHANGES IN CAPACITY

1	2	3	4
USAID's GHSA Technical Focus Areas	GHSA Indicator	Specific progress made toward capacity level	Comments
<b>Antimicrobial Resistance (AMR)</b>	P.3.1 Antimicrobial resistance detection		
	P.3.2 Surveillance of infections caused by AMR pathogens		
	P.3.3 Healthcare associated infection (HCAI) prevention and control programs		
	P.3.4 Antimicrobial stewardship activities		
<b>Zoonotic Disease</b>	P.4.1: Surveillance systems in place for priority zoonotic diseases/pathogens	This period, PREDICT through partners Addis Ababa University (AAU) collected samples from 35 wildlife and safely transported the material to the PREDICT project lab at AAU where they will undergo testing for priority zoonotic diseases other emerging threats. In addition, PREDICT worked to improve linkages between animal and human health sectors, an area highlighted for strengthening in the country's JEE, making progress with the Ethiopia Public Health Institute (EPHI) on plans to initiate surveillance in at-risk human	PREDICT's zoonotic disease surveillance is strategically designed to train, equip, and enable surveillance personnel to collect data and build the evidence base for both priority zoonoses and emerging and re-emerging pathogens such as Ebola and MERS-COV in vulnerable and high-risk areas. Shared animal and human surveillance data and findings to catalyze formal information sharing between animal and human surveillance systems is well underway. In addition, the surveillance engages local communities in high-risk areas for disease transmission and emergence and fosters improved



		<p>populations in the Awash and Bati regions. Ethical permissions were finalized and visits conducted to partner health centres in target surveillance areas to prepare for training and patient enrollment (currently planned for May). Finally, PREDICT's One Health team featuring veterinarians from AAU and medical professionals from EPHI received training and worked together to improve understanding of zoonotic disease risks at target surveillance sites during PREDICT's All Country Meeting in Brussels. These opportunities are forging a coordinated and connected cadre of One Health professionals in country, which will help improve data and information flows across sectors.</p>	<p>recognition of zoonotic diseases and awareness of transmission pathways and prevention and control options.</p> <p>To date, the PREDICT/Ethiopia team has sampled over 500 wildlife and completed zoonotic disease testing for 93 animals. Surveillance activities will continue to be implemented in the Awash Region and Bati Regions by the Aklilu Lemma Institute of Pathobiology (ALIPB – University) at Addis Ababa University in close coordination with district level veterinary and public health professionals including local health center staff. Animal sampling activities are conducted throughout the year at all sites. Furthermore, syndromic surveillance activities at target health centers such as at the Awash Health Center will take place throughout the calendar year. Frequent political unrest has impacted sample collection opportunities at project sites over the last six months.</p>
	P.4.2: Veterinary or Animal Health Workforce	<p>PREDICT provided critical in-service training opportunities through a deliberately designed One Health zoonotic disease surveillance program that encourages hands-on development of core skills lacking in the current health workforce. Our trainings, which by design bring together individuals from animal and human health sectors at the subnational level through field-based training opportunities, an area identified as a need in Ethiopia's JEE, were provided to animal health professionals (e.g. government vets, extension officers, lab technicians in animal health labs, researchers, and local community members), directly strengthening the capability of the current workforce to successfully and safely conduct core functions of their job on the frontlines of zoonotic disease control. Trainings targeting subnational public health professionals were planned this period and will be conducted in May 2018.</p>	<p>PREDICT/Ethiopia primary animal health workforce implementing partner is the Aklilu Lemma Institute of Pathobiology (ALIPB – University) at Addis Ababa University. There is ongoing engagement with the National Animal Health Diagnostics and Investigation Center (NAHDIC) in the training of their staff in PREDICT lab procedure and protocols. Additionally, ALIPB participates in the training of staff. Critical step as the ALIPB lab is a training center for the animal health sector and provides reference support to the national surveillance system. Through ALIPB, PREDICT provides multiple opportunities for critical training of public health professionals across the educational and government sectors on all aspects of zoonotic disease surveillance, detection, prevention, response, and control.</p>
	P.4.3: Mechanisms for	PREDICT/Ethiopia team members participated	PREDICT is by design One Health in action, and we

	responding to infectious zoonosis and potential zoonosis	in regular activities organized by the National One Health Steering Committee, as well as have contributed to efforts in developing a National One Health Communication Network (OHCN), in Ethiopia in collaboration with the Government Communication Affairs Office. PREDICT has established data sharing agreements with all implementing partners (ALIPB, NAHDIC, EPHI) and our One Health network in Ethiopia engages various ministries and agencies such as the Ministry of Health, Ministry of Environment, FAO, and Center for Disease Control in Ethiopia. Procedures for sharing data (including project information and findings) are also in place with all ministry partners and other government and non-governmental organizations across both animal and human health sectors.	share data, information, and reports to catalyze regularly scheduled meetings between sectors and encourage active discussion and communication among sectors.
<b>Biosafety and Biosecurity</b>	P.6.2: BSS training and practices (focused on animal health)		
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national program		
	P.7.2 National vaccine access and delivery		
<b>Laboratory Systems Strengthening</b>	D.1.1: Laboratory testing for detection of priority diseases (focused on animal health)	This period, PREDICT provided staff from the national system (EPHI, NAHDIC) in-service training opportunities to enhance skills in biosafety, lab safety and methods for detecting emerging threats. Also this period, PREDICT's partner lab at the ALIPB completed testing of 93 wildlife samples for priority zoonotic diseases and emerging threats; results will be shared with ministry partners for approval in advance of public release and dissemination to One Health Communication Network partners.	PREDICT strengthens the national laboratory systems by enabling disease detection through a One Health laboratory network based at partner labs the Aklilu Lemma Institute of Pathobiology (ALIPB – University) at Addis Ababa University and the National Animal Health Diagnostics and Investigation Center (NAHDIC) along with the public health lab at the Ethiopia Public Health Institute. All three labs maintain strong ties to the national system and protocols and information are being shared openly with animal and human health labs working to actively improve interlinkages.

	P.1.2: Specimen referral and transport system (focused on animal health)		
	D.1.4: Laboratory Quality System (focused on animal health)		
<b>Real Time Surveillance</b>	D.2.1 Indicator and event based surveillance systems		
	D.2.2 Interoperable, interconnected, electronic real-time reporting system		
	D.2.3 Analysis of surveillance data		
	D.2.4 Syndromic surveillance systems		
<b>Reporting</b>	D.3.1 System for efficient reporting to WHO, FAO and OIE		
	D.3.2 Reporting network and protocols in country		
<b>Workforce Development</b>	D.4.1: Human resources are available to implement IHR core capacity requirements	<p>PREDICT continued to provide in-service training opportunities this period, training seven individuals (5 males and 2 females), including PREDICT project staff in core skills required for safe and effective zoonotic disease surveillance and disease detection. These trainings along with zoonotic disease surveillance activities provide subnational animal and human health professionals with opportunities to put skills in action and work together as integrated One Health teams combatting emerging zoonotic disease threats.</p>	<p>Through in-service trainings, PREDICT directly enhances skills of the existing health workforce and the newly recruited wildlife personnel especially the animal health sector with a niche focus on biosafety and safe capture and handling of small mammals, such as bats and rodents, which represent the highest risk for viral spillover and spread to people. Our partners (Aklilu Lemma Institute of Pathobiology at Addis Ababa University, the primary training ground for animal health professionals in-country) are training institutions that actively promote and engage students and career professionals in continuing education; we will continue to provide training opportunities across the full spectrum of surveillance, detection, and response and will explore opportunities with partners to incorporate our training program and materials in short courses for national and subnational</p>

			managers.
<b>Preparedness</b>	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented		
	R.1.2 Priority public health risks and resources are mapped and utilized		
<b>Medical Countermeasures and Personnel Deployment</b>	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency		
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency		
<b>Risk Communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc.)		
	R.5.2 Internal and partner communication and coordination		
	R.5.3 Public communication		
	R.5.4 Communication engagement with affected communities		
	R.5.5 Dynamic listening and rumor management		
<b>Other relevant Action Package (fill in)</b>	(fill in appropriate indicator)		

## Section 2: Major success stories/notable achievements



***Persistence towards One Health surveillance despite challenges.*** Over the past 6 months, the PREDICT/Ethiopia team has persevered despite difficult working conditions. Significant political turmoil and instability in the country, with pockets of civil unrest have made travel and accessing project sites difficult for the team, yet they have managed to continue to sample wildlife. The core PREDICT wildlife team is a nimble and lean team of five people; all are cross trained in lab and field sampling and testing protocols. Our wildlife team worked to sample non-human primates (NHP) and bats in and around the targeted villages and households of Awash and particularly noted the cohabitation of baboon, children and their families as a significant risk for transmission of zoonotic diseases. This period, a total of 35 samples from primates and 52 samples from bats were collected and lab analysis is underway at Addis Ababa University.

Also this period, PREDICT obtained ethical permissions to begin human syndromic surveillance of febrile patients for priority zoonoses and other potentially undiagnosed and emerging threats. PREDICT has partnered with the Ethiopian Public Health Institute (EPHI), a key node in the country's national health system, to conduct syndromic surveillance in health centers geographically aligned with zoonotic disease surveillance sites in both Awash and Bati. Four human health professionals from EPHI, led by Mrs. Berhane Beyene and Mr. Mesfin Mengesha, were recruited and trained on project protocols and are prepared to begin working with patients collecting samples and administering behavioral risk interviews. Permission letters were obtained from the Health Bureaus of Amhara National Regional State and Afar National Regional State, and most recently from the Awash Health clinic itself, where key personnel were also identified to help launch activities. Trainings to begin sample collection are planned for the upcoming months, and will be supported by a member of the PREDICT/Tanzania team, an expert in establishing syndromic surveillance and putting One Health in action for zoonotic disease threats, who will support the design and roll-out of One Health and human surveillance core competency trainings.



*Baboons explore a home and interact with a family at a residence located near to Awash National Park. PREDICT is working in Awash to explore zoonotic disease transmission risks between wildlife (such as these baboons) and people and to identify potential risk mitigation options to prevent zoonotic disease transmission and spread. Photo: PREDICT/Ethiopia*

**Section 3: Challenges and potential solutions (if applicable)**

Widespread security concerns and political turmoil created challenging and unsafe environments for travel. Earlier in 2018, political instability resulted in the declaration of a country-wide state of emergency. Our team continued to access regional towns by airplane to get permission letters for human syndromic surveillance. Currently, the security and political situation is improving with the progress in elections, and One Health surveillance targeting both human and wildlife is anticipated to resume shortly.

**Section 4: Outbreak response (if applicable)**

NA

## Guinea

### SECTION 1: SUMMARY OF HEALTH SECURITY CAPACITIES AND CHANGES IN CAPACITY

1 USAID's GHSA Technical Focus Areas	2 GHSA Indicator	3 Specific progress made toward capacity level	4 Comments
<b>Antimicrobial Resistance (AMR)</b>	P.3.1 Antimicrobial resistance detection		
	P.3.2 Surveillance of infections caused by AMR pathogens		
	P.3.3 Healthcare associate infection (HCAI) prevention and control programs		
	P.3.4 Antimicrobial stewardship activities		
<b>Zoonotic Disease</b>	P.4.1: Surveillance systems in place for priority zoonotic diseases/pathogens	This period, PREDICT together with local partners from the Ministry of Livestock and Animal Resources; the Ministry of Environment, Water, and Forestry, and the Ministry of Health, continued surveillance of high-risk wildlife species for Ebolaviruses as part of the Ebola Host Project in the Forest Region (N'Zérékoré, Kissidougou, Guéckédou, and Macenta). Over 1,400 animals were safely sampled between January and March 31, 2018, and samples were transported	PREDICT's zoonotic disease surveillance is strategically designed to train, equip, and enable surveillance personnel to collect data and build the evidence base for both priority zoonoses and emerging and re-emerging pathogens, specifically Ebola, in vulnerable and high-risk areas. Shared animal surveillance data and findings help catalyze formal information sharing between animal and human surveillance systems. In addition, our surveillance engages local communities in high-risk areas for disease transmission and emergence and

		to the Viral Hemorrhagic Fever Laboratory (VHF) for storage and preparation for testing. PREDICT's field activities also included refresher trainings and community sensitization and outreach on zoonotic disease transmission risk. While in the Forest Region our team conducted community sensitization meetings and engaged in regular communications with district and community leaders down to the household level.	<p>fosters improved recognition of zoonotic diseases and awareness of transmission pathways and prevention and control options.</p> <p>To date, the PREDICT/Guinea team has sampled over 2,100 wildlife as part of the Ebola Host Project.</p>
	P.4.2: Veterinary or Animal Health Workforce	PREDICT/Guinea engaged with partners from the Ministry of Livestock and Ministry of Environment, several of whom were continuously provided in-service training opportunities to hone technical skills in the field, including safe sampling techniques, PPE, and biosafety and biosecurity. PREDICT also worked in close coordination with National, Prefecture, and District-level veterinary and environment professionals (Prefecture/District Veterinary Officers, and Prefecture/District Environmental Officers), integrating staff from both sectors at the subnational level helping forge a One Health workforce for zoonotic disease surveillance in areas most at-risk for emerging health security threats.	PREDICT provides critical in-service training opportunities, identified as a challenge in the JEE, through a deliberately designed One Health zoonotic disease surveillance program that encourages hands-on development of core skills lacking in the current animal health workforce. These trainings directly strengthen the capability of the current workforce to successfully and safely conduct core functions of their job on the frontlines of zoonotic disease control.
	P.4.3: Mechanisms for responding to infectious zoonosis and potential zoonosis	PREDICT's team Viral Hemorrhagic Fever Lab of Guinea (VHF Lab-Guinea) continued to work in close collaboration with local stakeholders through participation in the National One Health Platform and to improve response strategies for potential new emerging threats, an identified area for reinforcement in the country's JEE. In addition, as a member of the technical group of the Guinea National One Health Platform, PREDICT participated in the workshop "One Health approach to cost-effective rabies control in Guinea". The workshop was organized by FAO (ECTAD) with participants from the Ministry of Environment, Livestock, and Public Health, as well as representatives from USAID, UNICEF,	PREDICT/Guinea is based at the Viral Hemorrhagic Fever Lab of Guinea (VHF Lab-Guinea), and our animal health workforce team is supported by the Ministry of Environment, Ministry of Livestock, Ministry of Health, and Ministry of Higher Education and Research. Through the VHF-Guinea and Government partners, PREDICT provides opportunities to strengthen multisectoral communications, and fosters cross-training activities with all partners where feasible to encourage and promote the One Health approach.

		World Health Organization, Institute Pasteur, OIE, and CDC. Finally, PREDICT continued to provide expertise to strengthen zoonotic disease response capacity through participation in weekly meetings of the GHSA One Health Committee.	
<b>Biosafety and Biosecurity</b>	P.6.2: BSS training and practices (focused on animal health)	PREDICT conducted a refresher field training for project staff from the VHF Lab and staff from the Ministry of Livestock and Ministry of Environment focused on aspects of safe sampling, PPE, data entry, and biosecurity/biosafety. In addition, PREDICT held a 12-day laboratory training at VHF that included aspects of biosecurity and biosafety. This training included individuals from the Viral Hemorrhagic Fever Laboratory, the Central Veterinary Diagnostic Laboratory, and the National Institute of Public Health Laboratory.	
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national program		
	P.7.2 National vaccine access and delivery		



<b>Laboratory Systems Strengthening</b>	D.1.1: Laboratory testing for detection of priority diseases (focused on animal health)	<p>In February 2018, PREDICT/Guinea worked with partners at the Viral Hemorrhagic Fever Lab-Guinea and completed a 12-day training on zoonotic disease detection protocols to help strengthen the animal health sector's capacity to detect priority zoonotic diseases such as Ebola. The training covered the full range of activities required for safely detecting Ebola and other filoviruses, including biosafety and biosecurity, cold chain, safe sample storage, data management, safe sample transport and shipping, and molecular viral detection techniques. Twelve individuals from the Viral Hemorrhagic Fever Laboratory, the Central Veterinary Diagnostic Laboratory, and the National Institute of Public Health Laboratory attended the training.</p> <p>Also this period, PREDICT together with implementing partner Viral Hemorrhagic Fever Laboratory worked to optimize laboratory activities including sample management, cold chain, storage and shipping. PREDICT safely transferred 5000 specimens to the project reference laboratory in the US for analysis as capacity is continually strengthened at the VHF facility.</p>	PREDICT strengthens national laboratory systems by enabling disease detection through a One Health laboratory network based at partner lab VHF Lab - Guinea. VHF Lab-Guinea is within the national system, and protocols and information will be shared openly with other animal and human health labs working to actively improve interlinkages. Through in-service training opportunities, PREDICT provides staff from the national system opportunities to enhance skills in biosafety, lab safety and methods for detecting emerging threats.
	P.1.2: Specimen referral and transport system (focused on animal health)		
	D.1.4: Laboratory Quality System (focused on animal health)		
	D.2.1 Indicator and event based surveillance systems		
<b>Real Time Surveillance</b>	D.2.2 Interoperable, interconnected, electronic real-time reporting system		
	D.2.3 Analysis of surveillance data		

	D.2.4 Syndromic surveillance systems		
<b>Reporting</b>	D.3.1 System for efficient reporting to WHO, FAO and OIE		
	D.3.2 Reporting network and protocols in country		
<b>Workforce Development</b>	D.4.1: Human resources are available to implement IHR core capacity requirements	The PREDICT team, all based at local government or university institutions, continued trainings to advance national zoonotic disease workforce capabilities. All staff, government workers, and students, have been trained in core skills required for safe and effective zoonotic disease surveillance and disease detection. This period, the PREDICT team at the VHF Lab continued to train young health professional from veterinary, biology, and ecology backgrounds on PREDICT safe sampling procedures including biosafety and biosecurity topics, helping strengthen links between animal and human health sectors at the national and subnational level, a key area of emphasis in the country's JEE.	PREDICT/Guinea partners with the Ministry of Livestock, the Ministry of Environment, Ministry of Health, and the Ministry of Higher Education and Research at the National, Prefecture, and District level. PREDICT is embedded within the VHF-Lab Guinea, and the project provides ongoing opportunities for students, interns, and staff to engage in project activities. In addition, field activities engage and involve animal health professionals, providing opportunities to strengthen skills in zoonotic disease surveillance and detection with hands-on learning for safe capture and sampling of wildlife, cold chain, safe sample transport, and viral detection at collaborating labs.
<b>Preparedness</b>	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented		
	R.1.2 Priority public health risks and resources are mapped and utilized		
<b>Medical Countermeasures and Personnel Deployment</b>	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency		
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency		

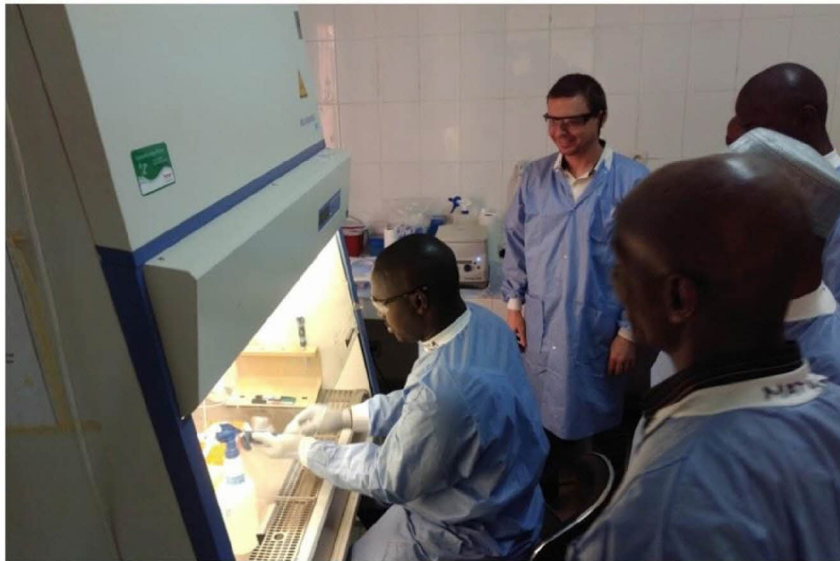
<b>Risk Communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc.)		
	R.5.2 Internal and partner communication and coordination		
	R.5.3 Public communication		
	R.5.4 Communication engagement with affected communities		
	R.5.5 Dynamic listening and rumor management		
<b>Other relevant Action Package (fill in)</b>	(fill in appropriate indicator)		

## Section 2: Major success stories/notable achievements

***Preparing for the next pandemic: Strengthening capacity to detect today and tomorrow's disease threats.*** In February 2018, PREDICT/Guinea worked with partners at the Viral Hemorrhagic Fever Lab-Guinea and organized a 12-day training on zoonotic disease detection protocols to help strengthen the animal health sector's capacity to detect priority zoonotic diseases such as Ebola, a key area of emphasis for the country's JEE. The training, led by Dr. Alexandre Tremcau-Bravard from PREDICT's global laboratory implementation team at the University of California, Davis, covered the full range of activities required for safely detecting Ebola and other filoviruses, including biosafety and biosecurity, cold chain, safe sample storage, data management, safe sample transport and shipping, and molecular viral detection techniques. Twelve individuals from the Viral Hemorrhagic Fever Laboratory, the Central Veterinary Diagnostic Laboratory, and the National Institute of Public Health Laboratory attended the training. Along with the technical instruction, the training provided an opportunity to strengthen ties in the national laboratory system through multi-sectoral collaboration, another focus of the JEE. Following the training, the PREDICT/Guinea lab team, in collaboration with the personnel from the Viral Hemorrhagic Fever laboratory (VHF), performed 200 conventional PCR tests for filoviruses on samples collected from domestic animals, putting new skills and techniques in action and demonstrating newly acquired competency. With the training complete and the lab actively testing samples and confidently strengthening their skills, the VHF Lab-Guinea is essentially prepared for Ebolavirus testing and with continued PREDICT mentorship and support, is also ready to begin serving as a training center for students and professionals, including government staff from other nodes in the national lab system.



*Members of the VHF lab in Guinea engage in a practical training session on conventional PCR for detection of zoonotic diseases and emerging threats in February 2018. Photo: PREDICT/Guinea*





**Section 3: Challenges and potential solutions (if applicable)**

NA

**Section 4: Outbreak response (if applicable)**

NA

## Kenya

### SECTION 1: SUMMARY OF HEALTH SECURITY CAPACITIES AND CHANGES IN CAPACITY

1	2	3	4
USAID's GHSA Technical Focus Areas	GHSA Indicator	Specific progress made toward capacity level	Comments
<b>Antimicrobial Resistance (AMR)</b>	P.3.1 Antimicrobial resistance detection		
	P.3.2 Surveillance of infections caused by AMR pathogens		
	P.3.3 Healthcare associate infection (HCAI) prevention and control programs		
	P.3.4 Antimicrobial stewardship activities		
<b>Zoonotic Disease</b>	P.4.1: Surveillance systems in place for priority zoonotic diseases/pathogens	PREDICT continued integrating animal and human health professionals in field-based zoonotic disease surveillance activities targeting wildlife (bats, rodents, non-human primates) and humans (with behavioral risk assessment) in Mpala and Lekiji communities of Laikipia County. These communities are representative of a high-risk interface for disease spillover due to the high density of wildlife and particularly recent land use change due to prolonged drought periods. In collaboration with governmental staff and	PREDICT's zoonotic disease surveillance is strategically designed to train, equip, and enable surveillance personnel to collect data and build capacity to test for both priority zoonoses and emerging and re-emerging pathogens, such as rabies, brucellosis, anthrax and Rift Valley Fever Virus (RVF) in vulnerable and high-risk areas. Shared animal and human surveillance data and findings help catalyze formal information sharing between animal and human surveillance systems. In addition, our surveillance engages local communities in high-risk areas for disease transmission and emergence and

		<p>students trained on project's safe zoonotic disease surveillance protocols, a total of 1,777 samples from 300 individual wildlife animals and 1,346 samples from over 150 individual humans were collected. Testing is ongoing for priority zoonotic diseases such as viral hemorrhagic fevers and other emerging threats. During the testing process, staff also trained multiple students in zoonotic disease detection protocols at the PREDICT labs: the Institute of Primate Research (IPR) for animal samples and the Kenya Medical Research Institute (KEMRI) for human samples.</p>	<p>fosters improved recognition of zoonotic diseases and awareness of transmission pathways and prevention and control options.</p> <p>To date, the PREDICT/Kenya team has conducted over 156 behavioral risk interviews, sampled over 700 wildlife, 500 camels, and 150 people, and completed zoonotic disease testing for 208 animals.</p>
	P.4.2: Veterinary or Animal Health Workforce	<p>This period, PREDICT trained students from local universities and continued to mentor graduate student projects leveraging project goals and protocols. At IPR, two students from the University of Nairobi are working with PREDICT focused on influenza testing. In addition, two new interns have joined our team (backgrounds in microbiology and biochemistry) to obtain field and lab experience related to zoonotic disease surveillance. All have received training on zoonotic disease surveillance and detection protocols, gaining skills in safe animal handling, biological sampling, biosafety, laboratory methodology, ethics for research with human subjects, informed consent, and administering the behavioral risk questionnaires. Upon graduation, these students and interns are expected to fill critical public health positions, now armed with knowledge of a One Health approach to disease surveillance and outbreak response.</p> <p>Also this period, in-service training on PREDICT protocols was provided to 33 veterinary and animal health officers, who were trained in zoonotic disease surveillance and detection protocols such as safe animal handling and sampling methods, PPE/biosafety</p>	<p>PREDICT provides critical in-service training opportunities identified as a challenge in the JEE through a deliberately designed One Health zoonotic disease surveillance program that encourages hands-on development of core skills lacking in the current animal health workforce. We continue to offer trainings to animal health professionals (county veterinary officers, wildlife service, lab technicians in animal health labs, and local community members), directly strengthening the capability of the current workforce to successfully and safely conduct core functions of their job on the frontlines of zoonotic disease control.</p>



		demonstrations, and laboratory methodology and biosecurity.	
	P.4.3: Mechanisms for responding to infectious zoonosis and potential zoonosis	<p>To address training for rapid response of zoonotic diseases at the subnational level, a challenge identified in the JEE, PREDICT, jointly with OHW/OHCEA, FAO and P&amp;R conducted a One Health training event at PREDICT's high-risk interface sampling site in Laikipia County, to observe first-hand the different drivers and human behavioral risk factors that contribute to the emergence and/or spread of pathogens. Training on zoonotic disease surveillance included a pandemic simulation to learn how to approach and rapidly respond to an outbreak investigation using safe sampling and biosafety protocols. A total of 37 pre- and in- service participants included University of Nairobi and Moi University postgraduate students and faculty mentors, veterinarians at both the national and county (Laikipia) level, Kenya Wildlife Service officers (para-veterinarians), Laikipia County Health officers and members of the local community.</p> <p>PREDICT contributed expertise in zoonotic disease surveillance at a FAO-organized training workshop focused on HPAI simulation, as well through lectures at the University of Nairobi (housing veterinary, medical and public health schools) presenting on the One Health approach to disease surveillance.</p>	<p>PREDICT works with government and local partners to strengthen national capacity for zoonotic disease surveillance using a broadly applicable, rapidly deployable, and easily adaptable system that emphasizes core skills needed for biological sampling for surveillance for a broad range of zoonotic disease threats. This system is easily transferrable to priority diseases in Kenya, as well as for other unknown and potentially emerging viral threats.</p> <p>Through our implementing partners, IPR and KEMRI, the One Health network in Kenya engages Ministry of Agriculture and Livestock as well as universities, such as University of Nairobi School of Veterinary Medicine and School of Public Health and other universities in the region. PREDICT/Kenya actively participates in the One Health Coordinating Unit under the umbrella of Zoonotic Disease Unit (ZDU) and contributed to the development of the One Health Strategic Plan. We also maintain active linkages with other partners working on One Health, such as International Livestock Research Institute (ILRI), Mpala Research Centre, and OHCEA at the University of Nairobi.</p>
<b>Biosafety and Biosecurity</b>	P.6.2: BSS training and practices (focused on animal health)		
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national program		

	P.7.2 National vaccine access and delivery		
<b>Laboratory Systems Strengthening</b>	D.1.1: Laboratory testing for detection of priority diseases (focused on animal health)	<p>PREDICT, in partnership with FAO, jointly conducted disease surveillance training in biosafety, biosecurity, safe animal handling, biological sampling, and laboratory molecular diagnostics. A total of 36 participants were trained, representative of the governmental sectors of Kenya: public health (ZDU), DVS, KWS, regional laboratories, and universities.</p> <p>Between October 2017 and March 2018, PREDICT labs tested samples for priority zoonotic diseases and emerging threats. Results are undergoing a quality control check before interpretation and subsequent sharing with the Kenyan ministries. This testing capability, now present in both project labs (IPR and KEMRI) is a valuable resource for secondary confirmation, an area highlighted in the JEE as an opportunity for improving detection and IHR reporting for public health emergencies of international concern.</p> <p>In-service training on PREDICT protocols was provided to 11 Kenyan government officers from the Central Veterinary Laboratory (CVL) and Foot and Mouth Disease (FMD) Laboratory – the two laboratories that handle the majority of veterinary diagnostics throughout the country. In addition, two university staff (Kenyatta, Nairobi), 2 Kenya Wildlife Service (KWS) staff, two Nairobi County public health personnel, two Kenya Agricultural and Livestock Organization (KALRO) staff, and 18 staff members from Regional Veterinary Referral Laboratories across the country (from eight regions previously known as provinces) were trained in both field and laboratory surveillance</p>	<p>PREDICT continues working with local partners that are well-integrated with Kenya's national laboratory network and animal and public health sectors, and initiated viral testing at the Institute of Primate Research lab using techniques transferrable for detection of a broad range of disease threats, including priority zoonotic diseases.</p>

		techniques for zoonotic disease detection.	
	P.1.2: Specimen referral and transport system (focused on animal health)		
	D.1.4: Laboratory Quality System (focused on animal health)		
<b>Real Time Surveillance</b>	D.2.1 Indicator and event based surveillance systems		
	D.2.2 Interoperable, interconnected, electronic real-time reporting system		
	D.2.3 Analysis of surveillance data		
	D.2.4 Syndromic surveillance systems		
<b>Reporting</b>	D.3.1 System for efficient reporting to WHO, FAO and OIE		
	D.3.2 Reporting network and protocols in country		
<b>Workforce Development</b>	D.4.1: Human resources are available to implement IHR core capacity requirements	PREDICT continued to provide training in both field and laboratory protocols to 70 individuals. Trainings targeted staff at national universities and national government research organizations, and offered selected students and staff, research institutes and government organizations an opportunity to be trained in field and laboratory techniques related to zoonotic disease surveillance. In addition, field-and lab- based trainings were provided at the subnational level for county livestock and wildlife veterinarians, as well as governmental veterinary and medical laboratories helping strengthen training and capacity linkages between national and subnational levels, an area highlighted for strengthening in the JEE.	Through in-service trainings, PREDICT directly enhances skills of the existing health workforce, especially the animal health sector, with a niche focus on biosafety and safe capture and handling of small mammals, such as bats and rodents, which represent the highest risk for viral spillover and spread to people. Our partners at IPR and KEMRI are training institutions that actively promote and engage students and career professionals in continuing education; we provide these training opportunities across the full spectrum of surveillance, detection, and response and are exploring opportunities with partners to incorporate our training program and materials in short courses for national and subnational managers.

		The trainings covered biosafety and safe wildlife capture and sampling techniques, core skills required to prepare the animal and public health workforce for zoonotic disease surveillance. Also this period, PREDICT recruited two new students and two new interns all of whom received training in zoonotic disease surveillance protocols and who began to engage in activities.	
<b>Preparedness</b>	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented		
	R.1.2 Priority public health risks and resources are mapped and utilized		
<b>Medical Countermeasures and Personnel Deployment</b>	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency		
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency		
<b>Risk Communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc.)		
	R.5.2 Internal and partner communication and coordination		
	R.5.3 Public communication		
	R.5.4 Communication engagement with affected communities		
	R.5.5 Dynamic listening and rumor management		

<b>Other relevant Action Package (fill in)</b>	(fill in appropriate indicator)		
--	---------------------------------	--	--

## Section 2: Major success stories/notable achievements

***Strengthening zoonotic disease detection, prevention, and response at the subnational level.*** At PREDICT's initiation, a One Health training event at the Mpala Research Centre was conducted jointly with OHW/OHCEA, FAO and P&R. The training addressed rapid response of zoonotic diseases at the subnational level, a challenge identified in the JEE. A total of 37 participants representative of animal and public health sectors were in attendance, including University of Nairobi and Moi University postgraduate students and their faculty mentors, veterinarians at both the national and county (Laikipia) level, Kenya Wildlife Services, Laikipia County Health officers and members of the local community. Attendees observed first-hand the high-risk interface where PREDICT conducts zoonotic disease surveillance and learned about the different drivers and human behavioral risk factors that contribute to the emergence and/or spread of pathogens. Participants were trained in zoonotic disease surveillance protocols (biosafety, PPE safe capture, handling and sampling of wildlife, cold chain, and behavioral risk investigations), and were taken through a pandemic simulation to learn how to approach an unknown disease outbreak investigation in a rapid and coordinated manner. Community engagement and discussions were also part of the event, underscoring the need to build relationships with key stakeholders and community members and to inform and provide clear risk communication during an outbreak response. The trainers were successful in relaying that a multidisciplinary One Health approach is key for successful and rapid zoonotic disease surveillance, control, response, and risk mitigation.





*PREDICT partnered with OHCEA to hold a One Health outreach event that included handing out bookmarks to the Laikipia community that informs on disease transmission from animals to humans.  
Photo: PREDICT/Kenya.*

***Strengthening national laboratory capacity for zoonotic disease detection.*** This period, PREDICT, in partnership with FAO, jointly conducted disease surveillance training in biosafety, biosecurity, safe animal handling, biological sampling, and laboratory molecular diagnostics. More than 30 participants were trained, representative of the governmental sectors of Kenya: public health (ZDU), DVS, KWS, regional laboratories, and universities. This training focused on equipping the regional veterinary laboratories that serve major parts of the country with the capacity to rapidly conduct disease surveillance, to detect and identify causative agents in case of an outbreak. In addition, PREDICT continued to build capacity at the national laboratories responsible for the testing of outbreak samples: CVL for a disease outbreak in animals and KEMRI for a disease outbreak in humans. Advanced training in viral detection was also provided to these labs, focusing on priority zoonotic diseases and other emerging threats. Further, in-service training on PREDICT detection protocols was provided to 11 Kenyan government officers from the Central Veterinary Laboratory (CVL) and Foot and Mouth Disease (FMD) Laboratory – the two laboratories that handle the majority of veterinary diagnostics throughout the country. In addition, two university staff (Kenyatta, Nairobi), two Kenya Wildlife Service (KWS) staff, two Nairobi County public health personnel, two Kenya Agricultural and Livestock Organization (KALRO) staff, and 18 staff members from Regional Veterinary Referral Laboratories across the country (from eight regions previously known as provinces) were trained in both field and laboratory surveillance techniques for zoonotic disease detection. As a result, these labs have improved capacity to rapidly detect known priority diseases, and have systems in place to identify new viruses as they emerge.



*Government national lab staff from CVL and FMD labs (top) receive training in advanced molecular detection for zoonotic diseases at PREDICT's IPR lab. Government regional lab staff from RVL, CVL, universities, KWS and FMD labs receiving training in biosafety and PPE during a biosecurity training at PREDICT's IPR labs in February 2018 (bottom). Photos: PREDICT/Kenya.*



**Section 3: Challenges and potential solutions (if applicable)**

PREDICT's targeted surveillance site, a high-risk interface located in Laikipia County, has experienced some insecurity due to friction between pastoralists and movement of livestock onto neighboring ranches. To avoid mistaken identity or intent, PREDICT staff from IPR have been careful to appropriately announce their presence and purpose in the region, as well as acknowledge and respect community structure/hierarchy. Understanding dynamics in the community has allowed PREDICT staff to engage community members and successfully implement the project.

**Section 4: Outbreak response (if applicable)**

NA

## Liberia

### SECTION 1: SUMMARY OF HEALTH SECURITY CAPACITIES AND CHANGES IN CAPACITY

1 USAID's GHSA Technical Focus Areas	2 GHSA Indicator	3 Specific progress made toward capacity level	4 Comments
<b>Antimicrobial Resistance (AMR)</b>	P.3.1 Antimicrobial resistance detection		
	P.3.2 Surveillance of infections caused by AMR pathogens		
	P.3.3 Healthcare associate infection (HCAI) prevention and control programs		
	P.3.4 Antimicrobial stewardship activities		
<b>Zoonotic Disease</b>	P.4.1: Surveillance systems in place for priority zoonotic diseases/pathogens	As part of efforts to identify priority zoonotic diseases of domestic animals and wildlife (an area highlighted as a priority action in the JEE), the PREDICT team in Liberia continued to target bats and rodents in its search for filoviruses under the Ebola Host Project. During this period the team combined disease surveillance in wildlife with additional scouting trips to identify sampling sites with	PREDICT's zoonotic disease surveillance is strategically designed to train, equip, and enable surveillance personnel to collect data and build the evidence base for both priority zoonoses and emerging and re-emerging pathogens, such as Ebola in vulnerable and high-risk areas. Shared animal and human surveillance data and findings help catalyze formal information sharing between animal and human surveillance systems. In addition, our



		<p>the goal of expanding the biodiversity of species sampled. Field trips were conducted across nine sites in Bong, Grand Cape Mount and Lofa counties. Over that period 738 bats and 99 rodents were sampled across the nine sites. In addition, the behavioral risk team received ethical permissions in February 2018 and began conducting surveys at two sites in Grand Cape Mount and Lofa counties working concurrently with the field team to better understand behaviors and practices associated with risk of zoonotic transmission. A total of 77 behavioral risk questionnaires have been conducted across the two sites classified as rural and within communities significantly affected by the Ebola outbreak of 2014-2015. These behavioral risk activities also serve to raise general awareness about zoonotic disease risks in these communities, another area highlighted as a priority action in the JEE.</p>	<p>surveillance engages local communities in high-risk areas for disease transmission and emergence and fosters improved recognition of zoonotic diseases and awareness of transmission pathways and prevention and control options.</p> <p>To date, the PREDICT/Liberia team has sampled more than 2,900 wildlife as part of the Ebola Host Project and completed testing for over 400 animals.</p>
	P.4.2: Veterinary or Animal Health Workforce	<p>PREDICT recently hired four additional research technicians who have been trained in the appropriate zoonotic disease surveillance protocols and are currently receiving hands-on training in the field specifically as it relates to PPE, biosafety, safe animal capture and sampling, and cold chain.</p>	<p>PREDICT has made significant progress in strengthening Liberia's animal health workforce towards JEE goals. See success stores for details.</p>
	P.4.3: Mechanisms for responding to infectious zoonosis and potential zoonosis	<p>PREDICT continued to build in-field veterinary capacity for disease surveillance, a challenge identified in the JEE, training four additional research technicians in addition to the core team working intensively on wildlife sampling and surveillance for potential reservoir hosts of Ebolaviruses, a priority zoonotic disease.</p> <p>In addition, PREDICT was invited by the National Public Health Institute of Liberia (NPHIL) to assist in developing a monkeypox surveillance plan in rodents as part of a larger national plan. The PREDICT team is frequently called on to provide technical</p>	<p>PREDICT works with established channels, (One Health Technical Working Group and others engaged in the operationalization of the One Health Strategic Plan) to communicate findings and recommendations for improved zoonotic disease prevention, detection, and control, providing technical assistance and data and information (e.g., the means for more regular information exchanges between animal and human sectors).</p>

		<p>advice at the weekly National Emergency Preparedness and Response Committee meeting on all zoonotic disease events. PREDICT provided expertise and support to Preparedness and Response efforts to establish a One Health Platform which was accomplished in October 2017.</p> <p>Finally, as part of efforts to strengthen and institutionalize One Health in Liberia, PREDICT served on an expert panel at One Health Day at the University of Liberia, engaged NPHIL on implementing a One Health assessment tool provided by the World Bank (WB), worked closely with the One Health Coordinator at NPHIL to prioritize zoonoses and animal disease surveillance for the WB funded REDISSE project, and served as the lead on the rabies technical working group, which has organized several dog vaccination events in collaboration with NPHIL, MOA, FDA, FAO, and MOH.</p>	
<b>Biosafety and Biosecurity</b>	P.6.2: BSS training and practices (focused on animal health)		
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national program		
	P.7.2 National vaccine access and delivery		
<b>Laboratory Systems Strengthening</b>	D.1.1: Laboratory testing for detection of priority diseases (focused on animal health)	<p>PREDICT conducted a training at NPHIL that included staff from both the national reference lab and the NPHIL's research department as well as personnel from MOA – five people in total. The two-week training strengthened skills and capacity in the lab for detection of priority diseases beyond Ebolavirus Disease, a challenge identified in the JEE, enabling the</p>	<p>In collaboration with GHSA partners, PREDICT/Liberia is working to build capacity at NPHIL by identifying equipment needs, assisting with necessary procurement, and training staff with experience from the Ebola outbreak on advanced disease detection techniques, which will include testing animal samples.</p>



		detection of diseases from four additional viral families (flavi, corona, paramyxo, and influenza viruses). While the bulk of sample testing for the Ebola Host Project is still being performed at Columbia University to meet project timelines and deliverables, in-country lab staff are now focusing on testing rodent samples. Confirmed laboratory results will be presented to the Ministers of Health and Agriculture and the Managing Director of the Forestry Development Authority for approval and public release.	
	P.1.2: Specimen referral and transport system (focused on animal health)		
	D.1.4: Laboratory Quality System (focused on animal health)		
<b>Real Time Surveillance</b>	D.2.1 Indicator and event based surveillance systems		
	D.2.2 Interoperable, interconnected, electronic real-time reporting system		
	D.2.3 Analysis of surveillance data		
	D.2.4 Syndromic surveillance systems		
<b>Reporting</b>	D.3.1 System for efficient reporting to WHO, FAO and OIE		
	D.3.2 Reporting network and protocols in country		
<b>Workforce Development</b>	D.4.1: Human resources are available to implement IHR core capacity requirements	Continuing to address Liberia's need for more highly trained veterinary and animal health professionals (a major challenge in the country's JEE), PREDICT trained six individuals (5 males and 1 female) in core	SCNL, the lead implementing partner for PREDICT, is the primary training ground for animal health professionals in-country. As the leading conservation organization in Liberia, SCNL has a very close working relationship with the FDA on several

		skills required for safe and effective zoonotic disease surveillance and disease detection this period. PREDICT also worked with the Forestry Development Authority to incorporate current PREDICT staff into FDA operations going forward. Field-based trainings covered biosafety and safe wildlife capture and sampling techniques, helping prepare the animal health workforce for wildlife disease investigations. Additionally, PREDICT trained 5 NPHIL lab personnel in laboratory safety and viral detection techniques. This training was conducted in conjunction with an FAO lab training run just prior to the PREDICT training.	important national level projects, including PREDICT. As a result, PREDICT provides opportunities for students, interns, FDA staff and early career professionals, students, and interns to engage in project activities. In addition, field activities engage and involve animal health professionals, providing opportunities to strengthen skills in zoonotic disease surveillance and detection with hands-on learning for safe capture and sampling of wildlife, cold chain, safe sample transport, and viral detection at collaborating labs.
<b>Preparedness</b>	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented		
	R.1.2 Priority public health risks and resources are mapped and utilized		
<b>Medical Countermeasures and Personnel Deployment</b>	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency		
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency		
<b>Risk Communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc.)		
	R.5.2 Internal and partner communication and coordination		
	R.5.3 Public communication		
	R.5.4 Communication engagement with affected communities		

	R.5.5 Dynamic listening and rumor management		
<b>Other relevant Action Package (fill in)</b>	(fill in appropriate indicator)		

## Section 2: Major success stories/notable achievements

***Building the animal health workforce for improved zoonotic disease surveillance.*** In the wake of the Ebola outbreak, Liberia identified a lack of well-trained and equipped animal health workforce as a key deficit in the country's health security. In the JEE report, key challenges towards strengthening the animal health workforce include more technical training for staff and establishing protocols for zoonotic disease surveillance. PREDICT has been instrumental in addressing this need, as our project in Liberia has successfully trained 20 Liberians in wildlife and domestic animal disease surveillance, as well as two social scientists that accompany the field surveillance team that are actively addressing human behavioral risk for zoonotic transmission due to wildlife interaction in some of the country's most at-risk communities. This animal disease surveillance team is the first of its kind in Liberia and is very proficient and professional, having sampled over 3,000 animals, primarily bats, over the past year and a half. Liberia now has a team that can contribute to disease outbreak detection and response, as well as detect new and known threats before they emerge, providing a critical but previously absent epidemiological component to Liberia's public health surveillance activities. Through these surveillance activities, the PREDICT team is working to identify the wildlife reservoir for Ebola virus and understand the transmission pathways of Ebola and other viruses. As part of their training, team members learned proper biosafety and PPE use, safe animal capture, handling and biological sampling, basic laboratory safety, assisting in outbreak response, emergency preparedness, maintaining proper cold chain and packaging and shipping biological samples. Furthermore, among those trained were two Forestry Development Authority (FDA) personnel to facilitate knowledge transfer and capacity building within the primary government partner institution. In addition, PREDICT continues to promote the One Health approach within the public health sector by continuing to strengthen collaborations with the Ministry of Agriculture, FAO, National Public Health Institute of Liberia (NPHIL) and the Ministry of Health. As a result, PREDICT is now viewed as an important contributor to health security in Liberia actively bolstering systems and strengthening expertise in One Health and zoonotic disease surveillance.



*The field team processing samples in a tent at night (left). A PREDICT/Liberia team takes biometric measurements of a bat during wildlife sampling efforts as part of the Ebola Host Project (right). PREDICT is working to build animal health capacity in Liberia, a critical need for improving the country's health security. Photos: PREDICT/Liberia.*

### **Section 3: Challenges and potential solutions (if applicable)**

Presently, there is only one functional laboratory in the country that has the equipment, personnel, and infrastructure capable of attempting to test project samples. This facility is operated by the National Public Health Institute of Liberia, which itself is a new institution and as a result, the organizational structure and administration are currently under development. It has been a challenge to identify the appropriate staff to train and more importantly establish a formal relationship with institution to ensure proper implementation and administration of the laboratory aspect of PREDICT's zoonotic viral detection strategy. Over the remaining 1.5 years of the project, we aim to formally establish a relationship with NPHIL and build the necessary laboratory capacity to allow for sustained sample analysis in-country.

**Section 4: Outbreak response (if applicable)**

PREDICT and partner the Society for Conservation of Nature Liberia provided technical support and was consulted on a recent Lassa fever outbreak and monkeypox cases. In addition, PREDICT provided logistical support to NPHIL on a diarrheal disease outbreak in Margibi County. When first contacted, the outbreak was reportedly non-zoonotic. However, NPHIL was addressing a meningitis outbreak and lacked vehicles to respond to the diarrheal disease event. NPHIL and the USAID/Liberia Mission requested that PREDICT provide logistical support (a vehicle and driver) to transport supplies and personnel to the site and address the outbreak. The outbreak was later identified as shigellosis.

**Mali****SECTION 1: SUMMARY OF HEALTH SECURITY CAPACITIES AND CHANGES IN CAPACITY**

1	2	3	4
USAID's GHSA Technical Focus Areas	GHSA Indicator	Specific progress made toward capacity level	Comments
<b>Antimicrobial Resistance (AMR)</b>	P.3.1 Antimicrobial resistance detection		
	P.3.2 Surveillance of infections caused by AMR pathogens		
	P.3.3 Healthcare associate infection (HCAI) prevention and control programs		
	P.3.4 Antimicrobial stewardship activities		
<b>Zoonotic Disease</b>	P.4.1: Surveillance systems in place for priority zoonotic diseases/pathogens		
	P.4.2: Veterinary or Animal Health Workforce		
	P.4.3: Mechanisms for responding to infectious zoonosis and potential zoonosis		



<b>Biosafety and Biosecurity</b>	P.6.2: BSS training and practices (focused on animal health)		
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national program		
	P.7.2 National vaccine access and delivery		
<b>Laboratory Systems Strengthening</b>	D.1.1: Laboratory testing for detection of priority diseases (focused on animal health)		
	P.1.2: Specimen referral and transport system (focused on animal health)		
	D.1.4: Laboratory Quality System (focused on animal health)		
<b>Real Time Surveillance</b>	D.2.1 Indicator and event based surveillance systems		
	D.2.2 Interoperable, interconnected, electronic real-time reporting system		
	D.2.3 Analysis of surveillance data		
	D.2.4 Syndromic surveillance systems		
<b>Reporting</b>	D.3.1 System for efficient reporting to WHO, FAO and OIE		
	D.3.2 Reporting network and protocols in country		

<b>Workforce Development</b>	D.4.1: Human resources are available to implement IHR core capacity requirements		
<b>Preparedness</b>	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented		
	R.1.2 Priority public health risks and resources are mapped and utilized		
<b>Medical Countermeasures and Personnel Deployment</b>	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency		
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency		
<b>Risk Communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc.)		
	R.5.2 Internal and partner communication and coordination		
	R.5.3 Public communication		
	R.5.4 Communication engagement with affected communities		
	R.5.5 Dynamic listening and rumor management		
<b>Other relevant Action Package (fill in)</b>	(fill in appropriate indicator)		

**Section 2: Major success stories/notable achievements**

**Section 3: Challenges and potential solutions (if applicable)**

**Section 4: Outbreak response (if applicable)**

## Senegal

### SECTION 1: SUMMARY OF HEALTH SECURITY CAPACITIES AND CHANGES IN CAPACITY

1 USAID's GHSA Technical Focus Areas	2 GHSA Indicator	3 Specific progress made toward capacity level	4 Comments
<b>Antimicrobial Resistance (AMR)</b>	P.3.1 Antimicrobial resistance detection		
	P.3.2 Surveillance of infections caused by AMR pathogens		
	P.3.3 Healthcare associate infection (HCAI) prevention and control programs		
	P.3.4 Antimicrobial stewardship activities		
<b>Zoonotic Disease</b>	P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens	<p>PREDICT/Senegal continued expanding surveillance for priority zoonotic diseases and other emerging threats and worked to strengthen multisectoral linkages between animal and human health sectors from field surveillance to laboratory detection, an area identified as a challenge in the JEE. PREDICT teams from EISVM, ISRA, and UCAD put One Health in action in Sindia, which has a high potential for zoonotic disease transmission from wildlife to domestic animals and people.</p> <p>PREDICT also engaged partners from the Ministry of Health, Agriculture and the Environment in surveillance activities providing field-based opportunities to increase technical skills and capacity. In addition, PREDICT worked to educate Sindia community members about zoonotic diseases and planned surveillance activities through</p>	<p>PREDICT's zoonotic disease surveillance is strategically designed to train, equip, and enable surveillance personnel to collect data and build the evidence base for both priority zoonoses (such as zoonotic influenza and viral hemorrhagic fevers) and emerging and re-emerging pathogens, such as MERS-CoV in vulnerable and high-risk areas. PREDICT engages local Ministry partners to build capacity in One Health surveillance strategies. Shared animal and human surveillance data and findings help catalyze formal information sharing between animal and human surveillance systems. In addition, our surveillance engages local communities in high-risk areas for disease transmission and emergence and fosters improved recognition of zoonotic diseases and awareness of transmission pathways and prevention and control options.</p> <p>To date, PREDICT/Senegal has conducted 284 behavioral risk interviews and sampled 226 wildlife</p>

		numerous community engagement visits.	and 283 people. All samples are safely stored at partner laboratories prior to testing (which has begun).
	P.4.2: Veterinary or Animal Health Workforce	<p>PREDICT/Senegal partner, the Ecole Inter-États des Sciences et Médecine Vétérinaires (EISMV) continued to collaborate with the Direction des Parcs Nationaux (DPN) to build capacity of DPN staff on One Health surveillance skills. DPN staff were engaged in field trainings that include biosafety and biosecurity, PPE and safe wildlife sampling techniques increasing capacity of the national animal health workforce.</p> <p>In addition, PREDICT/Senegal engaged EISMV students through participation in the One Health Club as well as including masters-level students in field surveillance activities. These activities serve to not only train veterinary students in PREDICT protocols related to One Health, but also raise awareness of One Health concepts and the importance of surveillance at the human-animal interface, both areas targeted for strengthening in the JEE.</p>	PREDICT provides critical in-service training opportunities identified as a challenge in the JEE through a deliberately designed One Health zoonotic disease surveillance program that encourages hands-on development of core skills lacking in the current animal health workforce. We offer trainings to animal health professionals (district-level veterinary officers, lab technicians in animal health labs, and local community members), directly strengthening the capability of the current workforce to successfully and safely conduct core functions of their job on the frontlines of zoonotic disease control. In addition, PREDICT/Senegal has begun working with the veterinary school's targeting wildlife masters students for training in safe sampling techniques and other One Health surveillance skills.
	P.4.3: Mechanisms for responding to infectious zoonosis and potential zoonosis	PREDICT actively worked to support the National One Health Platform in Senegal and contribute to the development of the One Health Strategic Plan, areas identified as a challenge in the JEE. PREDICT team members participated in ongoing meetings with One Health Taskforce Partners: (the Prime Minister's Office, the Health Emergency Operations Center (COUS), FAO, and WHO), as well as the Ministry of Health, Agriculture and the Environment. These meetings provided opportunities to present ongoing activities in Senegal, encouraged coordination between various One Health groups (human and animal), and offered our team the opportunity to provide guidance on increasing the capacity for	Through our implementing partners EISMV, ISRA, and UCAD, our One Health network in Senegal engages all ministries and government partners, such as the Ministry of Agriculture, Ministry of Livestock, Ministry of Environment, Ministry of Health, and the Department of National Parks. Our team actively participates in the National GHSA Task Force, the National One Health Platform, as well as the COUS, and serves as a resource for the development and operationalization of Senegal's One Health Strategic Plan. We also maintain active linkages to One Health Workforce.

		surveillance and response for priority zoonoses and emerging threats.	
<b>Biosafety and Biosecurity</b>	P.6.2: BSS training and practices (focused on animal health)	PREDICT worked with regional partners in neighboring Sierra Leone to organize a field refresher training in with the PREDICT/Sierra Leone team (September-October 2017). This refresher training, which included members of the PREDICT teams in Sierra Leone, Senegal, and Guinea, focused on aspects of safe sampling, PPE, data entry, and biosecurity/biosafety and helped strengthen animal health networks in the West Africa region.	
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national program		
	P.7.2 National vaccine access and delivery		
<b>Laboratory Systems Strengthening</b>	D.1.1: Laboratory testing for detection of priority diseases (focused on animal health)	PREDICT/Senegal engaged with partner labs at UCAD and ISRA to strengthen capacity for detection and discovery of zoonotic viruses with epidemic and pandemic potential. Both labs performed testing for zoonoses across four viral families (filovirus, influenza, paramyxovirus and coronavirus), which constitute a threat for Senegal and other West African countries. The advanced detection capability in the ISRA lab (part of the national lab system) and at UCAD (a major training center) are addressing concerns highlighted in the JEE. Testing of human and animal samples is ongoing and findings will help strengthening biosecurity and national surveillance and laboratory systems, while improving the stability of these systems through One Health workforce development.	PREDICT partner labs at ISRA and UCAD have been trained and equipped in the full range of activities required for safely detecting zoonotic viruses, including biosafety and biosecurity, cold chain, safe sample storage, data management, safe sample transport and shipping, and molecular viral detection techniques. Both labs have capacity to safely detect priority zoonotic diseases (Rift Valley Fever, zoonotic influenza viruses, and viral hemorrhagic fevers such as Ebola) and other emerging viral threats. Both labs plan to also serve as key training centers for students and professionals, including government staff from the national lab system.
	P.1.2: Specimen referral and transport system (focused on		



	animal health)		
	D.1.4: Laboratory Quality System (focused on animal health)		
<b>Real Time Surveillance</b>	D.2.1 Indicator and event based surveillance systems		
	D.2.2 Interoperable, interconnected, electronic real-time reporting system		
	D.2.3 Analysis of surveillance data		
	D.2.4 Syndromic surveillance systems		
<b>Reporting</b>	D.3.1 System for efficient reporting to WHO, FAO and OIE		
	D.3.2 Reporting network and protocols in country		
<b>Workforce Development</b>	D.4.1: Human resources are available to implement IHR core capacity requirements	PREDICT/Senegal team, all based at local government or university institutions, continued to conduct trainings to advance national zoonotic disease workforce capabilities. All project staff as well as local partners in the Ministry of Health, Agriculture and Environment and students, were trained in core skills required for safe and effective zoonotic disease surveillance and disease detection. Trained individuals have also undergone refresher trainings for those courses requiring annual certification. The animal sampling team recruited a new veterinarian graduate from EISMV, who received both theoretical and practical trainings on One Health surveillance approach and zoonotic disease surveillance and sampling protocols.	The lead implementing partner for PREDICT wildlife sampling in Senegal is EISMV, the primary training ground for animal health professionals in-country. PREDICT is embedded within EISMV, ISRA, and UCAD, and the project provides ongoing opportunities for students, interns, and staff to engage in project activities. In addition, field activities engage and involve animal and human health professionals, providing opportunities to strengthen skills in zoonotic disease surveillance and detection with hands-on learning for safe capture and sampling of wildlife, cold chain, safe sample transport, and viral detection at collaborating labs.

<b>Preparedness</b>	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented		
	R.1.2 Priority public health risks and resources are mapped and utilized		
<b>Medical Countermeasures and Personnel Deployment</b>	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency		
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency		
<b>Risk Communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc.)		
	R.5.2 Internal and partner communication and coordination		
	R.5.3 Public communication		
	R.5.4 Communication engagement with affected communities		
	R.5.5 Dynamic listening and rumor management		
<b>Other relevant Action Package (fill in)</b>	(fill in appropriate indicator)		

## Section 2: Major success stories/notable achievements

***Building One Health Platforms at the subnational level in Senegal.*** In the Sindia region of Senegal, villages surrounding the nearby Bandia Reserve offer numerous opportunities for interaction between wildlife and people and their domestic animals either through occupational exposure, tourism or through daily household activities. Because of the high potential for viral spillover at the animal-human interface, PREDICT is focusing on the Sindia region for zoonotic disease surveillance,

as the region provides a unique setting for bringing together the animal and human health sectors to put the One Health approach in action, a GHSA priority and area targeted for strengthening in the country's JEE.

PREDICT is actively investing in the One Health approach in Senegal by engaging with animal and medical health sectors at multiple levels from ministries to Sindia communities. Through a subnational-focused One Health platform, PREDICT has been working to strengthen the health workforce and improve capabilities for zoonotic disease surveillance, detection, and prevention. Our project has engaged Government of Senegal staff across ministries as well as university partners to work on a single team and investigate the behaviors, practices, and ecological and biological factors driving zoonotic disease emergence. Through trainings and field-based activities, PREDICT is also providing opportunities for multi-sectoral collaboration and contributing to capacity gains in biosafety and biosecurity, national laboratory systems, and reporting efficacy in line with the GHSA objectives.

*One health approach is a reality in Senegal. Through USAID-PREDICT doctors, veterinarians and environmentalists are joining forces to monitor, detect and respond to endemic threats on the interface of human-animal-wildlife."*

*- Dr. Mame Cheikh Seck, University Cheik Ante Diop*

*"In Senegal, PREDICT is the program most involved in One Health. Until now we are the most active team regarding the surveillance of priorities zoonosis."*

*-Dr. Mustafa Loh, Institut Senegal Recherches Agriculture*

This period, PREDICT/Senegal's One Health team completed their second community-based concurrent human and animal surveillance event in Sindia, as wildlife professionals sampled bats, rodents, and non-human primates around the area and medical professionals collected samples from community members and conducted behavioral risk interviews. Complementing these efforts, our team continued to support the Sindia Health Post, where nurses and clinicians sample febrile patients and collect samples to learn more about the diseases circulating in the Sindia population. This work is also adding value by encouraging multi-sectoral communication, not just between ministry partners in Dakar, but among the wildlife, veterinary, and medical professionals practicing on the front lines of disease emergence and with the communities that they serve. Through this work, PREDICT is strengthening the Senegal's One Health network, extending the reach of national health systems and working together with local communities to reduce risk and identify strategies for improved health and livelihoods.



*PREDICT/Senegal's One Health team leads a community meeting to discuss zoonotic diseases and the team's One Health approach (top). Two members of the animal sampling team take morphometric measurements from a bat sampled as part of zoonotic disease surveillance activities in Sindia (bottom left). A member of the team processes samples collected from community members in Sindia (bottom right). Photos: PREDICT/Senegal.*

**Section 3: Challenges and potential solutions (if applicable)**

NA

**Section 4: Outbreak response (if applicable)**

NA



## Sierra Leone

### SECTION 1: SUMMARY OF HEALTH SECURITY CAPACITIES AND CHANGES IN CAPACITY

1 USAID's GHSA Technical Focus Areas	2 GHSA Indicator	3 Specific progress made toward capacity level	4 Comments
<b>Antimicrobial Resistance (AMR)</b>	P.3.1 Antimicrobial resistance detection		
	P.3.2 Surveillance of infections caused by AMR pathogens		
	P.3.3 Healthcare associated infection (HCAI) prevention and control programs		
	P.3.4 Antimicrobial stewardship activities		
<b>Zoonotic Disease</b>	P.4.1: Surveillance systems in place for priority zoonotic diseases/pathogens	<p>In direct response to a major challenge identified in the JEE, PREDICT participated as advisors in the workshop held to prioritize zoonotic diseases. The workshop was held in Freetown by USAID Preparedness and Response Project from November 15-17, 2017. As a result, six Zoonotic Diseases were prioritized for multi-sector collaboration in the country; Viral Hemorrhagic Fevers (Ebola/Lassa), Rabies, Zoonotic Influenza (Avian, Swine), Salmonella, Anthrax and Plague.</p> <p>PREDICT contributed to USG efforts to improve upon gaps in surveillance systems in Sierra Leone as identified in the 2016 Joint External Evaluation (JEE). Most critically, "Surveillance systems in place for priority zoonotic diseases/pathogens" was judged to be</p>	<p>PREDICT's zoonotic disease surveillance is strategically designed to train, equip, and enable surveillance personnel to collect data and build the evidence base for both priority zoonoses and emerging and re-emerging pathogens, such as Ebola, in vulnerable and high-risk areas. Shared animal surveillance data and findings help catalyze formal information sharing between animal and human surveillance systems. In addition, our surveillance engages local communities in high-risk areas for disease transmission and emergence and fosters improved recognition of zoonotic diseases and awareness of transmission pathways and prevention and control options. In Sierra Leone, we have been intensifying our community engagement and working to identify methods to formally measure local awareness of zoonotic disease threats, especially as it relates to Ebola Virus Disease and filovirus emergence and spillover.</p>



		<p>a “1”, recognizing the deep challenges in SL to build and enhance surveillance activities.</p> <p>PREDICT trainings, staff operations, and inclusion of district level veterinary and wildlife officers in our programmatic activities provide needed core-skills training and more advanced animal capture and biological sampling techniques for our government partners to overtime improve upon this JEE score indicator. Building on capacity gained through these trainings, PREDICT’s One Health team based at the University of Makeni worked with GoSL district veterinary and wildlife officers to strengthen surveillance for filoviruses (including the viral hemorrhagic fevers Ebola and Marburg – newly prioritized national zoonotic diseases) and other high-consequence novel virus infections at high-risk areas for zoonotic disease transmission. During the reporting period, the team successfully and safely sampled over 1,900 bats and rodents in 4 districts (Bombali, Koinadugu, Kambia, Kono).</p> <p>PREDICT also conducted a scoping visit in the Pujehun district with ministry partners (MAFFS, MOHS) for an initial assessment of potentially expansion PREDICT activities to the southern area of Sierra Leone from September 12th–14th, 2017. The aim of these meetings was to introduce the PREDICT program to the district authorities and stakeholders and discuss potential plans to extend implementation of animal sampling and related activities in the district. From the National level, the Deputy Chief Medical Officer II (MOHS) and the Director of Livestock (MAFFS) accompanied the PREDICT team to the district. During this visit, locations were identified for further surveillance activities in the coming year.</p>	<p>To date, PREDICT/Sierra Leone has sampled over 3,500 wildlife and completed testing for 290 animals as part of the Ebola Host Project.</p>
--	--	---	---

	P.4.2: Veterinary or Animal Health Workforce	Working towards the JEE goal of developing a skilled and trained animal health workforce, PREDICT successfully conducted a 10-day continuing education and refresher training on biosafety and biosecurity (personal protection during field and laboratory work), field data collection and quality control, and animal sampling (bats and rodents) for 14 PREDICT Sierra Leone staff, eight PREDICT Guinea staff and three PREDICT Senegal staff at the University of Makeni Sierra Leone.	Critically, the area of “Veterinary or Animal Health Workforce” was judged to be a “1”, recognizing the deep challenges in SL to build and enhance surveillance activities in the 2016 Joint External Evaluation (JEE). PREDICT contributes to USG efforts to improve upon gaps in the One Health workforce in Sierra Leone through trainings, staff operations, and inclusion of district level veterinary and wildlife officers in our programmatic activities provide needed core-skills training and more advanced skills. PREDICT teams directly employ 16 individuals capable of safe, robust, and technically proficient animal capture, handling and sampling. Accompanying this team on every sampling trip are typically two cross-trained district level Ministry of Agriculture, Forestry, and Food Safety (MAFFS) officers. The overall impact of PREDICT on this JEE indicator will lead to marked improvements in potential national level capacity overtime via an enhanced technical workforce.
	P.4.3: Mechanisms for responding to infectious zoonosis and potential zoonosis	<p>PREDICT regularly attends meetings of the Ministry of Health Emergency Operations Center (EOC) weekly Epidemic Preparedness and Rapid Response Group (EPRRG). During this period PREDICT presented details on what program activities in the country in terms of program objectives, work accomplished, and PREDICT’s capacities and potential scope to help support health event investigations when requested. PREDICT/Sierra Leone stands ready to assist the GoSL, if requested and with USAID-Washington concurrence, in potential outbreak responses to unknown or other potentially pandemic zoonotic disease threats in the areas of supplies/logistics to field ecological investigations of animals.</p> <p>PREDICT contributes to filling gaps in zoonotic disease response systems in Sierra Leone by trainings, staff operations, and inclusion of district level veterinary and wildlife officers in our programmatic</p>	<p>PREDICT has facilitated initial district level One-Health platform meetings in Bombali, Koinadugu, Kono, and Western Areas and is working to facilitate initial meetings of district One-Health platforms to promote mechanisms for responding to zoonotic health threats (in coordination with other EPT partners) in Kambia and Pujehun districts. PREDICT/Sierra Leone team members also continue to provide technical assistance to the recently created National One Health platform as needed and requested by the government partners.</p>

		activities, providing needed core skills training and more advanced animal capture and biological sampling techniques for our government partners. This effort is critical to improving upon this JEE score indicator over time, which was identified in the 2016 Joint External Evaluation (JEE) to be at a “1” level, recognizing the deep challenges in SL for emergency responses to animal and other zoonotic disease threats and outbreak events.	
<b>Biosafety and Biosecurity</b>	P.6.2: BSS training and practices (focused on animal health)		
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national program		
	P.7.2 National vaccine access and delivery		
<b>Laboratory Systems Strengthening</b>	D.1.1: Laboratory testing for detection of priority diseases (focused on animal health)	PREDICT and our lead in-country partner, the University of Makeni (UNIMAK), successfully completed a two-week capacity building training for 12 laboratory technicians at the UNIMAK Infectious Disease Research Laboratory in October of 2017. This training included four PREDICT staff, two individuals from the Ministry of Health and Sanitation (MOHS) and two from the Ministry of Food, Forestry, and Food Safety (MAFFS) laboratory staff for laboratory skills/testing utilizing the PREDICT program approach and testing protocols. Participants from government partners were nominated by their respective ministry to participate in this training, thus enhancing Sierra Leone’s capacity in zoonotic disease detection. A key outcome from this training was the establishment of in-country capability to test livestock specimens collected during	PREDICT lab trainings contribute to USG efforts to improve upon gaps in the animal and human health laboratory diagnostic capacity in Sierra Leone as identified in the Joint External Evaluation (JEE). Most critically, during the 2016 JEE, <u>animal</u> health laboratory capacity was judged to be a “1”, recognizing the challenges in SL for rapid and robust animal disease detection. PREDICT trainings and staff capacity building provide needed core-skills training and more advanced molecular diagnostic experience for our government partners to overtime improve upon these JEE score indicators.

		PREDICT project activities in Sierra Leone.	
	P.1.2: Specimen referral and transport system (focused on animal health)	During a two-week capacity building training for 12 laboratory technicians at the UNIMAK Infectious Disease Research Laboratory in October of 2017, all 12 participants were trained on the proper transport and cold-chain requirements for biological diagnostic specimens from the site of field-collection to the laboratory following international best-practices appropriate for Sierra Leone.	
	D.1.4: Laboratory Quality System (focused on animal health)		
<b>Real Time Surveillance</b>	D.2.1 Indicator and event based surveillance systems		
	D.2.2 Interoperable, interconnected, electronic real-time reporting system		
	D.2.3 Analysis of surveillance data		
	D.2.4 Syndromic surveillance systems		
<b>Reporting</b>	D.3.1 System for efficient reporting to WHO, FAO and OIE		
	D.3.2 Reporting network and protocols in country		
<b>Workforce Development</b>	D.4.1: Human resources are available to implement IHR core capacity requirements	This reporting period, PREDICT enhanced the skills and knowledge of 27 individuals involved in One Health workforce activities (field ecology and laboratory diagnostics). All individuals targeted for training are part of Sierra Leone's developing animal health workforce, and PREDICT investments in their technical capacity to conduct zoonotic disease surveillance and detection, especially with wildlife, are a major contribution towards	During the 2016 Joint External Evaluation, the overall SL workforce for IHR core responsibilities is gauged to be a "2". PREDICT trainings, staff operations, and inclusion of district level veterinary and wildlife staff into our programmatic activities provide needed core-skills training and work experience to enhance our government partners base to over time improve upon this JEE score indicator.

		improving the national workforce for implementation of the One Health approach.	
<b>Preparedness</b>	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented		
	R.1.2 Priority public health risks and resources are mapped and utilized		
<b>Medical Countermeasures and Personnel Deployment</b>	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency		
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency		
<b>Risk Communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc.)		
	R.5.2 Internal and partner communication and coordination		
	R.5.3 Public communication		
	R.5.4 Communication engagement with affected communities		
	R.5.5 Dynamic listening and rumor management		
<b>Other relevant Action Package (fill in)</b>	(fill in appropriate indicator)		

## Section 2: Major success stories/notable achievements

*Training One Health Professionals to Confront Pandemic Threats in West Africa.* Nowhere are the overarching goals of PREDICT and GHSA more relevant than in Sierra Leone, Guinea, and Liberia. The devastation left by an unprecedented Ebola virus outbreak between 2013 and 2016 revealed the urgent need for increased animal and public health sector capacity strengthening at all levels. Put into historical context, this single outbreak where over 28,000 cases and 11,323 deaths occurred was



more than 60 times larger than any previous Ebola outbreak, had cases spread to 7 additional countries for the first time, and stretched in-country and international emergency response efforts to the utmost limits of capacity.

Due to the impact on these three countries, PREDICT is engaged in a focused effort to better address the needs posed by the threat of Ebola by understanding the virus's animal origins, while strengthening capacity to build and reinforce emerging disease surveillance and detection systems. PREDICT is specifically working to improve our understanding of the wildlife reservoir, spillover hosts, and origins of Ebola virus; ascertain the potential of virus-spillover during the outbreak; gain a greater understanding of high-risk human behavioral activities, and improve disease surveillance and laboratory capacities through workforce development in line with GHSA priorities.

Although 2016 saw the halt of human-to-human transmission of Ebola virus, the virus may have become endemic, and potentially may be circulating among animal hosts. Without determining which animals may serve as reservoirs of infection, prevention programs to reduce transmission from animals to people will have limited impact, and it is likely that future spillover of ebolaviruses from animals into humans will continue to occur. As we have seen over the years in Central and Eastern Africa where filovirus outbreaks have repeatedly occurred, effective control of these rare "spillover" events is possible and, when the right technical capacities and community engagement are in place, can even be limited to a small number of human cases. The challenge in controlling future Ebola virus outbreaks in West Africa, is dependent on how widely distributed the virus may be across the region, which animal populations are now involved as hosts, and how closely these populations are monitored by a professionally trained wildlife health workforce.

In efforts to foster even greater international collaboration and success towards GHSA milestones and aims, the PREDICT/Sierra Leone team successfully conducted a 10-day multi-national continuing education and refresher update training on biosafety and biosecurity (personal protection during field and laboratory work), field data collection and quality control, and animal sampling (bats and rodents) for 14 PREDICT/Sierra Leone staff from the University of Makeni, eight PREDICT/Guinea staff from the Viral Hemorrhagic Fever laboratory, and three PREDICT/Senegal staff from the Interregional School of Veterinary Medicine (EISMV).

This training, held at the University of Makeni Sierra Leone (October 1st–10th, 2017), brought together a diverse group of participants with backgrounds in ecology, animal health, laboratory skills, veterinarians, epidemiologists, and experts in high-hazard virus and animal sampling technique for a rigorous, exciting, and scenario based training to enhance three countries capacity to safely capture, sample, and transport under proper cold-chain conditions biological specimens from remote locations in the field to diagnostic laboratory centers. Especially relevant to West Africa, meticulous detail and training was devoted to personal protective equipment (PPE) usage and proper donning/doffing procedures to ensure worker safety and reduce the risk of occupational exposures to zoonotic pathogens.

*"PREDICT has turned my dreams to reality. Since my early school days, I have been yearning to contribute to solving our country's and the world's problems through medical research. PREDICT has strengthened my capacity on wildlife sampling (bat, rodent and non-human primate) and it is a very big boost to our country's One-Health capacity."*

*- Dickson Kargbo, University of Makeni (PREDICT wildlife team)*

Preparing for emerging disease threats, like Ebola, requires investments in infrastructure, institutions, and most importantly human resources across a broad array of health and social systems to operationalize One Health approaches and platforms. In collaboration with country governments, GHSA and EPT partners, PREDICT works to develop the core skills and capabilities required by tomorrow's One Health workforce. As evidenced by this workshop, local teams and partnerships have been established and trained in biosafety, field surveillance, basic laboratory safety, the social sciences, and behavioral risk investigations. In Sierra Leone, PREDICT training and field experience has empowered staff at the University of Makeni and established a professional cadre of zoonotic disease surveillance professionals ready to confront pandemic threats.



*Multinational trainees pause for a moment of good cheer before beginning a long day of animal sampling near Makeni, Sierra Leone (top). Photo: Dr. Aiah Gbakima. Sierra Leone Biosafety Trainees gather for a proud group photo after successfully completing a training course (bottom) . Photo: Brian Bird, UC Davis.*



**Section 3: Challenges and potential solutions (if applicable)**

From January to March 2018, PREDICT activities in Sierra Leone were impeded by general country-wide national and district level elections. This is the first national level election for President and all seats in Parliament since 2012. Due to safety concerns, team activities were curtailed from mid-February to April, resulting in reduced field activities (animal sampling and associated capacity strengthening activities). It is expected that activities will return to normal during mid-to-late April 2018.

**Section 4: Outbreak response (if applicable)**

NA

## Tanzania

### SECTION 1: SUMMARY OF HEALTH SECURITY CAPACITIES AND CHANGES IN CAPACITY

1 USAID's GHSA Technical Focus Areas	2 GHSA Indicator	3 Specific progress made toward capacity level	4 Comments
<b>Antimicrobial Resistance (AMR)</b>	P.3.1 Antimicrobial resistance detection		
	P.3.2 Surveillance of infections caused by AMR pathogens		
	P.3.3 Healthcare associate infection (HCAI) prevention and control programs		
	P.3.4 Antimicrobial stewardship activities		
<b>Zoonotic Disease</b>	P.4.1: Surveillance systems in place for priority zoonotic diseases/pathogens	Working towards improved linkage of animal and human health sectors in zoonotic disease surveillance, a challenge identified in the JEE, PREDICT's One Health team worked with district veterinary and medical officers to extend Tanzania's surveillance system to high-risk areas for zoonotic disease transmission. This period, PREDICT conducted syndromic surveillance of febrile patients at two health centres in the Lake Zone (Ujiji Health Centre in Kigoma Municipal and the Murongo Health	PREDICT's zoonotic disease surveillance is strategically designed to train, equip, and enable surveillance personnel to collect data and build the evidence base for both priority zoonoses and emerging and re-emerging diseases, such as viral hemorrhagic fevers (a challenge identified in the JEE) in vulnerable and high-risk areas. Shared animal and human surveillance data and findings help catalyze formal information sharing between animal and human surveillance systems. In addition, our surveillance engages local communities in high-risk



		<p>Centre near the border with Uganda) while continuing to sample wildlife in surrounding villages and forests. Samples were collected from over 80 patients and hundreds of animals and safely transported to the PREDICT labs where they will undergo testing for priority zoonotic diseases such as viral hemorrhagic fevers and other emerging threats. In addition, PREDICT's behavioral risk team conducted interviews and focus group discussions and liaised with village executive officers and other community members at One Health surveillance sites. Data from these interviews is undergoing analysis to identify zoonotic disease transmission risks and potential intervention strategies</p> <p>Additionally, PREDICT improved One Health information across sectors, another JEE challenge, sharing delivering project reports, updates, and information to Tanzania's One Health Coordination Desk in the Office of the Prime Minister and participating in briefings and meetings at the invitation of the OHCD.</p>	<p>areas for disease transmission and emergence and fosters improved recognition of zoonotic diseases and awareness of transmission pathways and prevention and control options.</p> <p>To date, the PREDICT/Tanzania team has conducted over 650 behavioral risk interviews, sampled over 1,700 wildlife and 350 people, and completed zoonotic disease testing for over 400 animals and 48 humans.</p>
	P.4.2: Veterinary or Animal Health Workforce	<p>Working to strengthen subnational animal health sector capacity in the Lake Zone, PREDICT provided in-service training to district veterinary officers, National Parks veterinarians, and livestock extension officers this period in biosafety and PPE use, safe animal handling and sampling, cold chain, and safe sample transport. Through PREDICT's longitudinal sampling design, these individuals gain multiple opportunities to put technical skills in practice using the One Health approach (another JEE target) establishing competency in the technical field investigation skills required for animal surveillance in emergency and non-outbreak scenarios.</p> <p>In addition, PREDICT's lab at the Sokoine University of Agriculture welcomed five</p>	<p>PREDICT provides critical in-service training opportunities, identified as a challenge in the JEE, through a deliberately designed One Health zoonotic disease surveillance program that encourages hands-on development of core skills lacking in the current animal health workforce. We offer trainings to animal health professionals (District Veterinary Officers, Veterinary Investigation Centres, Livestock Extension Officers, lab technicians in animal health labs, and local community members), directly strengthening the capability of the current workforce to successfully and safely conduct core functions of their job on the frontlines of zoonotic disease control.</p>

		student interns for pre-service training in the detection of priority zoonotic diseases and emerging viral threats. The interns received training in the One Health approach, biosafety and PPE, laboratory safety, cold chain management, supply procurement, and methods for molecular detection of zoonotic viruses. All five interns gained core disease detection skills working alongside PREDICT technicians and upon graduation are expected to fill critical roles in Tanzania's animal health surveillance system.	
	P.4.3: Mechanisms for responding to infectious zoonosis and potential zoonosis	PREDICT contributed expertise in One Health surveillance, viral detection, and multisectoral information sharing at multiple meetings and workshops held by ministry partners in the build-up to launch of Tanzania's National One Health Platform on February 13, 2018. At the launch event, PREDICT at the invitation of the One Health Coordinating Unit, provided briefings and presentations on the One Health approach to surveillance for priority zoonoses and emerging threats and addressed critical issues towards the advancement and success of the NOHP.	Through our implementing partners, SUA and the Ifakara Health Institute, PREDICT/Tanzania's One Health network engages all ministries and universities, such as Muhimbili University of Health and Allied Sciences and Nelson Mandela. Our team actively supports the National One Health Platform and contributed to the development of the One Health Strategic Plan. We also maintain active linkages to the South African Centre for Infectious Disease Surveillance, Afrique One, and OHCEA.
<b>Biosafety and Biosecurity</b>	P.6.2: BSS training and practices (focused on animal health)		
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national program		
	P.7.2 National vaccine access and delivery		
<b>Laboratory Systems Strengthening</b>	D.1.1: Laboratory testing for detection of priority diseases (focused on animal health)	PREDICT continued to extend the capabilities of Tanzania's zoonotic disease detection system as both human and animal health labs now have active capability to test for known priority viruses and potentially unknown and	PREDICT partner labs at Sokoine University of Agriculture and Ifakara Health Institute are trained and equipped in the full range of activities required for safely detecting zoonotic viruses, including biosafety and biosecurity, cold chain, safe sample



		emerging threats such as the recently listed “Disease X” in WHO’s blueprint for research on priority diseases. This period PREDICT’s labs performed tests across five viral families (corona, flavi, filo, influenza, and paramyxo viruses) bringing the total number of animals and humans tested to date to 467; test results are undergoing interpretation and will be shared with focal points from Tanzania’s One Health Coordination Desk providing opportunities for multi-sectoral dialogue and collaboration (another challenge in the JEE under the Zoonotic Disease Action Package).	storage, data management, safe sample transport and shipping, and molecular viral detection techniques. As a result, both labs have capacity to safely detect priority zoonotic diseases (Ebola and Marburg, Rift Valley Fever, and zoonotic influenza viruses) and emerging viral threats. Both labs are actively testing animal and human samples and serve as key training centers for students and professionals, including government staff from the national lab system. In addition, both SUA and IHI labs are considered referral nodes that strengthen detection and surveillance capabilities across both sectors, and SUA provides referral services to the national lab system and contributes data for surveillance reporting.
	P.1.2: Specimen referral and transport system (focused on animal health)		
	D.1.4: Laboratory Quality System (focused on animal health)		
<b>Real Time Surveillance</b>	D.2.1 Indicator and event based surveillance systems		
	D.2.2 Interoperable, interconnected, electronic real-time reporting system		
	D.2.3 Analysis of surveillance data		
	D.2.4 Syndromic surveillance systems		
<b>Reporting</b>	D.3.1 System for efficient reporting to WHO, FAO and OIE		
	D.3.2 Reporting network and protocols in country		

<b>Workforce Development</b>	D.4.1: Human resources are available to implement IHR core capacity requirements	This period, PREDICT trained 35 individuals (19 males and 16 females), including 13 government staff, seven NGO or research institute staff, and 15 university staff and students in core skills required for safe and effective zoonotic disease surveillance and disease detection. Field-based trainings for district vets and livestock extension officers covered biosafety and safe wildlife capture and sampling techniques, effective short courses in zoonotic disease surveillance helping prepare the animal health workforce for wildlife disease investigations. Additionally, PREDICT welcomed a new veterinary student from SUA to the team, who is receiving daily training in PREDICT's One Health surveillance approach and who has been trained and certified in all protocols for safe and effective wildlife sampling. Finally, our lab at SUA began pre-service training with a cohort of five interns, students from SUA's molecular biology program, in laboratory safety and zoonotic disease detection techniques.	The lead implementing partner for PREDICT in Tanzania is the Sokoine University of Agriculture's College of Veterinary Medicine, the primary training ground for animal health professionals in-country. PREDICT is embedded within SUA, and the project provides ongoing opportunities for students, interns, and staff to engage in project activities. In addition, field activities engage and involve animal health professionals, providing opportunities to strengthen skills in zoonotic disease surveillance and detection with hands-on learning for safe capture and sampling of wildlife, cold chain, safe sample transport, and viral detection at collaborating labs.
<b>Preparedness</b>	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented		
	R.1.2 Priority public health risks and resources are mapped and utilized		
<b>Medical Countermeasures and Personnel Deployment</b>	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency		
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency		
<b>Risk Communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc.)		

	R.5.2 Internal and partner communication and coordination		
	R.5.3 Public communication		
	R.5.4 Communication engagement with affected communities		
	R.5.5 Dynamic listening and rumor management		
<b>Other relevant Action Package (fill in)</b>	(fill in appropriate indicator)		

## Section 2: Major success stories/notable achievements

**Developing Tanzania's current and future One Health workforce.** The relationships PREDICT and the GHSA are fostering between animal and human health sectors are helping build the foundation for a unified future workforce in Tanzania and are providing critical opportunities for institutionalization of emerging One Health networks. PREDICT is actively working together with government health professionals at the subnational level to train and strengthen the capacity of Tanzania's health professionals in areas at-risk for zoonotic disease emergence and spread. This period, PREDICT worked closely with a District Veterinary Officer, Livestock Field Officers, clinicians and nurses at sites in the Lake Zone where PREDICT conducting zoonotic disease surveillance. Our aim is to build a One Health team at the district level where different departments and sectors learn and work together, share data and information, and actively participate in field-based surveillance activities to better conduct surveillance for zoonotic disease threats and prepare for potential outbreaks. In depth trainings this period involved a Livestock Field Officer from Ujiji municipal and covered biosafety and PPE use, safe animal capture and sampling, emergency preparedness, and safe sample storage and shipment. PREDICT also trained two nurses and 13 government health care staff in Kigoma municipal and Kyerwa Districts at the Ujiji and Murongo Health Centres. These clinic-based trainings included the clinicians, lab technicians, and nurses and covered research ethics, biosafety and human syndromic surveillance, safe sample collection procedures, processing and storage. As a result, trained government and PREDICT staff are working together now in the field and at both clinics where febrile patients are being actively enrolled, administered behavioral risk interviews, and samples collected for zoonotic disease testing.

In addition, PREDICT continued to work with students and future health professionals through our implementing partner the Sokoine University of Agriculture (SUA). This period, our project lab based at SUA welcomed a new cadre of five interns from the molecular biology program, all of whom received training in biosafety, laboratory safety, safe sample storage and transport, environmental risk mitigation and safe biohazardous waste removal, and advanced detection of priority zoonoses and other emerging viral threats. The interns are now actively engaged in PREDICT sample testing at the SUA lab, assisting with RNA extraction, synthesis of cDNA, zoonotic disease testing, and data management, and are actively joining mentoring session with PREDICT's global lab team in the US. Additionally, PREDICT trained and began mentoring two students and one recent graduate from the Sokoine University of Agriculture's School of Veterinary Medicine. All three were trained in field and lab techniques for zoonotic diseases surveillance and are now actively engaged as interns in field activities. These trainings along with ongoing mentorship are



critical in-service opportunities that encourage rapid development of the core skills required for One Health surveillance and bolster the technical capabilities of Tanzania's animal health workforce.



*PREDICT/Tanzania's wildlife team trains a Livestock Field Officer from Ujiji Municipal, Mr. Ibrahim Mgeta, on Biosafety and PPE use (left) as he prepares to join the team in wildlife capture and sampling activities. Members of the PREDICT wildlife team work with the acting District Veterinary Officer for Ujiji District to prepare mist nets for capturing and sampling bats later that evening (middle). Clinicians and nurses from Murongo Health Centre in Kyerwa District near the Uganda border measure liquid nitrogen in a dewar during a cold chain training provided in preparation for launch of human surveillance at the clinic (right). Photos: PREDICT/Tanzania.*

### **Section 3: Challenges and potential solutions (if applicable)**

In the Lake Zone where PREDICT's zoonotic disease surveillance activities are based, the team has confronted challenges due to the accessibility of surveillance sites during the rainy season and due to security concerns in remote areas in Kigoma region. Kigoma has been affected by a constant influx of refugees (some of them armed) from DR Congo and Burundi, and is an area affected by smuggling. To achieve objectives, our team is engaging with security officers and local leaders to ensure safety of personnel during community meetings and sampling events.

PREDICT is collaborating with the Tanzania National Parks (TANAPA) at Gombe National Park on Lake Tanganyika to sample non-human primates and learn more about the role of non-human primates in viral spillover and transmission to people, including tourists and local community members in villages surrounding the park. Logistics to work with non-human primate populations in Gombe are challenging as access to target sampling locations requires travel by boat. As PREDICT's sampling strategy is designed to be concurrent (e.g., sampling of humans and wildlife in the same place and time), recent trips to Gombe to sample non-human primates have been disrupted by weather and strong winds that make water transport to the park impossible. In March, the PREDICT team was forced to abandon a scheduled sampling trip as weather caused the water taxi to make an emergency stop and continuing storms led to cancellations of all scheduled transport. PREDICT is now working closely with TANAPA to reschedule and closely integrate future sampling trips with part veterinarians, including in-service training opportunities in biosafety and PPE and PREDICT's techniques for wildlife capture and sampling, which will also help to bolster the capacity of park staff to conduct safe field investigations in the event of animal die-offs.



*The PREDICT/Tanzania team from Sokoine University of Agriculture enjoys a lull in one of the storms on Lake Tanganyika while en route to a surveillance site near Gombe National Park. Weather and road conditions have made accessing surveillance sites challenging requiring the team to flexibly adapt sampling plans and creatively forge partnerships to reach surveillance targets. Photo: PREDICT/Tanzania.*

#### Section 4: Outbreak response (if applicable)

NA

## Uganda

### SECTION 1: SUMMARY OF HEALTH SECURITY CAPACITIES AND CHANGES IN CAPACITY

1	2	3	4
USAID's GHSA Technical Focus	GHSA Indicator	Specific progress made toward capacity level	Comments



Areas			
<b>Antimicrobial Resistance (AMR)</b>	P.3.1 Antimicrobial resistance detection		
	P.3.2 Surveillance of infections caused by AMR pathogens		
	P.3.3 Healthcare associated infection (HCAI) prevention and control programs		
	P.3.4 Antimicrobial stewardship activities		
<b>Zoonotic Disease</b>	P.4.1: Surveillance systems in place for priority zoonotic diseases/pathogens	<p>PREDICT continued to build capacity for and conduct One Health surveillance to elucidate ecological and behavioral contributors to wildlife zoonotic pathogen spillover in a high-risk region of southwestern Uganda, the Bwindi-Mgahinga Conservation Area, a region where emerging infectious diseases such as Ebola and Marburg viruses have infected people. Communities in the Bwindi area experience frequent direct and indirect contact with wildlife in the forest, on their farms, and in their homes. During this reporting period, PREDICT administered questionnaires and collected samples from 92 acutely febrile patients presenting to Bwindi Community Hospital in Buhoma, which serves as the Bwindi area's busiest health facility serving Bwindi communities. Concurrently, PREDICT obtained samples from 90 rodents trapped in and around human dwellings and farms. To date, PREDICT has sampled more than 360 patients and approximately 1,000 wildlife (600 bats, 250 rodents, and more than 130 primates) in the Bwindi area. All human and wildlife samples were transported to PREDICT's partner laboratory, UVRI in Entebbe, where they are undergoing testing for priority zoonotic diseases and emerging threats.</p>	<p>PREDICT's zoonotic disease surveillance is strategically designed to train, equip, and enable surveillance personnel to collect data and build the evidence base for both priority zoonoses and emerging and re-emerging pathogens, such as Ebola and MERS-CoV in wildlife in vulnerable and high-risk areas. Shared animal and human surveillance data and findings help catalyze formal information sharing between animal and human surveillance systems. In addition, our surveillance engages local communities in high-risk areas for disease transmission and emergence and fosters improved recognition of zoonotic diseases and awareness of transmission pathways and prevention and control options.</p> <p>To date, the PREDICT/Uganda team has conducted over 360 behavioral risk interviews, sampled over 1,000 wildlife and 360 people, and completed zoonotic disease testing for 68 animals and 130 humans, though testing is accelerating at an advanced pace now through new laboratory partner Uganda Virus Research Institute (UVRI).</p>

	P.4.2: Veterinary or Animal Health Workforce	<p>This period, PREDICT trained four veterinary students attending Makerere University's College of Veterinary Medicine, Animal Resources and Biosecurity (COVAB) in the classroom on project modules and protocols for zoonotic disease, biosecurity, and animal handling and sampling. These students then obtained <i>in situ</i> experience in the One Health approach and with wildlife field surveillance activities, where they gained hands-on skills in safely and humanely capturing and sampling bats and rodents in and around people's farms and dwellings.</p>	<p>PREDICT provides critical in-service training opportunities through a deliberately designed One Health zoonotic disease surveillance program that encourages hands-on development of core skills lacking in the current animal health workforce. We offer trainings to animal health professionals (government veterinarians, extension officers, lab technicians in animal health labs, and local community members), directly strengthening the capability of the current workforce to successfully and safely conduct core functions of their job on the frontlines of zoonotic disease.</p>
	P.4.3: Mechanisms for responding to infectious zoonosis and potential zoonosis	<p>PREDICT was requested to attend the 4<sup>th</sup> High-Level GHSA Ministerial meeting in Kampala on October 25-27, joining Uganda EPT partners in updating USAID GHSA leadership. PREDICT contributed expertise in wildlife zoonotic disease surveillance, prevention and response in a governmental workshop to draft Uganda's National Surveillance Plans for Brucellosis and Anthrax, held in Mukono, Kampala November 27 - December 1, organized by EPT2/FAO and attended by Uganda Ministry of Agriculture staff and Uganda EPT2/GHSA partners.</p> <p>As well, PREDICT participated in several workshops that advanced Uganda's preparedness for outbreak response and surveillance: the Uganda One Health stakeholders titled <i>Mapping and After Action Review of Avian Influenza Outbreak</i>, on December 12-14 in Kampala; a workshop for developing the Uganda National Surveillance Plan for Rabies and Highly Pathogenic Avian Influenza in Jinja January 29 - February 2, facilitated by FAO; a workshop to draft the Communication Strategy for the National One Health Platform and the launch of the National One Health Strategic Plan on February 14-15 in Kampala; and a workshop on Strengthening</p>	<p>Systematizing the exchange of zoonotic data between the human and animal health sectors was identified as a weakness in the JEE. PREDICT has established data sharing agreements with all implementing partners, and procedures for sharing data (including project information and findings) with all ministry partners and other government and non-governmental organizations across both animal and human health sectors. As the project is by design One Health in action, we share data, information, and reports to catalyze regularly scheduled meetings between sectors and encourage active discussion and communication among sectors. In addition, PREDICT provides technical assistance and works with established channels (National Task Force on Epidemic Preparedness and Response and the National One Health Platform One Health Technical Working Group) to communicate findings and recommendations for improved zoonotic disease prevention, detection, and control; we provide regular information on wildlife health threats to animal and human sectors.</p>

		the National Epidemiological Surveillance Networks and Outbreak Response to Priority Zoonotic Diseases, held February 26 - March 2 in Masaka, facilitated by FAO.	
<b>Biosafety and Biosecurity</b>	P.6.2: BSS training and practices (focused on animal health)		
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national program		
	P.7.2 National vaccine access and delivery		
<b>Laboratory Systems Strengthening</b>	D.1.1: Laboratory testing for detection of priority diseases (focused on animal health)	In partnership with the Uganda Virus Research Institute, a national referral laboratory, testing was performed on 1,500 human and wildlife samples collected by PREDICT for priority zoonotic diseases such as influenza and the viral hemorrhagic fevers Ebola, Marburg, and RVE, along with other emerging threats from viral families considered high-risk for zoonotic disease transmission, including coronaviruses like MERS and SARS, as well as paramyxoviruses such as Nipah and Hendra virus. Viral testing for filoviruses, flaviviruses, bunyaviruses, rhabdoviruses, and arenaviruses was performed on 367 human samples, with further testing for additional viruses on these and all other submitted samples underway. Confirmed results will be shared with government partners prior to release and will provide opportunities for multi-sectoral information and data sharing.	PREDICT strengthens Uganda's national laboratory systems by enabling viral disease detection at our partner laboratory, Uganda Virus Research Institute (UVRI), one of the three primary national reference laboratories in Uganda. This lab maintains strong ties to the national system and plans to provide protocols and information and in-service training opportunities with animal and human health labs working to actively improve interlinkages and expand capabilities for detecting zoonotic disease threats.
	P.1.2: Specimen referral and transport system (focused on animal health)		
	D.1.4: Laboratory Quality System (focused on animal health)		

<b>Real Time Surveillance</b>	D.2.1 Indicator and event based surveillance systems		
	D.2.2 Interoperable, interconnected, electronic real-time reporting system		
	D.2.3 Analysis of surveillance data		
	D.2.4 Syndromic surveillance systems		
<b>Reporting</b>	D.3.1 System for efficient reporting to WHO, FAO and OIE		
	D.3.2 Reporting network and protocols in country		
<b>Workforce Development</b>	D.4.1: Human resources are available to implement IHR core capacity requirements		
<b>Preparedness</b>	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented		
	R.1.2 Priority public health risks and resources are mapped and utilized		
<b>Medical Countermeasures and Personnel Deployment</b>	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency		
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency		
<b>Risk Communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc.)		



	R.5.2 Internal and partner communication and coordination		
	R.5.3 Public communication		
	R.5.4 Communication engagement with affected communities		
	R.5.5 Dynamic listening and rumor management		
<b>Other relevant Action Package (fill in)</b>	(fill in appropriate indicator)		

## Section 2: Major success stories/notable achievements

**One Health surveillance in at-risk areas for zoonotic disease transmission and spread.** PREDICT achieved its sampling targets for human surveillance, collecting samples and information from febrile patients presenting at Bwindi Community Hospital, while concurrently sampling rodents and primates in and outside Bwindi Impenetrable National Park (BINP) in southwestern Uganda. PREDICT is conducting concurrent surveillance in this area because it is known to encompass multiple high-risk human-wildlife contact scenarios. The park was recently annexed, with former forest-dwelling people who depended on bushmeat hunting for their livelihoods now subsisting in communities adjacent to the park and utilizing local health clinics. A road transects the park to connect towns on either side of the forest, allowing people to legally traverse the forest by foot, presenting the potential for direct and indirect contact between people and wildlife. As well, tourists come from around the world to visit BINP to see human-habituated mountain gorillas, bringing park staff and people from around the world into close proximity of non-human primates. Furthermore, BINP sits at the confluence of the Uganda, Rwanda and Democratic Republic of Congo borders, with large fluxes of people (including refugees) transiting this region. Finally, known human disease outbreaks caused by such zoonotic pathogens as Ebola and Marburg virus have infected people in southwestern Uganda.

*“Bwindi is one of those places where the potential for viral pathogens to emerge from forest wildlife and spillover into both local and transiting populations is very high. Surveillance to date has shown this to be true, and with our current surveillance work, we hope to better understand how that spillover occurs.”*  
*- Dr. Benard Ssebide, PREDICT’s Uganda Country Coordinator.*

A key component of our One Health surveillance is disease detection and corresponding analysis to help identify potential strategies for risk mitigation to improve health and livelihoods in the Bwindi area. To that end, PREDICT’s laboratory partner, the Uganda Virus Research Institute (UVRI) located in Entebbe, initiated full viral family testing of 1,500 human and wildlife samples collected in Bwindi, performing testing for five viral families (filo-, flavi-, bunya-, rhabdo- and arenaviruses) on 367 human samples. Results were entered into PREDICT’s centralized database and a test results report to the Government of Uganda is being prepared. Once approved for release our team will continue to work with community members and stakeholders throughout Uganda’s health system to share these findings along with their practical implications.





*PREDICT field staff baits a trap in preparation for rodent surveillance at this home in a community adjacent to Bwindi Impenetrable National Park in southwestern Uganda, a region known for human infections with emerging infectious diseases such as Ebola and Marburg virus (top). Field staff carefully disentangle a live bat from a net, to collect samples for viral testing. He wears full Personal Protective Equipment (PPE) to protect against potential exposure to the known and novel pathogens that are the target of PREDICT surveillance efforts (bottom). Photos: PREDICT/Uganda.*

**Contributing to Uganda's Health Security and Strategic Plans.** PREDICT contributed expertise in wildlife zoonotic disease surveillance, prevention and mitigation through participation in high-profile One Health meetings and workshops held at the government ministry level, including the 4<sup>th</sup> High-Level GHSA Ministerial meeting held in October, and the government's after-action review of its response to an H5N8 avian influenza outbreak that occurred in January 2017. As well, PREDICT advocated for One Health approaches to preventing and mitigating zoonotic diseases of human health significance, and shared PREDICT's approach, protocols, and collaborations with in-country and Africa regional partners at several meetings and workshops: for developing Uganda National Surveillance Plans for priority zoonotic diseases such as brucellosis and anthrax (Mukono, Kampala November 27-December 1,) and rabies and Highly Pathogenic Avian Influenza (Jinja, January 29 - February 2, 2018); drafting the communication strategy for the National One Health Platform and the launch of the National One Health Strategic Plan (Kampala, February 14-15, 2018); and *Strengthening National Epidemiosurveillance Networks and Outbreak Response to Priority Zoonotic Diseases* (Masaka, February 26 - March 2, 2018).

**Section 3: Challenges and potential solutions (if applicable)**

NA

**Section 4: Outbreak response (if applicable)**

NA

## Bangladesh

### SECTION 1: SUMMARY OF HEALTH SECURITY CAPACITIES AND CHANGES IN CAPACITY

1 USAID's GHSA Technical Focus Areas	2 GHSA Indicator	3 Specific progress made toward capacity level	4 Comments
Antimicrobial Resistance (AMR)	P.3.1 Antimicrobial resistance detection	The PREDICT team in collaboration with Chittagong Veterinary and animal sciences University (CVASU) and Bangladesh Livestock Research Institute (BLRI) conducted research on understanding the ecology of antimicrobial resistance (AMR) bacteria in wildlife. This AMR research has detected multiple drug resistant strains of E coli, Salmonella spp., and Staphylococcus spp. from bat, rodent, and rhesus macaques at high risk wildlife -livestock and human interface, findings of relevance for informing and refining the National Action Plan in accordance with JEE goals.	

	P.3.2 Surveillance of infections caused by AMR pathogens		
	P.3.3 Healthcare associated infection (HCAI) prevention and control programs		
	P.3.4 Antimicrobial stewardship activities		
<b>Zoonotic Disease</b>	P.4.1: Surveillance systems in place for priority zoonotic diseases/pathogens	<p>PREDICT strengthened One Health surveillance capacity in Bangladesh through collaborations and partnerships with local institutions and departments. Our work has extended and bolstered the surveillance systems in areas identified as potentially high-risk for zoonotic disease spillover. PREDICT has implemented syndromic surveillance in hospitals on patients with fevers of unknown origin at Faridpur Medical College Hospital. PREDICT also conducted community surveillance in three locations with humans that have frequent contact with high-risk wildlife species. During each PREDICT community sampling effort, our team held discussions with village members and community leaders to engage the community and increase zoonotic disease awareness and sensitization to the One Health approach and the project. Data from behavioral risk investigations are currently undergoing analysis to identify zoonotic disease transmission risks and potential intervention strategies.</p> <p>This period, PREDICT conducted intensive sampling of priority wildlife and at-risk people to better understand the viral landscape and transmission risks. Samples were collected from 330 humans and 934 animals and safely transported to the PREDICT lab at icddr,b or IEDCR where they will undergo testing for</p>	<p>PREDICT's zoonotic disease surveillance is strategically designed to train, equip, and enable surveillance personnel to collect data and build the evidence base for both priority zoonoses and emerging and re-emerging diseases, such as viral encephalitis in vulnerable and high-risk areas. Shared animal and human surveillance data and findings help catalyze formal information sharing between animal and human surveillance systems. In addition, our surveillance engages local communities in high-risk areas for disease transmission and emergence and fosters improved recognition of zoonotic diseases and awareness of transmission pathways and prevention and control options.</p> <p>To date, the PREDICT/Bangladesh team has conducted over 430 behavioral risk interviews, sampled over 10,000 wildlife and 148 people, and completed zoonotic disease testing for 2,244 animals and 50 humans.</p>

		priority zoonotic diseases and emerging threats.	
	P.4.2: Veterinary or Animal Health Workforce	PREDICT team members and representatives from the Department of Livestock Services (DLS) joined the PREDICT team during a recent outbreak investigation, providing opportunities for field-based training to subnational animal health staff (a challenge identified in the JEE). This was the first time that PREDICT and DLS joined to perform a coordinated outbreak response and the experience improved DLS technical field investigation skills for One Health surveillance, essential skills required for future independent animal surveillance in outbreak scenarios.	PREDICT provides in-service training opportunities, through a deliberately designed One Health zoonotic disease surveillance program that encourages hands-on development of core skills lacking in the current animal health workforce. We offer trainings to animal health professionals and Forestry Department members that helps to directly strengthening the capability of the current workforce to successfully and safely conduct core functions of their job on the frontlines of zoonotic disease control.
	P.4.3: Mechanisms for responding to infectious zoonosis and potential zoonosis	<p>PREDICT actively supports the current One Health Secretariat and has contributed to the further development of the One Health platform and viral priority setting. This period, PREDICT was invited to share expertise and present and lead panel discussions on One Health surveillance at three meetings and workshops with government partners and universities over this last year. In addition, PREDICT briefed the ministry partners and university students on the details of the One Health approach to surveillance for priority viral zoonoses and emerging threats and addressed critical issues towards increased One Health capacity. PREDICT also worked with the One Health secretariat to share information across sectors via project reports and updates within the government.</p> <p>PREDICT has also helped coordinate and implement a One Health economic analysis of the cost efficiency of One Health approaches to disease surveillance and outbreak response. On March 25th, 2018 PREDICT co-organized a Symposium on Priority Zoonotic Diseases and their Economic Impacts.</p>	



<b>Biosafety and Biosecurity</b>	P.6.2: BSS training and practices (focused on animal health)		
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national program		
	P.7.2 National vaccine access and delivery		
<b>Laboratory Systems Strengthening</b>	D.1.1: Laboratory testing for detection of priority diseases (focused on animal health)	PREDICT worked to strengthen laboratory capacity for both animal and human sectors in Bangladesh and improve linkages and multisectoral information sharing. Through training and using PREDICT protocols, our human partner laboratory at IEDCR now has the active capability to test for priority zoonotic diseases and emerging threats at the viral family level. In addition, the animal health lab at icddr,b continued to expand their testing expertise and ability to test for known emerging threats. To date, PREDICT's labs have performed over 27,000 tests across five viral families (corona, flavi, filo, influenza, and paramyxo viruses); test results are undergoing interpretation and will be shared with the One Health Secretariat and local government ministries continuing multi-sectoral One Health dialogue and collaboration in Bangladesh.	IEDCR and icddr,b, PREDICT partner laboratories, are trained and equipped in the full range of activities required for safely detecting zoonotic viruses. This includes regular training on biosafety and biosecurity, cold chain, safe sample storage, data management, safe sample transport and shipping, and molecular viral detection techniques. PREDICT partner, icddr,b is a premier laboratory and is a key training centers for students and professionals, including government staff from the national lab system.
	P.1.2: Specimen referral and transport system (focused on animal health)		
	D.1.4: Laboratory Quality System (focused on animal health)		
<b>Real Time Surveillance</b>	D.2.1 Indicator and event based surveillance systems		



	D.2.2 Interoperable, interconnected, electronic real-time reporting system		
	D.2.3 Analysis of surveillance data		
	D.2.4 Syndromic surveillance systems		
<b>Reporting</b>	D.3.1 System for efficient reporting to WHO, FAO and OIE		
	D.3.2 Reporting network and protocols in country		
<b>Workforce Development</b>	D.4.1: Human resources are available to implement IHR core capacity requirements	This period, PREDICT trained FAO and DLS personnel in skills required for safe and effective disease surveillance and detection in livestock. PREDICT also assisted FAO and DLS in the sampling cattle, goats, and buffalo from Rajshahi markets in the Indian border region. These field-based trainings help prepare the animal health workforce for wildlife disease investigations and encourage training and sensitization in the One Health approach at the subnational level, an important element of the country's JEE.	PREDICT through implementing partners such as IEDCR, provides trainings focused on a hands-on approach to teaching field surveillance techniques and laboratory testing standard operating procedures. PREDICT/Bangladesh is also supporting a One Health Policy Fellow, who is conducting an economic analysis of the benefits of the One Health approach to disease response in Bangladesh.
<b>Preparedness</b>	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented		
	R.1.2 Priority public health risks and resources are mapped and utilized		
<b>Medical Countermeasures and Personnel Deployment</b>	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency		
	R.4.2 System is in place for sending and receiving health personnel during a public		

	health emergency		
<b>Risk Communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc.)		
	R.5.2 Internal and partner communication and coordination		
	R.5.3 Public communication		
	R.5.4 Communication engagement with affected communities		
	R.5.5 Dynamic listening and rumor management		
<b>Other relevant Action Package (fill in)</b>	(fill in appropriate indicator)		

## Section 2: Major success stories/notable achievements

***Rapid response to animal and human outbreaks.*** PREDICT's professional One Health surveillance team supported Government of Bangladesh partners in multiple outbreak response efforts this period. Details are provided in Section 4 below.

***Creation of a One Health Economics Fellow.*** Dr. Jinnat Ferdous now serves as the inaugural One Health Economics Fellow with the PREDICT-2 project in Bangladesh. Dr. Ferdous trained as a Doctor of Veterinary Medicine and received Masters in Veterinary Epidemiology at Chittagong Veterinary and Animal Sciences University, where she learned economic analysis methods. Prior to joining the PREDICT project she conducted an internship with FAO on food safety. Her unique expertise allows her technical understanding of zoonotic disease systems, epidemiological study design, and economic analysis and interpretation for policy making. Based at the Institute of Epidemiology, Disease Control and Research (IEDCR) in Dhaka, a PREDICT implementing partner, her work assesses the economic impact of zoonotic diseases to the public and private sectors as well as individual households, and has informed understanding of the economic implications of disease avoidance behaviors. As resource allocation for sustainable zoonotic disease surveillance, detection, prevention, and response is a major focus of Bangladesh's JEE, Dr. Ferdous' work will assist country partners in developing disease prevention and control strategies that optimize resource allocation to promote 'whole-of-society' benefits.

***One Health surveillance with FAO partners.*** PREDICT completed the first round of concurrent One Health surveillance for zoonotic disease threats, sampling wildlife, livestock and people in partnership with FAO in Dinajpur District at a large livestock market. This activity was carefully planned and demonstrated a successfully coordinated concurrent sampling effort at a high-risk interface along an animal value chain. The livestock market and associated villages are near the border, creating areas of transboundary cattle movement between India and Bangladesh. PREDICT sampled bats and rodents around the market, and collected data via questionnaires

from humans working and patronizing the market. FAO collected samples from cattle and goats and will test them using PREDICT protocols for priority zoonoses and emerging threats. For PREDICT/Bangladesh, this represents implementation of the first fully triangulated (wildlife, livestock, and people) and concurrent (human and animal in the same season and catchment area) surveillance event to date. Additional sampling trips are planned over the next six months.

**On Health Day.** On November 5, 2017, the PREDICT team celebrated One Health Day 2017 in collaboration with One Health Bangladesh at the Sher-E Bangla Agricultural University and Jhenidah Government Veterinary College. As part of the event, PREDICT in collaboration with P&R and One Health Bangladesh organized a collaborative essay competition for students and future One Health practitioners.



*The PREDICT team celebrated One Health Day 2017 together with One Health Bangladesh at the Sher-E Bangla Agricultural University and Jhenidah Government Veterinary College. Photo: PREDICT/Bangladesh.*

### **Section 3: Challenges and potential solutions (if applicable)**

PREDICT was requested by the Government of Bangladesh to participate in an outbreak event that was located outside of targeted surveillance areas. Coordinating with the government and Department of Livestock PREDICT team traveled to the site to begin evening collection of bat roost samples at roosts surrounding the location of the human encephalitis cases. While the team was traveling to the field, the court system convicted a political leader, which led to local violence and civil protests causing road closures. As a result of these demonstrations and violence, the local police did not permit the PREDICT team to work overnight collecting bat roost urine. While the PREDICT team could not work at night they were permitted to work during daylight hours. The team collected ecological data at the site, including: counting the bat roost population, identifying the species of trees in which the bats are roosting, measuring the distance of the roosts from the road and residences of the cases, measuring the number and density of date palm trees, assessing the availability of other fruit trees near the outbreak sites, assessing the date palm sap harvesting and consumption practices of the local community, and identifying fruits that were half eaten by bats. The PREDICT team then worked with the local police and monitored

the situation and when permission was granted, the team was able to perform data collection at night and completed sampling. Our team values collaborations with local community leaders and law enforcement and appreciates the protections in place for data collection.

#### **Section 4: Outbreak response (if applicable)**

In November through early December, the PREDICT team assisted Government of Bangladesh partners with sample collection during a crow mortality event. Samples were collected from crows and poultry offal and environmental samples from neighboring live bird markets to investigate and identify the cause of mortality, source of infection, extent of the outbreak, and whether there were any associated human illnesses. The event took place at Mohakhali wireless and Ramna Park, Dhaka Bangladesh. Samples were confirmed to be positive H5N1 avian influenza. PREDICT encouraged notification of OIE and the Department of Livestock Services officially notified OIE on December 26, 2017.

This was the third time since 2015 that PREDICT was requested by the Government of Bangladesh to assist in an outbreak of crow mortality that was later diagnosed as avian influenza. Through the One Health Secretariat, PREDICT collaborated with a team from the Department of Livestock Services (DLS) during sample collection for this recent outbreak to increase the capacity of DLS to respond to crow mortality events. PREDICT and DLS were both involved in Government of Bangladesh meetings to discuss the One Health response to the mortality event and regularly updated the One Health Secretariat. This is the first joint outbreak response for DLS and the PREDICT team through the One Health Secretariat, which reflects the institutionalization of One Health and workforce capacity development in Government of Bangladesh partners.

The Government of Bangladesh requested PREDICT's assistance in an outbreak event after two people became ill, and later died, after presenting with encephalitis symptoms. Both individuals had a history of drinking raw date palm sap which is known to be associated with Nipah virus transmission. The PREDICT team assisted their Government of Bangladesh partners with collecting samples during suspected Nipah outbreak. During this period, PREDICT identified local active bat roosts and conducted behavioral questionnaires among raw date palm collectors (Gacchi) and date palm consumers living within the 10km of case house. The team collected pooled environmental bat roost urine and feces samples from three bat roost in that area. They also collected swab samples from partially eaten Indian Plum fruit samples near the house of the human cases. The samples were tested by PREDICT laboratory partner, the International Center for Diarrhoeal Disease Research, Bangladesh (icddr,b). PREDICT has communicated lab results to ministry partners.





*The PREDICT team collects bat roost samples near an outbreak area in Bagura. Crows feed on offal and dead poultry at the nearby live bird markets (bottom left). PREDICT outbreak investigation team members collect biological sample from a dead crow (bottom right). Photos: PREDICT/Bangladesh.*





## India

### SECTION 1: SUMMARY OF HEALTH SECURITY CAPACITIES AND CHANGES IN CAPACITY

1	2	3	4
USAID's GHSA Technical Focus Areas	GHSA Indicator	Specific progress made toward capacity level	Comments
Antimicrobial Resistance (AMR)	P.3.1 Antimicrobial resistance detection		
	P.3.2 Surveillance of infections caused by AMR pathogens		
	P.3.3 Healthcare associate infection (HCAI) prevention and control programs		
	P.3.4 Antimicrobial stewardship activities		

<b>Zoonotic Disease</b>	P.4.1: Surveillance systems in place for priority zoonotic diseases/pathogens	<p>PREDICT worked closely with local and ministry partners and prioritized sites and locations in Uttar Pradesh considered high-risk for priority zoonotic disease transmission for surveillance activities and for human surveillance activities. PREDICT conducted human syndromic surveillance at Partawal Community Health Centre (CHC), Maharajganj district, Uttar Pradesh. Biological samples and questionnaires were collected during two sampling efforts, once in October 2017 and once in December 2017. The team also enrolled and sampled patients that met enrolment criteria, including patients experiencing symptoms of fever of unknown origin, severe acute respiratory diseases, acute encephalitis or haemorrhagic fever. Over these two sampling efforts at CHC Clinic, 65 human clinical samples were collected. In December 2017, PREDICT initiated wildlife sampling at Bhabnauli, a village approximately 10 km away from CHC Partawal where high-risk interfaces for viral spillover have been identified by site characterization work. The village is also home to three priority groups of wildlife reservoirs known to be a particularly important source of human pathogens.</p> <p>In December 2017, PREDICT's One Health surveillance team collected wildlife samples from rodents, shrews, primates and bats as part of a training exercise. Samples were sent to Sanjay Gandhi Post-Graduate Institute of Medical Sciences (SGPGI), Lucknow, for viral screening.</p>	<p>PREDICT works with government and local partners to strengthen national capacity for zoonotic disease surveillance using a broadly applicable, rapidly deployable, and easily adaptable system that emphasizes core skills needed for biological sampling for surveillance for a broad range of zoonotic disease threats. This system is easily transferrable to priority diseases in India, as well as for other unknown and potentially emerging viral threats.</p> <p>To date, the PREDICT/India team has collected samples from and conducted behavioral risk interviews with 65 people, and sampled 14 wildlife as part of training for launch of wildlife surveillance.</p>
	P.4.2: Veterinary or Animal Health Workforce	PREDICT continued to work with local partners on field-based training designed to establish One Health best practices in zoonotic disease surveillance activities that enhance core One Health professional skills required	PREDICT provides training opportunities through its One Health zoonotic disease surveillance program that encourages hands-on development of wildlife capture and sampling skills lacking in the current animal health workforce. We offer trainings to

		<p>for conducting field investigations (community sensitization and outreach on zoonotic disease risks, biosafety and PPE, safe sample collection from wildlife, livestock, and people, cold chain, safe sample storage and transport, behavioral risk investigations, and data management).</p> <p>Also this period, PREDICT trained members of laboratory partner SGPGIMS in detection protocols, outbreak response, biosafety and PPE, cold chain management, laboratory safety and ethical research practices, all skills related to the detection of priority zoonotic diseases and threats.</p>	<p>veterinary and wildlife professionals in Uttar Pradesh, directly strengthening the capability of the current workforce to successfully and safely conduct core functions of their job in context of disease surveillance, diagnosis, and control of zoonotic diseases.</p>
	P.4.3: Mechanisms for responding to infectious zoonosis and potential zoonosis	<p>To encourage multi-sectoral information sharing across animal and human health sectors, PREDICT distributed reports on laboratory, capacity and surveillance progress to the USAID mission, GHSA cell (including US CDC) in New Delhi, local institutions including the forestry department, government partners and university collaborators. In addition, in an effort to coordinate across local institutions, PREDICT shared information and reported to NFP, the Indian Council of Medical Research, National Centre for Disease Control and UP state Health Department.</p> <p>On 17 January, 2018, PREDICT's Field Coordinator attended the Annual Review Meeting of GHSA in India, held in New Delhi and provided an update on the project. The review panel included Secretaries and Director Generals (DGs) of Ministry of Health and Family Welfare, Government of India, H&amp;FW, Department of Health Research, DG for the Indian Council of Medical Research; and newly appointed DG for Health Services, among others. Also in attendance were the USAID Deputy Chief of Mission and Mission Director, and the Country Director from the</p>	<p>PREDICT establishes data sharing agreements with all implementing partners and procedures for sharing data (including project information and findings) with all ministry partners and other government organizations across both animal and human health sectors. As the project is by design One Health in action, we share data, information, and reports to catalyze regularly scheduled meetings between sectors and encourage active discussion and communication among sectors.</p>

		US Centers for Disease Control and Prevention.	
<b>Biosafety and Biosecurity</b>	P.6.2: BSS training and practices (focused on animal health)		
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national program		
	P.7.2 National vaccine access and delivery		
<b>Laboratory Systems Strengthening</b>	D.1.1: Laboratory testing for detection of priority diseases (focused on animal health)	The PREDICT partner lab at SGPGIMS was fully trained this period in safely detecting zoonotic viruses. Training areas covered biosafety and biosecurity, cold chain and safe sample storage, data management, safe sample transport and shipping and molecular viral detection techniques (nucleic acid extraction, cDNA synthesis, conventional polymerase chain reaction, and result interpretation). As a result, the lab now has adequate capacity to safely detect known and novel viral threats and to test for viral families that include priority zoonotic diseases (influenza viruses).	PREDICT strengthens national laboratory systems by enabling disease detection through a One Health laboratory network based at partner labs mainly at the Sanjay Gandhi Institute of Postgraduate Medicine, Lucknow and a Veterinary College at Mathura in Uttar Pradesh. Both labs maintain strong ties to the national system, and protocols and information will be shared openly with animal and human health labs working to actively improve interlinkages. Through in-service trainings, PREDICT provides staff from the national system opportunities to enhance skills in virology, quality system, biosafety, lab safety, and methods for detecting zoonotic diseases and emerging threats.
	P.1.2: Specimen referral and transport system (focused on animal health)		
	D.1.4: Laboratory Quality System (focused on animal health)		
<b>Real Time Surveillance</b>	D.2.1 Indicator and event based surveillance systems		
	D.2.2 Interoperable, interconnected, electronic real-time reporting system		



	D.2.3 Analysis of surveillance data		
	D.2.4 Syndromic surveillance systems		
<b>Reporting</b>	D.3.1 System for efficient reporting to WHO, FAO and OIE		
	D.3.2 Reporting network and protocols in country		
<b>Workforce Development</b>	D.4.1: Human resources are available to implement IHR core capacity requirements	In December 2017, PREDICT provided multiple in-person trainings on topics such as maintaining cold-chain storage and achieving informed consent during human syndromic surveillance. These trainings were received by physicians, phlebotomists, interviewers, and laboratory staff based at Sanjay Gandhi Postgraduate Institute of Medical Sciences in preparation for fieldwork and zoonotic disease surveillance activities.	The lead implementing partner for PREDICT in India is SGPIMS, Lucknow, a tertiary care hospital and a premier research Institute in medical sciences in India. PREDICT is embedded within SGPIMS, and the project provides ongoing opportunities for students, interns, and staff to engage in project activities and upgrade their skills. In addition, field activities engage and involve animal health professionals from another premier veterinary research university in the region, DUVASU, Mathura, and the Uttar Pradesh state wildlife department, providing opportunities for their staff to strengthen their skills in zoonotic disease surveillance and detection with hands-on learning for safe capture and sampling of wildlife, cold chain, safe sample transport, and viral detection.
<b>Preparedness</b>	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented		
	R.1.2 Priority public health risks and resources are mapped and utilized		
<b>Medical Countermeasures and Personnel Deployment</b>	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency		

	R.4.2 System is in place for sending and receiving health personnel during a public health emergency		
<b>Risk Communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc.)		
	R.5.2 Internal and partner communication and coordination		
	R.5.3 Public communication		
	R.5.4 Communication engagement with affected communities		
	R.5.5 Dynamic listening and rumor management		
<b>Other relevant Action Package (fill in)</b>	(fill in appropriate indicator)		

## Section 2: Major success stories/notable achievements

**Launching One Health surveillance in Uttar Pradesh.** PREDICT successfully launched One Health surveillance in Uttar Pradesh, targeting humans and animals in at-risk communities and completing trainings for the team's now active One Health workforce. In December, 2107, PREDICT conducted human syndromic surveillance at Partawal Community Health Centre (CHC), Maharajganj district. A team of health care professionals from SGPGIMS, including medical doctors and phlebotomists, as well as interviewers, were trained on PREDICT protocols including ethical research on human subjects, PPE and biosafety, and sample packing and transport. At the clinic, the team enrolled and sampled patients that met enrolment criteria, including patients experiencing symptoms of unknown origin, severe acute respiratory diseases, acute encephalitis or haemorrhagic fever. Patients and/or their designates were also interviewed to learn about behavioural risks that may be associated with infection or disease transmission. Biological samples were collected and interviews conducted from a total of 65 humans, and staff planned to continue surveillance through the remainder of the year at this clinic site. During this sample collection effort, PREDICT also met with the Chief Medical Officer at Partawal CHC to discuss the project's role in the community and with community leaders of Bhabnauli, an adjacent zoonotic disease surveillance site in the catchment area of the CHC clinic, and a site identified by our team as a potentially high-risk area for zoonotic spillover. The community meeting helped our team work with community leaders to orient them on the project and to sensitize the community to planned community-based sampling in the near future. Finally, our field team conducted reconnaissance in and around the community for wildlife considered high-risk for viral spillover, while conducting field-based trainings that included collecting samples from bats, rodents and primates.



*PREDICT's One Health team collects a blood sample from a patient as part of newly launched syndromic surveillance for zoonotic diseases and emerging threats at Partawal Clinic. Photo: PREDICT/India*

### Section 3: Challenges and potential solutions (if applicable)

NA

### Section 4: Outbreak response (if applicable)

NA

## Indonesia

### SECTION 1: SUMMARY OF HEALTH SECURITY CAPACITIES AND CHANGES IN CAPACITY

1	2	3	4
USAID's GHSA Technical Focus Areas	GHSA Indicator	Specific progress made toward capacity level	Comments
Antimicrobial Resistance (AMR)	P.3.1 Antimicrobial resistance detection		

	P.3.2 Surveillance of infections caused by AMR pathogens		
	P.3.3 Healthcare associated infection (HCAI) prevention and control programs		
	P.3.4 Antimicrobial stewardship activities		
<b>Zoonotic Disease</b>	P.4.1: Surveillance systems in place for priority zoonotic diseases/pathogens	<p>PREDICT's One Health surveillance is actively addressing a major challenge in Indonesia's JEE: surveillance for wildlife diseases. This period, PREDICT continued identifying and characterizing high-risk interfaces for wildlife zoonoses along with epidemiological risk factors, ecological conditions, and epizones for zoonotic disease transmission risk from wildlife to domestic animals and people. PREDICT collected 4,007 specimens from 546 wild animals (317 bats and 229 rodents) from Gorontalo, North Sulawesi, Southeast Sulawesi, and West Sulawesi provinces. Our team also enrolled and collected samples from 75 patients from Noongan Hospital and Kawangkoan Puskesmas (North Sulawesi) and 103 human participants in surrounding communities identified as at-risk for viral spillover from wildlife. All specimens are will be tested for priority zoonotic diseases such as highly pathogenic avian influenza as well as other emerging threats across 5 viral families (paramyxoviruses, coronaviruses, filoviruses, flaviviruses, and influenza viruses).</p>	<p>Strengthening disease surveillance capacity in Indonesia, especially within the wildlife market value chain in Sulawesi has been a major focus of activities and PREDICT data is helping identify potential disease prevention, control, and response plans for more effective and efficient zoonotic disease surveillance systems. PREDICT data and analyses inform and refine management of zoonotic diseases and emerging pandemic threats, allowing decision makers to efficiently allocate resources to the most at-risk areas.</p> <p>To date, the PREDICT/Indonesia team has conducted over 450 behavioral risk interviews, sampled over 1,900 wildlife and 180 people, and completed zoonotic disease testing for 857 animals and 61 humans.</p>
	P.4.2: Veterinary or Animal Health Workforce	<p>PREDICT is directly contributing to a well-trained and professional animal health workforce, especially for detection of zoonoses from wildlife at the subnational level, an area targeted as a challenge in the JEE. This period, PREDICT provided in-service trainings for local and government</p>	<p>PREDICT-Indonesia's implementing partners are the Primate Research Center at Bogor Agricultural University (PRC-IPB) in Bogor, West Java, for surveillance of viruses in wildlife, and the Eijkman Institute of Molecular Biology (EIMB) for surveillance in humans. Through PRC-IPB and EIMB, PREDICT provides multiple opportunities for</p>



		animal health staff to conduct sampling for zoonotic disease surveillance, enhancing core One Health professional skills for conducting field investigation. These skills include: community sensitization and outreach on zoonotic disease risks, biosafety and PPE, safe sample collection from wildlife and domestic animals, cold chain, safe sample storage and transport, behavioral risk investigations, and data management.	student and personnel training, in-depth projects in the field and lab, and internships on all aspects of zoonotic disease surveillance, detection, prevention, response, and control. In addition, PREDICT regularly invites employees of the Ministry of Agriculture, especially animal health staff, to join the team on field sampling trips as an opportunity to strengthen their professional skills working with wildlife animals. Finally, PREDICT provides training and technology transfer to Animal Disease Investigation Centers (DICs).
	P.4.3: Mechanisms for responding to infectious zoonosis and potential zoonosis	PREDICT-Indonesia engages ministry partners and fosters multisectoral dialogue on zoonotic disease surveillance and outbreak preparedness and response from the ministry to local levels. This period, PREDICT's One Health team worked with local partners from the Ministry of Agriculture (local animal health offices at the provincial and district levels) to build a better understanding of potential virus spillover from wildlife to livestock, and to strengthen capability and professional skills for detection of priority zoonotic diseases and other viruses. Our team also continued to support One Health workforce training through in-service skill development and enhancement opportunities at targeted at-risk interfaces for zoonotic disease transmission and spread.	PREDICT strengthens national capacity for zoonotic disease surveillance by engaging government and local partners in a broadly applicable, rapidly deployable, and easily adaptable system for surveillance for zoonotic viruses, emphasizing core biological sampling skills while screening for priority viral families (corona-, influenza, filo-, flavi-, and paramyxoviruses) as well as unknown and potentially emerging zoonotic disease threats
<b>Biosafety and Biosecurity</b>	P.6.2: BSS training and practices (focused on animal health)		
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national program		
	P.7.2 National vaccine access and delivery		

<b>Laboratory Systems Strengthening</b>	D.1.1: Laboratory testing for detection of priority diseases (focused on animal health)	PREDICT continued to work with national laboratory partners across the animal and public health sectors to strengthen capability and professional skills for detection of priority zoonotic diseases and other viruses. PREDICT lab teams at PRC-IPB and EIMB conducted continual testing of samples collected from wildlife and humans for priority viral families to detect priority zoonotic diseases. To date, PREDICT labs have performed over 14,000 tests while also completing the sequencing of PCR products from 438 wildlife samples (319 bats and 119 rodents) and over 60 human samples. All findings will be shared with government partners across animal and human health sectors to encourage multi-sectoral communication and to obtain approval for public release.	PREDICT partner labs at PRC-IPB and EIMB are well trained and equipped to perform activities required for safely testing for and detecting zoonotic viruses, having acquired or expanded their proficiencies in biosafety and biosecurity, cold chain and safe sample storage, data management, safe sample transport and shipping and molecular viral detection techniques (nucleic acid extraction, cDNA synthesis, conventional polymerase chain reaction, and result interpretation) in the course of conducting PREDICT lab testing. As a result, these labs have the capacity to safely detect known and novel viral viruses including priority zoonotic diseases (Nipah virus, influenza viruses, and SARS and MERS CoVs).
	P.1.2: Specimen referral and transport system (focused on animal health)		
	D.1.4: Laboratory Quality System (focused on animal health)		
<b>Real Time Surveillance</b>	D.2.1 Indicator and event based surveillance systems		
	D.2.2 Interoperable, interconnected, electronic real-time reporting system		
	D.2.3 Analysis of surveillance data		
	D.2.4 Syndromic surveillance systems		
<b>Reporting</b>	D.3.1 System for efficient reporting to WHO, FAO and OIE		

	D.3.2 Reporting network and protocols in country		
<b>Workforce Development</b>	D.4.1: Human resources are available to implement IHR core capacity requirements		
<b>Preparedness</b>	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented		
	R.1.2 Priority public health risks and resources are mapped and utilized		
<b>Medical Countermeasures and Personnel Deployment</b>	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency		
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency		
<b>Risk Communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc.)		
	R.5.2 Internal and partner communication and coordination		
	R.5.3 Public communication		
	R.5.4 Communication engagement with affected communities		
	R.5.5 Dynamic listening and rumor management		
<b>Other relevant Action Package (fill in)</b>	(fill in appropriate indicator)		

## Section 2: Major success stories/notable achievements

**Training the future One Health workforce.** In collaboration with the South East Asia One Health University Network (SEAOHUN), PREDICT/Indonesia hosted a fellow from the University of Malaya, Kuala Lumpur, an instance of cross-boundary workforce development efforts. SEAOHUN awarded an internship to Ms. Tengku Idzan Nadzirah, who worked with PREDICT/Indonesia's two laboratory partners PRC-IPB in Bogor and EIMB in Jakarta for three months, an opportunity for both professional mentorship and skill development. Based on the success of this mentorship SEAOHUN is planning to allocate two additional candidates for their fellowship program in 2018 to work with PREDICT/Indonesia's laboratory partners.

## Section 3: Challenges and potential solutions (if applicable)

NA

## Section 4: Outbreak response (if applicable)

NA

## Vietnam

### SECTION 1: SUMMARY OF HEALTH SECURITY CAPACITIES AND CHANGES IN CAPACITY

1	2	3	4
USAID's GHSA Technical Focus Areas	GHSA Indicator	Specific progress made toward capacity level	Comments
Antimicrobial Resistance (AMR)	P.3.1 Antimicrobial resistance detection		
	P.3.2 Surveillance of infections caused by AMR pathogens		
	P.3.3 Healthcare associated infection (HCAI) prevention and control programs		
	P.3.4 Antimicrobial stewardship activities		
Zoonotic Disease	P.4.1: Surveillance systems in place for priority zoonotic diseases/pathogens	PREDICT's One Health team worked with national, provincial, and district-level veterinary and medical officers to strengthen multi-sectoral information sharing (a challenge	PREDICT's zoonotic disease surveillance is strategically designed to train, equip, and enable surveillance personnel from the animal and human health sectors to collect data and build the evidence



		<p>identified in the JEE) and to extend Viet Nam's surveillance system to high-risk areas for zoonotic disease transmission including sites with high rates of wildlife trade and intensive farming of wildlife. PREDICT's concurrent surveillance at high-risk sites contributes to Viet Nam's syndromic surveillance of febrile patients at district and provincial hospitals, screening of people in the community with occupational risk to zoonotic diseases through wildlife trade and wildlife farming, wildlife disease surveillance, and surveillance for pathogens of pandemic potential in livestock in collaboration with FAO and the Department of Animal Health.</p> <p>This period samples were collected from individuals in the following populations at high-risk sites to advance zoonotic disease surveillance in Viet Nam.</p> <p>Human:</p> <ul style="list-style-type: none"> <li>• 22 febrile patients at the Thact That District Hospital of Hanoi</li> <li>• 22 individuals with wildlife farm occupational risk in Dong Nai Province</li> </ul> <p>Samples were safely transported to the PREDICT laboratory at the National Institute of Hygiene and Epidemiology where they have undergone testing for priority zoonotic diseases such as viral hemorrhagic fevers and other emerging threats.</p> <p>Wildlife on wildlife farms:</p> <ul style="list-style-type: none"> <li>• 49 non-human primates</li> <li>• 189 rodents</li> <li>• 101 civet cats from wildlife farms in Dong Nai Province</li> </ul> <p>Wildlife in the trade:</p> <ul style="list-style-type: none"> <li>• 99 rodents from live animal markets and restaurants.</li> </ul>	<p>base for both priority zoonoses and emerging and re-emerging diseases such as viral hemorrhagic fevers in vulnerable and high-risk areas. Shared animal and human surveillance data and findings help catalyze formal information sharing between animal and human surveillance systems. In addition, our surveillance engages local communities in high-risk areas for disease transmission and emergence and fosters improved recognition of zoonotic diseases and awareness of transmission pathways and prevention and control options.</p> <p>To date, the PREDICT/Viet Nam team has conducted over 432 behavioral risk interviews, sampled over 2,000 wildlife and 399 people, and completed zoonotic disease testing for 572 animals and 50 humans.</p>
--	--	---	---

		<p>Finally, 105 bat samples were collected from bat guano harvesting sites.</p> <p>All wildlife samples were safely transported to the PREDICT laboratory at the Department of Animal Health's Regional Animal Health Office No. 6 in Ho Chi Minh City where they have undergone testing for priority zoonotic diseases.</p> <p>Surveillance and sample collection was also conducted with 46 pangolins confiscated from the illegal wildlife trade contributing to the first surveys for potential zoonotic disease in this heavily traded species. Samples from the pangolins were safely transported to the PREDICT laboratory at the Viet Nam National University of Agriculture in Hanoi where they are undergoing testing for priority zoonotic diseases.</p> <p>In addition, PREDICT's behavioral risk team conducted 26 ethnographic interviews and two focus group discussions (one group of 12, and one group of eight) and liaised with local officials and community members at One Health surveillance sites. Data from these interviews is undergoing analysis to identify zoonotic disease transmission risks and potential intervention strategies.</p> <p>Finally, PREDICT improved One Health information sharing delivering project reports, updates, and information to Viet Nam's One Health Partnership for Zoonosis co-chaired by the Department of Animal Health of the Ministry of Agriculture and Rural Development and the General Department of Preventive Medicine of the Ministry of Health.</p>	
	P.4.2: Veterinary or Animal	PREDICT provided on-the-job training for	

	Health Workforce	<p>conducting zoonotic disease surveillance, general bio-safety training, molecular diagnostic techniques, and training in conducting qualitative research to understand behaviors that put people at risk of zoonotic disease exposure and identify effective interventions. A total of 27 individuals were trained (16 male and 11 female) this period. The majority of the individuals trained were government staff (18) with additional individuals representing practitioners from non-governmental organizations, students, and researchers. Animal health officers and environmental sector rangers also received on-the-job training in zoonotic disease surveillance through PREDICT surveillance activities on wildlife farms and in live animal markets. Staff from national laboratories received advanced and refresher training on molecular diagnostic techniques for viral pathogens.</p> <p>In addition, PREDICT provided on-going training to improve the quality of information on zoonotic disease transmission in Viet Nam by frequently updating partners on any changes to sample collection protocols and sharing techniques for improving data collection through administration of questionnaires to collect data on human risk behavior.</p>	
	P.4.3: Mechanisms for responding to infectious zoonosis and potential zoonosis	<p>A key challenge in the JEE is working to increase involvement of the wildlife sector in coordination mechanism. PREDICT is playing a critical role in this regard, as data and information on wildlife and human surveillance activities was routinely shared across animal and human health sectors from national to subnational levels. PREDICT also contributed to strengthening mechanisms for responding to infectious zoonosis and One Health approaches to zoonotic disease</p>	<p>As a member of the One Health Partnership for Zoonosis in Viet Nam, PREDICT contributed to the development of the Viet Nam One Health Strategic Plan for the period 2016 to 2020, led by the Ministry of Agriculture and Rural Development together with the Ministry of Health. PREDICT contributions included providing guidance on research, surveillance and laboratory approaches designed to detect potential emerging zoonotic threats.</p>

		surveillance and viral detection by sharing information and lessons learned with other members of the One Health Partnership for Zoonosis in Viet Nam during two technical workshops (Dec 12 and 20, 2017) and the quarterly One Health Communication Network meeting on Feb 6, 2018. This period PREDICT briefed the One Health Partnership on the successful initiation of concurrent surveillance at two sites in Viet Nam outlining the mechanisms used to coordinate the timing of surveillance activities in humans, wildlife, and livestock populations.	
<b>Biosafety and Biosecurity</b>	P.6.2: BSS training and practices (focused on animal health)		
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national program		
	P.7.2 National vaccine access and delivery		
<b>Laboratory Systems Strengthening</b>	D.1.1: Laboratory testing for detection of priority diseases (focused on animal health)	PREDICT continued to extend the capabilities of Viet Nam's zoonotic disease detection system at the main national human and animal health laboratories in the country. The laboratories have active capability to test for known priority viruses and potentially unknown and emerging threats. This period PREDICT's labs performed 3,590 tests across five viral families (corona, flavi, filo, influenza, and paramyxo viruses); test results are undergoing interpretation and will be shared with the laboratories and national focal points in the Ministry of Agriculture and Rural Development and Ministry of Health providing opportunities for multi-sectoral dialogue and collaboration.	PREDICT partners with the national animal health (Department of Animal Health's Regional Animal Health Office No. 6) and public health diagnostic laboratories (National Institute of Hygiene and Epidemiology) in Viet Nam as well as the laboratory of the Veterinary Faculty at the Viet Nam National University of Agriculture. These laboratories in Viet Nam are the trained in the full range of activities required for safely detecting zoonotic viruses, including biosafety and biosecurity, cold chain, safe sample storage, data management, safe sample transport and shipping, and molecular viral detection techniques. As a result, the laboratories have capacity to safely detect priority zoonotic diseases and contribute to the national surveillance for emerging viral threats. The laboratories are both training and reference centers for the national animal and public



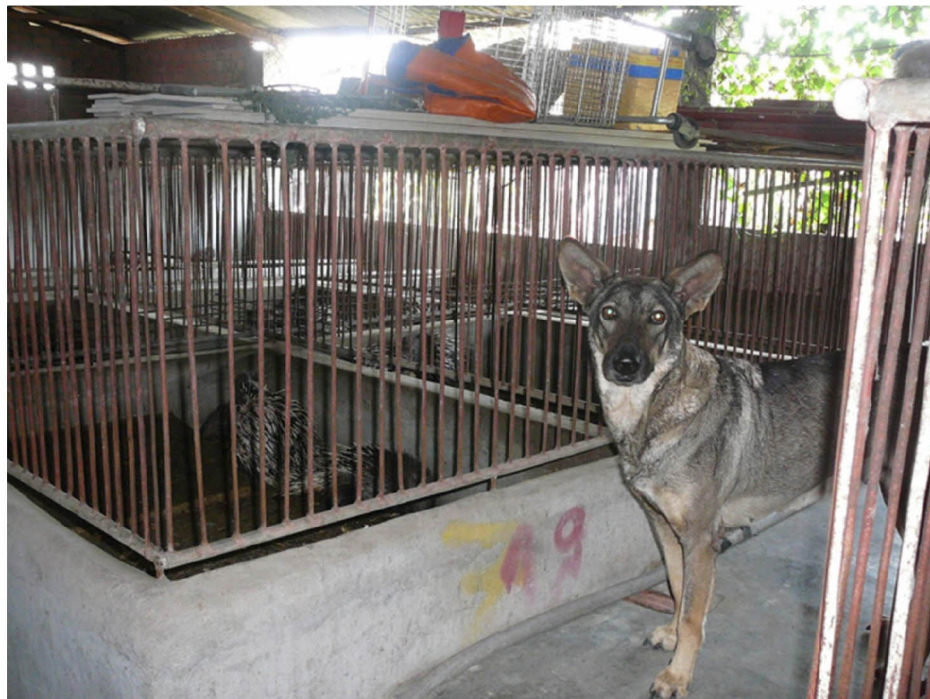
			health laboratory systems respectively and contribute to data for surveillance reporting.
	P.1.2: Specimen referral and transport system (focused on animal health)		
	D.1.4: Laboratory Quality System (focused on animal health)	PREDICT supported improvements in laboratory quality control systems by continually updating laboratory protocols for viral disease detection and controlling contamination.	
<b>Real Time Surveillance</b>	D.2.1 Indicator and event based surveillance systems		
	D.2.2 Interoperable, interconnected, electronic real-time reporting system		
	D.2.3 Analysis of surveillance data	PREDICT contributed to the joint analysis of surveillance data across the human and public health sector through participation in the LISN initiative with FAO, WHO, and Government of Viet Nam Ministry of Agriculture and Rural Development and Ministry of Health.	
	D.2.4 Syndromic surveillance systems	PREDICT contributed to syndromic surveillance systems in Viet Nam by increasing the diagnostic tests run on SARI patients in collaboration with WHO SARI sites and the LISN initiative with FAO, WHO, and Government of Viet Nam Ministry of Agriculture and Rural Development and Ministry of Health.	
<b>Reporting</b>	D.3.1 System for efficient reporting to WHO, FAO and OIE	PREDICT contributed to systems for efficient reporting through participation in the LISN initiative with FAO, WHO, and Government of Viet Nam Ministry of Agriculture and Rural Development and Ministry of Health.	
	D.3.2 Reporting network and protocols in country	PREDICT's procedures for reporting surveillance testing results to the national animal and public health agencies for review and public release was used as an example of transparent reporting network protocols in Viet Nam.	

<b>Workforce Development</b>	D.4.1: Human resources are available to implement IHR core capacity requirements		
<b>Preparedness</b>	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented		
	R.1.2 Priority public health risks and resources are mapped and utilized		
<b>Medical Countermeasures and Personnel Deployment</b>	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency		
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency		
<b>Risk Communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc.)		
	R.5.2 Internal and partner communication and coordination		
	R.5.3 Public communication		
	R.5.4 Communication engagement with affected communities		
	R.5.5 Dynamic listening and rumor management		
<b>Other relevant Action Package (fill in)</b>	(fill in appropriate indicator)		

## Section 2: Major success stories/notable achievements

***One Health surveillance at wildlife farms.*** Responding to JEE calls to bolster Viet Nam's capability for zoonotic disease surveillance in wildlife, PREDICT in Viet Nam focused on the wildlife farm interface as part of the One Health approach to facilitate understanding the dynamics of zoonotic virus evolution, spillover from animals to people, and to inform prevention and control guidelines. The expansion of wildlife farming, alongside poor farming practices such as shared captive breeding of different species, poor hygiene condition and veterinary care, increased wildlife-human close contact, and potential of viral presence and spillover in the process of wildlife transport and trade, makes wildlife farms "hot spots" of high-risk disease transmission interfaces. The Viet Nam Ministry of Health and Ministry of Agriculture and Rural Development expressed interest in examining this complex interface and collaborated with PREDICT/Viet Nam to conduct concurrent surveillance in Dong Nai, a province with many wildlife farms. Through the end of March 2018, the wildlife team collected over 1,800 samples from 850 individuals across rodent, carnivore, and non-human primate taxa. PREDICT concurrently (at the same location and within the same quarter) studied human health by collecting samples and questionnaires from 122 people directly engaged in the wildlife farm activities. In addition to the questionnaire, to further characterize and understand behaviors that facilitate pathogen transmission and identify risk mitigation measures, additional behavioral risk investigations were launched and 19 ethnographic interviews conducted. All collected biological samples were safely transported to project partner laboratories for zoonotic disease testing and viral discovery using PREDICT protocols. Lastly, through close partnership with the human health partners, including the National Institute of Hygiene and Epidemiology, Dong Nai Preventive Medicine and provincial hospitals, PREDICT launched syndromic surveillance in hospitals serving the wildlife farming community.

***National and subnational capacity strengthening for Viet Nam's laboratory system.*** PREDICT has helped strengthen the national laboratory system and institutionalize the One Health approach by building parallel capacity in both veterinary and public health national laboratories. Animal sample processing and testing has been performed at the Regional Animal Health Office No. 6 (RAHO6). This partner laboratory began working with PREDICT in 2011 and has grown capacity through a mix of training and learning from experiences associated with testing many PREDICT samples. RAHO6 provided lab-to-lab training on molecular techniques for viral disease detection to two additional regional laboratories. For PREDICT-2 which began in 2014 and incorporated human surveillance, the project developed a lab partnership with the National Institute of Hygiene and Epidemiology who also received the training for testing samples using PREDICT protocols. Both animal and human samples will be tested with the same viral family level protocols to detect viral pathogens of pandemic potential and lab staff will continue to share information helping cultivate improved multi-sectoral collaboration.



*A porcupine farm in Dong Nai Province where PREDICT is conducting zoonotic disease surveillance and behavioral risk investigations.  
Photo: PREDICT/Viet Nam.*

### **Section 3: Challenges and potential solutions (if applicable)**

PREDICT is cooperating with animal and human health sectors to implement concurrent disease surveillances on wildlife, livestock and human in priority provinces. However, organizing sample collection activities between various sectors in the same period is challenging as each partner has their own schedules and limited human resources. In addition, wildlife samples are lower priority when compared to livestock ones in national laboratories, including PREDICT partner labs. As a result, the PREDICT testing plans are sometimes delayed for testing diseases such as Influenza, Dengue and other national priorities. To adapt with these challenges, PREDICT is now working closely with FAO, Provincial Department of Animal Health and National Institute of Hygiene and Epidemiology to share and closely integrate upcoming sampling trips at concurrent disease surveillance provinces. Also, through test result reports, PREDICT raises awareness associated with zoonotic disease transmission to public health and animal health management agencies to step-by-step improve the role of wildlife disease in national disease surveillance plans, a critical area for improvement highlighted in the country's JEE.

### **Section 4: Outbreak response (if applicable)**

NA



**Sent:** Fri, 07 Apr 2017 13:05:57 -0700  
**Subject:** REMINDER: PREDICT Sierra Leone, Guinea, Liberia (EHP) CALL Thursday April 13 11AM Pacific-2PM Eastern  
**From:** Brian Bird <bhbird@ucdavis.edu>  
**To:** David J Wolking <djwolking@ucdavis.edu>, Christine Kreuder Johnson <ckjohnson@ucdavis.edu>, Tracey Goldstein <tgoldstein@ucdavis.edu>, Jonna Mazet <jkmazet@ucdavis.edu>, "Anthony, Simon J." <sja2127@cumc.columbia.edu>, "William B. Karesh, D.V.M." <karesh@ecohealthalliance.org>, Jon Epstein <epstein@ecohealthalliance.org>, Matthew LeBreton <mlebreton@metabiota.com>, Damien Joly <djoly@metabiota.com>, Manjunatha N Belaganahalli <mbelaganahalli@ucdavis.edu>, Eddy Rubin <erubin@metabiota.com>, Karen Saylor <ksaylors@metabiota.com>, Jason Euren <jeuren@metabiota.com>, Frantz Jean Louis <fjeanlouis@metabiota.com>, Emma Lane <lane@ecohealthalliance.org>, Emily Hagan <hagan@ecohealthalliance.org>  
**Cc:** "(andre@ecohealthalliance.org)" <andre@ecohealthalliance.org>, Katherine Leasure <kaleasure@ucdavis.edu>, Elizabeth S Chase <eschase@ucdavis.edu>, Amanda Fuchs <fuchs@ecohealthalliance.org>  
[PREDICT-CDC Guinea responses to USAID 29 March 2016 AC edits JM \(1\).docx](#)

## **PREDICT Sierra Leone, Guinea, Liberia**

"EBOLA HOST PROJECT"

COORDINATION CALL

Thursday April 13: 11AM Pacific, 2PM Eastern.

Toll-free number: 8 [REDACTED]

Access Code: [REDACTED]

International Dial-in number: [REDACTED] (toll charges apply)

Hi all just a reminder,

Here's a tentative agenda. Please let me know if you have any other agenda items and I'll get them added... and I'll send out a final and reminder on Wednesday next week with an updated specimen collection tracker tool.

Please let me know if you have any additions you'd like to discuss and I'll add them to this agenda.

### **Items on the agenda:**

1. **Funding and USAID HQ communications (Jonna, all)**
2. **Country Specific Mission Communications and Challenges (Karen, Jon)**
  - a. Country specific updates/plans
  - b. Update on Sierra Leone Moa Wharf pig "outbreak" and impact on activities
  - c. Guinea CDC communications (*covered in last EB call; but attached here again for reference*)
3. **Livestock sampling (All)**
  - a. FAO offer of assistance; implications for lab testing and budgets? How to manage expectations?
  - b. How much longer do the livestock remain relevant scientifically? Do we set a cap on livestock numbers and locations then stop sampling those taxa?
3. **Field sampling team updates (Frantz/Karen, Jon)**
  - a. Sierra Leone: update on LN2 generator situation
  - b. Guinea: USG and GoG MOU on Ebola outbreak specimens; Guinean Ethics committee submission update
  - c. Liberia: Update from new site in Foya county. Status of MOUs or agreements with NRL-LIBR?
4. **Laboratory updates (Tracey, Simon, Manju)**
  - a. Update on Dx assay development (Molecular and Serology)
6. **Human behavioral work updates (Karen, Jon)**
  - a. IRB Updates and implementation plans
7. **Last call's discussion on animal morphometric data vs. animal target numbers**
  - a. Last call consensus was to be take representative detailed measurements from a subset only. Do we want to formalize that or have more discussion etc.?
7. **Other partner updates (Billy)**

Happy Friday everyone!

-b

1. Specimen that have been received for this animal study have been stored in a -20 freezer that is different from the -80 freezer that contains human blood Ebola samples. This is good news from a safety perspective. The -80 freezer with Ebola specimen is locked and should not be opened as it contains positive samples that have not been neutralized. Predict might want to quickly acquire a -80 freezer (recommended temperature for blood samples for better conservation) to ensure proper storage of their samples.

**This is being addressed.** We are happy that Dr. Magassouba could assist us in arranging a temporary storage solution for the PREDICT specimens that is separate from the human outbreak specimen collection. We agree that -80C storage is preferable, and the team has purchased two -80C freezers to upgrade the ultra-cold storage capacity at the VHF laboratory for all PREDICT specimens, which will remain locked with very limited key access at all times. These should be delivered during the second week of April. Action item: the PREDICT team will notify the mission when the freezers arrive in-country.

Until that time, storage at -20C will be adequate for our primary diagnostic specimens which are stored *inactivated* in Trizol (guanidine isothiocyanate and phenol) as this will not affect the results of any subsequent molecular testing. Short term storage at -20C of our secondary specimens in virus-transport media, while not ideal, will be sufficient for potential subsequent analyses if necessary, especially since these will be transferred to the new, locked -80C freezer soon.

2. Dr. Magassouba did not seem to have total clarity of what Predict would provide (freezer/generator) or the specifics of the study. I would recommend meeting with him, go over supplies and study, and do the same with Dr. Sakoba and Prof. Lamine.

**This is being addressed.** The purpose of the global PREDICT team's visit was to explore in-country capabilities and possibilities for collaboration for testing of Predict samples in Guinea. Dr. Magassouba and our PREDICT country coordinator (Professor Camara) recently reviewed and reached an agreement (currently with the University of California Davis for final PREDICT approvals) that more clearly states exactly what each partner is responsible for in terms of sample storage and equipment for this purpose. In this document, it is clear that PREDICT will supply the two -80C freezers (due for delivery in April) and cost share the fuel for the generators required for this equipment. We will be happy to provide Dr. Sakoba and Professor Lamine an update to clarify their concerns or questions as soon as desirable. Plans for testing in Guinea are currently being developed and are dependent on resources available. The plans are being discussed with Professor Camara and Dr. Magassouba to assess feasibility. The PREDICT team offered to share PREDICT testing protocols with Dr. Magassouba in the interim, so that he may have them available to pilot with pre-PREDICT samples in his archive. Action item: the PREDICT team will follow up further with Professor Camara and Dr. Magassouba.

Here are some additional recommendations

1. Predict should have a Memorandum of Understanding (MOU) signed by the MOH and Ministry of Livestock that explains the method used to ensure proper handling, neutralization, storage, and shipping of specimen. This was requested by the GoG for the human samples and is a hot topic of conversation right now because of direct safety concerns expressed by both the President and the Minister of Health.

**This is being addressed.** The PREDICT team was granted permits for our work by the Ministry of Environment, Water, and Forests and the Ministry of Livestock and Animal Production prior to the initiation of any work in Guinea. These permits were granted in part because the team utilizes standardized protocols used by PREDICT teams project-wide to train staff on these issues including the safe collection, handling, storage, and shipping of specimens. As an added step specifically for Guinea, we are also following the recommendation of Dr. Sakoba to have our approved animal sampling Institutional Animal Care and Use (IACUC) protocol (which includes further details on sampling and safe



handling of animals and specimens) be reviewed and approved through the joint Guinean Ethics Committee that also includes members of the Ministry of Health. We are in the process of translating this master document into French for submission to this committee. We look forward to addressing any concerns they may have to ensure their concurrence with our activities. Action item: the PREDICT team is following up with the GEC.

2. The principal investigator on the ground should also be able to demonstrate that proper measures are being taken to ensure the prevention of human infection from potentially infected animal blood. In addition to PPE, proper training, and Trizol being used at the collection sites, it might be advisable to consider additional measures. No vaccine is available at this time. Possible measures:

- a. daily temperature monitoring of all collectors and their immediate family
- b. use of a sheet that records who collected which sample and link lab results to this line list of collectors after confirmation of PCR test in California. This should be regularly shared with MOH and time between collection and testing minimized as much as possible for rapid confirmation.
- c. Field incidents (needle pricks, bites from bats, spill of test tubes or fluids should be well documented and shared

**Already addressed; no action required.** The PREDICT teams are trained to follow well-established biosafety and animal and specimen handling protocols that have been used over the past 7 years in a variety of settings and including work with animal reservoirs of other high-consequence pathogens, such as Nipah, Lassa, SARS-like, and MERS viruses. The single greatest risk to PREDICT staff is rabies virus infection, and all staff are required to obtain rabies vaccination before beginning any field work activities. An additional and very significant threat to the health of our staff is venomous snake bite. It would be very informative to hear if the CDC has any guidance or availability of anti-venoms that could be obtained by the in-country teams on an emergency basis if needed.

For the additional concerns:

- a) It is highly unlikely that PREDICT team members, as part of their routine activities, are at increased risk of exposure to pathogens from the animals being sampled above the background level of the local community who actively hunt and consume many of the animal species being sampled. In the absence of a specific high-risk exposure, daily temperature monitoring of ecological field staff, where appropriate PPE and adherence to biosafety protocols have been maintained, does not seem warranted and is not standard practice, even for CDC teams collecting similar animal samples in neighboring countries. However, if a more significant exposure risk occurs (such as an animal bite that penetrates all layers of PPE), enhanced monitoring may be warranted on a case-by-case basis (see c below).
- b) During each day/night of work, a record is generated of who participated in the sampling activities. However, PREDICT does not, by design, operate as a rapid response diagnostic laboratory, but is rather at its core a capacity building effort. The turnaround time from field-collection to virus detection and confirmation in animal samples could range from weeks to several months. As in-country laboratory testing capacity continues to build, we anticipate these turn-around times to shorten, but they will almost certainly always be beyond the short incubation time of most viral and bacterial infections. However, if there is a subsequent positive test for a known or suspected pathogen, we can use the log of participants from the animal sampling to follow up on the participants' health status.
- c) Adverse incidents (e.g., bites, scratches, needle sticks) are recorded by the PREDICT team as part of our on-going occupational health program and are reported to the supervisor of the injured employee. Staff members and partners are also required to train on immediate response procedures for all such incidents. Consistent with best practices in public health, if any illness is reported by or observed in a staff member by a supervisor, individuals are encouraged to not participate in any team activities until their illness is resolved. When an illness occurs subsequent to an adverse event, the situation is brought to the attention of the staff member's employer for implementation of their occupational health program, as well as to the PREDICT country coordinator and the global team for further action. If a significant illness does occur



that may require immediate rule-out testing, the PREDICT team will contact the MoH and our CDC partners for guidance.

3. More clarification should be given as to why one aliquot is kept in Guinea. For what research will the samples be used? By whom? These should be captured in a research protocol shared with both MOH and Ministry of Livestock.

**Already addressed; no action required.** As standard best practice, PREDICT teams across the world archive aliquots with the in-country government to build up local bio-banks of specimens. For example, this practice is also followed by the CDC Viral Special Pathogens teams doing similar work as PREDICT in Sierra Leone. It is at the discretion of the host country government, in conjunction with PREDICT staff, to determine what research plans they have with the specimens, as these aliquots are necessarily the biological and intellectual property of the country. This best practice is outlined as part of the agreement between PREDICT and the host country government. PREDICT strives to leave behind in-country technical expertise and a collection of specimens so that every country has the capacity to engage in further research work with other partners long after the PREDICT program has ended. We also encourage best practices and training in biosafety and security, as well as report any positive samples that should be transported, according to the in-country government protocols, to the most biosecure facility in the country if the sample is considered high-risk to human health or livestock.

4. The chain of custody, etc should be documented in an SOP.

**Already addressed; no action required.** PREDICT already has SOPs for maintaining records and inventories of the collected PREDICT specimens, which includes freezer map locations, and all specimens stored in locked freezers. The SOPs also state that if a potential high-consequence pathogen is detected, any remaining potentially infectious specimen will be transferred as soon as possible to the appropriate national or international reference laboratory, depending on the pathogen and the in-country capacity, with host-government approval and concurrence.

5. All of these items should be discussed openly with the MOH and the Ministry of Livestock

**Already addressed; no action required.** Our team reports having already discussed these items with both Ministries, and Predict POCs from Ministry of Livestock (Dr. Ramadan Diallo) and from MOH (Dr. Alpha Mamadou Diallo) are always invited and/or have participated already with the team in our community engagement and sampling activities. As a rule, the PREDICT teams in all countries where the project is implemented strive to have open and transparent communication with all relevant government Ministries. Without their continued approval and support the goals of the PREDICT program would not be possible. If necessary, the PREDICT team in Guinea is happy to discuss these issues further with the appropriate government representatives.

**From:** Elizabeth Leasure <ealeasure@UCDAVIS.EDU>  
**To:** Andrew Clements <aclements@usaid.gov>  
**Cc:** "predictmgt@usaid.gov" <predictmgt@usaid.gov>, Jonna Mazet <jkmazet@ucdavis.edu>, David John Wolking <djwolking@ucdavis.edu>, predict Sympa List <predict@ucdavis.edu>, Kevin N Gonzalez <kngonzalez@ucdavis.edu>, Hannah R Chale <hrchale@UCDAVIS.EDU>  
**Subject:** RE: PREDICT Year 5 Equipment Purchase Request #8  
**Sent:** Wed, 9 Oct 2019 18:50:34 +0000  
[PREDICT-Equipment Request\\_Year 5\\_No.8\\_9.14.19\\_updated.pdf](#)

Hi Andrew. Please find attached an updated equipment approval request for freezers for Sierra Leone sample storage. Unfortunately, the cost of cryoracks were mistakenly left off of the quotes provided previously, and the cost of these items must be included in the acquisition cost calculation, as they are required to make the freezers fully-functional for the project's needs. The selected vendor is unchanged, but the quotes have been updated to include the rack costs. If you have any questions, please let me know.

Thanks!  
Liz

*Elizabeth Leasure*  
*Financial Operations Manager*  
*One Health Institute*  
**REDACTED**  
*530-754-9034 (office)*  
*Skype: ealeasure*

---

**From:** Andrew Clements <aclements@usaid.gov>  
**Sent:** Monday, September 16, 2019 7:15 PM  
**To:** Elizabeth Leasure <ealeasure@UCDAVIS.EDU>  
**Cc:** predictmgt@usaid.gov; Jonna Mazet <jkmazet@ucdavis.edu>; David John Wolking <djwolking@ucdavis.edu>; predict Sympa List <predict@ucdavis.edu>; Kevin N Gonzalez <kngonzalez@ucdavis.edu>; Hannah R Chale <hrchale@UCDAVIS.EDU>  
**Subject:** Re: PREDICT Year 5 Equipment Purchase Request #8

Approved.

*Andrew P. Clements, Ph.D.*  
*Senior Scientific Advisor*  
*Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health*  
*U.S. Agency for International Development*  
*Mobile phone: 1-571-345-4253*  
*Email: [aclements@usaid.gov](mailto:aclements@usaid.gov)*

On Sep 15, 2019, at 2:38 PM, Elizabeth Leasure <[ealeasure@ucdavis.edu](mailto:ealeasure@ucdavis.edu)> wrote:

Hi Andrew. Please find attached a request for authorization to purchase two ultra-low freezers for the University of Makeni to store samples collected. Please let me know if you have any questions or require any additional information to proceed.

Thanks!  
Liz

Elizabeth Leasure  
One Health Institute  
University of California, Davis  
530-754-9034 (office)

**REDACTED**

<PREDICT-Equipment Request\_Year 5\_No.8\_9.14.19.pdf>



# USAID | PREDICT

FROM THE AMERICAN PEOPLE

September 14, 2019

Award No. and Title: AID-OAA-A-14-00102, PREDICT-2

University of California, Davis PREDICT-2 Equipment Request

PREDICT-2 requests authorization to purchase the following equipment items to enable in-country work for the project. These items were not originally included in the approved proposal budget and require approval. Per Attachment A – Schedule of the PREDICT-2 cooperative agreement, budget revisions shall be administered in accordance with 2 CFR 200 (as of Mod. 4 dated 9/30/15), which stipulates that the inclusion of costs that require prior approval in accordance with the applicable cost principles must have prior approval from USAID. The applicable cost principles indicate that equipment with an acquisition cost of \$5,000 USD or more and a useful life of more than one year require prior approval from the awarding agency to be allowable.

**Country: Sierra Leone**

**Partner/Subaward:** University of Makeni (UC Davis will purchase on behalf of UNIMAK)

**Item:** One (1) FREEZER UPRIGHT BLIZZARD (-86) DEG 728L HC MODEL INUANU-99728JE, One (1) FREEZER CHEST TYPE BLIZZARD -86 DEG 420 HC Model INUANU-99420JE;

Twenty (20) CRYORACK S/STEEL 5 TRAY FOR FREEZERS NU-99578E + NU-99728E + NU99828E INUADCJ-55-B, Twenty-seven (27) CRYORACH S/STEEL 10 TIER FOR FREEZER NU-99420E INUADCJ-10-A

**Vendor:** Lasec International (TY) LTD

**Geographic Code:** Source is within authorized geographic code 935 for procurement of services and commodities. Per 22 CFR 228.30(d) regarding waivers, individual transactions under \$25,000 (excluding agricultural commodities, motor vehicles, pharmaceuticals and procurements from prohibited sources) do not require a waiver for sources outside the authorized geographic code of 937 and are authorized.

**Estimated Cost:** \$28,730 USD in total (\$8,300 Upright + \$7,800 Chest + \$9,580 racks + \$3,050 Freight).

**Solicitation and Selection:** A procurement committee conducted a competitive search and identified from four laboratory supply companies both regional and U.S.-based that were able to present quotes and offers for on-site delivery. The committee selected items based on the acceptable quality, availability, and technical qualifications. Lasec International Ltd in South Africa offered the most competitive pricing while meeting the needs of one (1) upright (-86c) freezer of approx. 700L in storage, and one (1) chest style (-86c) freezer of approx. 400L, with delivery to Sierra Leone.

**Justification:** PREDICT-2 is focused on the detection of potentially zoonotic viruses at the human-animal interface. During the course of this project, thousands of samples have been collected and stored in existing freezers at UNIMAK, and these freezers are aging and not likely to last much longer. As the end of the project approaches, new ultra-low freezers are required for sustainable, biosecure, and effective long-term sample storage/archival after project shutdown and to ensure viability of the samples for viral detection and for future studies that may be developed and require additional testing. These freezers will be

dedicated to the samples collected by PREDICT, offering more space, organization, and better biosecurity with newer hardware. As part of our sample disposition strategy for Sierra Leone, we must ensure that the sample storage solutions are stable and reliable.



**Budget Impact:** Funds for this purchase will come from the Other Direct Costs portion of the approved Year 5 PREDICT-2 budget for UNIMAK in Sierra Leone.



Quote 1: LASEC Int'l LTD (South Africa)

**\$28,730 USD SELECTED**

Quote 2: CAMServ SL Ltd. (Sierra Leone)

\$28,901 USD

Quote 3: VWR (USA)

**\$30,978 USD (\$26,278 + \$4,700 for racks)**

Quote 4: Fisher Scientific (USA)

**\$30,461 USD (\$25,761 + \$4,700 for racks)**

Quote 1: LASEC Int'l LTD (South Africa)

**\$28,730 USD SELECTED**



LASEC INTERNATIONAL (PTY) LTD

52 Old Mill Road, Ndabeni, Cape Town, 7405, South Africa  
PO Box 2110, Cape Town, 8000, South Africa

+27 21 531 7504  
+27 21 531 7562

www.lasec.com  
international@lasec.com

#### Quotation

University of California,  
University of California, Davis, One Shields Ave  
Davis, CA 95616, USA  
Att: Kevin Gonzalez  
Tel: +1) 323-401-0458

Date: 1 October 2019  
Page 1 of 4  
Ref: 1908-001092026

Fax:

We thank you for your valued enquiry and have pleasure in submitting our quotation for the items listed below.

Stock Code	Description	Qty	Unit Of Measure	Unit Price US Dollar	Total Price US Dollar
<b>Up Right Freezer with Racks</b>					
INUANU-99728JE	FREEZER UPRIGHT BLIZZARD -86 DEG 728L HC MODEL	1	EA	8,300.00	8,300.00
INUADCJ-55-B	CRYORACK S/STEEL 5 TRAY FOR FREEZERS NU-99578E + NU-99728E + NU-99828E	20	EA	290.00	5,800.00
	21 Units currently available. Subject to prior sale. Lead time of 12-16 weeks expected.				
<b>Chest Freezer with Racks</b>					
INUANU-99420JE	FREEZER CHEST TYPE BLIZZARD -86 DEG 420 HC MODEL	1	EA	7,800.00	7,800.00
INUADCJ-10-A	CRYORACK S/STEEL 10 TIER FOR FREEZER NU-99420E	27	EA	140.00	3,780.00
	Lead time of 12-16 weeks expected.				
NLSCFREIGHT	FREIGHT	1		3,050.00	3,050.00
	Delivery CFR Sea Freight - Queen Elizabeth II Water Quay Port - Inco Term 2010 Exclude Duties, Taxes and Clearance fees Delivery +/- 90 days from date of order				
				<b>Total</b>	<b>\$28,730.00</b>
<b>Delivery Terms</b>					
CFR, Queen Elizabeth II Water Quay Incoterms® 2010					

Quote 2: CAMServ SL Ltd. (Sierra Leone)

\$28,901 USD

**CAMServ SL Ltd.**

Tel.: +232 22 247 247  
 Fax.: +232 22 272 378  
 Mobil: +232 76 778 119  
 Email: [info@camserv.dk](mailto:info@camserv.dk)

University of California Davies  
 One Shield Ave  
 Davis, CA 95616  
 USA

+1 530-752-1972

[kngonzalez@ucdavis.edu](mailto:kngonzalez@ucdavis.edu)

PRO INV NO. 569 - 015  
 CUST.NO. UNICAR 1799  
 DATE 6/09/2019

**PRO-INVOICE**

Details – Supply Services	\$-Unit	Quan	Total - USD
<i>FULL WARRANTY COVER IN COUNTRY</i>			
<b>ITEMS – FREEZERS</b>			
<b>All inclusive handling delivered and installed at address below</b> <b>Delivery – 3 weeks</b> <b>Payment – within 48 Hours of Confirmed Delivery AND</b> <b>Confirmed Purchase Order Request OR Payment with Order.</b> <i>(Please note that this also includes duty, customs and taxes approx. 38%.)</i>			
<u><b>DAI 1416-2</b></u>			
DAI 1416-2 ULUF 750 -86°C Freezer 230V 50/60Hz Net capacity: 680 L Exterior dim. WxDxH: 1030x885x2089 mm Net weight: 254 kg Shipping dim. WxDxH: 114x108x231 cm Shipping weight: 400 kg	\$18,054.00	1	\$18,054.00
<u><b>DAI 0210-2</b></u>			
ULTF 420 (-40/-86°C) Freezer -86C - 230V - 50/60Hz Net Capacity: 368 L Exterior dim. WxDxH: 1564x691x891 mm Net weight: 88 kg Shipping dim. WxDxH: 166x76x106 cm Shipping weight: 132 kg	\$10,847.00	1	\$10,847.00
<b>Delivery to:</b> Yongai Saah Bona - 232-76-803-758 PREDICT/PREEMPT Administrative Assistant Directorate of Health Security and Emergency (DHSE) Public Health National Emergency Operations Centre. RSLAF Head Quarter, Cockrill Freetown, Sierra Leone, West Africa <a href="mailto:yongaib@gmail.com">yongaib@gmail.com</a>			
<b>Total Amount</b>			<b>\$28,901.00</b>
Some items available for immediate delivery in Sierra Leone – Liberia and Guinea.			

CAMServ (SL) Ltd.

Operations Office – 3 Howe St - Freetown Sierra Leone

Quote 3: VWR (USA)

\$26,278 USD (+ \$4,700 for racks)




To Place an Order	
Phone :	1-630-425-1233
Fax :	1-610-728-4581
Web :	www.vwr.com
Email :	usa_global_exports@vwr.com

When placing your order, please include your quotation number and account number to ensure you receive the correct price.

THANK YOU FOR THE OPPORTUNITY TO EARN YOUR BUSINESS.

EXPORT QUOTATION			
Quote Number	Valid From	Valid To	Page
8031077743	08/19/2019	09/18/2019	1 of 2
Currency	Sales Representative	Customer Reference	
USD	Sakie Malebana	BQR-0000593433	
Quote Prepared For		Contact Phone / Fax / E-Mail	
KEVIN GONZALEZ		(530) 752-1011 kngonzalez@ucdavis.edu	
Ship To :		Sold To :	
80559044		80559044	
CA UNIV OF AT DAVIS IN ONE HEALTH INSTITUTE 1089 VETERINARY MEDICINE DR DAVIS CA 95616		CA UNIV OF AT DAVIS IN ONE HEALTH INSTITUTE 1089 VETERINARY MEDICINE DR DAVIS CA 95616	

Row	VWR Catalog Number	Product Description	Qty	UOM	Unit Price	Extended Price
10	76307-952	VWR FREEZER ULTRA LOW TEMP 208V BX400	1	EA	9,254.05	9,254.05
 <p>VWR® -86 °C Ultra-Low Temperature Freezers with Natural Refrigerants  Product Link : <a href="https://us.vwr.com/store/catalog/product.jsp?catalog_number=76307-952">https://us.vwr.com/store/catalog/product.jsp?catalog_number=76307-952</a>  Dimensions (L*W*H) : 42.800*35.390*86.180 IN  Weight : 731.930 LB  Volume : 75.542 FT3  UOM Component Info : EA(liters)  Vendor Part # : VWR40086FV  HTS Code : 8418.40.0000  Country of Origin : US  ECCN : EAR99  Estimated lead time 2 - 3 weeks "Please allow additional time for processing"</p>						



EXPORT QUOTATION			
Quote Number	Valid From	Valid To	Page
8031077743	08/19/2019	09/18/2019	2 of 2
Currency	Sales Representative	Customer Reference	
USD	Sakie Malebana	BQR-0000593433	

Row	VWR Catalog Number	Product Description	Qty	UOM	Unit Price	Extended Price
20	10753-150	VWR ULT CHEST FREEZER 13CF 220/50EXPORT	1	EA	16,196.48	16,196.48
<p>VWR® -86°C Ultra-Low Temperature Chest Freezers, For Export Only, 230V 50Hz  Product Link : <a href="https://us.vwr.com/store/catalog/product.jsp?catalog_number=10753-150">https://us.vwr.com/store/catalog/product.jsp?catalog_number=10753-150</a>  Dimensions (L*W*H) : 34.000*72.000*41.000 IN  Weight : 716.000 LB  Volume : 58.083 FT3  UOM Component Info : EA(liters)  Vendor Part # : VWR1386V  HTS Code : 8418.40.0000  Country of Origin : US  ECCN : EAR99  Estimated lead time 5 - 6 weeks "Please allow additional time for processing"</p>						

Item Total : 25,450.53  
Export Packing Chrg 827.47  
Quote Total : 26,278.00



# VWR® Chest Freezer Rack for 2" Boxes

Supplier: VWR International



Organize Freezer Samples

Order Now

Add to Cart

	Description	Capacity	Width	Length	Depth	VWR Catalog Number	Unit	Price	Quantity
	Freezer Racks	12	5.625"	26.375"	5.5"	76027-612	Each	<del>\$106.17</del> New Customer Promotional Price: \$98.56	0
	Freezer Racks	13	5.625"	28.25"	5.5"	76027-614	Each	<del>\$115.93</del> New Customer Promotional Price: \$106.62	0

# VWR® Upright Freezer Racks for 2" Boxes

Supplier: VWR International



Organize freezer samples.

- Organize and find samples quickly
- Space-saving design for specific freezer requirements
- Security locking devices available

Racks are designed for use with standard 2" cardboard, plastic, or metal boxes. Racks are made from corrosion-resistant stainless steel. Security lock devices are also available.

Order Now

Add to Cart

	Description	Capacity	Width	Length	Depth	VWR Catalog Number	Unit	Price	Quantity
	Freezer Rack	6	5.5"	10.9"	6.6"	76051-406	Each	\$107.59	<input type="text" value="0"/>
	Freezer Rack	8	5.5"	10.9"	8.9"	76051-408	Each	\$137.66	<input type="text" value="0"/>
	Freezer Rack	9	6.625"	16.3125"	5.5"	76027-810	Each	<del>\$96.53</del> New Customer Promotional Price: \$73.78	<input type="text" value="0"/>
	Freezer Rack	12	8.875"	16.3125"	5.5"	76027-812	Each	<del>\$117.20</del> New Customer Promotional Price: \$85.51	<input type="text" value="0"/>

## Quote 4: Fisher Scientific (USA)

\$25,761 USD (+ \$4,700 for racks)

Sales Quotation			
*Quote Nbr	Creation Date	Due Date	Page
9248-1063-79	09/05/2019		1 of 2
Payment Terms		Delivery Terms	
NET 30 DAYS		EXW SUWANEE, GA.....	
Valid To		Prepared By	
01/03/2020		LEO, GLORIA	
Customer Reference		Sales Representative	
RFQ FREEZERS SIERRA LEONE		ERIC BRUCE	
To place an order	Ph: 770-871-4725	Fx: 770-871-4726	
Submitted To:		Customer Account: 753937-001	
KEVIN GONZALEZ KNGONZALEZ@UCDAVIS.EDU  530-752-1972		UNIV OF CALIFORNIA DAVIS WILD LIFE HEALTH CENTER SCHOOL OF VETERINARY MED DAVIS CA 95616 ATTN: KEVIN	



FISHER SCIENTIFIC COMPANY LLC  
3970 JOHNS CREEK COURT  
SUITE 500  
SUWANEE GA 30024-1297

**\*Please reference this Quote Number on all correspondence.**

Don't have a profile? Register on [fishersci.com](https://fishersci.com)

For complete Terms and Conditions, please [click here.](#)

Quote Comments: Ultimate Destination: SIERRA LEONE

Nbr	Qty	UN	Catalog Number	Description	Unit Price	Extended Price
1	1	EA	NC1591179	-86C UPRIGHT 2DOOR FREEZER	13,623.29	13,623.29
			Vendor Catalog # 995 Hazardous Material Original Catalog Number NC1591179 Weight= .00KG/EA List Price: 20,277.00 CDC: 999 Medical Device Product - Non-Returnable			
2	1	EA	NC1160887	EXPORT CRATE MARIETTA	520.00	520.00
			Vendor Catalog # 9919/PR NEW Original Catalog Number NC1160887 Weight= 45.36KG/EA List Price: 468.00 CDC: 999			
3	1	EA	NON-CATALOG	CHEST FREEZER -86C 230V/50	11,093.15	11,093.15
			Vendor Catalog # ULT179010V EXPORT Weight= 372.40KG/EA List Price: 16,291.00			

Nbr	Qty	UN	Catalog Number	Description	Unit Price	Extended Price
4	1	EA	NC1160887	EXPORT CRATE MARIETTA	520.00	520.00
			Vendor Catalog # 9919/PR NEW Weight= 45.36KG/EA List Price: 468.00 CDC: 999			

MERCHANDISE TOTAL (USD)	25,756.44
Fuel Surcharge	4.70
TOTAL	25,761.14

Shipping and handling fees are calculated at the time of shipment

## NOTES:

Some items may not ship due to regulatory issues

DELIVERY: ESTIMATED 6 WEEKS + TRANSIT TIME

Total gross weight(approx) 1,021.00 Lbs 463.11 Kg

Total gross volume(approx) 81.00 CuFt 2.29 M3



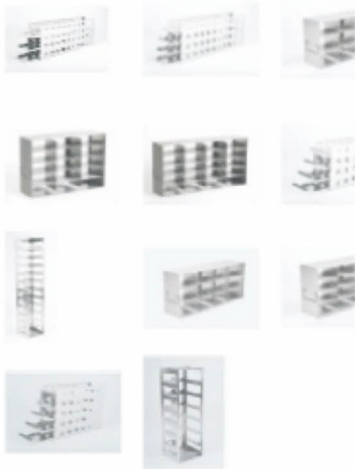
# Fisherbrand™ Freezer Storage Racks GSA/VA

Organize and optimize the freezers in the lab

**\$87.00 - \$315.00**

## Specifications

Autoclavable	Not Autoclavable
Material	Stainless Steel
Type	Freezer Storage Rack



Catalog Number	For Use With (Equipment)	Holds	Length (English)	Shelves	Price	Quantity & Availability
03-395-473	Upright Freezers	Plates	22 in.	96	Each for \$182.00	<input type="text"/>



<b>03-395-490</b>	Upright Freezers	50mL Tubes	22 in.	78	Each for \$273.00	<input type="text"/>
<b>03-395-474</b>	Upright Freezers	15mL Tubes	22 in.	80	Each for \$172.00	<input type="text"/>
<b>03-395-475</b>	Upright Freezers	2 in. Boxes	18.3 in.	6	Each for \$143.00	<input type="text"/>
<b>03-395-492</b>	Upright Freezers	2 in. Boxes	18.8 in.	12	Each for \$197.00	<input type="text"/>
<b>03-395-491</b>	Upright Freezers	Boxes (5 in.)	24.4 in.	8	Each for \$180.00	<input type="text"/>
<b>03-395-476</b>	Chest freezers	2 in. Boxes	19.8 in.	9	Each for \$87.00	<input type="text"/>
<b>03-395-466</b>	Upright Freezers	2 in. Boxes	26.8 in.	20	Each for \$315.00	<input type="text"/>
<b>03-395-467</b>	Upright Freezers	2 in. Boxes	16.6 in.	9	Each for \$136.00	<input type="text"/>
<b>03-395-468</b>	Upright Freezers	2 in. Boxes	22 in.	12	Each for \$193.00	<input type="text"/>
<b>03-395-480</b>	Upright Freezers	2 in. Boxes	16.5 in.	15	Each for \$106.00	<input type="text"/>
<b>03-395-472</b>	Upright Freezers	Boxes (3 in.)	22 in.	12	Each for \$178.00	<input type="text"/>
<b>03-395-469</b>	Upright Freezers	2 in. Boxes	22 in.	20	Each for \$293.00	<input type="text"/>
<b>03-395-470</b>	Chest freezers	2 in. Boxes	22.7 in.	10	Each for \$90.00	<input type="text"/>
<b>03-395-481</b>	Upright Freezers	2 in. Boxes	22.1 in.	12	Each for \$96.00	<input type="text"/>

**From:** Andrew Clements <aclements@usaid.gov>  
**To:** Tracey Goldstein <tgoldstein@ucdavis.edu>  
**CC:** Amalhin Shek <ashek@usaid.gov>; Jonna Mazet <jkmazet@ucdavis.edu>; PREDICTMGT <predictmgt@usaid.gov>; Predict inbox <predict@ucdavis.edu>; Anthony, Simon J. <sja2127@cumc.columbia.edu>; Brian Bird <bhbird@ucdavis.edu>; Dennis Carroll <dcarroll@usaid.gov>  
**Sent:** 7/27/2018 7:45:22 PM  
**Subject:** Re: SL finding

Thanks

*Andrew P. Clements, Ph.D.  
Senior Scientific Advisor  
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health  
U.S. Agency for International Development  
Mobile phone: 1-571-345-4253  
Email: [aclements@usaid.gov](mailto:aclements@usaid.gov)*

On Jul 27, 2018, at 5:35 PM, Tracey Goldstein <[tgoldstein@ucdavis.edu](mailto:tgoldstein@ucdavis.edu)> wrote:

Of course! and here is the link to the Press release  
Release below. URL: <https://www.ucdavis.edu/news/scientists-discover-new-ebolavirus-bats-sierra-leone>

On Fri, Jul 27, 2018 at 2:34 PM, Andrew Clements <[aclements@usaid.gov](mailto:aclements@usaid.gov)> wrote:  
Saw the ProMED articles. Thanks for doing this.

*Andrew P. Clements, Ph.D.  
Senior Scientific Advisor  
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health  
U.S. Agency for International Development  
Mobile phone: 1-571-345-4253  
Email: [aclements@usaid.gov](mailto:aclements@usaid.gov)*

On Jul 27, 2018, at 12:18 PM, Amalhin Shek <[ashek@usaid.gov](mailto:ashek@usaid.gov)> wrote:

+ Dennis  
Sent from my iPhone

On Jul 27, 2018, at 12:06 PM, Andrew Clements <[aclements@usaid.gov](mailto:aclements@usaid.gov)> wrote:

Thanks. Good to know. There have been delays with the gov posting info on its website and the Embassy clearing documents. Some (but likely not all) related to internet issues.

*Andrew P. Clements, Ph.D.  
Senior Scientific Advisor  
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health  
U.S. Agency for International Development  
Mobile phone: 1-571-345-4253  
Email: [aclements@usaid.gov](mailto:aclements@usaid.gov)*

On Jul 27, 2018, at 12:02 PM, Jonna Mazet <[jkmazet@ucdavis.edu](mailto:jkmazet@ucdavis.edu)> wrote:

Hi,

Thankfully no violence, but a bit of a press mess. Tracey was successful today in getting the Nature people to lift the communications embargo (which we were about to break if they wouldn't lift it). Thus, we are posting to ProMED now, as well as putting out the press release and posting the FAQs to help combat the rumors and bits of misinformation. Unfortunately, neither the GoSL or USAID in Salone put out the press releases we prepared for them or a ProMED post, so some of the announcement went into a weird vortex without all of the proper info being available. Hopefully, the steps today will help to right the comms ship.

Please direct press to Tracey & Simon.

Thanks,

Jonna

--

You received this message because you are subscribed to the Google Groups "PREDICTMGT" group.

To unsubscribe from this group and stop receiving emails from it, send an email to [predictmgt+unsubscribe@usaid.gov](mailto:predictmgt+unsubscribe@usaid.gov).

To post to this group, send email to [predictmgt@usaid.gov](mailto:predictmgt@usaid.gov).

To view this discussion on the web visit <https://groups.google.com/a/usaid.gov/d/msgid/predictmgt/CAO5tDrHpp%2BOekYQEjx1JtWzJv%2BkmXdLFcNSuS2E%3DBjN02pRM7w%40mail.gmail.com>.

--

You received this message because you are subscribed to the Google Groups "PREDICTMGT" group.

To unsubscribe from this group and stop receiving emails from it, send an email to [predictmgt+unsubscribe@usaid.gov](mailto:predictmgt+unsubscribe@usaid.gov).

To post to this group, send email to [predictmgt@usaid.gov](mailto:predictmgt@usaid.gov).

To view this discussion on the web visit [https://groups.google.com/a/usaid.gov/d/msgid/predictmgt/CAJT\\_2LFpvVg1%2BaAWuZzVbv7fnVhRpBA5b7g%3DA4lXbPtxEJnxsg%40mail.gmail.com](https://groups.google.com/a/usaid.gov/d/msgid/predictmgt/CAJT_2LFpvVg1%2BaAWuZzVbv7fnVhRpBA5b7g%3DA4lXbPtxEJnxsg%40mail.gmail.com).

--

(530) 752-0412  
(530) 752-3318  
[tgoldstein@ucdavis.edu](mailto:tgoldstein@ucdavis.edu)

**From:** Andrew Clements <aclements@usaid.gov>  
**To:** Tracey Goldstein <tgoldstein@ucdavis.edu>  
**CC:** Jonna Mazet <jkmazet@ucdavis.edu>; David Wolking <djwolking@ucdavis.edu>; Alisa Pereira <apereira@usaid.gov>  
**Sent:** 5/10/2017 12:49:15 AM  
**Subject:** Re: SL update

Nice! Thanks.

*Andrew P. Clements, Ph.D.  
Senior Scientific Adviser  
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health  
U.S. Agency for International Development  
Mobile phone: 1-571-345-4253  
Email: [aclements@usaid.gov](mailto:aclements@usaid.gov)*

On May 9, 2017, at 11:18 PM, Tracey Goldstein <[tgoldstein@ucdavis.edu](mailto:tgoldstein@ucdavis.edu)> wrote:

Hi Andrew,

I have been in touch with the CDC today and the MTA paperwork is moving forward so hopefully we will have permits in place to ship those samples soon.

Best, Tracey

On Tue, May 9, 2017 at 10:07 AM, Andrew Clements <[aclements@usaid.gov](mailto:aclements@usaid.gov)> wrote:  
Thanks, Tracey. I have fingers and toes crossed that permission will be granted to ship and later publish the results before the next election. :)

*Andrew P. Clements, Ph.D.  
Senior Scientific Adviser  
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health  
U.S. Agency for International Development  
Mobile phone: 1-571-345-4253  
Email: [aclements@usaid.gov](mailto:aclements@usaid.gov)*

On May 9, 2017, at 5:53 PM, Tracey Goldstein <[tgoldstein@ucdavis.edu](mailto:tgoldstein@ucdavis.edu)> wrote:

Hi Andrew,

We got a similar report from Aiah this week.

We are working on the paperwork to ship the samples to CDC - an MTA is needed and is currently being reviewed from by the office in Atlanta. We will ship as soon as we have that in place. We are also finishing up a few things in the lab and working on a draft of a publication with the information we have to date. We are also working on a plan for community engagement once we are ready to move forward.

Will keep you posted.  
Best, Tracey

On Tue, May 9, 2017 at 2:13 AM, Andrew Clements <[aclements@usaid.gov](mailto:aclements@usaid.gov)> wrote:  
Hi all,

Kendra provided an update based on her recent trip.

Apparently, James Bangura drove from Sierra Leone to Guinea with the Chief Medical Officer and spent a lot



**From:** Andrew Clements <aclements@usaid.gov>  
**To:** Tracey Goldstein <tgoldstein@ucdavis.edu>  
**CC:** Amalhin Shek <ashek@usaid.gov>;Jonna Mazet <jkmazet@ucdavis.edu>;PREDICTMGT <predictmgt@usaid.gov>;Predict inbox <predict@ucdavis.edu>;Anthony, Simon J. <sja2127@cumc.columbia.edu>;Brian Bird <bhbird@ucdavis.edu>;Dennis Carroll <dcarroll@usaid.gov>  
**Sent:** 8/15/2018 1:57:39 AM  
**Subject:** Re: SL finding

Thanks, Tracey. We don't have anything in the works at this moment.

*Andrew P. Clements, Ph.D.  
Senior Scientific Advisor  
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health  
U.S. Agency for International Development  
Mobile phone: 1-571-345-4253  
Email: [aclements@usaid.gov](mailto:aclements@usaid.gov)*

On Aug 14, 2018, at 9:45 PM, Tracey Goldstein <[tgoldstein@ucdavis.edu](mailto:tgoldstein@ucdavis.edu)> wrote:

Hi Andrew,

I have a meeting with our PR office this afternoon about that. If you have any documents and plans your team is working on please let me know and share so I can have those in hand for our meeting.

Thank you! Tracey

On Tue, Aug 14, 2018 at 12:30 PM, Andrew Clements <[aclements@usaid.gov](mailto:aclements@usaid.gov)> wrote:  
Hi Tracey,

Does UCD have a draft press release ready for when the SL findings are published?

I'd like to make sure USAID's press release is coordinated with the UCD one.

Thanks!

*Andrew P. Clements, Ph.D.  
Senior Scientific Advisor  
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health  
U.S. Agency for International Development  
Mobile phone: 1-571-345-4253  
Email: [aclements@usaid.gov](mailto:aclements@usaid.gov)*

On Jul 27, 2018, at 11:35 PM, Tracey Goldstein <[tgoldstein@ucdavis.edu](mailto:tgoldstein@ucdavis.edu)> wrote:

Of course! and here is the link to the Press release  
Release below. URL: <https://www.ucdavis.edu/news/scientists-discover-new-ebolavirus-bats-sierra-leone>

On Fri, Jul 27, 2018 at 2:34 PM, Andrew Clements <[aclements@usaid.gov](mailto:aclements@usaid.gov)> wrote:  
Saw the ProMED articles. Thanks for doing this.

*Andrew P. Clements, Ph.D.  
Senior Scientific Advisor*

*Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health  
U.S. Agency for International Development  
Mobile phone: 1-571-345-4253  
Email: [aclements@usaid.gov](mailto:aclements@usaid.gov)*

On Jul 27, 2018, at 12:18 PM, Amalhin Shek <[ashek@usaid.gov](mailto:ashek@usaid.gov)> wrote:

+ Dennis  
Sent from my iPhone

On Jul 27, 2018, at 12:06 PM, Andrew Clements <[aclements@usaid.gov](mailto:aclements@usaid.gov)> wrote:

Thanks. Good to know. There have been delays with the gov posting info on its website and the Embassy clearing documents. Some (but likely not all) related to internet issues.

*Andrew P. Clements, Ph.D.  
Senior Scientific Advisor  
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health  
U.S. Agency for International Development  
Mobile phone: 1-571-345-4253  
Email: [aclements@usaid.gov](mailto:aclements@usaid.gov)*

On Jul 27, 2018, at 12:02 PM, Jonna Mazet <[jkmazet@ucdavis.edu](mailto:jkmazet@ucdavis.edu)> wrote:

Hi,  
Thankfully no violence, but a bit of a press mess. Tracey was successful today in getting the Nature people to lift the communications embargo (which we were about to break if they wouldn't lift it). Thus, we are posting to ProMED now, as well as putting out the press release and posting the FAQs to help combat the rumors and bits of misinformation. Unfortunately, neither the GoSL or USAID in Salone put out the press releases we prepared for them or a ProMED post, so some of the announcement went into a weird vortex without all of the proper info being available. Hopefully, the steps today will help to right the comms ship.  
Please direct press to Tracey & Simon.  
Thanks,  
Jonna

--

You received this message because you are subscribed to the Google Groups "PREDICTMGT" group.

To unsubscribe from this group and stop receiving emails from it, send an email to [predictmgt+unsubscribe@usaid.gov](mailto:predictmgt+unsubscribe@usaid.gov).

To post to this group, send email to [predictmgt@usaid.gov](mailto:predictmgt@usaid.gov).

To view this discussion on the web visit <https://groups.google.com/a/usaid.gov/d/msgid/predictmgt/CAO5tDrHpp%2BOekYQEjx1JtWzJv%2BkmXdLFcNSuS2E%3DBjN02pRM7w%40mail.gmail.com>.

--

You received this message because you are subscribed to the Google Groups "PREDICTMGT" group.

To unsubscribe from this group and stop receiving emails from it, send an email to [predictmgt+unsubscribe@usaid.gov](mailto:predictmgt+unsubscribe@usaid.gov).

To post to this group, send email to [predictmgt@usaid.gov](mailto:predictmgt@usaid.gov).

To view this discussion on the web visit [https://groups.google.com/a/usaid.gov/d/msgid/predictmgt/CAJT\\_2LFpyVg1%2BaAWuZzVbv7fnVhRpBA5b7g%3DA41XbPtxEJnxsg%40mail.gmail.com](https://groups.google.com/a/usaid.gov/d/msgid/predictmgt/CAJT_2LFpyVg1%2BaAWuZzVbv7fnVhRpBA5b7g%3DA41XbPtxEJnxsg%40mail.gmail.com).

--

(530) 752-0412  
(530) 752-3318  
[tgoldstein@ucdavis.edu](mailto:tgoldstein@ucdavis.edu)

--

(530) 752-0412  
(530) 752-3318  
[tgoldstein@ucdavis.edu](mailto:tgoldstein@ucdavis.edu)

**From:** Andrew Clements <aclements@usaid.gov>  
**To:** Tracey Goldstein <tgoldstein@ucdavis.edu>  
**CC:** Amalhin Shek <ashek@usaid.gov>; Jonna Mazet <jkmazet@ucdavis.edu>; PREDICTMGT <predictmgt@usaid.gov>; Predict inbox <predict@ucdavis.edu>; Anthony, Simon J. <sja2127@cumc.columbia.edu>; Brian Bird <bhbird@ucdavis.edu>; Dennis Carroll <dcarroll@usaid.gov>  
**Sent:** 8/21/2018 1:15:50 AM  
**Subject:** Re: SL finding

Thanks, Tracey. That's good news and perfect timing for the Sep 12 PREDICT briefing at SI.

*Andrew P. Clements, Ph.D.*  
*Senior Scientific Advisor*  
*Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health*  
*U.S. Agency for International Development*  
*Mobile phone: 1-571-345-4253*  
*Email: [aclements@usaid.gov](mailto:aclements@usaid.gov)*

On Aug 20, 2018, at 11:20 PM, Tracey Goldstein <[tgoldstein@ucdavis.edu](mailto:tgoldstein@ucdavis.edu)> wrote:

Hi Andrew,

Just wanted to let you know the our paper 'The discovery of Bombali virus adds further support for bats as hosts of ebolaviruses' has now been scheduled for Advance Online Publication (AOP) on *Nature Microbiology's* website on **Monday 27 August 2018 at 800 PST / 1100 US Eastern time**. Our embargo will be lifted at that time.

Also attached is the the Press release that UC Davis and Columbia will jointly put out on Monday Aug 27th. Please let me know if you have any questions.

Best, Tracey

On Thu, Aug 16, 2018 at 7:51 AM, Tracey Goldstein <[tgoldstein@ucdavis.edu](mailto:tgoldstein@ucdavis.edu)> wrote:

Hi Andrew,

We are working on a press release and will send you a copy when we have a final version.

I am still trying to confirm if the paper will be in the August issue date. Once I know we will also let you know when we will put the press release out so we can coordinate.

Best, Tracey

On Wed, Aug 15, 2018 at 1:57 AM, Andrew Clements <[aclements@usaid.gov](mailto:aclements@usaid.gov)> wrote:

Thanks, Tracey. We don't have anything in the works at this moment.

*Andrew P. Clements, Ph.D.*  
*Senior Scientific Advisor*  
*Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health*  
*U.S. Agency for International Development*  
*Mobile phone: 1-571-345-4253*  
*Email: [aclements@usaid.gov](mailto:aclements@usaid.gov)*

On Aug 14, 2018, at 9:45 PM, Tracey Goldstein <[tgoldstein@ucdavis.edu](mailto:tgoldstein@ucdavis.edu)> wrote:

Hi Andrew,

I have a meeting with our PR office this afternoon about that. If you have any documents and plans your team is working on please let me know and share so I can have those in hand for our meeting.



Thank you! Tracey

On Tue, Aug 14, 2018 at 12:30 PM, Andrew Clements <[aclements@usaid.gov](mailto:aclements@usaid.gov)> wrote:  
Hi Tracey,

Does UCD have a draft press release ready for when the SL findings are published?

I'd like to make sure USAID's press release is coordinated with the UCD one.

Thanks!

*Andrew P. Clements, Ph.D.  
Senior Scientific Advisor  
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health  
U.S. Agency for International Development  
Mobile phone: 1-571-345-4253  
Email: [aclements@usaid.gov](mailto:aclements@usaid.gov)*

On Jul 27, 2018, at 11:35 PM, Tracey Goldstein <[tgoldstein@ucdavis.edu](mailto:tgoldstein@ucdavis.edu)> wrote:

Of course! and here is the link to the Press release  
Release below. URL: <https://www.ucdavis.edu/news/scientists-discover-new-ebolavirus-bats-sierra-leone>

On Fri, Jul 27, 2018 at 2:34 PM, Andrew Clements <[aclements@usaid.gov](mailto:aclements@usaid.gov)> wrote:  
Saw the ProMED articles. Thanks for doing this.

*Andrew P. Clements, Ph.D.  
Senior Scientific Advisor  
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health  
U.S. Agency for International Development  
Mobile phone: 1-571-345-4253  
Email: [aclements@usaid.gov](mailto:aclements@usaid.gov)*

On Jul 27, 2018, at 12:18 PM, Amalhin Shek <[ashek@usaid.gov](mailto:ashek@usaid.gov)> wrote:

+ Dennis  
Sent from my iPhone

On Jul 27, 2018, at 12:06 PM, Andrew Clements <[aclements@usaid.gov](mailto:aclements@usaid.gov)> wrote:

Thanks. Good to know. There have been delays with the gov posting info on its website and the Embassy clearing documents. Some (but likely not all) related to internet issues.

*Andrew P. Clements, Ph.D.  
Senior Scientific Advisor  
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health  
U.S. Agency for International Development  
Mobile phone: 1-571-345-4253  
Email: [aclements@usaid.gov](mailto:aclements@usaid.gov)*

On Jul 27, 2018, at 12:02 PM, Jonna Mazet <[jkmazet@ucdavis.edu](mailto:jkmazet@ucdavis.edu)> wrote:

Hi,

Thankfully no violence, but a bit of a press mess. Tracey was successful today in getting the Nature people to lift the communications embargo (which we were about to break if they wouldn't lift it). Thus, we are posting to ProMED now, as well as putting out the press release and posting the FAQs to help combat the rumors and bits of misinformation. Unfortunately, neither the GoSL or USAID in Salone put out the press releases we prepared for them or a ProMED post, so some of the announcement went into a weird vortex without all of the proper info being available. Hopefully, the steps today will help to right the comms ship.

Please direct press to Tracey & Simon.

Thanks,

Jonna

--

You received this message because you are subscribed to the Google Groups "PREDICTMGT" group.

To unsubscribe from this group and stop receiving emails from it, send an email to

[predictmgt+unsubscribe@usaid.gov](mailto:predictmgt+unsubscribe@usaid.gov).

To post to this group, send email to [predictmgt@usaid.gov](mailto:predictmgt@usaid.gov).

To view this discussion on the web visit <https://groups.google.com/a/usaid.gov/d/msgid/predictmgt/CAO5tDrHpp%2BOekYQEjx1JtWzJv%2BkmXdLfcNSuS2E%3DBjN02pRM7w%40mail.gmail.com>.

--

You received this message because you are subscribed to the Google Groups "PREDICTMGT" group.

To unsubscribe from this group and stop receiving emails from it, send an email to

[predictmgt+unsubscribe@usaid.gov](mailto:predictmgt+unsubscribe@usaid.gov).

To post to this group, send email to [predictmgt@usaid.gov](mailto:predictmgt@usaid.gov).

To view this discussion on the web visit [https://groups.google.com/a/usaid.gov/d/msgid/predictmgt/CAJT\\_2LFpyVg1%2BaAWuZzVbv7fnVhRpBA5b7g%3DA41XbPtxEJnxsg%40mail.gmail.com](https://groups.google.com/a/usaid.gov/d/msgid/predictmgt/CAJT_2LFpyVg1%2BaAWuZzVbv7fnVhRpBA5b7g%3DA41XbPtxEJnxsg%40mail.gmail.com).

--

(530) 752-0412

(530) 752-3318

[tgoldstein@ucdavis.edu](mailto:tgoldstein@ucdavis.edu)

--

(530) 752-0412

(530) 752-3318

[tgoldstein@ucdavis.edu](mailto:tgoldstein@ucdavis.edu)

--

(530) 752-0412  
(530) 752-3318  
[tgoldstein@ucdavis.edu](mailto:tgoldstein@ucdavis.edu)

--

(530) 752-0412  
(530) 752-3318  
[tgoldstein@ucdavis.edu](mailto:tgoldstein@ucdavis.edu)

**Trip Report: UCDavis – Metabiota Transition Sierra Leone**  
**Brian Bird – June 2017**

**Major issues and discussions:**

**1) Staff Communications:**

- a. **Monday 19 June:** Initial dinner with Prof Gbakima and James Bangura set things on the right track. After 2 hours, they understood some of why there was going to be a transition and that we were trying to do the best job we can for the project and the people. By the end of the 3<sup>rd</sup> hour we were on okay footing. Their main issue was that they did not fully understand until the phone call with Jonna that a transition was coming and that it was going to be absolute.
- b. **Wednesday 21 June:** Met with field staff in Makeni. Much anger and frustration. They had clearly been told something along the lines of get ready to be fired, the project is shutting down, or that UCD can't be trusted etc... I was surprised by the level of frustration from the young folks. Fortunately, Prof and James vouched for me, and another guy Victor who works for Metabiota and who I was with in Kenema during the roughest part of the outbreak vouched for me as stand-up guy. That helped, but I did not win them over completely. They wanted absolute answers to questions like (are we all going to be hired, who will employ us, etc...) I did not have definitive answers at that point, so they didn't like that. My reply was that I ain't promising things that I don't know if I could deliver. Eventually that line of reasoning helped... moderate success on this one...
- c. **Thursday 22 June:** Met with F/T staff. They were more accepting of the change. Messages had clearly been shared from Makeni to F/T.
- d. **Friday 23 June:** discussions with Prof and James on their contracts.

**2) UNIMAK partnership: Tentative "Yes" to being full implementing partner**

- a. Wednesday (21 June) met with representatives from UNIMAK (Head of Administration - Mercy Mwaura; Head of HR - Veronica; Registrar - Father Francis). FYI- UNIMAK is a Catholic University.
- b. Senior leadership (Chancellor and Vice-chancellor are in China, but have already been briefed on the transition and given tentative yes).
- c. **Main issues discussed:**
  - i. **Staff:** they can absorb the staff, they are exploring how to best adapt their hiring process to smooth the process and reduce the screening process time and requirements. They have no issues with some staff living in FT and working for UNIMAK. Hiring timeline after candidate selection about 3-4 weeks.
  - ii. **Procurement and logistics:** They don't really have any capacity for this... willing to learn, but they are afraid their systems for purchasing (only ever purchased in-country supplies) can meet our needs. They suggested getting another organization to handle this part of the work.
  - iii. **Administrative oversight:** Want to know exactly what is expected of them and what the SOW would be.
  - iv. **Technical oversight:** concerned that they wouldn't be able to give the technical oversight needed... I told them this would still reside within the PREDICT team. UNIMAK's chief role would be administrative, not technical – except for the lab staff.

- v. **Any other international projects:** Yes, they have had this type of arrangement with other international organizations before, but they have been much smaller than what our ask would be.
- d. **What UNIMAK needs to begin:**
  - i. Description of UC Davis and how we implement and partner with other Universities within PREDICT.
  - ii. SOW and expectations and how will we ensure compliance
  - iii. A conference call with someone from UCD who can discuss how these types of contracts/subawards work with UCD.
  - iv. I offered up to let them chat with Prof Kazawala or someone else from the UCD-PREDICT network so that they could get an unbiased opinion on how we work and what we can bring to the table.
  - v. List of personnel and qualifications – they need to figure out what job categories they need to have in place and if they can skip the vetting process for new hires so they don't have to start at the absolute beginning of the hiring process.

### 3) Mission Communications:

- a. USAID-Washington Delegation and SL mission: I've met with them now 3 times, plus informal communications at various functions. Each of the 3 meetings was for about 2 hours.
  - i. **Tuesday 20 June: Meeting at Radison Blu**
    - 1. Richard Greene, Kendra Chittenden, Robbin Boyer (Budget team lead), Dorothy Peprah from SL mission, Prof., James
    - 2. Extensive questioning on transition, plans for resumption of work and especially on laboratory testing.
    - 3. All seemed to be answered to satisfaction from what I could tell. Kendra came to our defense somewhat.
    - 4. I brought up budget uncertainties... (unfortunately Robbin had left the room)... Richard was adamant that all the money is coming... when I mentioned the details on the 4 million supplement etc it got fuzzy, so I'm not really sure what's going on there... so I dropped it and moved on, never got to the CAPs issues etc.
    - 5. Brought up SLA issues... Richard offered to provide us a letter from USAID to help with the SLA transition to "vouch for us" etc... (we will need this... see below)
    - 6. Communications around finding: Richard said not to expect any action on the ground from the communications partners until 3-6 months down the road... sounds like they may be switching implementing partners in country, but they didn't say.
    - 7. By end of meeting, I think that I had expressed the importance of PREDICT-SL within the GHSA context enough through the prism of what I saw here during the outbreak that Richard started to soften a bit. Lots of content to provide that laid on real-world context and that made an impact I think... or I'm a horrible judge of people... could go either way.
  - ii. **Wednesday 21 June: Visit of delegation to Makeni – UNIMAK**
    - 1. About 15 people: Richard, Irene Koek (Global Health Bureau), Robbin Boyer (global budget team), Jeff Muschell (global ebola team), Kendra, Saad, Dorothy, Tesfy (FAO), and many others...



2. Prepped team for Laboratory visit, and met with Univ Cambridge staff Umaru Jah.
3. Lab visit/tour went well – stressed UNIMAK-Cambridge aspects. Umaru handled parts related to NGS platforms and Moynia (PREDICT staff) did most of the talking. She did well, but threw us under the bus on the lab training even though she had been briefed on the new plan... weird and something to watch out for with her... I know her from Kenema... not my favorite even then.
  - a. Had a good moment with Richard and visiting team talking about testing modalities and how qRT-PCR is a laser beam search diagnostic and that the PREDICT method is more of a spotlight... they got the point I think. And how we build more than push-button scientific capacity using our platform.
4. Gave 30 min presentation to the visiting team. James did an excellent job after some coaching and slides touchup the day prior.
  - a. *[Big issues revealed in biosafety practices in some videos he wanted to show... got those removed and we showed some photos only.] After talking through those issues James was upset that his training from MB was so poor... he didn't know what he didn't know... the need for robust BS&S training is critical.*
5. 30+ mins of excellent and supportive questions from Richard, Kendra, Dorothy during visit. Many centered from Richard on the behavioral work and targeted professions (hunters etc) and how to turn the data in that into action items for later communications efforts... and about other virus family testing.... He's keen to do arenas (Lassa fever v) ... 5 families be damned... probably appropriate on the rodents

### iii. Thursday 22 June US Embassy: meeting of all USAID partners

1. All USAID-Washing staff present, plus local mission
2. All partners gave short 2-3 min presentations
3. Final sit-down meeting with Dorothy, Kendra, Richard
  - a. Richard: pleased and happy with what he has seen
  - b. Dorothy: seems that things are on the right track
  - c. Kendra: agreed.
  - d. Richard:
    - i. *TESTING*: When can in country testing begin? Answer: during/after the upcoming training... “when will the first results be generated in country?” Answer: during/after the upcoming training... with preliminary results to begin in August... confirmation will take a while longer... Kendra chimed in “and then those will be have to be cleared by GoSL before USAID has them”.
    - ii. *BEHAVIOR*: When will the behavior results be analyzed? Answer: being transcribed now, then analyzed... full analysis pending probably end of year? RG: hope we have that info to help guide the discussions on findings communications especially as fits with certain occupations and risk interfaces.

- iii. *REPORTING*: wants us to help create easy to digest reporting slides for him to report to NSC “the good work of PREDICT in GHSA” ....

- 1. Add picture vignettes with testimonials
- 2. Diagrams of Animals to Specimens to results
- 3. How we are leveraging training of PREDICT staff to enhance numbers of other GoSL etc trained staff.

**iv. Thursday 22 June: Meeting with CDC Deputy Country director Laura Perone**

- 1. She’s an old friend
- 2. Happy that we are transitioning, not much love for MB either
- 3. Offered to assist us in whatever way we need.
- 4. Gave a list of contacts for logistics companies and other customs clearance activities
- 5. Will be a good point of contact for us in probably many unanticipated ways.
- 6. Sarah Hersey – CDC Country director was out of the country so will catchup with her on next trip.

**4) Ministries:**

**a. 21 June: Min. Ag Forests Food Security (MAFFS)**

- i. Drs. Kamara (chief vet officer), Dr. Leno epi-lead, Dr. Jalloh (asst. director of animal production)
- ii. Discussed transition and the new UCD leadership.
- iii. Very light and easy tone in the meeting.
- iv. Rolled out lab capacity plan and they agreed verbally that it looked good (confirmed by email later).
- v. Long discussion about finding: Not much change in opinion from “scientifically interesting – politically dead in the water”. Really interesting analogy given of how the teach children not to sit on the fire stones...
- vi. I stressed the importance of informing the public and how we are getting to a point when we will be blamed if something occurs. Also brought up the fact that others are looking and they won’t wait for the government to be prepared. We will, but we need action... this line of reasoning seemed to get some traction with them... thus far they are our closest allies in the release of the information... BUT they were also the farthest from the impacts of EVD on their professional work earlier....
- vii. They will send us the names of 2 persons for the lab training from TEK0.

**b. Tuesday 20 June: MoHS Deputy Chief Medical Officer Dr. Jambai #2 career person in MoHS**

- i. Had lunch with him after the US Mission marathon mentioned above...
- ii. He is very supportive of the project, the team, and the transition. No concerns with the lab plan or the other issues.
- iii. Did not have the chance to discuss the finding as we were in public.

**c. Friday 23 June: MoHS Chief Medical Officer: Dr. Brima Kargbo – senior most career person in MoHS**

- i. Morning meeting – introduced and explained transition

- ii. He had no issues in principle with it once he understood that the project would remain intact as he had been understanding it.
- iii. Extensive discussions around the finding: in no uncertain terms this is not to be publically released until after the election.
  - 1. He was told that the President said “to take care of it, and he didn’t want to hear about it”.
  - 2. Stressed the need to start communications around animal contact and risk avoidance ASAP in the affected areas, but no details shared about the finding.
  - 3. Wants to keep this discussion about the finding among the scientists... not the public.
  - 4. Would not budge... he said that if the US Ambassador can’t get a meeting to discuss this then there is nothing we can do.

d. **POTENTIAL MAJOR ISSUE:** Prof and James informed me later that they think he is UNAWARE of a publication submission apparently.... as are the MAFFS folks.... Only Drs. Jambai (DCMO) and the Bombali district DMO are aware and on as authors.... Need to fix this... discussion with them later today (Friday 23 June)

#### 5) Service Level Agreement Officials (SLA)

- a. Friday 23 June: Met with Yaya Conteh (Principal Health Partners Coordinator and Head of SLA team) after launch of One Health Platform in F/T.
  - i. Not going to be easy to change SLA
    - 1. UC Davis must register as NGO in-country
    - 2. UNIMAK also must register as in-country service provider
      - a. This takes a couple of months
      - b. Extensive paperwork
  - ii. After registration, we will need a new SLA
    - 1. Changing existing one won’t work
    - 2. Probably easier anyway to just make a new one rather than being tied with the old one.
    - 3. Before new one can be done... will need to make district level visits to ensure that work performed so far has been in accordance with the SLA
  - iii. To start process:
    - 1. Send information describing UC Davis and leadership of PREDICT
    - 2. Describe why changing implementing partners
    - 3. Describe what changes if any to proposed scope of work
    - 4. Describe how UNIMAK is primary in-country partner and how that strengthens country.
    - 5. Send letter from UNIMAK agreeing to participate
    - 6. Send letter from USAID describing how project is ongoing and that UC DAVIS has always been the lead organization globally.
- b. Looking at 3-6 month delay easily....
  - i. Only way to continue operations is under MB until new SLA is approved...

#### 6) Other meetings:

- a. P&R: Roll out and launch of the National One Health Platform this week
  - i. Met with Susan Scribner (Director P&R) and Serge Nzietcheung (West Africa Regional lead)

1. They share office space here in MB palace in F/T
2. Met to touch base and discuss the one health platform and thank Prof and James for their help in the discussions and buildup of the program.