

Strengthening Health Security Across the Globe:
Progress and Impact of
U.S. Government Investments
in Global Health Security



Table of contents

I. Background	2
II. U.S. Approach to Global Health Security (GHS)	3
III. Strengthening Health Security Capacities	6
IV. The Shared Outcomes of USG Investments: Building GHS Capacities	9
V. Evidence of GHS Impact in 2022	18
VI. Highlights of Programs Driving Progress across USG Implementing Agencies	22
VII. Multilateral, Multisectoral Initiatives to Advance Global Health Security	30
VIII. Addressing Challenges and Looking Forward	32

I. Background

The COVID-19 pandemic – like HIV/AIDS, Ebola viral disease, Zika, and other outbreaks in recent years – has demonstrated the catastrophic impacts that infectious disease outbreaks and other health threats can have on health, the economy, and society. These impacts can be felt by Americans and populations worldwide regardless of the point of origin of the outbreak. Investments in global health security capacity – the ability to prevent, detect, and rapidly respond to new and emerging infectious disease outbreaks – help mitigate these costs and protect the lives and livelihoods of American citizens and people everywhere.

The U.S. government improves global health security by strengthening partner countries' capacities to prevent, detect, and respond to outbreaks to contain them at their source, before they can become greater

public health threats. The United States has made a specific commitment to assist 50 countries, and use catalytic leadership to increase capacity in 50 more, to achieve demonstrated capacity in at least five technical areas of health security. The technical areas include establishing or strengthening vital capacities such as laboratory systems, disease surveillance, risk communication and community engagement, and biosafety and biosecurity. To achieve measurable results requires dedicated resources, sustained high-level political attention, robust community engagement, a multi-sectoral approach, and transparency and accountability. Sustainable impact also requires the United States to work collaboratively and measure progress cohesively across our global health security programs and with those of our partners around the world.



Laboratory technicians at the Phebe Hospital in Liberia discuss the importance of disease detection for effective diagnosis and treatment. Phebe Hospital has been supported by USAID's IDDS Project. Photo Credit: Bobby Neptune for USAID

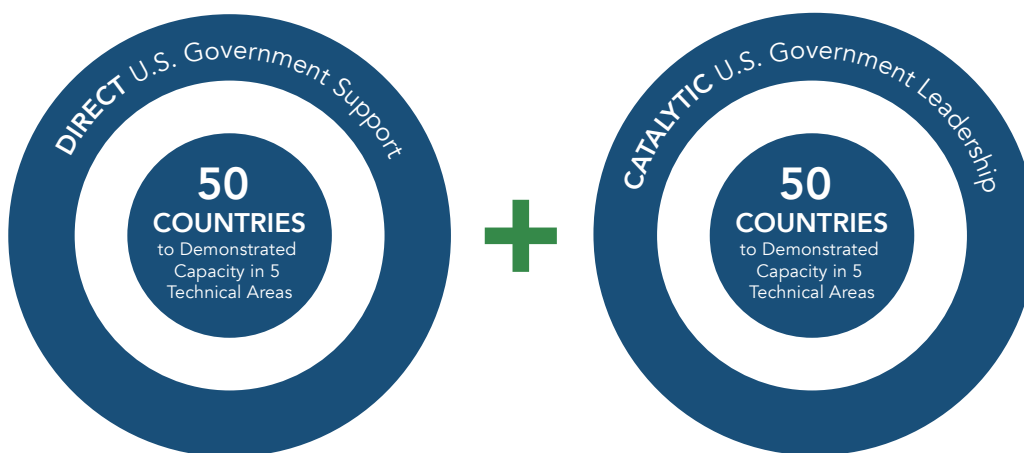
II. U.S. Approach to Global Health Security (GHS)

The COVID-19 pandemic and other epidemics have demonstrated that global health security is national security, and that an infectious disease threat anywhere has the potential to impact the United States. The most effective – and cost effective – way to protect populations everywhere from known and unknown health threats is to stop them before they spread.

U.S. COLLABORATION WITH 50 PARTNER COUNTRIES TO IMPROVE HEALTH SECURITY CAPACITY

The *National Biodefense Strategy and Implementation Plan for Countering Biological Threats, Enhancing Pandemic Preparedness, and Achieving Global Health Security* (NBS)¹ (2022) sets out a bold goal for the U.S. government efforts in global health security, to build demonstrated capacity across at least five technical areas in at least 50 countries and to catalyze a matching level of progress in another 50 countries. Demonstrated capacity is defined as achieving a level four on the World Health Organization (WHO) Joint External Evaluation (JEE) scale or 80 percent achievement on the WHO’s International Health Regulations Monitoring and Evaluation Framework (IHR MEF), or comparable level on other appropriate health security assessments. To reach this target the U.S. government emphasizes whole-of-government and whole-of-society efforts to build capacity at regional, national, and subnational levels to manage infectious disease outbreaks. Bilateral, multilateral, and regional engagement with partners and institutions is also critical to these efforts along with complementary U.S. investments in other areas like HIV/AIDS, malaria, and tuberculosis response and prevention, improving maternal and child health outcomes, furthering routine immunization, and strengthening health workforce capacities.

THE NATIONAL BIODEFENSE STRATEGY GHS COUNTRY CAPACITY TARGET



Strengthening sustainable, host-country owned health capacity is central to the U.S. Global Health Security Strategy. This requires both technical capacity strengthening and diplomacy. The U.S. government complements this work with efforts to secure sustainable multilateral financing for global health security, strengthen the global health security architecture, and marshal political will.

¹ National Biodefense Strategy ([link](#))

Sustainable Multilateral Financing: Building global health security cannot be accomplished overnight or by a single government. Long-term and predictable funding is needed. Experts estimate an additional \$31.1 billion annually is needed at country, regional, and global levels to strengthen global health security capacities², approximately one-third from external resources. The U.S. government's commitment to the Pandemic Fund, including its goals for leveraging bilateral and global engagements, is a cornerstone of this effort. The financing provided through the Pandemic Fund is valuable to strengthen pandemic prevention, preparedness, and response capacities at national, regional, and global levels, with a focus on low- and middle-income countries.

Strengthening the Global Health Security Architecture³: The United States works with partners to advance efforts to strengthen global health security architecture including through:

- The establishment of the Pandemic Fund to help ensure sustainable financing for global health security and pandemic preparedness;
- Negotiating a Pandemic Prevention, Preparedness and Response Accord (Pandemic Accord) to promote more effective and equitable pandemic preparedness and response;
- Strengthening and bolstering financing for the health emergency medical countermeasure ecosystem to promote more rapid and equitable access to vaccines and therapeutics; and
- Amending the International Health Regulations (IHR) (2005) to establish more effective early warning triggers and systems for epidemics and pandemics, promote rapid information sharing, and improve decision making processes related to the determination of a public health emergency of international concern (PHEIC).

In response to the COVID 19 pandemic, and as a Day One priority for the Biden Harris Administration, the United States joined with countries and other partners from around the world to establish the **Pandemic Fund** in September 2022. With support from G20 members, including U.S. government pledges totaling \$700 million as of May 2023, the Pandemic Fund is 1) a source of long term funding to strengthen capacity, 2) a means to incentivize domestic resource mobilization, and 3) a coordinated approach to pandemic preparedness and response (PPR). U.S. Pandemic Fund investments are part of a broader set of multilateral investments to strengthen the global health architecture to address global health security and pandemic preparedness. The Pandemic Fund includes a Results Framework⁴ that mirrors the capacities required by the WHO JEE and measured by the U.S. government. The Pandemic Fund is a Financial Intermediary Fund administered by the World Bank, advised by a technical panel of 21 experts, and overseen by a governing board of 21 seats. Donors have pledged a total of approximately \$2 billion USD to date which will be used to support capacities to prevent, detect, and respond to pandemic threats in low- and middle income countries. The U.S. government plays a leading role in the implementation of the Pandemic Fund through financial, technical, and governance support, as well as by leveraging its extensive bilateral country programming to ensure sustainable gains in capacities and capabilities.

2 World Bank. Pandemic Fund closes its [first Call](#) for Proposals with requests from 129 countries.

3 GHS architecture is defined as framework of institutions, organizations, policies, and measures to address and respond to GHS threats. Key components of the GHS architecture include the World Health Organization (WHO) responsible for monitoring and responding to global health threats, coordinating international public health efforts, providing technical assistance, and setting global health standards and regulations; the International Health Regulations (IHR); global health initiatives and partnerships; national and regional health systems; surveillance and early warning systems; research and development for vaccines, therapeutics, and diagnostics; international coordination and collaboration; capacity building; financing, etc.

4 World Bank. [The Pandemic Fund Results Framework](#).

Marshaling Political Will: The U.S. encourages greater political, multisectoral, and financial commitments to ensure that health security remains a global leader-level priority in countries and regions around the globe. This includes catalyzing national, regional and multilateral commitments to advance global health, as well as supporting efforts to promote transparency and accountability for commitments through ongoing efforts including at the WHO, the Group of Seven (G7), Global Partnership Against the Spread of Weapons and Materials of Mass Destruction; Group of 20 (G20), United Nations, World Trade Organization, Global Health Security Agenda (GHSA) multilateral initiative, and other relevant fora. This approach aims to promote greater accountability, concerted action, and a multi-sectoral focus to safeguard the health and well-being of all nations.

Through the Department of Defense, the U.S. government continuously engages partner nation defense sectors to increase defense sector participation in efforts to advance GHS and promote peaceful military and civilian cooperation on global health security. This work is often conducted through multilateral channels including the WHO and GHSA, and always in a manner supporting international norms and standards for defense engagement in global health security activities under civilian leadership.



In Kilifi County, Kenya, Dr. Aisha Mongi, (left) mentors Warda Nassir (right) in antimicrobial stewardship. With the support of USAID MTaPS project Dr. Aisha Mongi and Warda Nassir coordinate programs to encourage prescribing and hospital procedures that reduce AMR and encourage IPC.
Photo: Mwangi Kirubi

III. Strengthening Health Security Capacities

To meet the GHS target outlined in the NBS, the U.S. government forms partnerships to improve country capacity to prevent, detect, and respond to infectious disease outbreaks. Through these partnerships, countries receive dedicated U.S. government program funding and technical assistance. GHS partner countries are selected using criteria that include 1) health security capacity and gaps, 2) travel and trade linkages to the United States, 3) existing U.S. government programs, and 4) department and agency priorities.

The U.S. government’s GHS efforts in partner countries focus on addressing gaps in prioritized areas across 15 specific technical areas outlined in the IHRMEF. Technical areas span multiple sectors and disciplines, including animal and human health, agriculture, and

security, and are detailed in the JEE, a voluntary and transparent external assessment of a country’s health security capacities and the State Party Annual Report (SPAR), a country’s self-assessment of their health security capacities. The JEE and SPAR were developed with support from U.S. government and international experts and were revised in 2022 to better align with each other and enable countries to better track health security capacity gaps and progress. Many JEE and SPAR results are published online and help establish a country’s baseline health security capacity, identify areas that can be targeted as part of the U.S. government’s work with our partner countries, and enable coordination with stakeholders working in countries to address health security gaps.

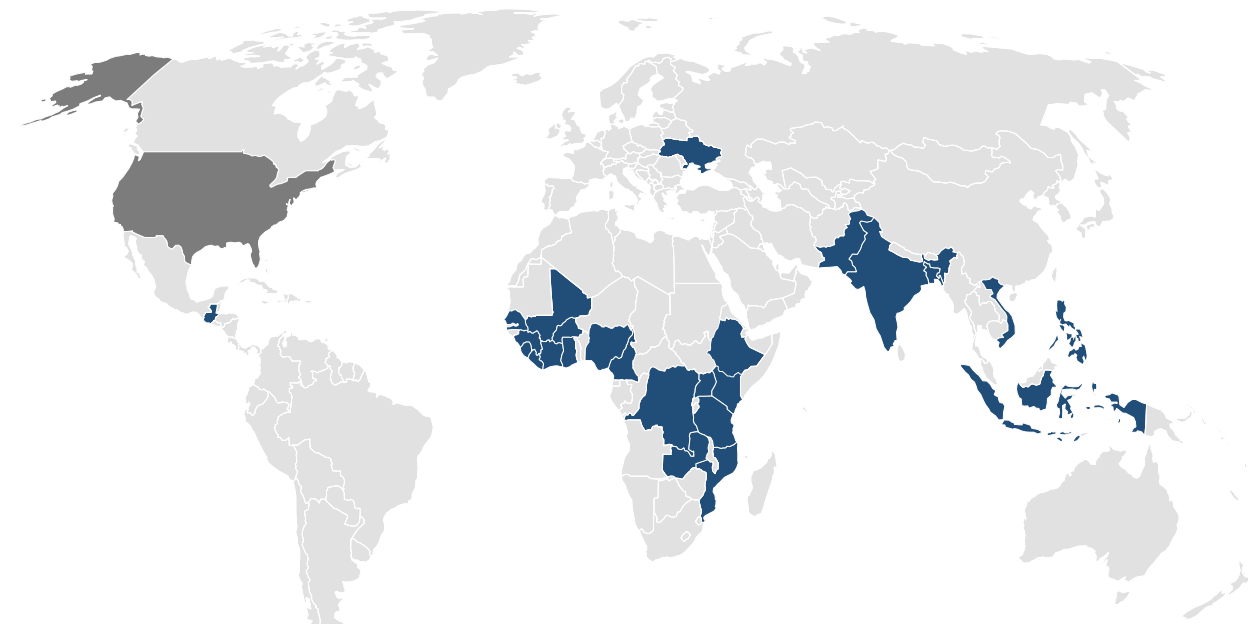
15 TECHNICAL AREAS	3 GLOBAL HEALTH SECURITY PRIORITIES	3 CRITICAL HEALTH SECURITY IMPACTS
<ul style="list-style-type: none"> • National Legislation, Policy and Financing • Antimicrobial Resistance • Zoonotic Diseases • Biosafety and Biosecurity • Immunization 	 <p>PREVENT</p>	<p>PREVENT AVOIDABLE OUTBREAKS</p>
<ul style="list-style-type: none"> • National Laboratory System • Surveillance • Reporting • Human Resources 	 <p>DETECT</p>	<p>DETECT THREATS EARLY</p>
<ul style="list-style-type: none"> • Emergency Response Operations • Emergency Preparedness • Linking Public Health and Security Authorities • Medical Countermeasures Personnel Deployment • Risk Communications • Points of Entry 	 <p>RESPOND</p>	<p>RESPOND RAPIDLY AND EFFECTIVELY</p>

As of June 2023, 186 countries have completed their 2022 IHR SPAR, 116 countries have completed a JEE, and an additional 10 countries are planning to undergo a JEE in the coming months. The WHO has worked with countries to complete 225 simulation exercises (SimEx) and 83 Intra-Action Reviews (IARs). Following a JEE, countries are encouraged to develop a National Action Plan for Health Security (NAPHS) and implementation plans with an accompanying budget to address gaps in health security and identify resources required to address those gaps. Approximately 83 countries have made substantial progress in developing a NAPHS, with 10 more in the planning process.

Since 2016, the U.S. government has identified and worked closely with partner countries to identify gaps, priorities, and build capacity in a sustainable

manner and aligned with their country priorities. We strongly encourage our partner countries to undergo a JEE and develop or update their NAPHS based on the findings. The Department of State leads an annual U.S. government planning and reporting process to coordinate efforts and measure progress across our partner countries.

In 2022, U.S. government partner countries included Bangladesh, Burkina Faso, Cameroon, Côte d’Ivoire, Democratic Republic of the Congo (DRC), Ethiopia, Ghana, Guatemala, Guinea, India, Indonesia, Kenya, Liberia, Mali, Mozambique, Nigeria, Pakistan, the Philippines, Senegal, Sierra Leone, Tanzania, Uganda, Ukraine (when the operating environment allows), Vietnam and Zambia.



UNITED STATES GOVERNMENT FY22 PARTNER COUNTRIES

- Bangladesh
- Burkina Faso
- Cameroon
- Côte d’Ivoire
- Democratic Republic of the Congo
- Ethiopia
- Ghana
- Guatemala
- Guinea
- India
- Indonesia
- Kenya
- Liberia
- Mali
- Mozambique
- Nigeria
- Pakistan
- The Philippines
- Senegal
- Sierra Leone
- Tanzania
- Uganda
- Ukraine
- Vietnam
- Zambia

Based on the 2022 SPAR data, seven of 25 partner countries supported by the U.S. government have achieved “demonstrated capacity” in at least five technical areas. An additional six partner countries are close to meeting the target and have three or four technical areas at the level of “Demonstrated Capacity.” The U.S. government’s NBS target is in alignment with the overall target of the Global Health Security Agenda (GHSA), a multilateral initiative to build capacity and in compliance with the IHR.

It is important to note that other U.S. government programming extends beyond the partner countries where we have comprehensive support in at least five technical areas. For example, U.S. departments and agencies partnered with more than 35 additional countries beyond these in 2022 to provide coordinated, whole-of-government operational and technical assistance to strengthen their capacities to prevent, detect and respond to infectious disease threats as well as to promote more equitable health systems in a few prioritized technical areas.

PROGRESS TOWARDS THE NBS COUNTRY CAPACITY TARGET

7 countries

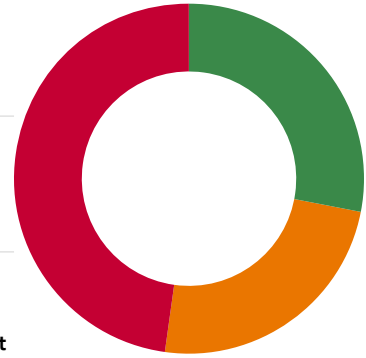
● Meeting the Target

6 countries

● Close to the Target

12 countries

● Not Achieving Target



7 of the 25 Partner Countries are Meeting the NBS Target of Five Technical Areas with Demonstrated Capacity



A laboratory technician at the Phebe Hospital in Liberia demonstrates the importance of disease detection for effective diagnosis and treatment. Photo: Bobby Neptune for USAID, IDDS project, Liberia

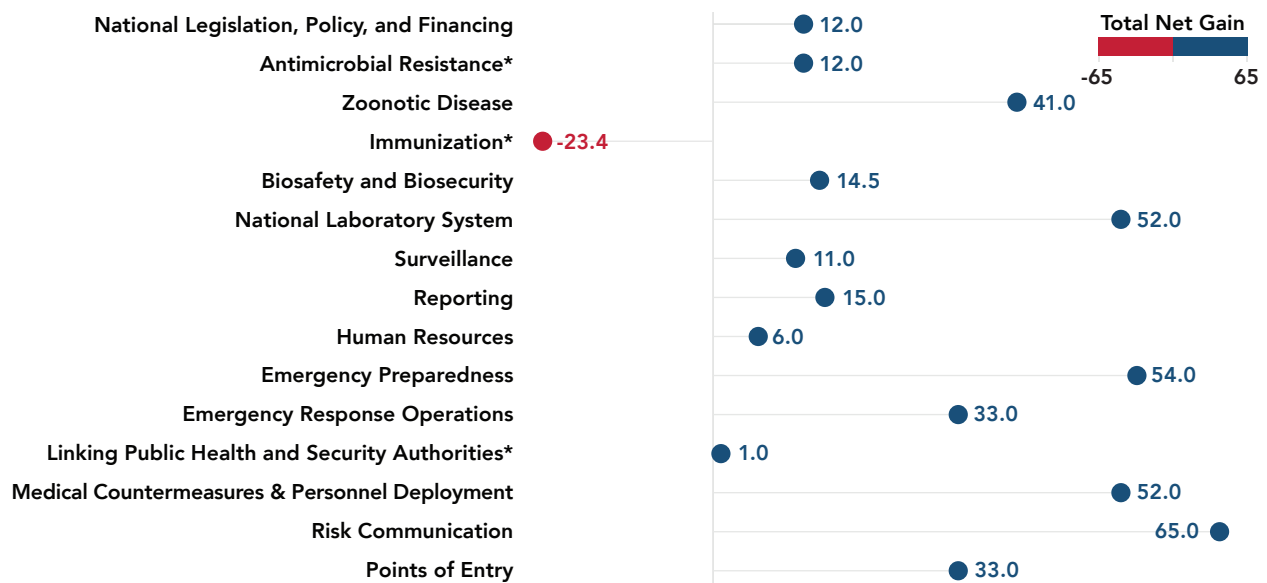
IV. The Shared Outcomes of USG Investments: Building GHS Capacities

The following sections demonstrate that U.S. government (USG) partner countries have built capacity that has had a meaningful impact on managing infectious disease outbreaks and highlight some of the programs that are responsible for this progress.

The chart below illustrates net capacity gains from baseline across the technical areas where the USG

prioritized investments with partner countries. Net capacity gain is a methodology that uses net change across all indicators within a technical area to calculate technical area capacity changes. Compared to baseline, there have been capacity gains across partner countries in all technical areas with exception of Immunization, which globally has seen substantial backsliding as a result of the COVID-19 pandemic⁵.

NET CAPACITY GAINS IN JEE TECHNICAL AREAS ACROSS USG PARTNER COUNTRIES



*Uses GHSI 2021 Data

The following examples illustrate the impact of U.S. government (USG) and bilateral partner country investments to strengthen health security capacity. The number of partner countries listed within each technical area achieved a net increase over their baseline capacity scores within a technical area as defined by the JEE. For most indicators, a sustainment or increase in capacity scores represents a significant accomplishment. U.S. government activities are aimed to help partner countries improve their scores and achieve benchmarks outlined in their own JEEs and NAPHS.

Of note, during the COVID-19 pandemic, WHO conducted a consultation among WHO Member States and gathered experts from across sectors and around the world, including 75 experts from across the U.S. government, to revise the JEE tool based on lessons learned from the pandemic. The updated version, the JEE 3rd edition, was released in June 2022 and included a number of changes to how capacities and underlying indicators are framed. These changes will have implications for scores and reporting by our partner countries with their improved scores.

5 <https://www.who.int/news/item/15-07-2022-covid-19-pandemic-fuels-largest-continued-backslide-in-vaccinations-in-three-decades>

P R E V E N T



**BIOSAFETY AND
BIOSECURITY**

11
COUNTRIES

Efforts to improve biosafety and biosecurity capacity helps prevent the accidental release or deliberate misuse of dangerous pathogens.

DRC developed quality assurance and biosafety and biosecurity manuals for the national laboratory network as part of the operationalization of its national laboratory policy and strategic plan.

In **SIERRA LEONE**, following didactic and practical training sessions on biosafety and biosecurity, 32 laboratory workers used newly acquired knowledge to conduct safety audits of their laboratories and design improvement plans.



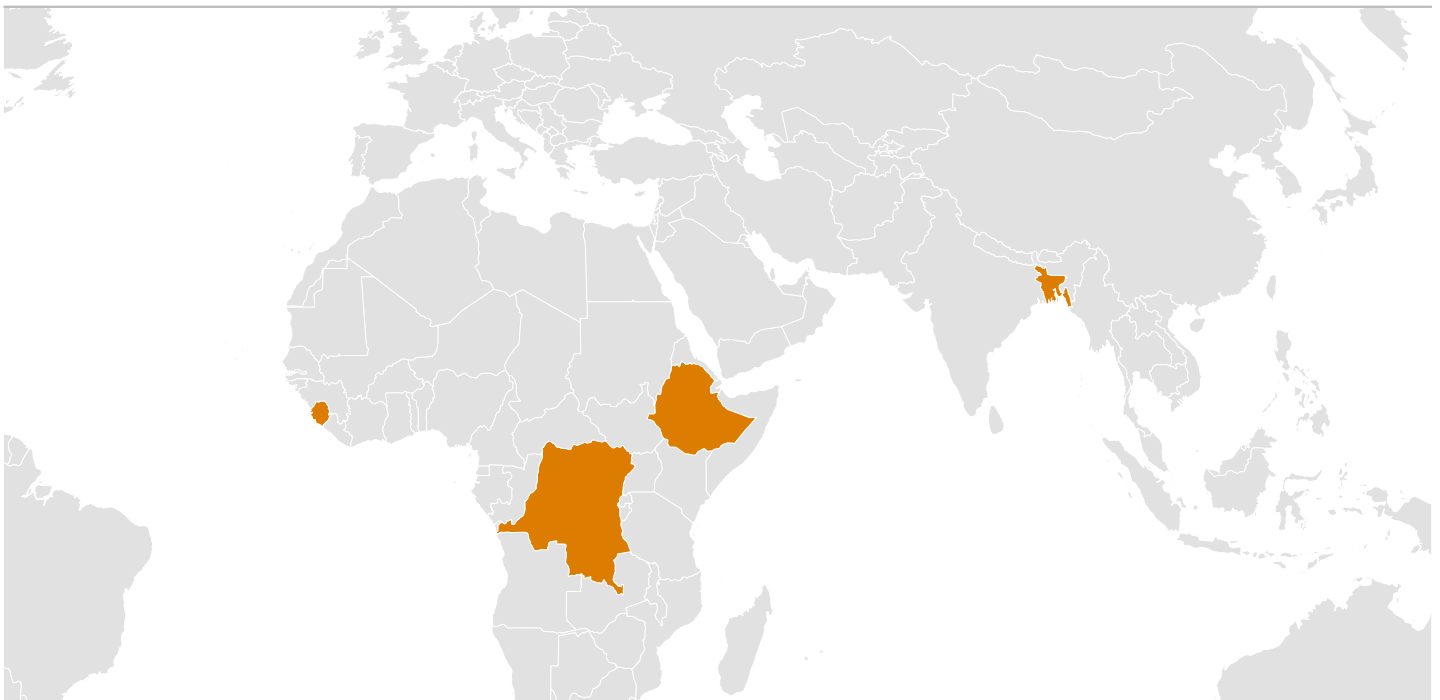
**ANTI MICROBIAL
RESISTANCE**

12
COUNTRIES

Identifying antimicrobial-resistant pathogens allows us to react quickly when they spread.

ETHIOPIA is the first country in Africa to participate in the Global Action in Healthcare Network, a network focused on prevention of and rapid detection and response to AMR threats. Implementation started at two hospitals, which are now seeing improvement in IPC practices - such as hand hygiene and environmental cleaning and disinfection. Additionally, Ethiopia is strengthening laboratory capacity and more specimens are being collected and processed for detection of antimicrobial-resistant genes.

BANGLADESH developed standard treatment guidelines for common infectious diseases and developed an app version to assist healthcare providers to promote the appropriate use of antibiotics.



P R E V E N T



IMMUNIZATION

1
COUNTRIES

Effective immunization systems reduce illness and death from vaccine-preventable diseases and help limit the magnitude and number of infectious disease outbreaks.

To reach more remote populations, **GUATEMALA** developed and implemented a national rural vaccination plan to extend vaccination coverage for remote populations. This plan includes components covering logistical management, vaccination delivery strategies, risk communications, and surveillance of adverse effects.

In **PAKISTAN'S** Balochistan province, a team of 1,100 local vaccinators and volunteers were trained to administer 500,000 COVID-19 vaccines before their expiry. As a result, the Balochistan Health Department achieved 79% of its vaccination target, a major achievement in a region with historically low vaccine acceptance.



ZOONOTIC DISEASES

17
COUNTRIES

Most infectious diseases are zoonotic. These outbreaks need to be quickly identified in animals to prevent and prepare for possible spread into human and animal populations.

ETHIOPIA initiated cross-border collaboration with South Sudan, bringing together officials from human and animal health sectors to enhance monitoring of people, animals, and animal products moving between the two countries. Permanent vaccination sites were established at major entry and exit points to improve control and management of zoonotic diseases.

NIGERIA conducted a One Health Zoonotic Disease Prioritization workshop with representatives from the animal, human, and environmental health sectors to re-prioritize zoonotic diseases of greatest concern and develop plans to address them. Mpox, yellow fever, Lassa Fever, highly pathogenic avian influenza, rabies, and bovine tuberculosis were identified as top priorities to address.



P R E V E N T



NATIONAL LEGISLATION, POLICY AND FINANCING

11
COUNTRIES

Adequate legal frameworks and financing support and enable implementation of IHR obligations.

INDONESIA has introduced a new national regulation for the Prevention and Control of Zoonosis and Emerging Infectious Disease. This regulation includes guidelines for multisectoral coordination in risk assessments, community-based surveillance, and risk communication, and Indonesia has provided funding to implement the regulation.

NIGERIA and **CAMEROON** are implementing the Africa CDC Legal Framework for Infection Prevention and Control (IPC). This framework, endorsed by the African Union, guides review of existing legal instruments to help countries better understand their legal options to support IPC. It also helps countries identify improvements to existing legal instruments to increase support for IPC programs.



DETECT

 **REPORTING** 9 COUNTRIES

Procedures and systems for reporting potential outbreaks allow experts to assess public health events and respond rapidly.

The **DRC** Ministry of Fisheries and Livestock implemented electronic disease reporting in 14 of 26 provinces, reactivating its surveillance system and publishing weekly epidemiologic bulletins on animal diseases.

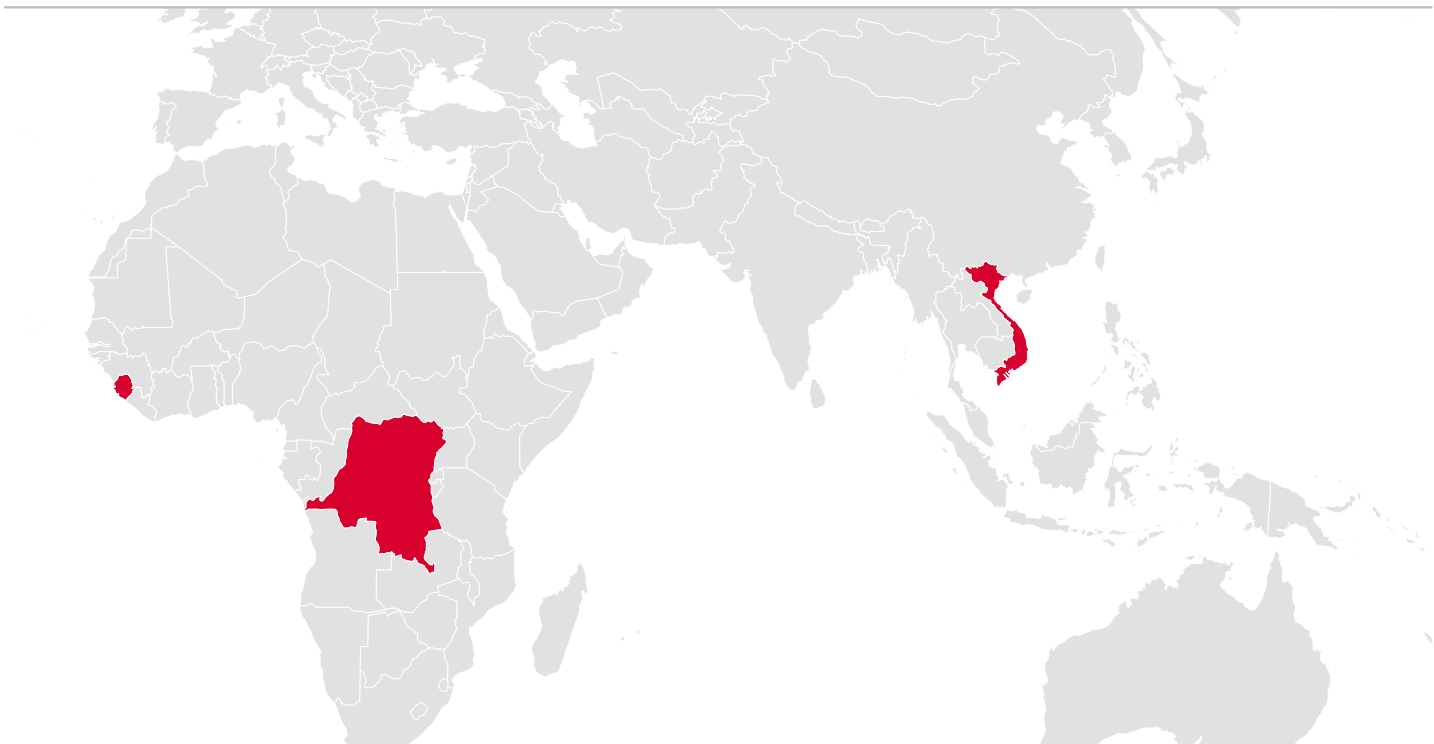
VIETNAM'S Ministry of Agriculture worked extensively with provincial and regional staff at animal health centers across the country to improve the usability of the online disease reporting system. The system is now being used nationwide with all 63 districts able to report animal and zoonotic diseases in real-time.

 **SURVEILLANCE** 10 COUNTRIES

Effective disease surveillance enables countries to quickly detect outbreaks and continuously respond to potential risks.

VIETNAM'S national surveillance network for healthcare-associated infections (HAIs) has enrolled 32 new hospitals, for a total of 64 facilities now reporting surveillance data and implementing HAI prevention activities in the network.

In **SIERRA LEONE**, community-based surveillance triggered the investigation of animal deaths that the Ministry of Agriculture and Forestry confirmed was caused by peste des petits ruminants virus. Community sensitization and mobilization events led to the treatment of 67 sick animals and vaccination of 178 healthy animals.



DETECT



**NATIONAL
LABORATORY
SYSTEM**

18

COUNTRIES

Confirming diagnoses with labs allows health workers to respond rapidly with the most effective treatment and prevention methods.

CAMEROON launched the bacteriology unit at the National Veterinary Laboratory of Douala, improving diagnosis of bacterial animal health diseases in one of the country's largest cities and a major poultry-producing region, contributing to the nation's agriculture and economic resilience.

In **MALI**, 47 regional and district laboratories improved their diagnostic capabilities enabling them to test for cholera, meningitis, tuberculosis and COVID-19 more effectively. Additionally, 26 labs enhanced their PCR and antigen testing capacities, achieving 100% accuracy during proficiency exercises.



**HUMAN
RESOURCES**

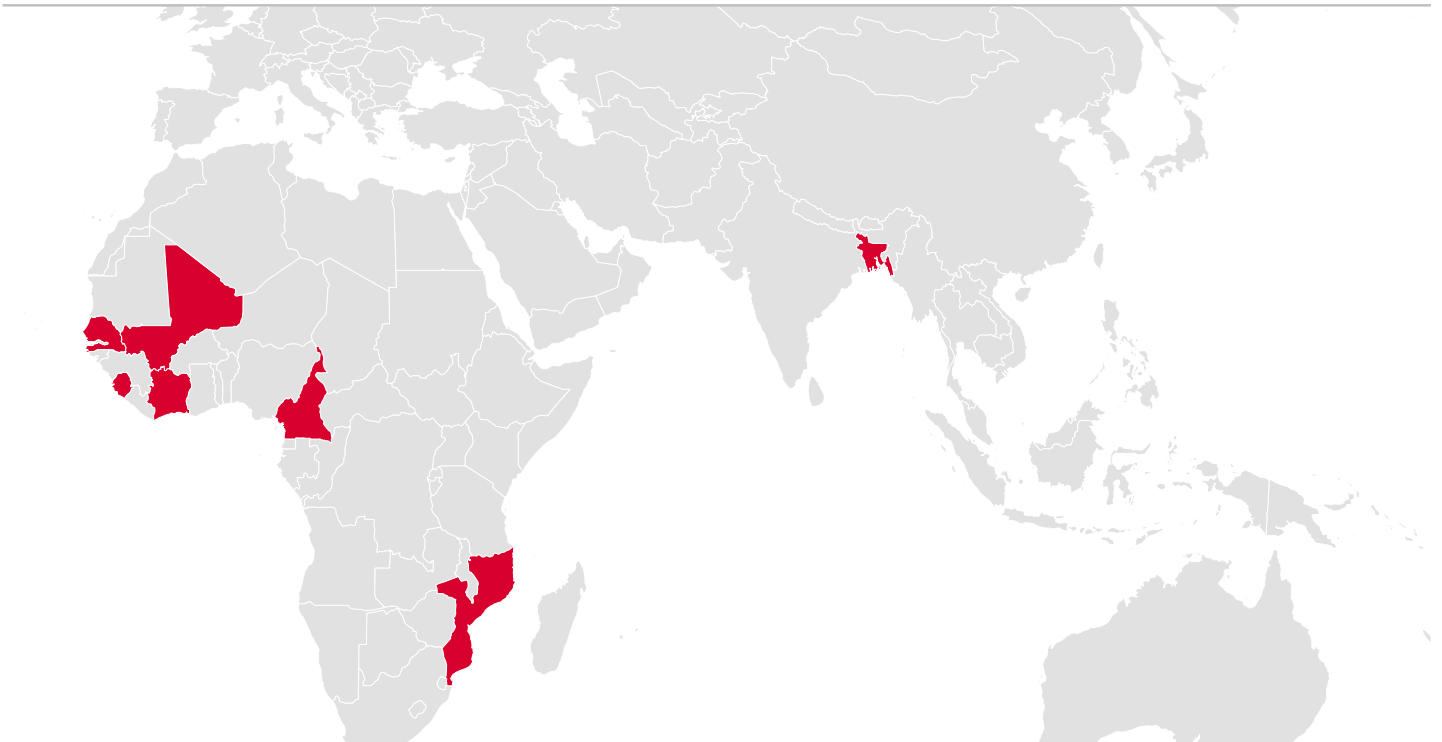
9

COUNTRIES

To maintain global health security capabilities, countries need people who can quickly investigate potential outbreaks, identify the issue, and take swift action.

In **BANGLADESH**, the Ministry of Local Government and Rural Development implemented a field epidemiology training program targeting the urban public health system. Over 20 epidemiologists and medical officers were trained and posted in 12 city corporations across the country.

MOZAMBIQUE, CÔTE D'IVOIRE, SENEGAL, and **SIERRA LEONE** each graduated their first cohort of In-Service Applied Epidemiology Training (ISAVET) program participants, building the capacity of veterinarians and para-veterinarians to conduct field epidemiology and improve animal disease surveillance and reporting.



R E S P O N D



PUBLIC HEALTH AND SECURITY AUTHORITIES

1

COUNTRIES

Planning for public health threats helps countries mount timely, effective, and efficient responses.

In **CAMEROON**, public health and security authorities have coordinated plans to manage outbreaks. Law enforcement officials are now involved in emergency operations and points-of-entry response activities, and law enforcement personnel participate in weekly surveillance meetings and outbreak response coordination.

LIBERIA'S National Police and Immigration Services participated in rapid response training sessions to improve One Health surveillance and response capacities. Multisectoral rapid response teams were established at county levels to coordinate response to public health threats.



RISK COMMUNICATIONS AND COMMUNITY ENGAGEMENT

16

COUNTRIES

Timely and accurate information exchange can mitigate the negative impacts of public health emergencies.

The **NIGERIA** Centre for Disease Control organized its first media relations and training workshop for select staff to increase their comfort level in engaging the media. Since the training, the spokespersons have been collectively featured in over 600 media appearances.

The **PHILIPPINES** Department of Health developed a system to address misinformation and provide accurate messaging and materials on the prevention and care of COVID-19 infection, including to promote vaccination.



R E S P O N D



POINTS OF ENTRY

14
COUNTRIES

Having adequate medical services and response capacities at airports, ports and ground-crossings can help contain the spread of infectious diseases.

BURKINA FASO developed IHR-compliant and multisectoral public health standard operating procedures for its two international airports for the detection, notification, management, and referral of ill travelers. The MoH will train health and non-health staff on responding to public health events at airports and onboard incoming planes.

LIBERIA strengthened the functionality of the Animal Quarantine Centre at the Liberia-Guinea border point, including its mini-laboratory. This is one of Liberia's main One Health facilities and has a significant role to play in protecting the country against the incursion of transboundary and zoonotic diseases, including Africa Swine Fever.



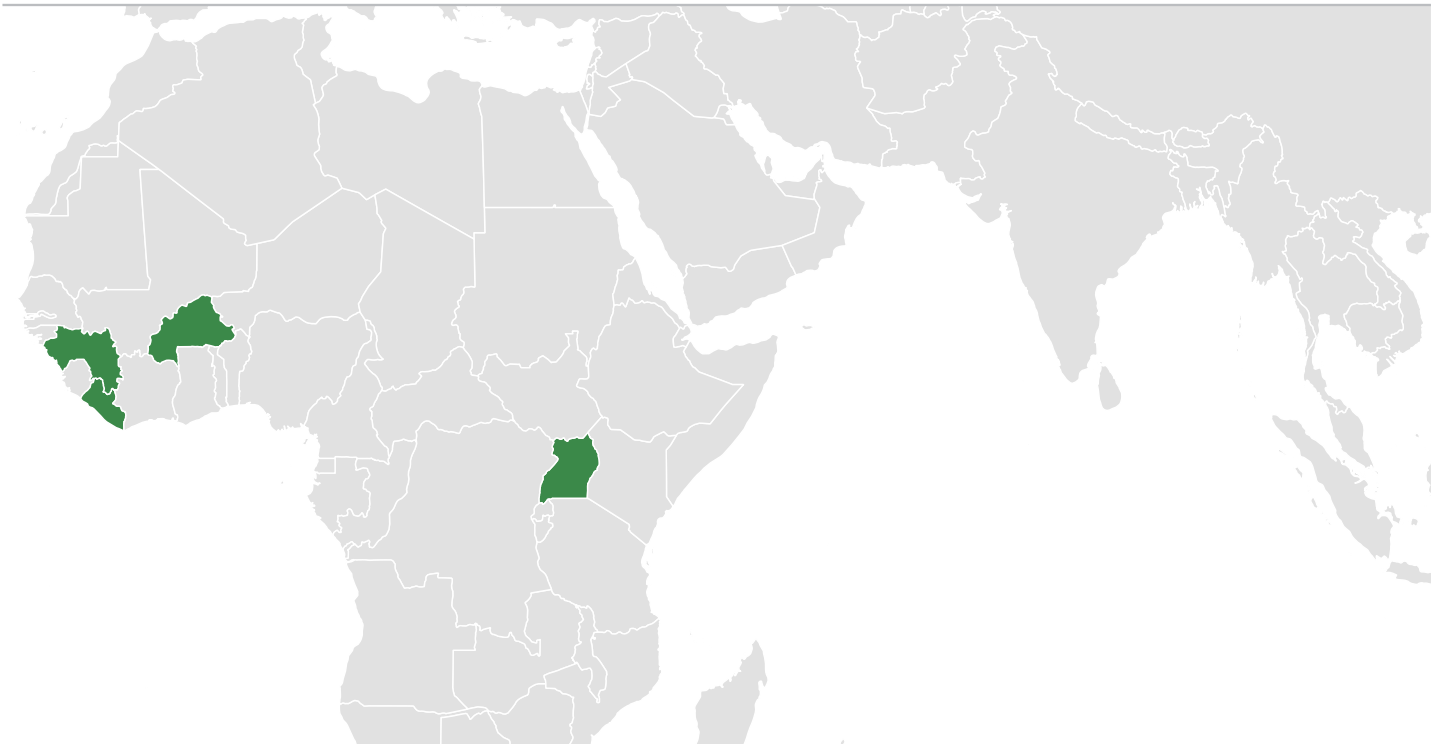
MEDICAL COUNTERMEASURES

16
COUNTRIES

Systems that deliver applicable medicines and engage the accurate personnel at the right time, lessens the impact of disease outbreaks.

GUINEA'S Ministry of Health reviewed its medical countermeasure plan including lists of supplies specific for COVID-19, Lassa Fever, and measles, as well as the establishment of testing and vaccination sites.

UGANDA has drafted a national preparedness and response plan including procedures for medical countermeasures (MCM) and personnel deployment. These regulatory pathways for MCM, including authorizations and clearances, were applied to respond to the Sudan Ebolavirus outbreak.



R E S P O N D



**EMERGENCY
RESPONSE
OPERATIONS**

17
COUNTRIES

Emergency Operations Centers bring together experts and stakeholders to efficiently and effectively coordinate responses to emergencies or public health threats.

CAMEROON'S Public Health Emergency Operations Center (PHEOC) was successfully activated for COVID-19, cholera, and spiking maternal, perinatal, and neonatal deaths. The PHEOC created a COVID-19 emergency response plan, standardized surveillance and response tools, and trained data clerks at district and regional levels.

ETHIOPIA conducted a multi-sectoral tabletop simulation exercise to test emergency preparedness and response plans for avian influenza and Rift Valley Fever. Experts from regional states and federal institutions participated and used the exercise to identify gaps and offer recommendations to improve emergency management of these diseases.



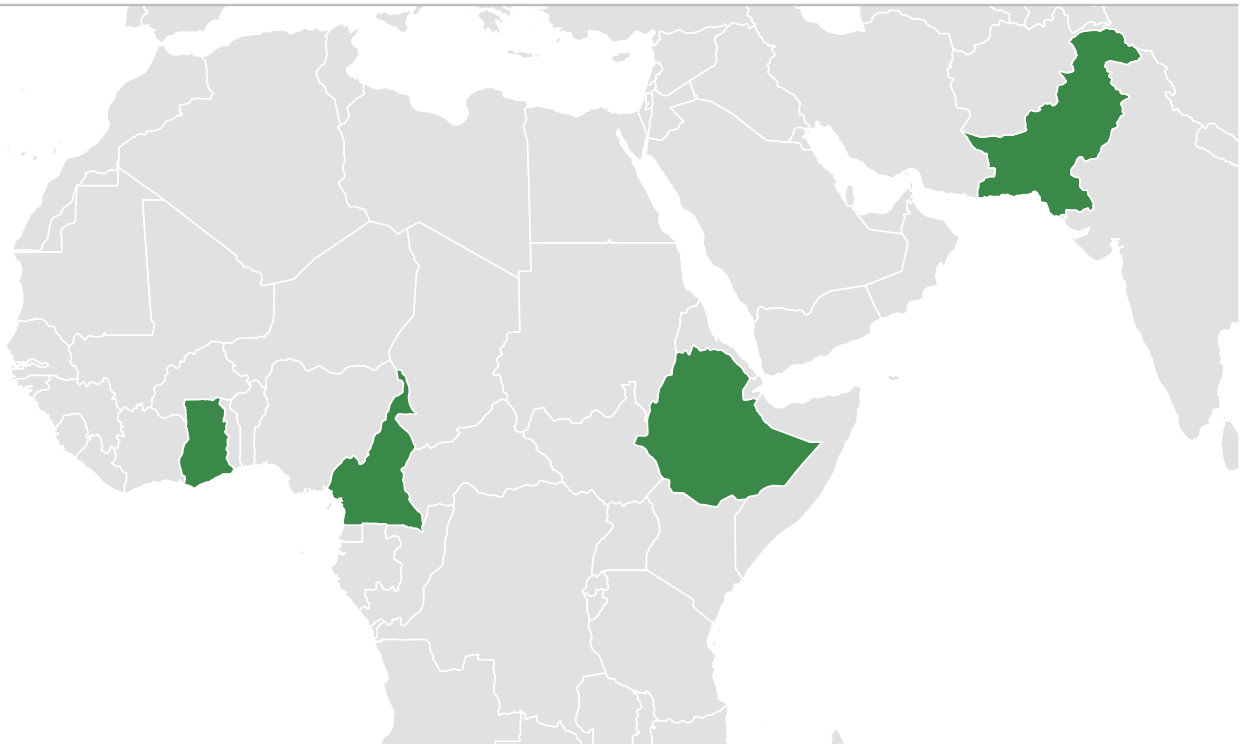
**EMERGENCY
PREPAREDNESS**

15
COUNTRIES

Planning for public health threats helps countries mount timely, effective, and efficient responses.

GHANA conducted a simulation to test their avian influenza outbreak response and contingency plans. The exercise and after-action review clarified roles and responsibilities, identified gaps, and provided recommendations for responding to avian influenza outbreaks.

In **PAKISTAN**, 6 sub-districts of Faisalabad implemented a COVID-19 case tracking and tracing pilot program with local faith-based organizations. The program identified 55 COVID-19 positive cases and conducted contact tracing with 389 COVID-19 contacts. More than 80 COVID-19 prevention sessions were held at hospitals, mosques, and churches, reaching 2,350 individuals.



V. Evidence of GHS Impact in 2022

In 2022, the global health community responded to numerous outbreaks and other health security challenges across the world, including Lassa Fever, cholera, avian influenza, vaccine-derived polio outbreaks, Ebolavirus outbreaks, mpox, and other threats.

During 2022, GHS partner countries demonstrated leadership in not only responding to many of these outbreaks but also in addressing the lessons from the COVID-19 pandemic by strengthening their GHS capacities, building upon the support provided by the U.S. government and other partners. Here are a few examples:

Uganda uses global health security capacities to respond to SUDV

During an Ebola outbreak last year, the government of **Uganda** led a strong and robust response which brought a swift end to the outbreak in just three months, a major accomplishment. This was a particularly concerning outbreak as it was caused by the Sudan Ebolavirus (SUDV) species, which has no licensed therapeutics or vaccines, and the outbreak also reached the capital city of Kampala, a major international hub. The government's leadership and capacity in this successful response also leveraged U.S. government global health investments built over the past 60 years, including investments in laboratory capacity, surveillance, and emergency operations. As a leader in the region for in-country laboratory capacity, Uganda successfully collected and transported samples to test and confirm SUDV within 48 hours at the onset of the outbreak, and continued timely testing throughout the response to inform treatment and control measures. Uganda's national and regional Emergency Operations Centers (EOC) were also immediately activated to support response activities, such as dispatching epidemiologists, many of whom have been trained through U.S. government-supported field epidemiology training, to conduct surveillance and contact tracing. Led by the U.S. Embassy Kampala, the U.S. government supported the Ugandan response by contributing \$34 million for services and providing technical assistance for laboratory investigations, surveillance, patient care, health care waste management, infection prevention and control, engagement of communities, and a survivor support program.

Guinea responds to avian influenza

Following the disease notification on mortality of chickens above 70% at three poultry farms in the outskirts of Conakry, the **Guinean** Central Veterinary Diagnostic Laboratory (LCVD) and Directorate of Veterinary Services (DVS), with U.S. government assistance, played a crucial role in responding to and controlling the avian influenza outbreak prior to infecting humans. During investigations, the main signs observed in birds were sudden death, respiratory distress, lethargy, and diarrhea accompanied by ruffled plumage. It was the first time the DVS was confronted with an avian influenza outbreak in multiple affected farms. As of September 30, 2022, there were 111 impacted farms, with an estimated 412,928 chickens infected, 172,370 chickens dead, 240,558 chickens euthanized, and 141,160 eggs destroyed. A national multi-sectoral team conducted an assessment and collected samples which were tested by LCVD with PCR, leading to the identification of the H5 avian influenza gene for the first time in Guinea. In addition, the National Public Health Institute stepped in to test the human samples. These coordinated efforts led to mitigation measures, including checkpoints in Coyah, Forecariah and Conakry to track eggs and poultry coming from outbreak zones, closure of 111 farms, 240,558 euthanized birds and seven trucks of seized eggs, which successfully localized the outbreak, avoided spread beyond the three affected sub-districts, and resulted in no human cases.

Rabies prevention and control in Mozambique and Vietnam

Although rabies is a vaccine-preventable zoonotic disease, outbreaks continue to be reported. In **Mozambique**, following reports of human deaths associated with dog bites in two districts of Cabo Delgado province, local officials implemented a series of multisectoral interventions including a multi-sectoral risk assessment; community engagement with local leaders; radio messaging on rabies prevention including dispelling the prevailing rumor that dogs lose hunting agility when vaccinated; training of 63 field technicians on the rapid in-field diagnosis and epidemiology of dog bites; and mass vaccination campaigns enabling the vaccination of 1,194 dogs in the affected areas within one month. Increased public awareness has led to reports of zero dog bites from the area in the six weeks after the interventions, increased adherence by communities of control measures and underscored the importance of collaboration and data sharing between the human and animal health sectors for the control of zoonotic diseases. In **Vietnam**, the Prime Minister approved a new National Program on Rabies Prevention and Control (NPRC) for the period of 2022-2030 with the aim of controlling rabies in domestic dogs and cats to achieve zero deaths by 2030, thereby contributing to the protection of human health. The Ministry of Agriculture and Rural Development organized workshops to help introduce NPRC and local authorities organized the 2022 World Rabies Day in Ben Tre province an area that had the highest number of rabies deaths in 2022. Sustained U.S. government support for rabies control as part of comprehensive zoonotic disease and animal health system strengthening contributed to the progress achieved by these countries.

Bangladesh strengthens animal health surveillance

In 2022, with U.S. government assistance, the **Bangladesh** Department of Livestock Services (DLS) developed and launched an updated version of the Animal Health Intelligence System (BAHIS) which is user-friendly, flexible, modular, and open-source. This upgrade was rolled out in all upazilas (sub-districts) in July 2022 with a one-day training session and sensitization activities with aims to further increase the capacity of DLS on preparedness and response to emerging, re-emerging, and other zoonotic diseases and public health threats using real-time data. Prompt reporting from the field

offices has helped the Epidemiology Unit of DLS to take prompt necessary actions. For example, lumpy skin disease was identified for the first time in Bangladesh. A goat pox outbreak was also detected using the clinical data provided through BAHIS.

Sierra Leone strengthens its surveillance systems

Sierra Leone completed its pilot program for an electronic case-based disease surveillance system (eCBDS), allowing country leaders to make strategic decisions in reducing the threat of COVID-19. As COVID-19 spread, Sierra Leone quickly implemented its newly developed eCBDS. Built upon the District Health Information Software (DHIS2), this software supports data collection, analysis, and visualization. Through DHIS2, data on individual cases of COVID-19 are captured using a mobile application which allows national health officials to receive SMS (text) messages and emails when COVID-19 is detected. Additionally, the Sierra Leone Ministry of Health, with USG technical assistance, customized the DHIS2 vaccine toolkit to manage COVID-19 vaccination data and integrated it into the eCBDS, used throughout the country's 16 districts. With this system, health officials can track doses administered, and providers can easily schedule appointments, send appointment reminders via SMS, report adverse side effects, and track missed appointments. On the animal health side, using a smart phone-based surveillance technology called the Event Mobile Application (EMA-i) tool, frontline animal health officers in Sierra Leone are able to collect and transmit real-time geo-referenced information on animal diseases from the field using smartphones and tablets. With this USG supported program, reports are also sent in real-time to the Global Animal Disease Information System managed by FAO. An evaluation of the EMA-i surveillance system shows that the timeliness of disease events reporting in 2022, including outbreaks, has drastically improved. About 62 percent of disease outbreaks were reported within three days from observation of clinical signs, compared with more than seven days previously. The timeliness of reporting and the ability to transmit credible information through the EMA-i reporting system has enhanced early warning, surveillance and response to disease outbreaks. The above progress in surveillance on both the human and animal health side reflects longstanding support from the USG in this critical area.

Burkina Faso Becomes First Country to Incorporate GLLP into National Continuing Education Program

The Global Laboratory Leadership Programme (GLLP), with USG assistance, has helped countries strengthen their laboratory workforce. COVID-19 highlighted how strong laboratory systems are critical for global health security to detect outbreaks early and launch a timely response. Within those systems, a highly skilled laboratory workforce, including laboratorians trained in leadership skills, are needed to ensure sustainability of day-to-day laboratory operations and timely response to outbreaks, or emerging disease threats. Following the creation of the GHSA, the USG collaborated with the Association of Public Health Laboratories, the European Centre for Disease Control and Prevention, the FAO, the World Organization for Animal Health (WOAH), and the WHO to develop the GLLP. This program fosters and mentors laboratory leaders and managers to build, strengthen, and sustain public health laboratory systems in their own countries. The curriculum and training for the program apply a One Health approach, recognizing the connection among people, animals, plants, and their shared environment. The program grew from a pilot program in Liberia in 2017 to 20 countries implementing the program in 2022. One key objective of the GLLP is developing a sustainable program owned by the country. **Burkina Faso** is the first country to incorporate the program into existing continuous education programs. Burkina Faso's ministries of higher education and health in 2022, with U.S. government support, began the process to integrate the program into the Joseph Ki-Zerbo University Diploma in Ouagadougou.



Photo: USAID/IDDS, Bobbi Neptune

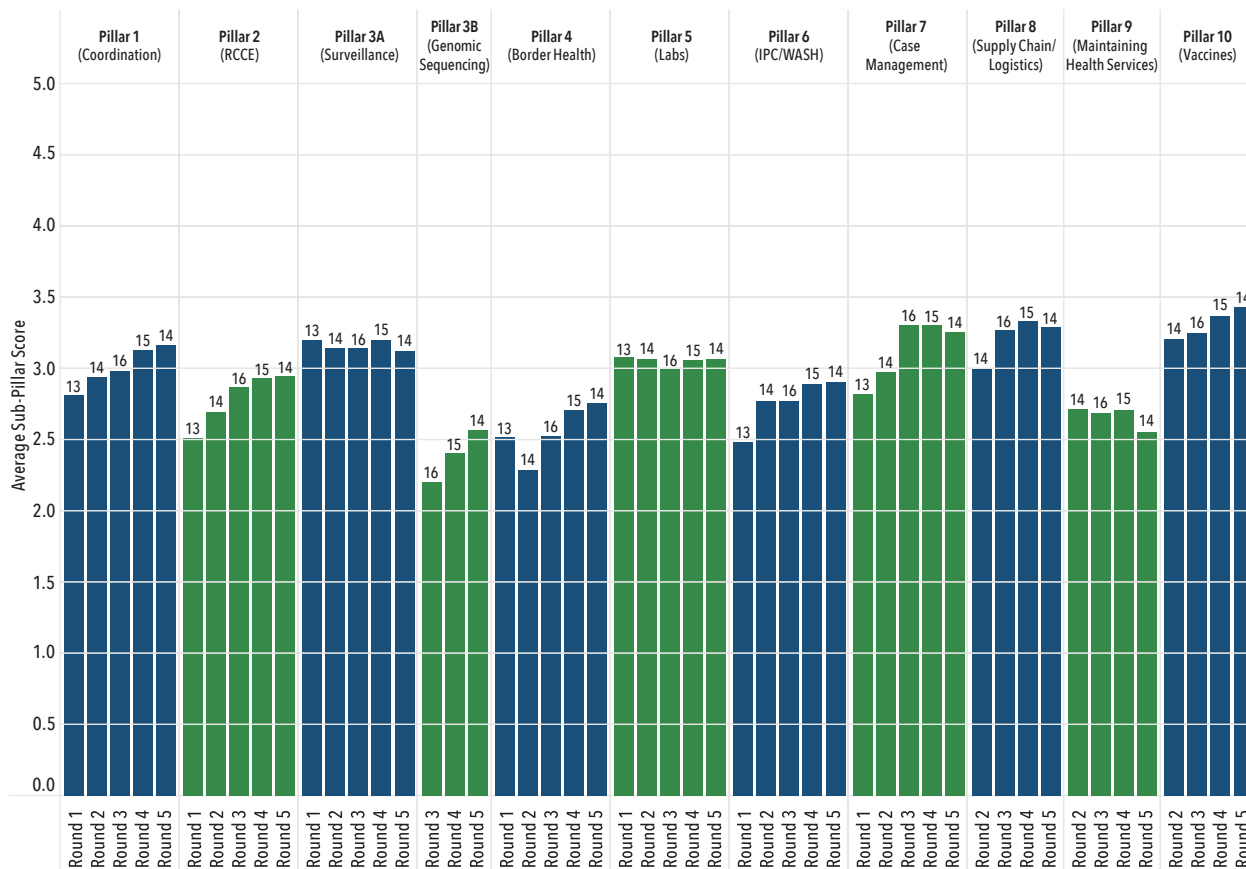
Global Vaccine Access Initiative helps overcome barriers to COVID-19 vaccine access

In December 2021, the U.S. government launched the Initiative for Global Vaccine Access, known as Global VAX, to overcome barriers to equitable COVID-19 vaccine access and scale up COVID-19 vaccinations. Although global partnerships had marshaled hundreds of millions of COVID-19 vaccine donations, many recipient low- and middle-income countries faced complex access, delivery, vaccine acceptance, and uptake challenges. Global VAX supported eleven governments (Angola, Côte d'Ivoire, Eswatini, Ghana, Lesotho, Nigeria, Senegal, South Africa, Tanzania, Uganda, and Zambia) and their stakeholders to achieve WHO and country-specific COVID-19 vaccination targets by supporting policy, planning, and coordination; supply chain; human resources; community engagement and demand generation; vaccine services; health information systems; and pharmacovigilance. For example, **Mozambique** utilized 9.7 million doses of U.S.-donated COVID-19 vaccines in September and November 2022 as part of their schools and community vaccination campaigns, resulting in 98 percent coverage of adolescents ages 12 to 17 years. In **India**, 15 mobile vans were deployed for COVID-19 vaccination in hard-to-reach areas and local organizations were trained to raise awareness of COVID-19 vaccines among populations at increased risk in emergencies, particularly older adults. This effort contributed to reaching more than 6.2 million people with COVID-19 vaccines across 18 Indian states. In **Uganda**, Global VAX supported mass campaigns that contributed to an increase in the national COVID-19 vaccination completed primary series coverage from 14 percent to 47 percent in just six weeks. Overall, at baseline in July 2021, none of the 11 Global VAX surge countries had reached complete primary vaccination rates above 25 percent for their total population. Eight of those countries now have primary series coverage rates of greater than 30%, and 4 countries have rates above 40%. As the world emerges from the emergency response phase of the pandemic, countries are integrating COVID-19 vaccination efforts into their health systems and service delivery infrastructure.

Monitoring country progress in the COVID-19 Response

The COVID-19 Country Systems Monitoring Tool (CSMT) was created in September 2020 by technical experts from the CDC and USAID to establish a baseline for 48 countries receiving U.S. government COVID-19 support. The tool was used together by both CDC and USAID teams at HQ and in-country to track country system progress over time and to understand USG contributions to wider system performance using a five-point Likert scale scoring system. Country teams scored themselves across ten technical areas or “pillars” and provided score justifications. Data were collected from country teams on a semi-annual basis for a total of five rounds of data collection. The graphic below depicts average sub-pillar scores for the 17 countries that reported in at least four of the five rounds. Results show improvements, though not substantial, in the critical area of vaccines (Pillar 10) between rounds two and five, a total 0.22 increase. A thematic review of CSMT qualitative data showed that countries excelled in collaboration and coordination, at an interagency level and/or internally, regarding vaccine social mobilization, communications, and engagement. Some country teams noted prompt development of national vaccine distribution plans, and the organization of committees to improve vaccine demand generation. Border Health (Pillar 4) is a critical area of focus for emergency preparedness and response, which showed an upward trend between rounds two and five, a total 0.48 increase. Findings showcased numerous achievements, including the ability of countries to adequately train staff at critical points-of-entry to ensure enforcement of protocols and successful planning of vaccine operations and logistics at different geographic levels of the country. Data systems and vaccine supply chains were noted challenges and key priorities for future focus.

C O U N T R I E S T H A T R E P O R T E D A T L E A S T 4 T I M E S (N = 1 7)



VI. Highlights of Programs Driving Progress across USG Implementing Agencies

U.S. government agencies and departments provide coordinated assistance to partner countries to strengthen health security capacity in line with their national priorities. The programs highlighted below are examples that have been especially successful.

PREVENTING AVOIDABLE OUTBREAKS

Strengthening Capacity to Address Antimicrobial Resistance (AMR)

USAID's Medicines, Technologies, and Pharmaceutical Services (MTaPS) program, in 2022, supported the strengthening of both antimicrobial stewardship (AMS) activities and AMR multi-sectoral coordination. In 2022, MTaPS collaborated with national multisectoral coordination bodies in three countries to help update their national action plans on AMR (NAPs-AMR), bringing the total to eight countries whose NAPs-AMR have been updated with MTaPS support. In **Bangladesh, DRC, and Kenya**, the project supported the development of monitoring and evaluation frameworks to accompany the AMR national action plans. To inform the design of AMS activities, MTaPS used the WHO AMS Toolkit checklist to help conduct assessments of AMS core elements at 48 facilities in four countries (**Bangladesh, Ethiopia, Tanzania, and Uganda**). USAID support has now helped establish and/or strengthen AMS committees in 122 facilities and develop and/or implement quality improvement plans in 111 facilities. MTaPS also worked with four countries (**Cameroon, Côte d'Ivoire, Mozambique, and Nigeria**) in 2022 to initiate the WHO AWaRe (Access, Watch, Reserve) classification of antibiotics, in addition to six countries that have already completed AWaRe integration into their national governance documents including essential medicines lists, standard treatment guidelines, and/or formularies with MTaPS support.

Expanding a Global Network for Antimicrobial Resistance Laboratory Detection and Response

In December 2021, CDC established the Global Antimicrobial Resistance Laboratory and Response Network—a broad-reaching, One Health approach to improve the detection of antimicrobial-resistant threats and prevent their spread globally. The Network spans nearly 50 countries and works with more than 20 organizations worldwide to help build laboratory capacity that detects antimicrobial-resistant pathogens; prevents infections in health care and the community through proven infection control practices; and applies new and innovative ways to respond to AMR threats. This network works to identify risk factors driving the emergence and spread of AMR threats across One Health and responds to threats on the ground, including those found in health care, the community, food, animals, and the environment (e.g., water and soil). These settings are impacted by many types of pathogens - such as healthcare-associated, sexually transmitted, fungal, enteric, and invasive bacterial and respiratory. The Global Antimicrobial Resistance Laboratory and Response Network builds on CDC's successful domestic Antimicrobial Resistance Laboratory Network, established in 2016, by addressing critical detection and response gaps globally — including to support outbreak response when threats are reported. The Network also builds upon and expands global efforts underway or already accomplished by CDC, public health partners, and collaborating countries, including the WHO Global Antimicrobial Resistance and Use Surveillance System (GLASS), PulseNet International, the Global Action in Healthcare Network (GAIHN), and WHO Enhanced Gonococcal Antimicrobial Surveillance Program (EGASP). These efforts are implemented in support of the U.S. National Action Plan to Combat Antibiotic-Resistant Bacteria (CARB), specifically CARB goal 5 which focuses on combating AMR globally.



Laboratorians in Brazil prepare strains to test for antimicrobial resistance.
Photo: CDC

Stopping Zoonotic Spillover from Animals to Humans

USAID's Strategies to Prevent Spillover (STOP Spillover) project and the TRANSFORM public-private partnership implemented by Cargill work to prevent zoonotic spillover from animals to humans. The STOP Spillover project is active in seven countries to help them identify and mitigate the risks of viral spillover and spread. Activities are focused on high-risk interfaces between animals and humans and involve implementing measures to reduce the identified risk of viral spillover, amplification and spread. In **Vietnam** STOP Spillover has worked with captive wildlife farmers in Dong Nai province as well as civet, sambar deer, porcupine and bamboo rat farms to improve biosafety. In **Uganda**, STOP Spillover worked in Bundibugyo County to map bat roosts in close proximity to humans and collect information about human bat consumption and use of bat products to better understand Ebola and Marburg risks. USAID's TRANSFORM program promotes biosafety measures by poultry, dairy and aquaculture farmers in India and Kenya, ranging from smallholders to large-scale producers. The purpose is to protect animal health and reduce the risk of zoonotic spillover to humans. For example, TRANSFORM provides training on biosafety and good farm management practices (such as using footbaths with disinfectants, handwashing stations, and isolation pens for sick poultry and livestock) to Community Agro-Veterinary Entrepreneurs (CAVEs), which are government-registered, private sector service providers that offer fee-based services to farmers and local government veterinary staff. This approach improves both animal health and productivity. In FY22, TRANSFORM trained 212 CAVEs who then reached 5,455 farmers in **India**, and 46 CAVEs who went on to further train 3,720 farmers in **Kenya**.



USAID's STOP Spillover conducting an interview of wildlife farm actors to identify behavioral risks for zoonotic diseases.
Photo: Ha Nguyen Ngoc, STOP Spillover/Vietnam

Promoting Legal Preparedness as a Critical Capacity for an Effective Response to Health Emergencies

HHS, through the Office of Global Affairs, and CDC serve as Co-Chair of the GHSA Legal Preparedness Action Package along with the government of Argentina and Georgetown Law's O'Neill Institute for National and Global Health Law. In March 2022, the Action Package was formally launched to promote promoting legal preparedness as a critical capacity for responding effectively to health emergencies and strengthening global health security. Within the year, the Action Package grew to over 30 members from across sectors and at least one country from each region. The Action Package hosted two successful workshops at the 2022 Global Health Security Conference, one focused on legal mapping and the methods and tools for promoting legal preparedness and the other on liability and equitable access to medical countermeasures. Both workshops featured tabletop simulation exercises to review potential legal barriers to implementing a response to the scenarios presented and leveraged the expertise and perspectives of a wide-ranging network of participants including government representatives, civil society, and the private sector. These engagements attracted greater membership into the Action Package and triggered follow-up technical and policy-level discussions on legal preparedness in various fora and at country, regional, and global levels. In addition, the Action Package supported the launch of a legal mapping pilot project conducted across five countries (one from each region). The data are being used to finalize a legal mapping tool that will assist countries in their efforts to map their legal instruments to support strengthening their legal infrastructure and overall legal preparedness goals.



A Community Agro-Veterinary Entrepreneur (CAVE) standing inside an Agrovet shop he owns and manages
Photo: USAID's TRANSFORM/Kenya

Strengthening the Global Culture of Biosafety and Biosecurity

HHS/ASPR and USDA/APHIS lead the International Working Group on Strengthening the Culture of Biosafety, Biosecurity, and Responsible Conduct in the Life Sciences. This is a forum and a community of practice composed of representatives, from over 15 countries, of governments, academia, industry, and professional and international organizations, using crowdsourcing to develop guiding principles and educational/training resources to support and promote a global culture of biosafety, biosecurity, ethical, and responsible conduct in the life sciences, based on the culture model and assessment methodology developed by IAEA for the nuclear safety and security culture. In 2022, the International Working Group conducted webinars on biological security education, awareness, and outreach as essential elements of strengthening the review of science and technology under the BWC; cutting edge life science and dual use research of concern; safety culture research applied to laboratory safety; countering Russian disinformation against public health labs; bio-smuggling at U.S. Ports of Entry; and on the 2022 WHO Global guidance framework for the responsible use of the life sciences: mitigating biorisks and governing dual-use research⁶. At the foundation of this engagement is the principle that an effective biological risk management approach ensures compliance with relevant laws, regulations, guidelines, and policies but at its core ought to be an organizational culture of responsible conduct that upholds the biosafety and biosecurity norms, values, and beliefs of the entire life sciences profession including biological weapons (BW) prohibitions. In addition, both CDC and USAID are helping countries to improve biosafety and biosecurity in human and veterinary labs in more than 20 countries through technical assistance, technical training, quality assurance, waste management, and/or commodity support.

DETECTING THREATS EARLY

Developing a Cadre of Biorisk Management Professionals in Vietnam

In April 2023, the U.S. Department of Defense's (DoD) Biological Threat Reduction Program and Sandia National Laboratories conducted the 3rd International Federation of Biosafety Associations Certification Training in **Vietnam**. Upon the conclusion of this training, 20 participants from the Vietnam One Health University Network passed the certification exam, increasing the number of certified biorisk management professionals in Vietnam from 29 to 49. Vietnam is now 11th in the world and 5th in Southeast Asia for professionals with the level one certification. Having a large population of certified biorisk management professionals enables more facilities to receive training in biorisk management principles, thus strengthening biorisk management nationally.

Multiplex bead array assays used to support integrated serological surveillance

In the past year, CDC supported integrated serological surveillance using the multiplex bead assay (MBA) in over one dozen countries. Traditional immunoassays such as the enzyme-linked immunosorbent assay (ELISA) measure the presence or absence of only one analyte per reaction. Multiplex immunoassays measure dozens of different analytes in a single reaction. This activity strengthens surveillance systems by enhancing cross-sector work to maximize investments in single-disease surveys. In **Guatemala**, MBA data from a soil-transmitted helminth survey provided data on vaccine coverage for measles and rubella while also providing seroprevalence data for yaws that will be used to support Guatemala's dossier for elimination of yaws. In the KEMRI lab in **Kenya**, CDC provided reagents and re-training for a lymphatic filariasis triple-drug therapy survey that will test for other neglected and vaccine-preventable diseases. This continues a 10-year partnership on multi-disease surveillance between KEMRI and CDC. Studies conducted in **Mozambique** and being planned in **Sierra Leone** will use the Country-wide mortality surveillance for Action (COMSA) platform to conduct integrated serosurveillance, which will facilitate surveillance for neglected vector-borne diseases. In **Nigeria**, GHS funds helped support a multi-year collaboration between the Nigeria National Reference Laboratory (NRL) and CDC headquarters. The NRL leveraged previous MBA-based multi-disease surveillance for COVID serosurveys from a variety of data streams to strengthen their COVID surveillance.

6 WHO Global guidance framework for the responsible use of the life sciences: mitigating biorisks and governing dual-use research ([link](#))

Strengthening National Capacities for AMR Detection and Surveillance

USAID's Infectious Disease Detection and Surveillance (IDDS) project supports national governments, partners and stakeholders in more than 20 countries in Africa and Asia to better identify, analyze, and respond to the threat of antimicrobial resistance (AMR) through assessing gaps, strengthening policy and governance, improving health information systems and their interoperability, increasing technical capacity of the health workforce, enabling robust data analytics, and implementing a One Health approach. IDDS currently supports 44 AMR surveillance sites in seven countries. These sites detected priority pathogens from 16,069 out of 130,330 cultured specimens between October 2020 and March 2023. The project has enabled 17 laboratories to start conducting bacteriological culture tests to isolate priority pathogens and has enabled 33 laboratories to start conducting antibiotic susceptibility testing (AST). In **Senegal**, IDDS supported eight government-selected laboratories to begin bacteriology culture and AST. The laboratories now serve as AMR sentinel surveillance sites to improve routine AMR surveillance countrywide. In **Tanzania**, IDDS strengthened laboratory and surveillance capacities by supporting the development of the National AMR Surveillance Framework. This included enhancing the national supply chain system to cover microbiology commodities and enabling the detection of AMR priority pathogens at four surveillance sites. In **Liberia**, IDDS supported capacity for bacteriology testing and AST in three county referral laboratories, including a laboratory that IDDS refurbished in Nimba County. Liberia reported AMR surveillance data to WHO GLASS for the first time in 2022. IDDS supported the revision and validation of **Guinea's** national guidelines to establish a national AMR surveillance system and developed an implementation plan for strengthening AMR surveillance capacity. IDDS worked with the National Institute of Public Health to establish a national external quality assessment system to monitor the results of the AMR surveillance network.

Defeating Meningitis in Sub-Saharan Africa

Collaborating with ministries of health and global partners, CDC has developed trusted partnerships with countries in sub-Saharan Africa's densely populous Meningitis Belt. In 2022, CDC epidemiology and laboratory subject matter experts assisted countries in bringing meningitis activities back to near



Medical illustration of *Candida* sp. fungal organisms
Photo: CDC



Illustration of Carbapenem-resistant Enterobacteriaceae (CRE) bacteria
Photo: CDC

pre-pandemic levels by leveraging partnerships to support critical components of the WHO Defeating Meningitis by 2030 Roadmap. CDC subject matter experts are key members of the WHO Technical Task Force for implementation of the Roadmap. The main causes of acute bacterial meningitis (meningococcus, pneumococcus, *Haemophilus influenzae* and group B streptococcus) targeted in the Roadmap align with the agency's work in vaccine preventable bacterial diseases, including epidemiologic and laboratory surveillance and capacity building, and outbreak response activities in Africa as part of the MenAfriNet consortium and other initiatives. With its partners, CDC helped countries develop strategic plans for the Meningitis Belt that aligned with the Roadmap. Additionally, CDC provided eight countries with trainings on enhanced surveillance, data management, and laboratory confirmation of meningitis which enabled them to be better prepared to identify and respond to outbreaks. CDC supported WHO in supplying PCR reagents to 18 countries in 2022, 16 of which are high-risk countries within the Meningitis Belt. Additionally, nine participated in the agency's External Quality Control program to ensure accuracy and quality of laboratory results. Through the country engagement framework established by MenAfriNet, CDC helped improve the quality of meningitis data available for policy decision making in the Meningitis Belt by actively engaging countries in molecular surveillance, monitoring changes in meningococcal molecular epidemiology, and strain virulence for epidemic prone strains.

Training and Empowering a One Health Workforce

The USAID-supported One Health Workforce - Next Generation project (OHW-NG), in partnership with the Africa One Health University Network (AFROHUN) and the Southeast Asia One Health University Network (SEAOHUN), supports workforce development in 79 universities across 12 ISP countries: Cameroon (3 universities), Côte d'Ivoire (1), DRC (2), Ethiopia (3), Indonesia (20), Kenya (2), Laos (5), Philippines (11), Senegal (1), Tanzania (2), Uganda (2), and Vietnam (27). During FY22, the OHW-NG project and university networks trained more than 4,891 current and future health professionals to strengthen their technical and collaborative One Health competencies, developed 24 new training materials and curricula for future and current in-service professionals, and supported more than 6,986 participants across 49 student One Health innovation clubs. Additionally, AFROHUN **Tanzania** trained 20 professionals on OH competencies including emerging and re-emerging pandemic threats, AMR, and disaster preparedness and response, while offering Continued Professional Development credits. AFROHUN **Cameroon** and AFROHUN **Côte d'Ivoire**, implemented activities to address vaccine hesitancy and misinformation, and increase vaccine uptake among faculty, staff, and students across several of their university campuses. AFROHUN **DRC** supported 30 students (19 male, 11 female) to obtain Master of Public Health degrees from the Kinshasa School of Public Health, strengthening the skills and capabilities of health professionals in the country, especially in-service professionals from the Ministry of Health and Ministry of Animal Health. The **Vietnam** One Health University Network held a One Health field-based training course for students in Quang Ninh focusing on pig-raising biosecurity practices and practicing sampling methods to detect African swine fever. The **Indonesia** One Health University Network's One Health Young Leaders program placed 20 students into internships to support multi sectoral workforce strategies to prepare the youth leaders and bolster the future workforce.

Biorisk Management of High Containment Labs

From November 2022 to July 2023, the State Department's Bureau of International Security and Nonproliferation, Office of Cooperative Threat Reduction has virtually engaged with over 80 Indian government officials, researchers, and IT personnel from institutions in India with Biosafety Level (BSL)-3

high containment laboratories (HCLs) to strengthen their biorisk management and cybersecurity capabilities in India. Engagements focused on discussing the potential security risks posed to bioscience facilities and the importance of personnel reliability, biosecurity, and cybersecurity to mitigate illicit access to sensitive research, data, and pathogens housed in HCLs. This work helps secure HCLs in India, limiting the potential for theft of high consequence pathogens, accidental outbreaks, and cyberattacks by nefarious actors.

Groundbreaking CDC Fellowship Program Establishes Community of Practice in Africa

Graduates of CDC's Public Health Emergency Management (PHEM) Fellowship program established their first virtual PHEM community of practice (vCoP) in Africa in late 2022. CDC collaborated with PHEM alumni from the African Region to conduct an 8-week vCoP session which aimed to create a collaborative environment where alumni could discuss best practices, seek solutions for common challenges, and share public health resources. In 2013, CDC launched the PHEM Fellowship program. Since then, the fellowship has enrolled 177 participants from 45 countries. Fellowship alumni are emerging public health leaders in their various countries. PHEM training helps them shape future policies and procedures within their public health organizations. The successes of fellowship alumni are testaments to CDC's PHEM training and expertise. A total of 55 alumni enrolled in the eight weekly vCoP sessions in the African Region. The intended outcomes of the vCoP sessions were to improve knowledge sharing, trigger organizational change, and increase PHEM capacity in the African Region. The African Region vCoP is a prototype for vCoPs in other countries around the world. Following the success of the first vCoP in the African Region, CDC plans to establish a similar vCoP in Southeast Asia in 2023.



CDC and the Thailand Ministry of Public Health (MOPH) facilitated a training, Using the Incident Command System for Complex and Expanding Incidents, for sub-national response leaders in April 2023.

Photo: CDC

RESPOND RAPIDLY AND EFFECTIVELY**Risk Communications and Community Engagement to Address Infectious Diseases**

USAID's Breakthrough Action (BA) program strengthened capacities in risk community and community engagement (RCCE) in 12 countries, supported mpox response activities in four countries, and reached over 500 million people from October 2021 to September 2022 with COVID-19 information through integrated media channels, such as radio, TV, social media, community engagement, hotlines, talk shows and interactive voice response via mobile phones. In **DRC**, audiograms were produced and posted on social media featuring testimonials from the DRC President and Ebola/COVID-19 Czar; rumors and misinformation were continuously collected, analyzed, and synthesized into monthly briefs that were shared with stakeholders in multiple countries to refine communication strategies. In **Côte d'Ivoire**, risk communication efforts were used to help prevent Ebola from spreading across the border from Guinea. Ebola-prevention public service announcements were broadcasted over radio more than 250 times, reaching an estimated 5.1 million people. In **Nigeria**, 5,217 respondents were surveyed to generate data to identify priority behaviors associated with controlling the spread of Mpox, and to develop materials in multiple languages to reach the general population. In **Senegal**, the BA supported the national 'One Health' platform to conduct behavioral research on the risks of occurrence and spread of AMR which will be used to inform an AMR strategy to be developed in 2023. In **Mali**, BA helped improve the social media presence of its primary government partner agency to address key issues related to priority zoonotic diseases (PZDs) and COVID-19. From April through September 2022, the project published 56 Facebook posts and 14 tweets on PZDs, reaching more than 447,000 people.



Technical review session during the development of Liberia's Priority Zoonotic Diseases Message Guide
Photo: Breakthrough Action/Liberia

Strengthening Infection Prevention and Control Capacity to Prepare and Respond to Emerging Infectious Disease Threats

CDC supported Africa CDC, African Union (AU) Member States, the Infection Control Africa Network, and WHO to develop the Africa CDC Legal Framework for Infection Prevention and Control (IPC). The framework, which has been endorsed by the AU, is an important step towards getting political commitment for the development of IPC policies in AU Member States. To implement the IPC legal framework, countries must review existing laws and identify changes needed in legislation to improve healthcare safety. With support from CDC, Africa CDC is working with country partners to conduct workshops across AU Member States to facilitate these processes. CDC supported the establishment of the East Africa Infection Prevention and Control (EA IPC) Network, a community of practice aimed at building healthcare worker capacity to improve adherence with IPC standards. This network includes 20 hospitals across four countries: **Ethiopia, Kenya, Tanzania, and Uganda**. Network activities include weekly case-based learning sessions, collaborative quality improvement projects for IPC, facility assessments to evaluate IPC performance for COVID-19, and tailored professional development for facility IPC focal points and team members. When the first case of Ebola virus disease (EVD) was identified in Uganda in September 2022, the EA IPC Network rapidly responded with a webinar, presented by the Ugandan Ministry of Health and attended by almost 100 participants from across East Africa and later disseminated key information for EVD prevention and control to ministries of health and IPC focal points in healthcare facilities.

Engaging Communities to Prepare for and Respond to Outbreaks

In 2022, USAID continued its partnership with the International Federation of Red Cross and Red Crescent Societies to implement the Community Epidemic and Pandemic Preparedness Program (CP3) in seven countries (**Cameroon, Democratic Republic of the Congo, Guinea, Indonesia, Kenya, Sierra Leone, and Uganda**). Communities play a vital role in helping to identify, contain and control infectious diseases threats, and CP3 aims to improve pandemic preparedness through community outreach and engagement, risk communications and health

promotion, and community-based surveillance, with efforts focused on engaging community health workers, religious leaders, traditional healers, and other local leaders. In FY22, more than 650,000 community members were reached with risk communications messaging through household visits, community group sessions, mobile cinema and street theater sessions; more than 350,000 household visits were conducted to provide information on infectious disease spread and prevention and promote healthy behaviors; and more than 168,000 students and teachers were reached during school visits to share key health messages on vaccinations, hygiene, and infectious disease prevention. CP3 also aims to strengthen community-based surveillance with trained community members raising alerts, into existing ministry structures, of possible human or animal events. During FY22, more than 2,300 alerts were raised which triggered investigation and action by local authorities, leading to the identification of and response to cases of COVID-19, cholera, measles, and yellow fever in humans, and foot-and-mouth disease, peste des petits ruminants (PPR), and rabies in animals.

Strengthening Border Surveillance in Uganda

CDC/DGMQ's border health experts have partnered with Uganda's Ministry of Health (MOH) on various projects aimed at strengthening the country's border health security and limiting the geographic spread of Ebola Virus Disease within the country. In 2022, CDC's border health staff deployed to help the country respond to an outbreak of Ebola (Sudan virus disease, SUDV) at its priority points of entry (POE). The responders focused their assistance to the MOH and other partners on the development of standard operating procedures for exit screening at the Entebbe International Airport and provided guidance for the development of an electronic exit screening form. They also helped conduct trainings for 24 health staff and 57 other key airport personnel about Ebola (signs and symptoms, modes of transmission, prevention strategies, etc.) as well as 12 screeners on how to conduct primary and secondary screening. CDC/DGMQ also provided technical assistance to Ministry of Health and POE partners in neighboring countries, including Kenya, to help them prepare for possible importation of SUDV cases.



Uganda Port Health conducts exit screening of departing travelers at Entebbe International Airport.
Photo: CDC/Uganda

VII. Multilateral, Multisectoral Initiatives to Advance Global Health Security

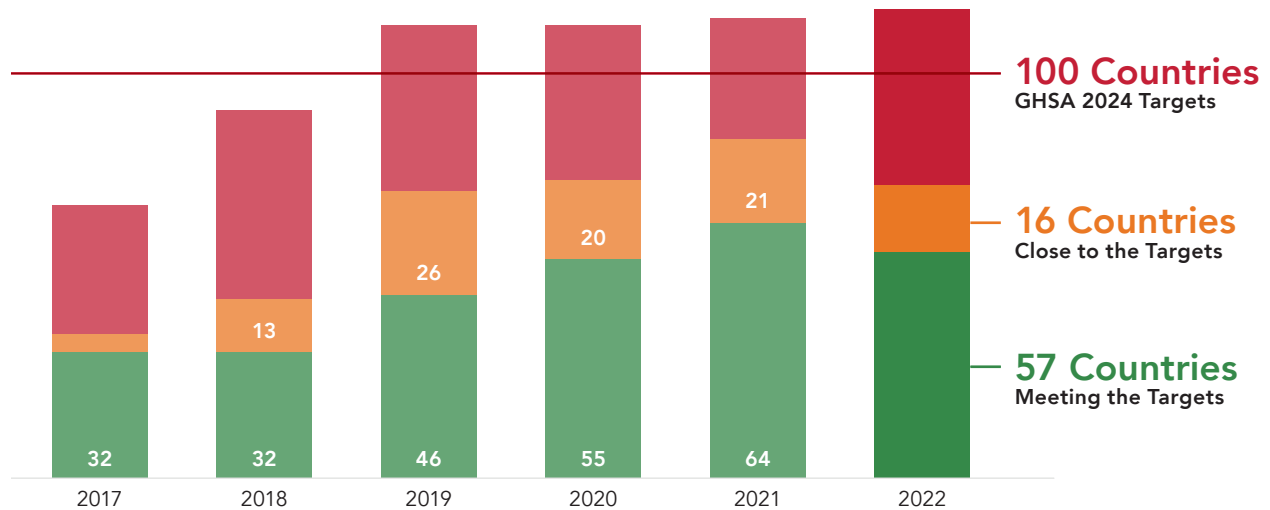
There are gaps in health security capacity all over the world. In addition to working with partner countries to build capacity to manage infectious disease outbreaks, the U.S. government supports multilateral and multisectoral initiatives that also seek to improve global health security.

GLOBAL HEALTH SECURITY AGENDA

Since its launch in 2014, the U.S. government has been committed to the Global Health Security Agenda (GHS). GHS unites over 75 countries, international organizations, nongovernmental organizations, and private sector partners in a collective effort to strengthen global health security and accelerate compliance with the IHR (2005). The IHR, a legally binding instrument on 196 States Parties, defines countries’ rights and obligations to prevent, detect, and respond to health emergencies and prevent the spread of disease across borders.

Following the inaugural five-year phase (2014-2019), GHS members committed to an additional five-year term (2019-2024) known as GHS 2024. A defining element of GHS 2024 is its ambitious target: by 2024, more than 100 countries will have achieved “demonstrated capacity” in at least five technical areas as defined in the IHR MEF. By the end of 2022, 57 countries had met the GHS target and an additional 16 countries were close. GHS members are encouraged to make tangible commitments to accelerate progress toward this goal. As part of its commitment to GHS, the U.S. supports capacity building efforts in its partner countries.

PROGRESS TOWARDS THE 2024 GHS OVERARCHING TARGETS



At the 6th GHS Ministerial in November 2022, GHS members endorsed the New Seoul Declaration. This declaration extends GHS for a third 5-year phase, reflecting sustained international commitment to enhancing global health security by promoting and supporting country-level capacity building.

OTHER INITIATIVES

Bringing together countries to share lessons learned from COVID-19: The United States partnered with Vietnam and Canada to organize a workshop as part of the ASEAN Regional Forum titled “Lessons Learned During the COVID-19 Pandemic”. This workshop brought together 19 countries, plus multilateral and regional organizations, as well as representatives from civil society, to share experiences of responding to the pandemic as well as how to use these experiences to prepare for future outbreaks. Presentations ranged from the effects of the pandemic on travel and trade; supply chain issues, how governments developed adaptive management plans at local, regional and national levels in response to waves of infections; how governments and civil society reached out to marginalized populations for access to testing and vaccines, and how prior investments in health security were utilized during the response.

At the Ninth Summit of the Americas in June 2022, the Department of State launched the Economic and Health Dialogue of the Americas (EHA) as a forum for governments in the Western Hemisphere to convene ministries of health, finance, economy, and foreign affairs to address multisectoral, systemic shortcomings exposed by the COVID-19 pandemic. At the first high-level meeting in March 2023, 18 countries agreed upon four workstream topics: 1) smart spending and health resources analysis, 2) prioritization of health sector transformation, 3) income protection in pandemics and 4) foundations for strengthening supply chains. The EHA is supported by the regional and topical expertise of an executive technical working group, composed of the Pan American Health Organization, InterAmerican Development Bank, and Organization of American States. The EHA network recognizes that strong, effective, primary health care is the first line of pandemic preparedness and is poised to amplify bilateral engagements and contextualize international tools and resources for regional benefit.



Students receive a booklet on their first day back to school encouraging healthy behaviors and vaccination to encourage COVID prevention.
Photo: USAID's Breakthrough Action/Philippines

VIII. Addressing Challenges and Looking Forward

The COVID-19 pandemic and rise of other global health security challenges, including emerging and re-emerging infectious diseases, the growing threat of antimicrobial resistance, and the potential of accidental release and intentional misuse have highlighted the importance of global health security work. Driven by the need to prepare for and the cost of recovering from these high-consequence events, greater investment in global health security is necessary now more than ever. The challenges we face are complex, multi-faceted, and demand concerted efforts and global cooperation to ensure that we are able to prevent, detect, and respond to current and future these threats.

The U. S. government recognizes that building and sustaining progress in health security capacities will require sustained attention, political will, and resources. To address the challenges we typically face, we are undertaking efforts to develop solutions, including the following:

- allocating resources to support public health capacity building in countries with limited resources, including for surveillance, infrastructure, and research;
- maintaining U.S. government leadership and fostering international collaboration and cooperation at the global policy and technical levels to prevent a reversion back to cycles of panic and neglect;
- strengthening the global health security architecture, including WHO reform and relevant institutions, continuing to robustly support the Pandemic Fund, and engaging in ongoing negotiations to amend the IHR and develop a Pandemic Accord;
- strengthening legal preparedness at the subnational, national, regional, and global levels through legal frameworks that ensure efficient and effective coordinated, multisectoral responses and minimizing preventable unwarranted legal, regulatory and administrative barriers that may stand in the way of a response;
- achieving sustainable financing for preparedness, including effective domestic resource mobilization, public financial accounting, and external financing;
- investing in evidence-based solutions that properly train health workers; and
- improving trust in public health institutions and public health communication, including to counter misinformation and the so-called ‘infodemic.’

The U.S. government recognizes that challenges to achieving global health security remain and will continue to develop close relationships with national governments and other multisectoral partners to achieve a whole-of-society approach that addresses these challenges and increases overall investment in health, thereby securing greater returns downstream. This work will also assist the international community to better prepare for, and respond to health emergencies, safeguarding the health and well-being of populations worldwide.

