

U.S. Government Support for Global Health Security

Protecting Lives and Safeguarding Economies



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Introduction

President Biden and Vice President Harris came to office determined to end the COVID-19 pandemic and make progress toward a world safe and secure from biological threats.

The COVID-19 pandemic galvanized an unprecedented global response that fostered innovation and unified action by communities, nations, and diverse sectors of society. It also highlighted limitations in local, national, regional, and international capabilities to prevent, detect, and respond to biological threats. The Biden-Harris Administration has worked with partners throughout the world to strengthen global health security (GHS) to prevent emergencies that are avoidable, to detect new threats early, and to respond rapidly and effectively when outbreaks occur. To support this effort, the United States Government invested more than \$3 billion in GHS activities since 2020, including substantial COVID 19-specific support. These investments have improved countries' capacities to prevent and control infectious disease threats at their source, helped prevent outbreaks from threatening Americans, and mitigated the impact on the health and wellbeing of people around the world. The U.S. Government has also worked to cultivate new sources of financing that are market-driven and sustainable, building the foundations of a future where national governments and regional institutions take full ownership of investments in health security, in partnership with private sector and civil society partners who support sustainable solutions.

On April 16, 2024, the Biden-Harris Administration launched an updated Global Health Security Strategy (2024 GHSS), articulating a whole-of-government, science-based approach to ensuring the world is better able to prevent, detect, and respond to infectious disease threats. Building on progress achieved since the 2019 GHSS, and incorporating lessons from the COVID-19 pandemic, it sets a path to deliver on the goals in the 2022 National Biodefense Strategy and Implementation Plan and the bipartisan Global Health Security and International Pandemic Prevention, Preparedness and Response Act of 2022, which was enacted as part of the James M. Inhofe National Defense Authorization Act for Fiscal Year 2023.

The 2024 GHSS lays out three goals:

Goal 1: Strengthen Global Health Security Capacities Through Bilateral Partnerships.

To protect Americans and people around the world, all countries must effectively prevent, detect, and respond to infectious diseases within their borders. The U.S. Government is working in formal partnership with more than 50 countries and one regional organization to strengthen health security capacities in at least five areas.

Goal 2: Catalyze Political Commitment, Financing, and Leadership to Achieve Health Security.

The U.S. Government works to strengthen the GHS system, with a strong emphasis on development of fit-for-purpose institutions that deliver on our ambition of a world safe and secure from biological threats, to rapidly develop safe and effective interventions in response to novel or new-variant pathogens with pandemic potential, to expand access to new and existing medical countermeasures, to promote collaboration across sectors, and to transform sustainable financing for GHS.

Goal 3: Increase Linkages Between Health Security and Complementary Programs to Maximize Impact.

U.S. Government GHS investments are complementary to, and achieve maximum impact through coordination with, other U.S. Government programs that promote strong health systems, viable economies, good governance, food security, national security, research, and stewardship of the environment.

Goal 1: Strengthen Global Health Security Capacities Through Bilateral Partnerships

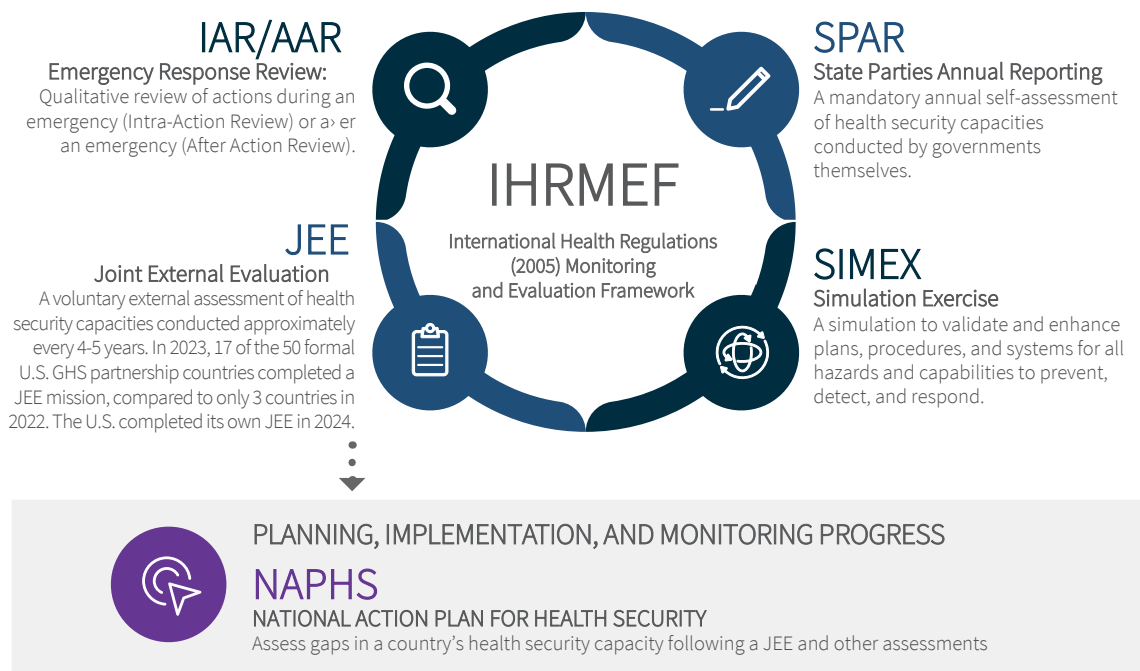
The most effective way to mitigate the impact of biological threats is to stop them at their source. To ensure countries around the world have the capacity to identify and stop emerging threats before they grow into regional or global threats, the United States is directly supporting more than 50 countries and one regional organization to strengthen their capacity to prevent, detect, and respond to biological threats. Partnerships are tailored to the critical preparedness gaps in each country, and aim to demonstrate substantial improvements in those capacities over time.

OUR APPROACH

The U.S. Government works with partners to implement an integrated set of actions, including assessment of health security capacity to identify strengths and gaps, planning, targeted investments, and monitoring progress, to strengthen and sustain capacity to prevent and effectively control health security threats. The long-term goal is to work with countries to reach “demonstrated capacity”¹ across the full range of prevention, detection, and response capacities, and to ensure each country is prepared and committed to sustaining that capacity without U.S. Government support.

Through formal GHS partnerships, the U.S. Government works with each country to identify existing gaps, and make progress toward achieving “demonstrated capacity” in at least five technical areas. U.S. Government investments with GHS partner countries are aligned with each country’s capacity gaps as assessed primarily through the International Health Regulations Monitoring and Evaluation Framework (IHR MEF) (Figure A). U.S. Government GHS programs directly support 15 out of the 19 Joint External Evaluation (JEE) technical areas, supporting countries to better prevent, detect and respond to biological threats (Figure B).

FIGURE A: IHR MONITORING AND EVALUATION FRAMEWORK



¹ “Demonstrated Capacity” is a term defined in the JEE tool as a situation in which, “attributes are in place and sustainable for a few years and can be measured by the inclusion of attributes or IHR core capacities in the national health sector plan and a secure funding source.”

U.S. Government GHS investments complement efforts and assistance of national governments and other donors. Targeting U.S. Government investments based on the IHR MEF, and sharing results transparently, facilitates better coordination with other donors. The U.S. Government also supports governments to develop and update long-term National Action Plans for Health Security (NAPHS) and short-term operational plans based on the results of assessments. These plans help countries cost and prioritize capacity building investments, and help donors coordinate assistance.

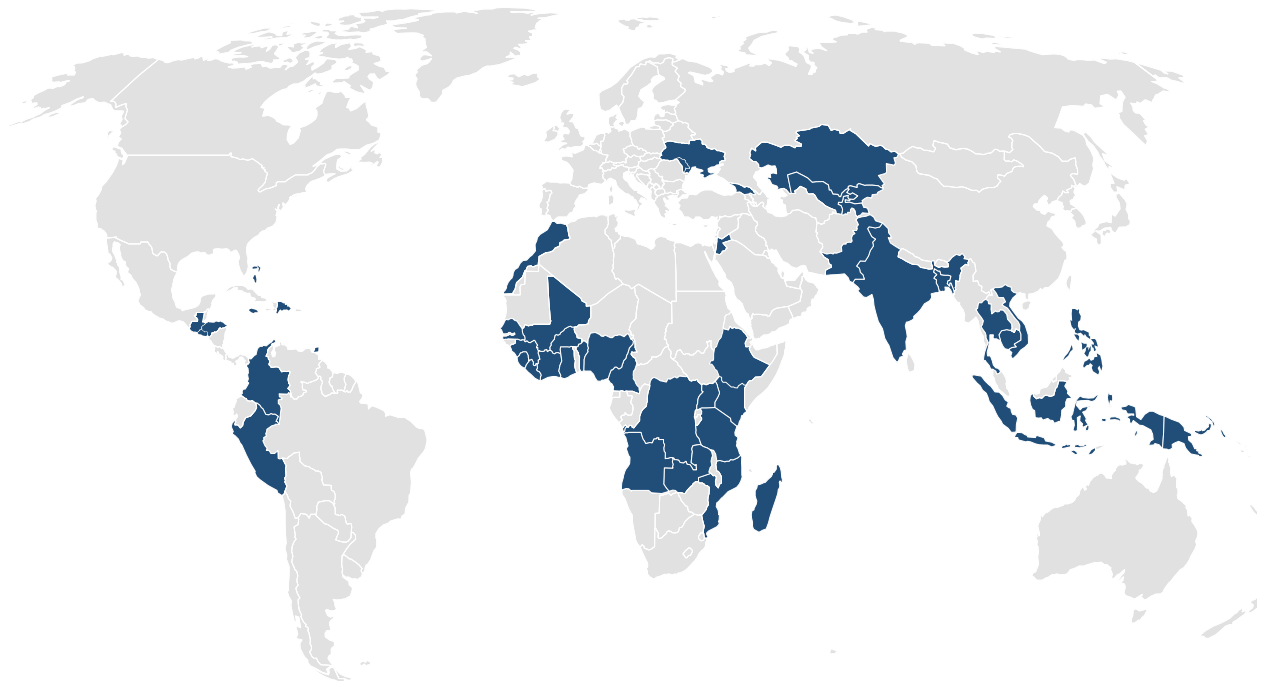
FIGURE B: TECHNICAL AREAS DIRECTLY SUPPORTED BY THE U.S. GHS PROGRAM



PROGRESS THROUGH 50+ COUNTRY PARTNERSHIPS

In 2024, the U.S. Government expanded its formal GHS partnerships to more than 50 countries and one regional group (Figure C). This expansion builds upon the initial 17 formal GHS partnerships in 2014, and additions in the ensuing years. While formal GHS partnerships involve collaboration across at least five technical areas, the U.S. Government also provides tailored GHS support to additional countries.

FIGURE C: MAP OF U.S. GOVERNMENT FORMAL GHS PARTNERSHIPS

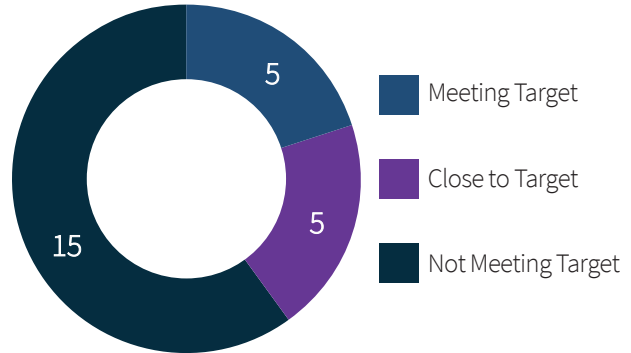


Angola	Ethiopia	Kenya	Peru
Bangladesh	Fiji	Kyrgyz Republic	The Philippines
Benin	Georgia	Liberia Madagascar	Senegal Sierra
Burkina Faso	Ghana	Malawi	Leone South
Burundi	Guatemala	Mali	Sudan
Cambodia	Guinea	Moldova Morocco	Tajikistan
Cameroon	Haiti*	Mozambique	Tanzania
CARPHA & Member States	Honduras	Nepal	Thailand
Colombia	India	Nigeria	Uganda
Côte d'Ivoire Dominican	Indonesia	Pakistan	Ukraine*
Republic	Jamaica	Papua New	Uzbekistan
DR Congo	Jordan	Guinea	Vietnam
El Salvador	Kazakhstan		Zambia

*GHS partners in conflict zones

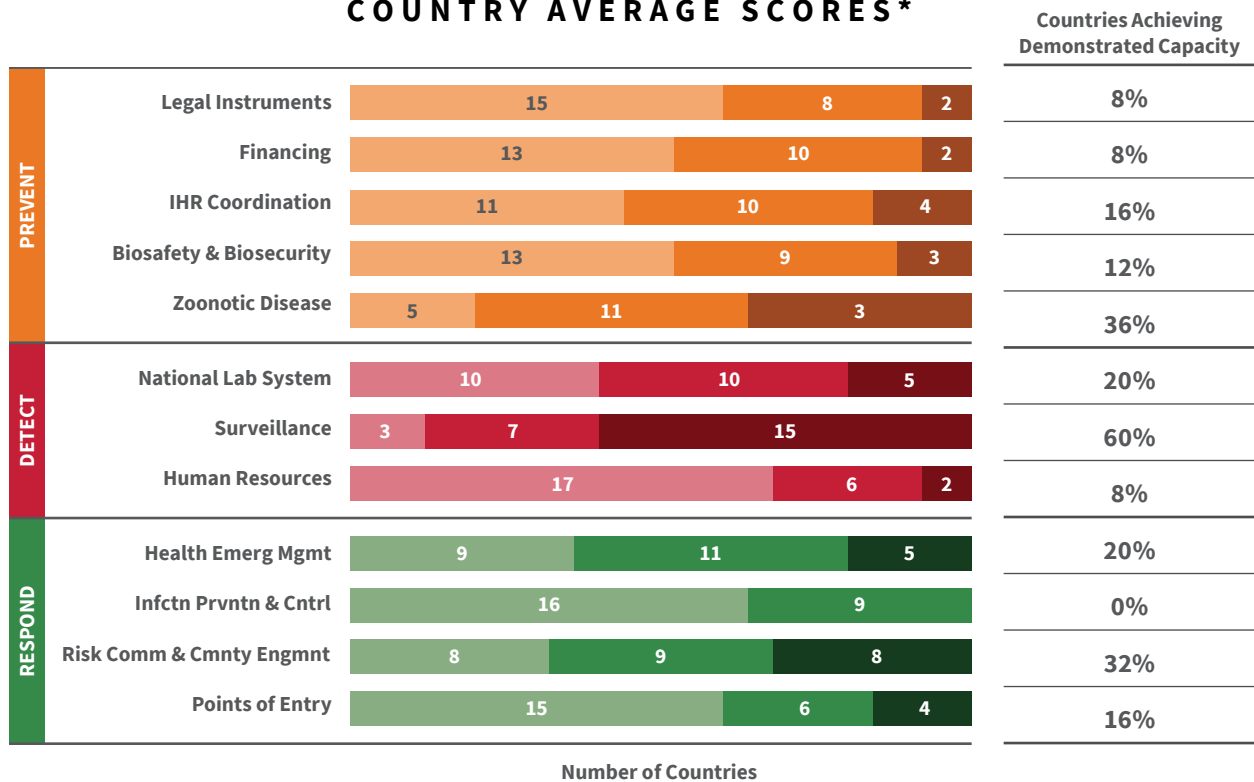
The U.S. Government monitors progress toward the targets of achieving “demonstrated capacity” in five technical areas in GHS partner countries that have received at least two years of support (25 in total),² primarily using SPAR data. “Demonstrated capacity” is scored as achieving a level four out of five through the JEE or 80 out of 100 through the SPAR tools. Data in this report are based on 2023 SPAR Assessments and scores have been converted to a 5-point scale (5= Sustainable Capacity; 4= Demonstrated Capacity; 3= Developed Capacity; 2= Limited Capacity; 1= No Capacity). Antimicrobial Resistance (AMR), immunization, and linking public health and security authorities technical areas are not included in the analysis, as data for these technical areas are not included in the SPAR tool.

FIGURE D : PROGRESS TOWARDS TARGET*



Of the 25 formal GHS partner countries that have received U.S. support for at least two years, five have achieved “demonstrated capacity” in at least five technical areas, and an additional five are close to meeting the target [three or four technical areas at the level of “demonstrated capacity”] (Figure D). In 2023 the strongest technical area was surveillance (15 of the 25 countries had achieved “demonstrated capacity”), followed by zoonotic disease (9 of 25), and risk communication and community engagement (8 of 25). The lowest capacity across partner countries was in legal instruments, financing, and human resources (2 of 25 each) and infection prevention and control (0 of 25) (Figure E). Of note, even in the areas where capacity was higher overall, more work is needed to ensure countries are fully prepared to prevent, detect, and respond to outbreaks.

FIGURE E : DISTRIBUTION BY TECHNICAL AREAS OF COUNTRY AVERAGE SCORES*



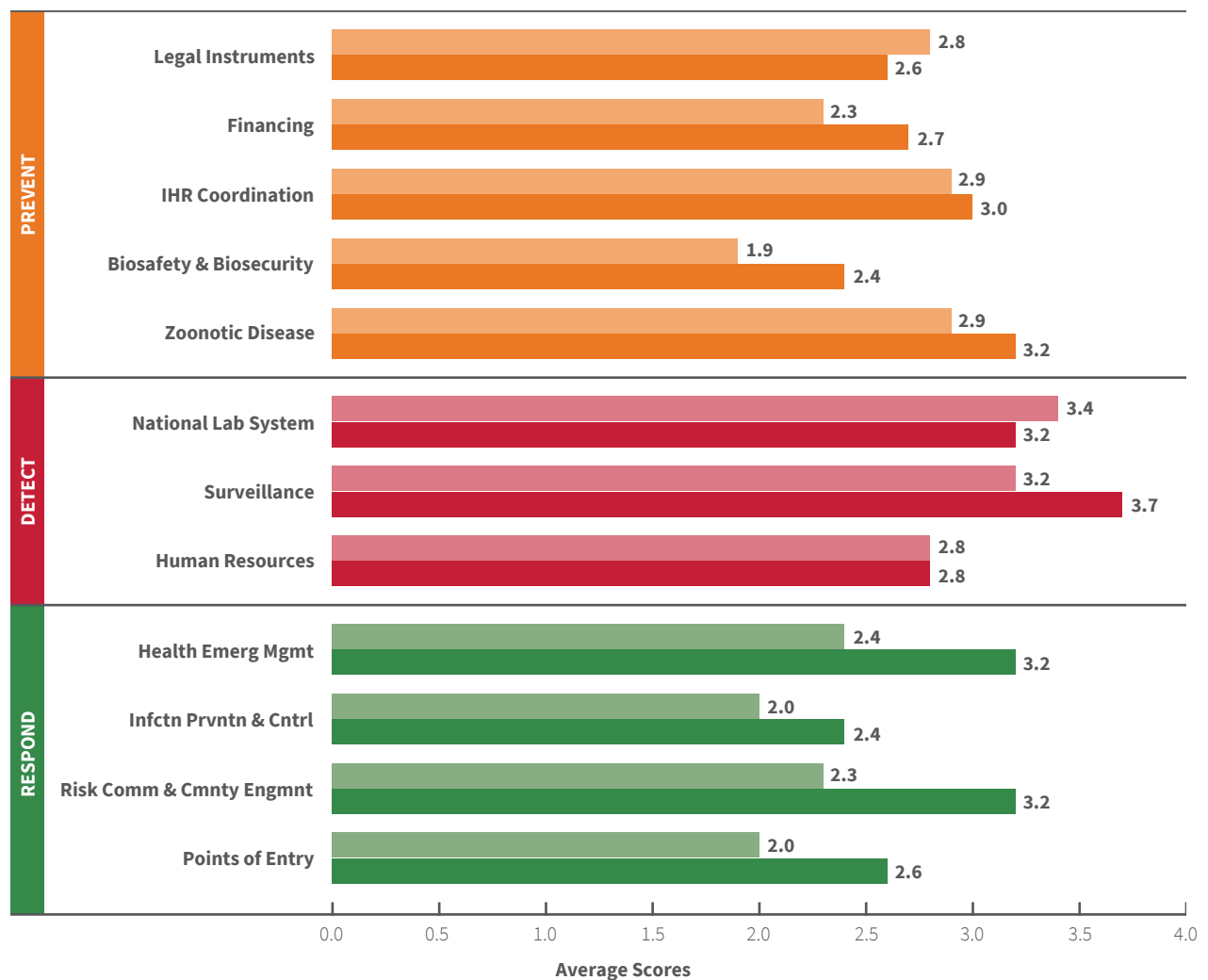
* For 25 partner countries that have received U.S. support for at least two years

² Countries assessed are: Bangladesh, Burkina Faso, Cameroon, Côte d'Ivoire, DRC, Ethiopia, Ghana, Guatemala, Guinea, India, Indonesia, Kenya, Liberia, Mali, Mozambique, Nigeria, Pakistan, Philippines, Senegal, Sierra Leone, Tanzania, Uganda, Ukraine, Vietnam, and Zambia.

For the 25 formal U.S. Government GHS partner countries with at least two years of U.S. GHS support, the average SPAR score between 2018 and 2023 increased in nine technical areas, stayed the same in one technical area (human resources), and declined slightly in two areas (legal instruments and national laboratory system).³ Sustaining or increasing JEE and/or SPAR capacity scores is a significant accomplishment, especially following the COVID-19 pandemic (Figure F).

FIGURE F: COLLECTIVE CHANGES IN TECHNICAL AREA AVERAGE SCORES BETWEEN 2018 AND 2023*

Comparison of Average 2018 and 2023 SPAR Scores of 25 U.S. Partner Countries with 2+ Years of GHS Support
(SPAR scores converted to 5-point JEE scale)



³ Human resources, and laboratory technical areas were significantly redefined during the development of the JEE 3rd and SPAR 2nd editions resulting in many countries experiencing reductions in their scores for these measures.

DEMONSTRATING IMPACT OF U.S. GOVERNMENT INVESTMENTS⁴

The United States Government provides assistance to partner countries to strengthen health security capacity in coordination with domestic financing by partner countries and other donors. Each of the following sections (PREVENTING, DETECTING, and RESPONDING) provides recent examples that illustrate the role of U.S. Government and investments in strengthening health security by JEE technical area.⁵

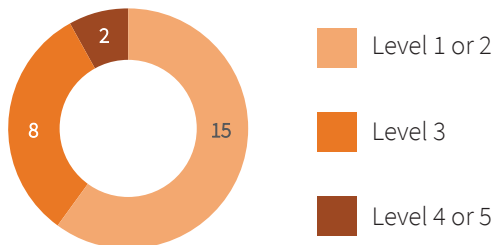
Preventing Avoidable Infectious Disease Outbreaks

The U.S. Government's global health security efforts support the following JEE technical areas that help prevent infectious disease outbreaks: legal instruments; financing; IHR coordination, national IHR focal point functions, and advocacy; antimicrobial resistance; zoonotic disease; biosafety and biosecurity; and immunization. For each of these technical areas, the tables in this section describe the objective, summarize progress toward that objective for the 25 partner countries with at least two years of U.S. government GHS support, and provide country-specific examples of how U.S. Government support has contributed to stronger capacity in that technical area.



LEGAL INSTRUMENTS

Number of Countries at Each Capacity Level



6

countries increased capacity scores over baseline

Objective: Adequate legal instruments support and enable countries to implement their International Health Regulations (IHR) obligations.

For example, with U.S. support:

- In 2023, **Sierra Leone** enacted a revised National Public Health Act that prioritizes expanding the country's public health law capacity, and established the Sierra Leone National Public Health Agency, furthering their progress towards enhancing sustainable health infrastructure and ensuring greater compliance with the IHR.
- To improve management of zoonotic diseases, **Ghana** developed an Animal Health Bill that includes veterinary services, animal production, and meat inspections; drafted a National Animal Health Workforce Strategy and Advocacy Plan; and expanded electronic reporting of animal disease events to cover all districts.
- With support from the U.S. Centers for Disease Control and Prevention (CDC), providing tools and training materials through legal preparedness networks, **Zambia's** National Public Health Institute and representatives across ministries collaborated to conduct a legal preparedness workshop to review language in draft statutory instruments relating to the operationalization of Zambia's Public Health Emergency Operations Centers.

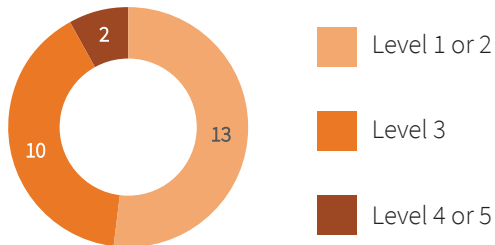
⁴ The following results in this section were supported by Congressional appropriated funds to CDC and USAID for global health security. The contributions of other U.S. departments and agencies and U.S. Government programs to health security are described in this report in "Goal 2: Catalyze Political Commitment, Financing, and Leadership to Achieve Health Security" and "Goal 3: Increasing Linkages Between Health Security and Complementary Programs to Maximize Impact".

⁵ For each JEE technical area, the number of partner countries listed for each capacity level is based on SPAR 2023 scores. The number of partner countries that achieved a net increase over their baseline capacity scores is based on improvements in sub-technical areas (JEE indicators).



FINANCING

Number of Countries at Each Capacity Level



3

countries increased capacity scores over baseline

Objective: Adequate funding ensures access to resources for implementing IHR capacities, including timely financing for readiness and initial national response to infectious disease threats.

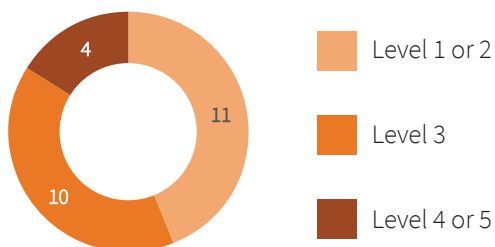
For example, with U.S. support:

- **Cameroon** implemented financial systems to ensure timely and accurate reimbursements to health facilities, which helps maintain continuity of services during emergencies.
- **India** leveraged more than \$2.6 million in funding from an initial \$1 million investment in 2023 to strengthen health systems and improve disease testing.



IHR COORDINATION, NATIONAL IHR FOCAL POINT FUNCTIONS & ADVOCACY

Number of Countries at Each Capacity Level



10

countries increased capacity scores over baseline

Objective: Multisectoral coordination mechanisms are in place to support efficient systems to effectively implement the International Health Regulations.

For example, with U.S. support:

- Seventeen GHS partners undertook a JEE to identify gaps in their ability to manage infectious disease outbreaks and measured their progress in addressing them. The U.S. Government participated in 11 of these assessments.
- The U.S. IHR National Focal Point (NFP) regularly holds informal technical support discussions on best practices and shared challenges with NFPs across the world, as well as participates in exercises to test communication procedures.
- **Multi-country program example:** From 2022-2024, the U.S. Department of Health and Human Services (HHS) sponsored a project with countries in the World Health Organization (WHO) Regional Office for the Eastern Mediterranean to strengthen notification and information sharing. During the project period, notifications to WHO of acute public health events increased significantly: 43% of verification requests compared to 28% for the previous period. Timely responses were received for 55% of the verification requests, and 11 of 22 countries showed an upward trend in information sharing.



ANTIMICROBIAL RESISTANCE

18

countries increased capacity scores over baseline⁶

Objective: Functional systems are in place to address the emergence and spread of AMR, including implementation and monitoring of costed national multisectoral AMR action plans, optimal use of antimicrobial medicines in human and animal health, and increased AMR surveillance.

For example, with U.S. support:

- **Kenya** developed a National Action Plan for Control of Antimicrobial Resistance; finalized its essential medicines list to promote appropriate use of antimicrobials; and drafted guidelines for surveillance of healthcare-associated infections.
- **Bangladesh** strengthened AMR surveillance activities with a specific focus on infections caused by 10 priority pathogens across 11 public and private hospital sites.
- **Ethiopia**, with U.S. Agency for International Development (USAID) support, validated a list of essential veterinary medicines as either over-the-counter or prescription-only medicines and drafted guidelines for prescription medicines, as well as a veterinary medicines donation directive. Ethiopia also launched antimicrobial stewardship training for animal healthcare providers.
- **Multi-country program example:** In 2023, USAID's Infectious Disease Detection and Surveillance (IDDS) project supported **13 countries in Africa and Asia** to improve their laboratory and surveillance capacities for AMR. For example, IDDS introduced bacterial culture testing in laboratories across **Ethiopia, Guinea, Madagascar, and Senegal**, serving a catchment of more than 20 million people. During the project, USAID introduced new testing services in more than 90 diagnostic sites, increasing the number of priority pathogens isolated through bacterial culture from 3,707 in 2021 to 17,007 in 2023.



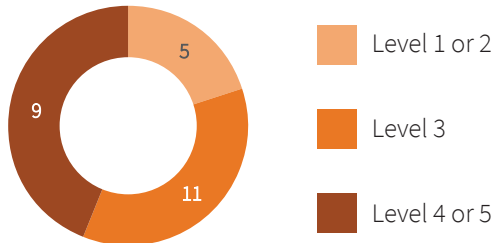
Dr. Andy Numbi, IDDS global health security team lead in DRC, providing training on plague bacteriological culture to INRB staff in Goma. *Credit: USAID's IDDS/DRC*

⁶ AMR is not included in the SPAR. The number of partner countries that achieved a net increase over their baseline capacity scores is based on improvements in sub-technical areas (JEE indicators), as assessed by USG interagency teams.



ZOONOTIC DISEASE

Number of Countries at Each Capacity Level



11

countries increased
capacity scores over baseline

Objective: Countries implement multi-sectoral mechanisms and policies to prevent, mitigate the risks, and minimize the transmission of zoonotic diseases, including implementation of sanitary animal production practices in accordance with international standards.

For example, with U.S. support:

- Through zoonotic disease-focused sentinel surveillance sites, **Burkina Faso** detected a vector-borne disease outbreak (dengue) and activated their National Emergency Operation Center (EOC) in response.
- **Mozambique** initiated the use of real-time electronic disease reporting for animal health events. This new process replaces paper-based reporting, and the need to enter data manually.
- **Multi-country program example:** USAID's Strategies to Prevent Spillover project works with stakeholders at high-risk interfaces to reduce the risks of known viral pathogen spillover from animals to humans in **Vietnam, Cambodia, Bangladesh, Sierra Leone, Côte d'Ivoire, and Liberia**. The project identifies high-risk interfaces, conducts operational research, generates community-led interventions to reduce risk, and evaluates the impact.

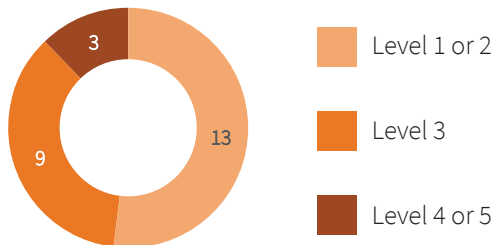


In Vietnam, local veterinarians and wildlife farmers attend a training supported by USAID's STOP Spillover program. *Credit: STOP Spillover, March 2024.*



BIO SAFETY AND BIOSECURITY

Number of Countries at Each Capacity Level



9

countries increased capacity scores over baseline

Objective: Countries implement a whole-of-government national biosafety and biosecurity system helping to prevent the accidental release or deliberate misuse of dangerous pathogens.

For example, with U.S. support:

- **Uganda** developed a strategy, training materials, and standard operating procedures for biosafety and biosecurity for handling suspected Ebola Virus Disease samples. A total of 220 regional laboratory personnel and 707 district-level lab personnel were trained across high-risk districts.
- **Bangladesh** conducted annual servicing of safety equipment at national animal health laboratories to maintain safe containment of potential disease threats.



IMMUNIZATION

11

countries increased capacity scores over baseline⁷

Objective: Countries have functional nationwide vaccine delivery systems, effective cold chains, and quality control to protect populations, including marginalized groups, against endemic and emerging disease threats.

For example, with U.S. support:

- CDC's local partners in **Côte d'Ivoire** supported 15 health districts to integrate COVID-19 vaccination into the country's vaccination program and delivered more than 727,000 vaccine doses.
- **Pakistan** established a group within the national emergency operations center to address adverse events following immunization. The group operates 24/7 with technical experts available to respond to questions or alerts.
- In response to an elevated risk of cholera outbreaks following Cyclone Freddy, **Mozambique** initiated an oral cholera vaccine vaccination campaign. In April 2023 alone, health workers vaccinated more than 1.7 million people in the most affected cholera hotspots.

⁷ Immunization is not included in the SPAR. The number of partner countries that achieved a net increase over their baseline capacity scores is based on improvements in sub-technical areas (JEE indicators), as assessed by USG interagency teams



Staff members from the Provincial Directorate of Health and Red Cross measured free residual chlorine levels in Chimoio, Mozambique's water distribution system to determine the safety of drinking water in cholera affected communities. *Credit: CDC's Division of Global Health Protection*

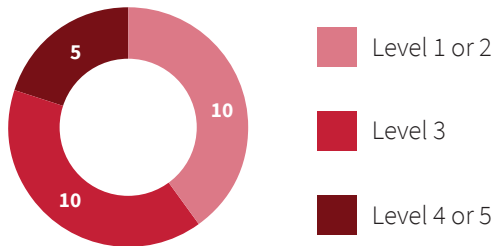
Detecting Infectious Disease Threats

The U.S. Government's GHS efforts support three JEE technical areas that help detect and report infectious disease outbreaks: national laboratory systems; surveillance; and human resources. These activities build national capacities to detect, identify, report, and investigate health threats in both human and animal populations. For each of these technical areas, the tables in this section describe the objective, summarize progress toward that objective for the 25 partner countries with at least two years of U.S. Government GHS support, and provide country-specific examples of how U.S. Government support has contributed to stronger capacity in that technical area.



NATIONAL LABORATORY SYSTEM

Number of Countries at Each Capacity Level



11

countries increased capacity scores over baseline

Objective: A nationwide laboratory system capable of safely and accurately detecting and characterizing pathogens including both known and unknown threats.

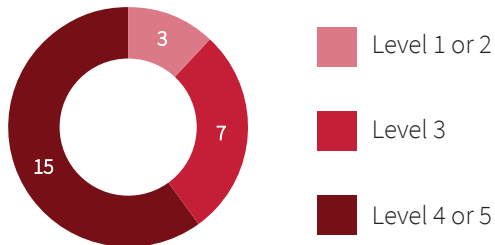
For example, with U.S. support:

- In **India**, laboratorians and microbiologists from all district public health labs in Odisha were trained in diagnostic techniques for priority pathogens, helping identify new and emerging threats that may be circulating in the country.
- **Guinea** tapped into the existing network of drivers' unions and motorbike couriers to transport specimens to a reference lab, delivering all specimens within 24 hours of collection at the required temperature, significantly reducing transport costs and improving lab turnaround times.
- In 2023, **Vietnam**, in partnership with CDC, embarked on an innovative pilot project leveraging its existing influenza surveillance system to advance the identification of other respiratory viruses. This harnesses genetic sequencing to better anticipate threats, reduce illnesses and deaths, and prevent disease spread beyond its borders, all while building on existing systems and capacities from complementary global health investments.



SURVEILLANCE

Number of Countries at Each Capacity Level



5

countries increased capacity scores over baseline

Objective: Effective disease surveillance systems with rapid data and information sharing across national and intermediate levels and sectors, as well as regionally and globally.

For example, with U.S. support:

- **Ghana** strengthened capacity for molecular characterization of *Streptococcus pneumoniae*, the country's leading cause of bacterial meningitis. Meningitis surveillance provides insight into circulating pneumococcal serotypes and antimicrobial resistant genes.
- **Mali** conducted a comprehensive study of bovine tuberculosis - a serious zoonotic disease spread by cattle, goats, dogs, and other animals to humans - by analyzing samples collected from more than 40,000 animals, using results to inform surveillance and disease control efforts.
- **Multi-country program example:** In partnership with USAID, the Food and Agriculture Organization (FAO) helped establish or scale up animal health digital disease reporting systems in **14 countries**. The programs helped improve the timeliness and volume of reporting. For example, Uganda saw a 30% improvement in district report submissions, **Sierra Leone** reported about 62% of disease outbreaks within three days of the observation of clinical signs.
- **Multi-country program example:** CDC improved and expanded wastewater and environmental surveillance in low-resource settings **across three regions**, which provides data on the emergence and trends of infectious diseases and is a critical tool when clinical testing is unavailable or underutilized. Demonstration projects were conducted in **Georgia, Kenya, and Thailand** to strengthen capacity for wastewater and environmental surveillance, integrate lab data into existing surveillance systems, provide opportunities to identify implementation challenges, and allow for the development of innovative solutions.

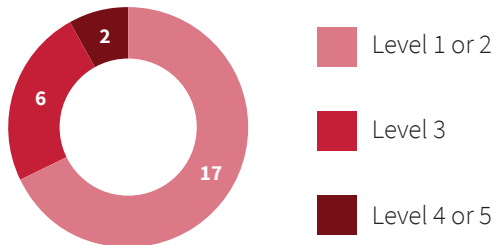


CDC supports trainings in cutting-edge laboratory techniques including Next Generation Sequencing to strengthen outbreak responses and prepare countries for public health emergencies. Credit: Training Center for Excellence in Medical Sciences (TEMS) Laboratory in Thailand.



HUMAN RESOURCES

Number of Countries at Each Capacity Level



9

countries increased capacity scores over baseline

Objective: Countries train and sustain skilled health workers and professionals across health sectors – including public, animal, and environmental health – using multisectoral approaches in pre- and in-service training.

For example, with U.S. support:

- **Uganda’s** Ministry of Agriculture, Animal Industry and Fisheries conducted an animal sector workforce needs assessment that projected requirements for a responsive workforce over the next five years, and guided the formulation of a strategic roadmap.
- **Cameroon’s** Field Epidemiology Training Program supported more than 90% of field investigations to address outbreaks such as polio, cholera, measles, and mpox. Trainees include staff from the Ministries of Health, Livestock, Fisheries and Animal Industry, Defense, Environment, and the Penitentiary and Police Departments.
- **Multi-country program example:** USAID’s One Health Workforce - Next Generation project supports workforce development in 122 universities across **17 partner countries**. During 2023, university networks trained over 53,300 current and future health professionals to strengthen their technical One Health competencies.
- **Multi-country program example:** Through USAID’s partnership with FAO, more than 650 animal health professionals were trained across 16 countries through the In-service Veterinary Epidemiology Training (ISAVET) program and similar efforts. ISAVET graduates supported responses to anthrax, avian influenza, and other outbreaks.



Students hosting the “une seule sante” program on the airwaves of Bouake La Neuve radio state. Credit: USAID AFROHUN/Cote d’Ivoire

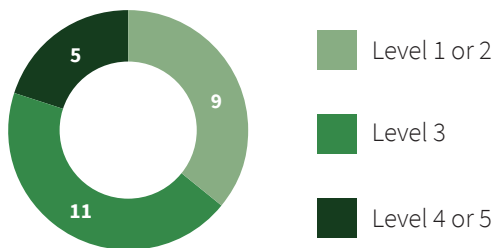
Responding To Infectious Disease Threats

The U.S. Government's GHS efforts directly support JEE technical areas that help countries mount effective responses to disease outbreaks, including: health emergency management; linking public health with security authorities; risk communication and community engagement; infection prevention and control; and points-of-entry and border health. For each of these technical areas, the tables in this section describe the objective, summarize progress toward that objective for the 25 partner countries with at least two years of U.S. Government GHS support, and provide country-specific examples of how U.S. Government support has contributed to stronger capacity in that technical area.



HEALTH EMERGENCY MANAGEMENT

Number of Countries at Each Capacity Level



18

countries increased capacity scores over baseline

Objective: Countries develop and maintain readiness to respond to infectious disease outbreaks, including: risk profiles and readiness plans; emergency operations centers; incident management structures; systems to coordinate health teams; supply chain management systems; and regulatory bodies able to review and authorize drugs, biological products, and medical equipment.

For example, with U.S. support:

- In response to reports of an outbreak of anthrax in a neighboring country, **Burkina Faso** enhanced prevention and preparedness activities along its border, including increasing public awareness, strengthening early notification, improving collaboration across sectors, and sharing operating procedures for anthrax surveillance and response.
- With CDC's support, **Kenya** established 30 new sub-national Public Health Emergency Operation Centers, covering half the population and significantly improving the country's response capacity. County-level experts have responded to more than 85 public health events, including COVID, malaria, dengue, and rabies.
- During a cholera outbreak, **Zambia's** Ministry of Health and the Zambia National Public Health Institute requested support in the establishment of a Cholera Treatment Center to expand treatment capacity to 1,000 beds. CDC stayed closely engaged in the response, training more than 200 local staff in water quality monitoring to help stop transmission and bring the outbreak to an end.



CDC supported Zambia's Ministry of Health in training more than 100 staff in standing up a water quality monitoring program and an electronic system to link remedial actions for cholera and improve safe drinking water. Credit: CDC Zambia Office

- U.S. Government agencies united to strengthen **mpox preparedness in Central and Eastern Africa**: CDC and USAID provided laboratory testing materials and training to countries in the region, including countries that had never before had mpox cases. In several instances, U.S.-provided testing kits and trained staff identified the first-ever mpox cases enabling immediate action to contain the outbreak. In the Democratic Republic of the Congo, USAID supported the Ministry of Health to develop a national Mpox Risk Communication and Community Engagement Strategy which enabled a quick roll out of materials to increase awareness of prevention strategies for the disease.
- CDC works with countries around the world to employ ‘7-1-7,’ aiming to detect a suspected infectious disease outbreak within seven days, notify public health authorities in one day, and complete an initial response within seven days. **Zambia** used the 7-1-7 tool to analyze their response across an anthrax outbreak and two cholera outbreaks. ZNPHI operationalized the Emergency Preparedness and Response Plan to improve emergency coordination across sectors for public health emergencies.



LINKING PUBLIC HEALTH & SECURITY AUTHORITIES

7

countries increased capacity scores over baseline⁸

Objective: Countries have frameworks that outline the roles and best practices between and among the appropriate human and animal health, law enforcement, security, and other personnel in times of infectious disease and health emergencies.

For example, with U.S. support:

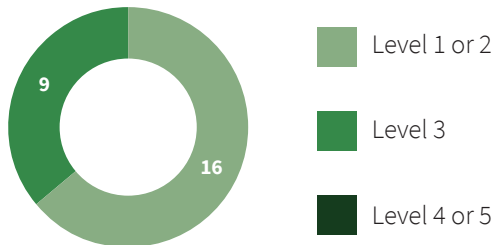
- The **Ethiopian** Public Health Institute signed a memorandum of understanding with security sectors to enhance collaboration during emergencies. Additionally, Ethiopia’s Field Epidemiology Training Program includes residents from the security sector, Ministry of Defense, and police.
- **The Philippines** Bureau of Animal Industry (BAI) partnered with the University of the Philippines Law Center to conduct a certificate course for 64 BAI staff on legal issues faced by veterinary quarantine officers and other animal health professionals in the community.
- The Kamenge Military Hospital in Bujumbura is home to one of four main treatment centers for mpox in **Burundi**, and medical personnel from the facility actively participate in national mpox response technical subcommittees, particularly case management.

⁸ Linking public health & security authorities is not included in the SPAR. The number of partner countries that achieved a net increase over their baseline capacity scores is based on improvements in sub-technical areas (JEE indicators), as assessed by USG interagency teams.



INFECTION PREVENTION AND CONTROL (IPC)

Number of Countries at Each Capacity Level



9

countries increased capacity scores over baseline

Objective: Countries have strong, effective infection prevention and control (IPC) programs that enable safe health care and essential services delivery, and prevent healthcare-associated infections and the spread of AMR.

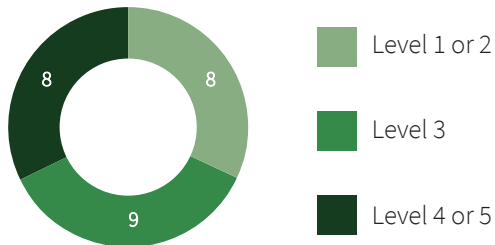
For example, with U.S. support:

- **Mali's** General Directorate of Health and Public Hygiene organized IPC supervision in 16 supported health facilities, resulting in improved IPC practices: 88% of facilities showed improved performance in core IPC components and hand washing compliance.
- **Ethiopia's** Ministry of Health developed an IPC assessment tool based on WHO guidance. The tool has now been incorporated into the national health management information platform, which will result in the real-time nationwide reporting of the IPC status of health facilities.
- During the 2023 Ebola outbreak in **Uganda**, the IPC focal persons at nine regional and referral hospitals intensified training across all 52 CDC supported districts, with over 100 IPC-focused training sessions conducted in high volume health facilities. In addition, USAID supported improved waste management across major health facilities in outbreak-affected areas.



RISK COMMUNICATION & COMMUNITY ENGAGEMENT

Number of Countries at Each Capacity Level



9

countries increased capacity scores over baseline

Objective: Countries build capacities in multi-sectoral risk communication to adequately respond to health emergencies, including real-time exchange of information on preventive actions through traditional and social media, mass awareness campaigns, health promotion, and social mobilization.

For example, with U.S. support:

- **Cameroon** revised a national risk communication and community engagement plan for COVID-19, cholera, and mpox, and disseminated key health risk communication messages on diseases of epidemic potential during more than 13,000 home visits.
- **Zambia** established working groups at national and sub-national levels to strengthen risk communication and community engagement skills and programs. Through these efforts more than one million people were reached with communications messaging through radio broadcasts and more than 17,000 callers accessed pre-recorded audio messages on anthrax and rabies.
- **Multi-country program example:** In 2023, USAID's Breakthrough ACTION program strengthened risk communication and community engagement in **14 countries**, addressing 16 zoonotic diseases, and reaching over 80 million people through television, radio, social media, and mobile phones. Breakthrough ACTION strengthened capacities to respond to rumors and misinformation by helping develop infodemic management systems in 12 countries.
- **Multi-country program example:** USAID partners with the International Federation of Red Cross and Red Crescent Societies to implement epidemic preparedness in **Cameroon, DRC, Guinea, Indonesia, Kenya, Sierra Leone, and Uganda**. During 2023, more than 1.7 million people were reached with preparedness messaging through household visits, community sessions, and mobile cinema; and over 150,000 students and teachers were trained on vaccinations and disease prevention. Trained community members raised over 3,800 disease alerts, triggering responses to acute flaccid paralysis, measles, Chikungunya, yellow fever and anthrax, Rift Valley fever, and rabies in animals.

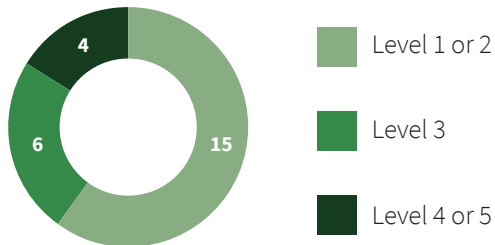


Students join One Health partners to raise awareness about rabies in Ghana. Credit: USAID's Breakthrough ACTION/Ghana



POINTS OF ENTRY & BORDER HEALTH

Number of Countries at Each Capacity Level



14

countries increased capacity scores over baseline

Objective: Countries maintain up-to-date plans and procedures, well-trained staff, and the legal authorities to implement travel measures affecting the movement of people or goods for public health purposes.

For example, with U.S. support:

- **Uganda** implemented electronic logistics management information systems (eLMIS) at eight points-of-entry to improve public health commodity management, visibility on stock status, and accountability. The eLMIS also enabled electronic generation of stock status reports that are shared in real time with the Ministry of Health and key partners to ensure readiness.
- Personnel at five ground crossings in the **DRC** were trained on public health operations and outbreak preparedness and response. New multisectoral public health emergency plans were implemented at four international airports, and a new electronic data-sharing platform integrated ill-traveler reporting into the national surveillance system.

COUNTRY LEADERSHIP AND SUSTAINABILITY OF U.S. INVESTMENTS

The goal of U.S. investments in global health security is to strengthen system capacity and technical expertise so that each partner country is prepared to lead prevention, preparedness, and response activities. Below are examples of partner country leadership in preventing avoidable outbreaks and other health threats and effectively responding when they occur, building on GHS support provided by the U.S. and other partners.

Innovative collaborations to fight dengue in Bangladesh

In 2023, **Bangladesh** experienced its largest dengue outbreak on record. About 1 in 20 people who get sick with dengue, a viral disease spread to people through mosquito bites, will develop severe dengue which could lead to death. To respond to the outbreak, the Government of Bangladesh led a coordinated effort with WHO, the United Nations International Children's Emergency Fund (UNICEF), the U.S. Government, and a new partnership with Google to link the public to reliable information on dengue. The use of Google and YouTube online platforms boosted views of public service announcement videos on dengue from fewer than 100 to nearly 10,000 per day.

The U.S. Government is partnering with the Government of Bangladesh on the following relevant technical areas: Health Emergency Management; Risk Communication and Community Engagement; Human Resources.

Field Epidemiology Laboratory Training Program (FELTP) experts comprised of a multisectoral team of both national and international partners collaboratively create plans to combat the Marburg disease outbreak in Tanzania. *Credit: CDC Tanzania Office*



Strong global partnerships help protect against avian influenza threats in Cambodia

In 2023, **Cambodia** detected six human cases of H5N1 avian influenza, including a father and daughter, raising the concern of person-to-person transmission and the virus' pandemic potential. Avian influenza is a highly pathogenic viral disease that usually spreads between birds and can cause severe respiratory illness and death in humans. Within hours of the first case being detected, Cambodia Ministries of Health, Environment, and Agriculture, Forestry, and Fishes, and the Institut Pasteur du Cambodge began a comprehensive investigation with the support of WHO and the U.S. Government. The collaborative efforts leveraged local epidemiology, laboratory, and response capacities and allowed investigators to quickly determine that exposure to sick and dead poultry was the source of infection. Genomic sequencing confirmed the H5N1 virus detected in the father and daughter duo was different from the one causing global outbreaks in birds, alleviating the initial alarm surrounding the infections. The successful response was facilitated by two decades of strong partnership between the Government of Cambodia, the Institut Pasteur du Cambodge and the U.S. Government, including support of influenza surveillance and Influenza Regional Hubs.

The U.S. Government is partnering with the Government of Cambodia on the following relevant technical areas: Zoonotic Disease; Disease Surveillance; National Laboratory; Health Emergency Management. Cambodia became an official GHC partner of the U.S. Government in 2024 but collaboration has been ongoing since 2002.

Tanzania uses One Health to respond to Marburg Virus Disease outbreak

In March 2023, **Tanzania** declared the country's first outbreak of Marburg Virus Disease (MVD). MVD is a rare, severe viral hemorrhagic fever that affects both people and other primates and has no approved vaccine or treatment. Symptoms appear suddenly and may include fever or rash, and severe cases can lead to serious illness or death. Using a mobile laboratory stationed in the Kagera region, where MVD was initially reported, the Tanzania Ministry of Health confirmed the MVD case and worked with the U.S. Government, Amref Health Africa, Management and Development for Health, and other partners to immediately launch a multisectoral outbreak response using a One Health approach. Activities included training on event-based surveillance, contact tracing, active case searches, infection prevention and control, case management, sample collection, point of entry screening, dignified burials, risk communication, community engagement, logistics, and mental and psychosocial support. Regional and national Public Health Emergency Operation Centers were activated, and community sensitization activities were implemented, reaching over 7,000 people. Following the Ebola outbreak in Uganda, Tanzania had conducted a rapid risk assessment and viral hemorrhagic fever simulation exercise, strengthening both MVD and Ebola readiness. All of these measures and collaborative efforts, with U.S. Government support, helped bring the MVD outbreak to a swift end.

The U.S. Government is partnering with the Government of Tanzania on the following relevant technical areas: Zoonotic Disease; Disease Surveillance; National Laboratory; Health Emergency Management; Risk Communication and Community Engagement.

Nigeria addresses the reemergence of anthrax

In 2023, **Nigeria** experienced outbreaks of anthrax, a zoonotic disease that can cause severe illness in both people and animals and adversely affect rural economies. The initial outbreak in June 2023 affected 173 animals on a farm while a subsequent outbreak emerged in the southwestern region of the country. Nigeria activated national response mechanisms, including multisectoral Emergency Operations Centers to coordinate collaboration across the human and animal sectors and reduce the risk for transboundary disease transmission. Quarantine measures, community-focused sensitization and training, proper disposal of contaminated carcasses, and timely laboratory confirmation ensured accurate diagnosis and immediate action. Travel advisories were issued and Nigeria also collaborated with Ghana to exchange critical insights and strategies for anthrax prevention and control. These and other control measures helped to address the outbreaks and curtail the reemergence of anthrax in Nigeria.

The U.S. Government is partnering with the Government of Nigeria on the following relevant technical areas: Zoonotic Disease; Disease Surveillance; National Laboratory; Health Emergency Management; Risk Communication and Community Engagement.



A community volunteer engaging youth group on zoonotic disease spillover and prevention. Credit: USAID's Breakthrough ACTION/Nigeria

Rapid detection and response to avian influenza cases in Senegal

In March 2023, residents observed a large number of dead birds in **Senegal's** L'Ange de Barbarie National Park. Within just two days, Senegal conducted an investigation that confirmed that the birds were killed by a highly pathogenic avian influenza (HPAI) H5N1 virus, as were another 11,400 birds found dead on a farm nearby. Within 72 hours, the National Veterinary Services collaborated with the Regional Governor to begin implementing protective measures, culled the remaining birds, and destroyed trays of eggs, bags of feed, and egg cells. In addition, the Regional Governor established an incident management system and included staff from multiple ministries. The group encouraged the affected communities around the park to fence in the poultry farms to control the spread.

The U.S. Government is partnering with the Government of Senegal on the following relevant technical areas: Zoonotic Disease; Disease Surveillance; Health Emergency Management; Risk Communication and Community Engagement.

Timely diagnosis of antimicrobial-resistant organisms at Liberia's Phebe Hospital

Antimicrobial resistance (AMR) poses enormous health, wellbeing, and economic costs, and can spread globally. The capability of **Liberia's** Phebe Hospital, the main referral facility in central Liberia, to detect antimicrobial-resistant organisms and treat them effectively saves lives and prevents further spread of AMR. In April 2023, a patient was admitted with a wound that had been treated with unknown antibiotics and herbal medicine without getting better. Within a few hours, preliminary test results indicated it was a bacterial infection. With technical support from the U.S. Government, the laboratory isolated *Staphylococcus aureus* (an infection which can become very serious if not properly treated), conducted antimicrobial sensitivity testing, and confirmed the presence of methicillin-resistant *S. aureus* (MRSA). Although the strain was found to be resistant to multiple antimicrobial drugs, it was sensitive to antibiotics available in the local hospital pharmacy and appropriate treatment was initiated quickly. Liberia's capability to detect AMR organisms is good news in the fight against AMR in Africa and globally.

The U.S. Government is partnering with the Government of Liberia on the following relevant technical areas: Antimicrobial Resistance; National Laboratory; Infection Prevention and Control.

Goal 2: Catalyze Political Commitment, Financing, and Leadership to Achieve Health Security

Since day one, the Biden-Harris Administration harnessed the unprecedented global action mobilized during the COVID-19 pandemic to strengthen the global architecture for pandemic prevention, preparedness, and response. The Administration has taken a multifaceted approach, leveraging bilateral engagements, regional institutions, multilateral channels, and partnerships with non-governmental actors, to prioritize GHS at the national, regional, and global levels. Key to this approach has been catalyzing new sources of sustainable financing for global health security, ensuring that all actors share the responsibility to prevent, prepare for, and respond to biological threats. This approach fosters greater political will, drives increased prioritization of and investment in GHS, promotes cooperation, and supports development of fit-for purpose institutions that are able to deliver on our ambition of a world safe and secure from infectious disease threats.

STRENGTHEN GLOBAL SYSTEMS

The U.S. Government is working to put in place the policies and systems necessary to strengthen the global health architecture to more effectively prevent, prepare for, and respond to future pandemics.

International Health Regulations (IHR)

In January 2022, the United States, along with other WHO Member States, proposed amendments to the IHR to make them more effective, transparent, and adaptable. At the 2024 World Health Assembly, countries adopted a package of IHR amendments to strengthen global health security. These amendments will enhance global readiness for future health emergencies and help contain outbreaks before they spread internationally. Key updates include improved transparency and timeliness of information sharing by all countries, while respecting national sovereignty; measures to improve access to critical health products to better prevent, prepare for, and respond to pandemics and other public health emergencies, regardless of where they may arise; and measures to identify and address critical gaps in health security capacities. These amendments, the most significant update to the IHR in nearly 20 years, will help countries to coordinate and better prevent, prepare for, and respond to future public health emergencies.

Pandemic Agreement

In response to the COVID-19 pandemic, WHO Member States established the Intergovernmental Negotiating Body (INB) to draft and negotiate “a convention, agreement, or other international instrument” to promote more rapid, effective, and equitable pandemic prevention, preparedness, and response. The United States is engaging in the negotiations with the goal of putting in place practical measures to prevent future pandemics and to strengthen the international community’s ability to respond rapidly and effectively in the event of a pandemic. An effective Pandemic Agreement would include solutions to address critical gaps in the global architecture exposed by the COVID-19 pandemic, including measures to prevent the spillover of zoonotic diseases; rapid and open sharing of data and samples; and measures to promote wider and more affordable access to medical countermeasures, ranging from expanding regional production to regulatory strengthening, logistics, and allocation of a share of medical countermeasure production for developing countries in order to stop outbreaks at their source. The United States is working to ensure an agreement incentivizes research and innovation, protects intellectual property, and maintains public confidence in the safety and effectiveness of these products.

TRANSFORM FINANCING FOR GLOBAL HEALTH SECURITY

The COVID-19 pandemic revealed gaps in the existing systems to finance pandemic prevention, preparedness, and response. On day one, President Biden [called on his Administration](#) to address the barriers to financing global health security, strengthen existing financing mechanisms and institutions, increase coordination among partners and resources, establish mechanisms to address gaps, and galvanize increased commitments. By engaging bilateral and multilateral health and finance partners, the Biden-Harris Administration advanced long-term sustainable solutions that address proven gaps, and promoted greater international financial institution support for global health security, including for emerging markets and developing economies. The goal of these engagements is to catalyze more sustainable sources of financing to address shared global threats so that the United States is not bearing a disproportionate financial burden during global crises, and the world is prepared to act quickly in times of emergency.

Expanding Reliable Financing Of Pandemic Prevention And Preparedness

Predictable, sustainable financing is needed for pandemic prevention, preparedness and response. The need is estimated at more than \$10 billion annually⁹. Chronic underinvestment coupled with unpredictable and emergency driven surge financing for health security left countries ill prepared to effectively respond to and contain COVID-19. In response, the Biden-Harris Administration called for the establishment of a catalytic financing mechanism for advancing global progress to prevent, detect, and respond to infectious disease threats.

Pandemic Fund: The United States, working closely with our allies and partners through the Group of 20 (G20) Italian and Indonesian Presidencies, was instrumental in creating the Pandemic Fund. Established in September 2022, the Pandemic Fund is the first and only multilateral financing facility dedicated exclusively to providing predictable and sustainable long-term financing to low- and middle- income countries (LMIC) to close critical gaps in pandemic prevention, preparedness, and response capacities. Through grant financing, the Pandemic Fund stimulates recipient governments to increase domestic financing, and encourages aligned investments from philanthropies and the private sector. In just two years with the support of 25 countries and three philanthropies, the Pandemic Fund has moved quickly, awarding grants totaling \$885 million to 75 countries across six geographical regions to strengthen surveillance and early warning systems, laboratory systems, human resources, and workforce capacities. According to the Pandemic Fund, every dollar invested has catalyzed another six dollars in investments. The Pandemic Fund has also demonstrated agility and responsiveness to global health emergencies, fast-tracking nearly \$129 million for 10 countries to prepare to respond to the mpox outbreak in 2024.

The United States has been the Pandemic Fund's largest donor, contributing an initial \$450 million, and pledging up to an additional \$667 million to support the Pandemic Fund's replenishment through 2025. On October 31, 2024 on the margins of the G20 Joint Finance and Health Ministers' Meeting in Rio de Janeiro, the Pandemic Fund marked a key milestone in its resource mobilization campaign, successfully securing additional pledges and catalytic financial resources, and attracting new sovereign, philanthropic, and private sector partners. New pledges to the Pandemic Fund now total \$1 billion, a significant step toward fulfilling the Fund's \$2 billion resource mobilization goal. As of November 2024, the United States has made a \$250 million down payment on the pledge for this resource mobilization round.

The United States has been a strong advocate for good governance as the Pandemic Fund continues to mature as an institution. The United States advocated strongly and successfully that civil society and philanthropic donors have voting seats on the Pandemic Fund Board to ensure that their voices and perspectives inform the Board's decisions. As a Board member, the United States led in the development of a robust results framework to enable accountability and continuous improvement. As Co-Chair of the Fund's Strategy Committee, the United States played a leading role in the development and adoption of the 2024-2029 Strategic Plan, which will ensure that the Pandemic Fund continues to deliver on its mission by filling capacity gaps; fostering coordination across actors and sectors, mobilizing additive investment; and demonstrating flexibility, responsiveness, and a commitment to continuous improvement. As a member of the Fund's Resource Mobilization Committee, the United States continues to inform the Fund's strategic short-, middle- and long-term resource mobilization planning to maximize impact, promote sustainability, and ensure the Pandemic Fund has a variety of funding sources.

⁹ Analysis of Pandemic Preparedness and Response Architecture, Financing Needs, Gaps and Mechanisms. WHO and World Bank, March 2022

Promoting Fit-For-Purpose International Financial Institutions

The Biden-Harris Administration has worked with diverse partners to deliver on the commitment to enable international financial institutions to better support countries to prevent, prepare for, and respond to health security threats and provide timely resources during health emergencies. International Financial Institutions have made progress toward that goal, including:

Multilateral Development Bank Evolution: In October 2022, Treasury Secretary Yellen called for evolving the vision, incentive structures, operational approaches, and financial capacity of the multilateral development banks to equip these institutions to better respond to transboundary global challenges, including pandemics. In response to urging by the United States and other shareholders, the World Bank has expanded its crisis preparedness and response toolkit, announced a Global Challenge Program for health emergencies, and established a Financial Incentives Framework to encourage countries to pursue projects that address global challenges, like pandemics.

International Monetary Fund’s Resilience and Sustainability Trust: The United States strongly supported the establishment of the International Monetary Fund (IMF) Resilience and Sustainability Trust (RST) to help low-income and vulnerable middle-income countries address climate- and pandemic-related risks and ensure sustainable growth, contributing to their longer-term balance of payments stability. At the urging of the United States and other countries, the IMF, World Bank, and WHO have agreed to broad principles for cooperation on pandemic preparedness. These principles will allow scaling up of support to countries to prevent, detect and respond to public health threats through the IMF’s RST, the World Bank’s financial and technical support, and WHO’s technical expertise and in-country capabilities.

Coordinating Financial Mechanism: The United States is committed to supporting the successful operationalization of the Coordinating Financial Mechanism under the amended IHR, to effectively support the identification of, and access to, financing and promote sustainable financing for IHR (2005) implementation.

Improve Timely Access To Emergency Response Financing

COVID-19 highlighted the long-standing difficulty in rapidly mobilizing funding from the international community to contain an outbreak or pandemic. One of the causes of disparities in delivery times for vaccines and medical countermeasures in the COVID-19 response was that many health organizations and national health systems lacked the capital they needed to place early orders with vaccine manufacturers. Conversely, manufacturers were unable to plan the necessary rapid scale-up of production without a clear picture of demand. Examples of U.S. Government efforts to address this challenge include:

Development Finance Institution (DFI) Medical Countermeasures (MCM) Surge Financing Initiative: The U.S. International Development Finance Corporation (DFC) leads the DFI MCM Surge Financing Initiative, which created a first-of-its-kind framework for G7 DFIs, the European Investment Bank, the International Finance Corporation, and MedAccess, a subsidiary of British Investment International, and global and regional health stakeholders to collaborate and deploy innovative financing tools to accelerate access to MCMs for low- and middle-income countries in health emergencies. These DFIs signed a Memorandum of Understanding to cement this framework on the margins of the United Nations General Assembly meeting in 2024.

Gavi’s Day Zero Financing Facility: The United States has supported Gavi, the Vaccine Alliance, in establishing the Day Zero Financing Facility, a suite of tools that will support Gavi to quickly meet the demand for vaccines during a pandemic. This includes up to \$2 billion in bridge financing loans to Gavi to accelerate procurement of vaccines early in a health emergency.

CATALYZE POLITICAL LEADERSHIP AND INCREASE LINKAGES TO FINANCING

Group of 7 (G7) and the Group of 20 (G20): The United States is working closely with our allies and partners through the G7 and the G20 to demonstrate global leadership and advance initiatives critical to improving health security. The G20 was instrumental in the creation of the Pandemic Fund at the World Bank, and in establishing and sustaining stronger links between health and finance ministries. The G20 is developing a framework to increase and improve regional manufacturing capabilities for medical countermeasures, strengthening supply chains and increasing pandemic preparedness. In addition to launching the DFI MCM Surge Financing Initiative effort, G7 leaders committed to support 100 countries with their implementation of the International Health Regulations and improving core capacities in at least five technical areas by 2027. United States' investments in 50+ formal GHS partnerships contribute to achievement of this G7 commitment.

Catalyzing Health Security Capacity Building: The United States is leveraging financial and political resources to mobilize others to support 50 countries to strengthen their health security capacities in at least five technical areas, as measured by relevant health security assessments, complementing U.S. direct support to 50+ countries described previously. For example, through U.S. support of the Pandemic Fund and Global Fund COVID-19 Response Mechanism, over sixty countries, in addition to U.S. formal GHS partner countries, receive support to strengthen IHR capacities.

G20 Joint Finance-Health Task Force: The COVID-19 pandemic revealed the central role of financing in responding quickly and effectively to health emergencies. With that lesson in mind, the United States strongly supported the establishment of the **G20 Joint Finance-Health Task Force** in 2021, and continues to support its critical work. The Task Force was established to strengthen coordination between finance and health ministries, including assessments of cross-border health emergencies and promotion of greater investment and sustainable financing for pandemic prevention, preparedness, and response. The Task Force, under Indonesia's G20 leadership, supported the launch of the Pandemic Fund, and developed reports including a landscape mapping of resources for pandemic response under India's Presidency, a framework on economic vulnerabilities and risks from pandemics and a report on best practices to foster finance and

health coordination. During Brazil's G20 Presidency, the Task Force conducted a simulation exercise to a COVID-19-like pandemic, updated the framework on economic vulnerabilities and risks from pandemics, and prepared a draft playbook to facilitate coordinated finance and health sector response to health shocks.

Leveraging Health and Finance Linkages in Times of Crisis: In response to declarations by WHO and Africa Centres for Disease Control and Prevention (Africa CDC) in August 2024 that the mpox outbreak in Eastern and Central Africa constitutes a public health emergency of international concern (and a public health emergency of continental security), starting in September 2024 the G20 Joint Finance-Health Task Force worked with the World Bank, WHO, and Brazil as G20 President to ensure health and finance discussions were more closely linked as part of the response. The Task Force has begun to analyze the economic risks and vulnerabilities posed by the outbreak, supported WHO's launch of a financing tracker for the response, and conducted analysis showing that resources are available to meet 90% of the needs identified by WHO and Africa CDC. This quick action has helped to direct resources more effectively, and to focus attention on implementing the critical areas of the response quickly.

Foreign Ministry Channel for Global Health Security: Department of State launched the Foreign Ministry Channel (FMC) for Health Security in March 2024 to foster greater diplomatic engagement among Foreign Ministries on global health security. Through the FMC, the United States has partnered with 18 participant countries and three regional organizations to pursue five lines of effort: increasing early warning capabilities for infectious diseases; countering mis- and dis-information in health; addressing issues at the nexus of animal, environmental, and human health (One Health); promoting sustainable access to medical countermeasures for health emergencies; and improving diplomatic workforce training in global health security and diplomacy. The FMC convened four meetings in its first six months, including sessions hosted by the Australian Government that focused on climate and human health, and the UK Government which focused on AMR. Secretary Blinken chaired an FMC ministerial meeting on the margins of the UN General Assembly where countries outlined commitments to address the global mpox outbreak, financing for health security, and FMC priorities such as training for diplomats.

The Quad: The Quad is a diplomatic network of four democracies (United States, Australia, India, and Japan) committed to supporting a free and open, stable and prosperous Indo-Pacific that is inclusive and resilient. Quad partners stepped up in 2021 and 2022 to help meet the region’s most pressing needs through the Quad Vaccine Partnership, delivering more than 400 million safe and effective COVID-19 vaccine doses to Indo-Pacific countries and almost 800 million doses globally, bilaterally and in partnership with COVAX. The Quad Vaccine Partnership has since evolved into the Health Security Partnership, which aims to address a range of health security priorities in the region. Recent accomplishments of the Partnership include the launching of the Quad Cancer Moonshot, which will deliver up to 40 million doses of the HPV vaccine to the Indo-Pacific; two tabletop exercises (in 2022 and 2023) to increase coordination and information sharing in advance of the next health emergency; a workshop hosted by India on digital health initiatives; and exchanges of information regarding genomic surveillance programs, One Health initiatives, vaccine data management, and health workforce development.

Global Health Security Agenda: The [Global Health Security Agenda \(GHSA\)](#) is a vital ongoing partnership of over 70 countries, more than 10 international organizations and coalitions, and more than 30 non-governmental organizations, including private sector and civil society partners, working together to accelerate implementation of the IHR. Since its inception in 2014, GHSA has aimed to strengthen countries’ capacities to combat infectious disease threats by driving significant political and financial commitments for global health security. U.S. Government engagement and bilateral GHSA partnerships support of the GHSA directly contributes to achieving the GHSA 2028 Target of at least 100 countries achieving “demonstrated capacity” in at least five technical areas by 2028, as measured by the IHR MEF tools. By the end of 2023, 58 countries had met this target and an additional 17 countries were close.



An orthopox team advances evidence-based decision making through processing of field samples for zoonotic infections in Akhmeta, Georgia. Credit: CDC’s Division of Global Health Protection

EXPAND EQUITABLE ACCESS TO MEDICAL COUNTERMEASURES

The Biden-Harris Administration remains committed to expanding access to medical countermeasures (MCMs) around the world, stopping outbreaks at their source.¹⁰ The goal of this line of effort is to enhance innovation to develop countermeasures (vaccines, therapeutics, as well as diagnostics) to enable the world to respond rapidly to emerging threats, to minimize supply shortages during emergencies, and to contain and end health emergencies quickly while minimizing the impact on human health and economic security. These efforts include:

Investing in Innovation, Research, and

Development: Public-private partnerships through the Biomedical Advanced Research and Development Authority (BARDA) resulted in a vaccine, antibody treatments, and diagnostics for Ebola, and the creation of technologies that are being applied to other viruses, including Marburg virus, which enabled investigational vaccines and therapeutics to arrive in Rwanda within a week of doses being requested. In addition, the United States continues to support the Coalition for Epidemic Preparedness Innovations (CEPI), which is working to accelerate the development of life-saving vaccines against emerging disease threats, and bolster global manufacturing capacity in underserved regions.

Building Sustainable Global Manufacturing and Supply Chain Capacity:

U.S. Development Finance Corporation (DFC) finances and catalyzes investments by the private sector and other development finance institutions in health commodity manufacturing and supply chain for MCMs in developing countries, with a focus on Africa. For example, DFC invested €210 million in Aspen Pharmacare in South Africa to expand manufacturing capacity for vaccines, insulin, and other essential medicines. DFC also invested \$20 million in Institute Pasteur de Dakar in Senegal to build flexible manufacturing capacity for routine and outbreak vaccines.

The United States is supporting **Gavi, the Vaccine Alliance**, working in collaboration with **Africa CDC**, to establish the **African Vaccine Manufacturing Accelerator**, which has made \$1 billion available for incentive payments to provide financial support over the next ten years to accelerate the expansion of commercially viable vaccine manufacturing in Africa. This will help ensure sustainability of DFC and other DFI investments in African vaccine manufacturers.

Improving Legal Preparedness through Legal Systems and Regulatory and Logistics Capability:

The United States is working to promote and strengthen global regulatory and legal systems to better prepare

for health emergencies and otherwise ensure the safety, efficacy and accessibility of MCMs. For example, the United States' Food and Drug Administration (FDA) engages in cooperative activities and information sharing with regulatory counterparts and advances regulatory harmonization and convergence through diverse multilateral health and regulatory forums such as the International Council for Harmonization of Technical Requirements for Human Use, the International Medical Device Regulators Forum, and the International Coalition of Medicines Regulatory Authorities, to inform internationally recognized technical guidance documents, standards and scientific principles, common or similar practices and procedures, related to MCMs. FDA also provides technical assistance to WHO's efforts, and HHS co-Chairs the GHSA Legal Preparedness Action Package to promote legal preparedness as a critical capacity needed for an effective response to health emergencies, including access to MCMs. The GHSA Legal Preparedness Action Package hosted webinars focused on the use of liability risk management to promote access to MCMs for a rapid and effective response to international health emergencies, including through no-fault compensation mechanisms. CDC provides legal preparedness training to partner countries to improve IHR capacities.

Expanding Rapid Access to MCM During

Health Emergency Responses: The Biden-Harris Administration provides MCMs for ongoing and emergency health threats, and makes significant immediate and long-term investments to support country readiness to receive, deliver, and effectively use vaccines, tests, personal protective equipment, and treatments. This includes donations of more than one million mpox vaccine doses to respond to the outbreak in Eastern and Central Africa, as well as delivery of thousands of experimental Marburg vaccine doses to Rwanda within eight days of learning of the Marburg outbreak. The United States is also expanding pandemic response financing for MCM including through the G7 partnership on surge financing and Gavi's Day Zero Financing Facility (described previously).

¹⁰ <https://www.whitehouse.gov/briefing-room/statements-releases/2024/03/29/fact-sheet-update-on-the-united-states-commitment-to-expanding-access-to-medicines-around-the-world-2/>

Goal 3: Increase Linkages Between Health Security and Complementary Programs to Maximize Impact

Many U.S. Government global programs and efforts also complement broader GHS goals. Moreover, disease outbreaks, whether global like COVID-19 or more localized like Ebola, can set back disease control efforts for HIV, tuberculosis, malaria, and other diseases, as well as efforts to improve broader health goals, including maternal and child health and nutrition. Coordination between programs strengthens health systems and pandemic responses and protects the gains achieved against existing health challenges. The sections below identify examples of U.S. Government programs that complement GHS-specific investments.



A laboratory technician at the Phebe Hospital in Liberia conducts testing to ensure appropriate disease detection and diagnosis. *Credit: Bobby Neptune, USAID IDDS*

GHS AND GLOBAL HEALTH PROGRAMS

Strong health systems, including a well-trained health workforce, form an essential foundation on which to build stronger GHS capacities. Technical capacities to prevent, detect, and respond to infectious disease threats are built not only through our GHS work, but also through interagency global health programs such as the President's Emergency Plan for AIDS Relief (PEPFAR), the President's Malaria Initiative (PMI), and U.S. Government tuberculosis, immunization, maternal and child health, and pandemic influenza efforts. These efforts form an essential foundation on which to build emergency response – without this foundation, countries will be unable to stop outbreaks at their source. Below are examples of how global health programs strengthened health security:

Health Workforce: Through the [Global Health Worker Initiative](#), launched in 2022, the United States has partnered with countries and communities around the world to support efforts to build a stronger health workforce and make health workers safer and better equipped to provide high-quality care. **PEPFAR's investments in the health workforce** have significantly enhanced the capacity and numbers of frontline health workers, such as nurses, community health workers (CHWs), laboratorians, and epidemiologists - key actors in advancing global health security. In fiscal year 2023, PEPFAR invested \$1.2 billion to strengthen the health workforce in over 50 countries, with a focus on increasing the reach and effectiveness of nurses and CHWs who are often the first to detect, report, and respond to emerging public health threats. PEPFAR's Nursing Leadership Initiative, launched in 2023, is a central pillar of these efforts, targeting enhanced support for nurse leaders in seven African countries; the nurse leaders and frontline nurses trained through the program play a pivotal role in early disease detection and response, contributing measurably to global health security goals.

National Public Health Institutes (NPHI): A vital component of GHS, NPHIs serve as a country's lead technical public health agency, provide leadership and coordination of essential public health and critical security functions, and serve as the home for emergency preparedness and response. For example, CDC continued its multi-year support of Colombia's Instituto Nacional de Salud (INS) in 2023 with a focus on data modernization, laboratory networks, and the public health emergency operations center. This enabled INS to play a key role in responding to public health emergencies (e.g., dengue, mpox, and COVID-19) and be recognized as a NPHI leader in the Latin American region. PEPFAR investments in NPHIs are essential to ending HIV as a public health threat by advancing broader GHS goals. Strengthening national capacities in HIV surveillance, laboratory networks, and data systems accelerate and sustain a nationally-led HIV response while building robust capacities for future public health threats. In fiscal year 2024, PEPFAR launched the African Public Health Institutes Collaborative (APHIC), its central initiative to further advance African NPHIs, implemented by CDC in partnership with Africa CDC. APHIC fosters peer learning among NPHIs and national HIV programs in ten countries.

Vaccinating Children Against Life-threatening Diseases: The U.S. Government has long-standing work on routine immunization systems strengthening that ensures vaccines – a life-saving preventive measure – are available, reach the children and communities who need them, and are safe and effective. Each year approximately 4 million deaths are prevented by vaccination and more than 1 million more could be prevented if global coverage targets were met. In 2023, the U.S. Government provided technical support and training to strengthen immunization programs in more than 50 countries. For example, USAID worked closely with national and subnational governments in DRC, Nigeria, Mozambique, and other countries to reach zero-dose and under-immunized children, mapping remote and hard-to-reach communities, train and mentor health staff, and plan approaches to reach these populations. As a result, across the three countries, dropout rates between first dose and third dose of DTP (diphtheria, tetanus, pertussis) decreased between 1 to 12% depending on the country. Post COVID-19 pandemic, the need for catch-up vaccination was elevated, however, many countries did not have the necessary policy in place, nor structures to operationalize catch-up vaccination in routine immunization settings. CDC is actively providing support to the development of new policies, guidance, and tools for routine catch-up immunization in places where they did not exist before, implementation of catch-up strategies, and filling evidence gaps to inform country and global programming.

Surveillance and Laboratory Detection: CDC supports avian influenza surveillance in wild birds in multiple countries, including Bangladesh. These surveillance systems routinely detect avian influenza in approximately 15% of samples tested. The International Center for Diarrheal Disease Research, Bangladesh (icddr,b) shares virus samples and sequence data with CDC laboratories in Atlanta for further characterization of viruses that informs risk assessments for human infection and transmission, which can result in development of vaccine candidates for pandemic viruses. Data generated by this surveillance are critical to inform CDC scientists of the latest avian influenza viruses in circulation and their epidemiology; this in turn protects Americans and others through pandemic preparedness and vaccine development. The U.S. Department of the Interior's U.S. Geological Survey (USGS) also partners with agencies around the world to monitor the

occurrence and distribution of highly pathogenic avian influenza (HPAI). The USGS aims to: 1) determine mechanisms of HPAI disease spread in wildlife and the environment; 2) characterize HPAI viruses circulating in wildlife; and 3) develop HPAI forecasting and decision-making tools. The U.S. Government also supports specimen collection for tuberculosis testing in remote areas of many countries where there are no processing facilities. These specimens must be transported to central laboratories for testing, which can affect specimen integrity and pose risks if not handled properly. Improvements made in the efficiency and effectiveness of tuberculosis specimen transport systems accelerate the referral of confirmed cases to treatment, prevent resources from being wasted when specimen integrity is compromised during delivery, reduce biosecurity risks, and provide lessons for broader GHS strengthening.

Addressing Antimicrobial Resistance: The U.S. Government [National Strategy for Combating Antibiotic-Resistant Bacteria](#) (CARB) includes the objective to improve international collaboration and capacities for antibiotic-resistance prevention, surveillance, control, and antibiotic research and development. The U.S. Government, through the joint efforts of CDC, USAID, the U.S. Department of State, the U.S. Department of Agriculture, the Administration for Strategic Preparedness and Response, the U.S. National Institutes of Health, the U.S. Department of Health and Human Services Office of Global Affairs, and the U.S. Department of Defense, works with international partners and multilateral organizations to develop global, science- and risk-based guidance on managing AMR and surveillance; supports international policy efforts to reduce antibiotic resistance; promotes increased awareness and capacities in partner countries to address the emergence and slow the spread of antibiotic resistance (through improved IPC and water, sanitation, and hygiene (WASH) programs, developing national action plans for AMR, supporting antibiotic stewardship in the animal and human sectors, and promoting the use of vaccines to reduce the unnecessary use of antibiotics); strengthens laboratory and surveillance systems to generate consistent and actionable global data on antibiotic resistance to address the identification, emergence, spread, and effects of antibiotic resistance; supports countries in sharing antibiotic-resistant pathogen information with relevant collaborating centers such as WHO's Global Antimicrobial Resistance Surveillance System; and increases international collaborations to facilitate basic,

translational, and clinical research into understanding the causes of antibiotic resistance and developing countermeasures.

Investments in Primary Health Care: In December of 2022, USAID launched Primary Impact, bringing together subject matter experts to harness the collective strength of the agency's global health work and improve primary health care outcomes in eleven focus countries across Africa and Asia: Côte d'Ivoire, Ghana, Indonesia, Kenya, Malawi, Nigeria, the Philippines, India, Uganda, Rwanda, and Vietnam. Through Primary Impact, USAID is working to develop a learning model for how country-led teams, donors, and local and other stakeholders can work together across health portfolios, including global health security, to coordinate investment in the systems and processes that drive primary health care service delivery.



A CDC Epidemic Intelligence Service (EIS) Officer conducts an immunization coverage survey in Alwar District, Rajasthan, India. Credit: CDC India Office

GHS AND DEVELOPMENT

The U.S. Government supports multiple initiatives aimed at integrating GHS and development. The Feed the Future initiative supports research to identify innovative approaches to improve animal health, including strengthening animal health laboratories and the animal health workforce. Water for development and WASH programs and initiatives strengthen overall infection prevention and control in health facilities, on farms, and in communities, and investment in water that is clean and more accessible contributes to improved human health. Democracy and governance programs help strengthen community engagement in health and the role of civil society, and also help counter the spread of mis and dis-information. U.S. humanitarian assistance frequently includes WASH, nutrition and other essential health services. Below are examples of how U.S. Government development programs strengthened health security during 2023:

Water Sanitation and Hygiene: USAID WASH programs in health care facilities focus on strengthening IPC through WASH improvements to health policy, planning, monitoring, management, infrastructure, and maintenance systems to ensure safe water for drinking, washing, and cleaning; toilets for men, women, and staff; handwashing and environmental cleaning throughout facilities and all points of care; and waste management. In fiscal year 2023, USAID supported at least 25 integrated health programs that included a component strengthening WASH in health systems for IPC with a total of 85 health care facilities gaining basic sanitation access and 108 gaining basic drinking water access. For instance, in Malawi, USAID trained 560 medical staff and nearly 900 non-medical staff from 72 health care facilities in critical IPC and WASH guidelines. In Madagascar, USAID trained 418 health workers in WASH, and constructed or rehabilitated 180 hygienic toilets and 100 drinking water points resulting in 107 health care facilities having successfully met country WASH standards.

Food Security: In 2023, the U.S. Department of Agriculture (USDA) announced that it was utilizing funds from the Commodity Credit Corporation, consistent with bipartisan request, to address food insecurity challenges¹¹. USDA will purchase commodities and work with USAID, the lead federal agency on international emergency food aid programs, to ensure they reach those most in need around the world. The \$1 billion donation will bolster ongoing efforts to address

global hunger, as well as support U.S. agriculture through the purchase of surplus commodities. Led by USAID, **Feed the Future**, America's initiative to combat global hunger, brings partners together to address the root causes of hunger and poverty by boosting agriculture-led growth, resilience and nutrition in countries with great need and opportunity for improvement. This work complements GHS objectives on promoting the biosafety of farms and agricultural production, addressing AMR in agricultural systems, promoting the resilience of populations at risk of emerging infectious diseases.

Outbreak Response in Humanitarian Settings: USAID has a comprehensive, cross-sectoral approach to handling infectious disease outbreaks in humanitarian settings that enables the Agency to provide timely, targeted support and strengthen local capacity when requested by partner-country governments. When an outbreak progresses to crisis levels characterized by broad societal impacts, excessive mortality, multi-sector needs, disrupted national systems, and a general state of emergency, USAID's Bureau for Humanitarian Assistance (BHA) may be asked for additional support. For example, USAID, through both global health and BHA, supported the 2023 Malawi cholera outbreak by providing complimentary assistance throughout affected areas with life-saving WASH services, supplying essential cholera prevention materials, and engaging communities with cholera prevention messages.

¹¹ USDA Bolsters Investments in International Trade and Food Aid | USDA Foreign Agricultural Service

GHS AND ONE HEALTH, INCLUDING CLIMATE CHANGE

The U.S. Government promotes One Health, a collaborative, multisectoral and transdisciplinary approach for human, animal, plant, and environmental health, relevant to health security; and to meet national and global goals for climate, resilience, food security and nutrition, economic development, biodiversity, and conservation. Through these initiatives, the U.S. Government implements a range of activities to reduce the risk for zoonotic disease spillover and spillback through improved biosurveillance and biosecurity measures for those working with animals as well as efforts to prevent and mitigate unsafe trade and trafficking in wildlife and wildlife products. Additionally, ongoing efforts to reduce the impacts of climate change on health systems, and of health systems on climate change, can also help the development of sustainable and resilient capabilities and reduce the risk posed by climate sensitive diseases. For example, USAID's [Wildlife Trafficking Response, Assessment, and Priority Setting \(Wildlife TRAPS\)](#) project works in GHS formal partnership countries Cameroon, Tanzania, and Vietnam, to monitor high-risk markets and wildlife supply chains; develop materials and campaigns to change consumer behavior; promote health safety practices at critical control points in food supply chains; and partner with key industries to reduce the availability of high health-risk wildlife products in pharmacies, package delivery services, and other points of sale.

GHS AND SECURITY AND DEFENSE

Worldwide, defense and security sectors play crucial roles in civilian-led global health security initiatives. Defense and security stakeholders have unique capabilities for prevention and detection of biological threats and frequently support civilian responses to biological incidents, regardless of whether these incidents arise naturally, accidentally, or deliberately. Moreover, these sectors are often better positioned to meet the specialized health security needs of populations operating in remote, austere, and insecure environments. The U.S. Department of Defense (DoD) spearheads U.S. Government efforts to engage the defense and security sector.

Geographic Combatant Commands and other DoD components leverage multisectoral, regional, and global engagements to advance shared health security goals and bridge the civil-military divide in planning and responding to health emergencies. Examples include:

- Support for **the African Partner Outbreak Response Alliance**, established in 2014 after the Ebola response, is an African-led multisectoral engagement involving 32 African partner nations focused on promoting a whole-of-government approach for effective infectious disease outbreak prevention, detection, and response across the African continent.
- Co-chairing **the Indo-Pacific Health Security Alliance**: a partnership between U.S. Indo-Pacific Command and the Australian Defence Force, which focuses on civil-military health security coordination in the Indo-Pacific region, particularly in Oceania.
- Development of **the National Civil-Military Health Collaboration Framework for Strengthening Health Emergency Preparedness**: an outcome of collaboration with WHO through the International Committee of Military Medicine to develop and test the first International Organization-developed framework for civil-military collaboration in health security.

DoD also leverages its nonproliferation-focused **Cooperative Threat Reduction (CTR) Program** to engage with partner country military/security and civilian sectors to counter biological threats at their source, including building partner country capabilities to quickly and accurately detect and report biological incidents, regardless of whether these incidents arise naturally, accidentally, or deliberately. During the reporting period, the DoD CTR Program improved facility-level biosafety and biosecurity capabilities at the Chulalongkorn School of Veterinary Medicine (CUVET) in **Thailand** through renovation, equipment procurement, and personnel training. The CUVET teaching facility is a major provider of pre-service training to Thai animal health workers, as well as animal health workers throughout the Southeast Asia region. The DoD CTR Program's partnership with CUVET has enabled CUVET to provide didactic and practical hands-on training in biosafety and biosecurity to veterinary students thereby strengthening the skills of animal health workers who are essential players in preventing, detecting, and responding to infectious disease threats.

Cameroon demonstrated its capacity to rapidly respond to an emerging threat during Spring 2023 when Marburg virus was detected in neighboring Equatorial Guinea. Less than 24 hours after detection, the Ministry of Public Health began investigating suspected cases in Cameroon, activating a rapid response team at the southern border, and coordinating with its counterparts in Gabon and Equatorial Guinea. The DoD CTR Program has partnered with Cameroon to enhance its capabilities to detect, respond, and report biological incidents for several years through activities such as construction of a Public Health Emergency Operations Center and building and training the national emergency operations center and funding the Field Epidemiology Training Program (FETP). This past year, the DoD CTR Program supported regional public health emergency management training that built incident management capabilities at a local level, enabling a more efficient and sustainable response to outbreaks in Cameroon. Cameroon's Marburg response included cooperation between the national emergency operations center, the South region's public health emergency management staff, and the FETP.

The U.S. Department of State's **Bureau of International Security and Nonproliferation (ISN)**, seeks to mitigate global biological threats and prevent the misuse of biological materials, equipment, knowledge, and research by providing security-focused capacity building with international partners across the globe. ISN leverages technical resources and experts from U.S. agencies, universities, and international organizations and NGOs, to meet its core objectives. ISN actively participates in multilateral initiatives, such as the G7-led Global Partnership's Signature Initiative to Mitigate Biological Threats in Africa, a collaborative effort among the 31 Global Partnership members and international organizations. In addition to interagency and organizational collaborations, ISN works closely with host-country governments, U.S. embassies, and other nations to identify needs and implement assistance necessary to ensure safe, secure, and sustainable bioscience capacity, while achieving the larger goal of improving global health security via reducing global biological risks. Within ISN, the Biosecurity Engagement Program invested over \$10 million in fiscal year 2023 in programming in alignment with U.S. biosecurity and nonproliferation strategies, the Biological Weapons Convention, the United Nations Security Council Resolution 1540, and WHO's IHR.

GHS AND RESEARCH PROGRAMS

The United States has an extensive scientific, technical, and clinical research enterprise and emergency response research experience that can be leveraged to advance GHS. Technical and clinical research is critical for understanding pathogen behavior, supporting regulatory decisions, and addressing knowledge gaps revealed during health emergencies. Clinical research is also essential for developing and assessing the safety and effectiveness of vaccines, therapeutics, and diagnostics during emergency response, and expediting their regulatory review, authorization and/or approval. The U.S. Government collaborates with international partners to integrate epidemiological, diagnostic, clinical, and social science research into outbreak response. Here are examples of how the U.S. Government-supported research programs promote health security objectives:

The National Institutes of Health (NIH) invests in research that plays a crucial role in enhancing GHS by advancing the understanding, prevention, and treatment of infectious diseases, as well as other diseases that may cause a threat to the global community. These investments support the generation of knowledge through basic research and the development of vaccines, diagnostics, and therapeutics, which are essential in responding to emerging health threats and pandemics. Additionally, NIH's research initiatives help build global partnerships and strengthen health systems worldwide, ensuring a coordinated and effective response to public health challenges.

- The **Centers for Research in Emerging Infectious Diseases Network (CREID Network)** was funded by the NIH's National Institute of Allergy and Infectious Diseases in summer of 2020. The network comprises nine research centers and a coordinating center and includes 14 GHS partner countries (Cambodia, Cameroon, DRC, Ethiopia, Kenya, Liberia, Nepal, Nigeria, Pakistan, Peru, Senegal, Sierra Leone, Tanzania, and Uganda). CREID members work synergistically and collaboratively across research centers, the coordinating center, and with local and global stakeholders to focus on emerging infectious disease (EID) research priorities before, during, and after outbreaks - expanding U.S. and international

capacity to carry out clinical research to characterize novel and new-variant diseases, and assess countermeasures for safety and efficacy. CREID also helps build research capacity and professional careers for EID researchers. The network works to enhance global pandemic preparedness and response through proactive, innovative, and translational research on priority pathogens and pathogen families that pose pandemic risk. Equitable relationships with in-country scientists, health care systems, and communities are essential principles for NIH partnerships.

- Persistent infection in human survivors has been linked to four of the last five Ebola outbreaks in the Democratic Republic of the Congo and Guinea as well as the West African outbreak in 2014-2016. The **NIH-supported PREVAIL research program** in Liberia continues to follow survivors in West Africa. In addition, the CDC Uganda country office together with USAID Uganda funds supported implementation of the **Uganda Ebola Survivor Program** through a cooperative agreement with Baylor University. These programs strengthen services provided to survivors and contribute to the body of scientific knowledge around persistent infection in human survivors. The Uganda Ebola Survivor Program supports the re-integration and follow-up of Ebola disease survivors; provides a patient-centered medical, mental health, and psychosocial follow-up to Ebola disease survivors; and supports the basic needs of children and families of Ebola survivors. This research also allows a greater understanding of how the Ebola virus can remain dormant in survivors which could help prevent further outbreaks.

The Center for the Biomedical Advanced Research and Development Authority (BARDA), established and mandated by Congress, promotes the advanced development of medical countermeasures to protect Americans, respond to 21st century health security threats, and strengthen national security. Together with its industry partners BARDA catalyzes innovation in advanced research and development, manufacturing, and procurement of vaccines, drugs, therapies, and diagnostic tools, from early research through the HHS FDA regulatory approach process and clinical application. Since its establishment, BARDA has supported 96 HHS FDA approvals, licensures, and clearances of therapeutics, vaccines, diagnostics, and devices, including the rigorous data collection and Current Good Manufacturing Practice required by the FDA's regulatory process. This approach also means that products developed with BARDA support

may have the safety, efficacy, and manufacturing data to file for regulatory approval in many other national or regional regulatory authorities enabling broader access to the products more quickly. For example, since 2010, BARDA has provided over \$2.4 billion to support the development of more than 160 antimicrobials. BARDA's financial support and technical expertise has led to the FDA approval of four novel antibiotics, and product developers of those products have been able to use the same data to support international regulatory filings and approvals in over 30 countries worldwide.

Coalition for Epidemic Preparedness Innovations

(CEPI) is a global partnership working to accelerate the development of vaccines and other biologic countermeasures against epidemic and pandemic threats. With fiscal year 2023 appropriated funds, USAID contributed \$100 million to the partnership. Recent accomplishments include:

- CEPI partnered with BioNTech to enhance mRNA vaccine research and development, clinical and commercial-scale manufacturing capabilities at BioNTech's facility in Kigali, Rwanda through an investment of up to \$145 million;
- In West Africa, CEPI progressed its Lassa Fever vaccine candidate to Phase 2 trials, the first ever Lassa vaccine to move to Phase 2.
- The U.S. FDA approved the first ever Chikungunya vaccine, developed by Valneva with support from CEPI and the European Union. CEPI's funding supports technology transfer of drug products to Valneva's partner, Brazil-based Instituto Butantan, to produce vaccines for lower income and lower-middle income countries. It also supports late-stage studies, including a Phase 3 clinical trial in adolescents, to aid regulatory approval in Latin American countries. Additionally, the funding provides access to a 200,000-dose emergency stockpile for free distribution to affected countries to help control disease outbreaks until the Instituto Butantan-produced vaccine is widely accessible.
- CEPI signed a Memorandum of Understanding with Africa CDC to boost regional vaccine research and development and sustainable manufacturing leadership and capabilities in the region, as well as on strengthened partnerships with Gavi, the Vaccine Alliance and Korea's Disease Control and Prevention Agency to advance vaccine development and accessibility and strengthen global pandemic preparedness.

Addressing Challenges and Looking Forward

Climate, demographic, conflict, and technological changes are driving increased incidence and impact of outbreaks. These trends are increasing the likelihood that epidemics and pandemics will occur. Acute outbreaks are emerging alongside record-breaking levels of global spread of known threats, including cholera, dengue, and malaria, due in part to the effects of climate change. Further exacerbating these risks, a projected 10 million people will die a year of antimicrobial resistance by 2050 without a dramatic change in course. At the same time, willingness to invest critical financial and political resources has waned as global health security competes with other priorities for attention and resources. Trust in public health institutions and public health measures has eroded, and the world faces a growing shortage of skilled health workers.

Disease outbreaks, whether natural, accidental, or deliberate in origin, pose a threat to U.S. national security, as well as global economic stability. It is in the United States' interest to ensure that: 1) we are able to prevent, detect, and respond to outbreaks at home; 2) other countries have the capacity and willingness to do the same; and 3) regional and global institutions have the agility and capacity to both prevent and prepare for health emergencies and coordinate an effective response. The COVID-19 pandemic highlighted gaps and weaknesses in each of these critical areas, which the Biden-Harris Administration has worked to address over the past four years. While we have made progress since emerging from the acute phase of the COVID-19 pandemic, continued investment of financial, political, and technical resources is needed to ensure success in building stronger preparedness today, sustainability of those efforts, and resilience to future biological threats. Success in these efforts will not only make Americans safer and protect our economy, it will also reduce international reliance on U.S. resources and expertise during times of crisis.

