
CDC's Center for Global Health Responds to Outbreaks

Accessible version: <https://www.cdc.gov/globalhealth/resources/reports/annual/2021/index.html>



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Introduction

This report, **CDC's Center for Global Health Responds to Outbreaks**, publishes at a time when the COVID-19 pandemic affects all Americans daily. The Center for Global Health (CGH) is focused on responding to COVID-19 in the United States (US) and abroad. CGH brings resources and knowledge built through partnership with other nations to fulfill our mission to improve the health, safety, and security of Americans and reduce morbidity and mortality worldwide.

Protecting Americans from infectious disease threats is a top priority for the Center for Global Health. In addition to the important work overseas to stop public health threats where they start, CGH's global health professionals are translating lessons from decades of global health work to address the pandemic here in the US.

- Through deployments to local U.S. jurisdictions, CGH's global health experts are sharing their knowledge and expertise in public health program implementation and real-time data analysis and interpretation to inform and tailor local interventions.
- CGH trains disease detectives at the national and community level and is using CDC's Global Rapid Response Team to serve as surge technical experts for CDC's domestic response.
- CDC's COVID-19 International Task Force conducted an in-depth review of other countries' guidance, strategies, and experiences related to children returning to school to help inform domestic recommendations.

This report highlights how **CDC's Center for Global Health Responds to Outbreaks**—including how CGH is drawing on existing capacities developed overseas in partnership with other nations to address COVID-19. The report describes how programs within the Center for Global Health are adapting to the pandemic to continue addressing long-standing global infectious disease threats. An infectious disease threat anywhere can become a threat everywhere. While CGH is laser-focused on the current global pandemic, the work to monitor and respond to additional global health threats must continue to prepare for an unknown but inevitable next pandemic.



CDC deployed staff gear on the Congo River in DRC, 2018.

CDC's Center For Global Health

In 2010, CDC established the Center for Global Health, recognizing that domestic and global health are indivisible and that no country can protect the health of its citizens in isolation from the rest of the world.



CGH's Organization

Division of Global Health Protection
Division of Global HIV and TB
Division of Parasitic Diseases and Malaria
Global Immunization Division



CDC's Global Health Mission

CDC improves the health, safety, and security of Americans while reducing morbidity and mortality worldwide.



CDC's Global Health Priorities

Health Impact: Save lives, improve health outcomes, and foster healthy populations

Health Security: Strengthen global public health prevention, detection, and response to protect Americans and populations worldwide

Public Health Science Leadership: Lead and influence the advancement of global public health science and practice

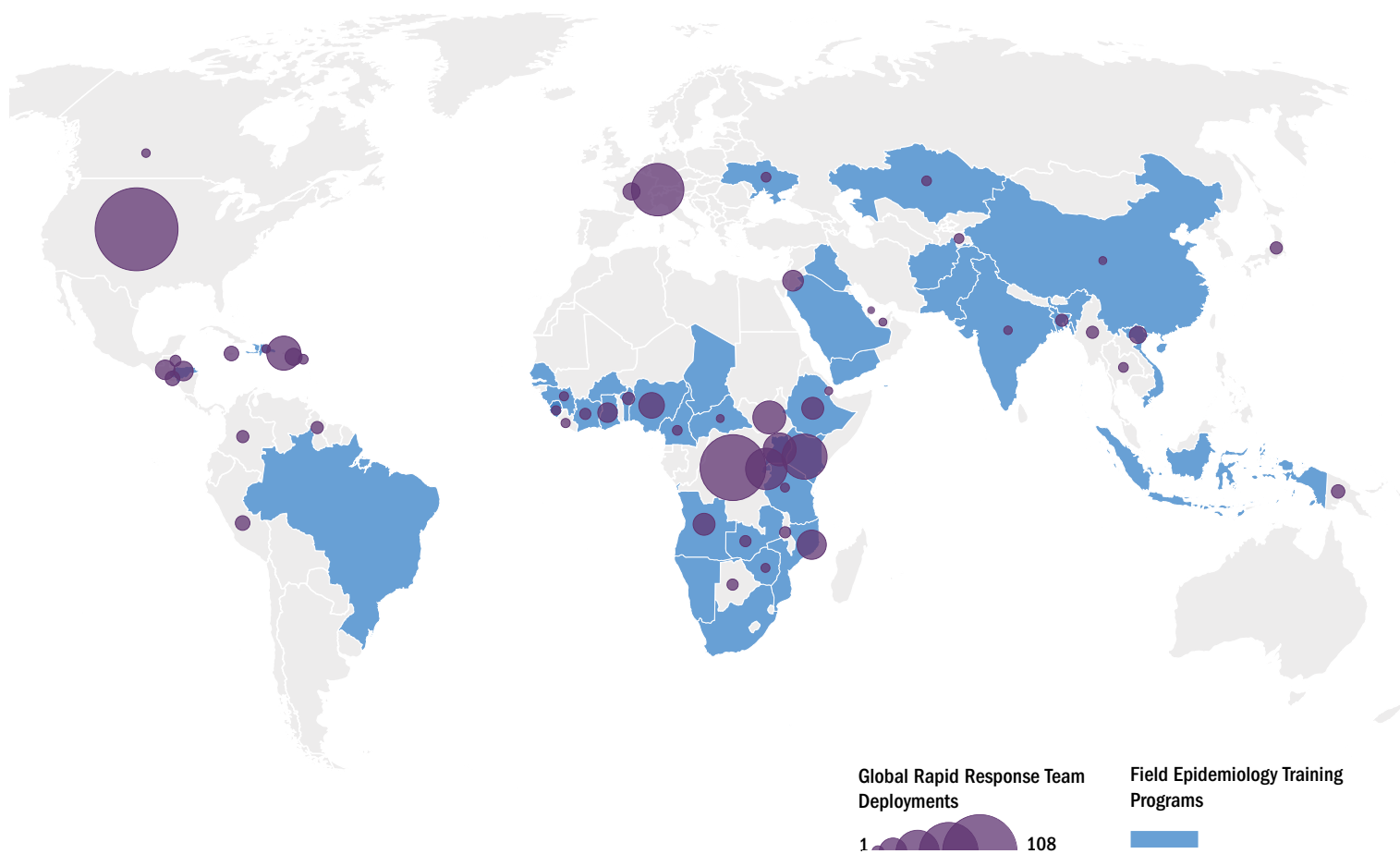
CDC's Global Health Work

The U.S. Centers for Disease Control and Prevention's (CDC) mission to protect Americans from health threats includes collaboration with other U.S. government agencies and international partners. CDC is the U.S. government lead agency for infectious disease outbreak preparedness and response activities. CDC has a programmatic presence both in the United States and overseas. Translating knowledge and experience across domestic and global health efforts is critical to effectively detecting, responding to, and stopping epidemic threats. The goal of CDC's global health work is to improve health outcomes and strengthen global health security by building the capacity of partner countries to detect diseases and respond to and stop health threats.

In an increasingly interconnected world, infectious outbreaks like measles, Ebola, Zika, polio, cholera,

typhoid, and COVID-19 can become widespread regional and global threats. CDC experts and international CDC-trained public health responders support the U.S. mission to safeguard Americans at home and abroad. CDC's technical expertise supports global outbreak responses, building on relationships forged through decades of global health engagement addressing leading causes of death. As part of the Global Health Security Agenda, CDC takes a lead technical role for developing public health workforce, surveillance, laboratory, and emergency response capacities globally. Through these and other initiatives, CDC builds capacities needed to respond to existing disease outbreaks and prepare for future threats. CDC's forward-deployed staff are America's first line of defense to protect Americans' health when infectious disease outbreaks erupt around the world.

Workforce is Crucial to Strengthen CDC's Outbreak Response (2018-2019)





CDC's Center for Global Health Builds Public Health Capacity

The Center for Global Health (CGH) leads program implementation to address the highest burden disease threats in the world. CGH staff and programs work to:

- **Eradicate** and **eliminate** diseases, including polio, measles, malaria, and neglected tropical diseases
- **End epidemics**, including HIV and tuberculosis
- **Address** emerging infectious diseases
- **Accelerate** the introduction of lifesaving vaccines
- **Strengthen** public health systems around the world
- **Plan, implement, and evaluate** health programs with partner countries' ministries of health and by working with the Department of State and other U.S. government agencies, including the United States Agency for International Development

CDC country offices serve as a focal point and provide a connection between the wealth of expertise that exists at CDC headquarters and overseas to partners in-country. CDC teams posted overseas assist colleagues across the agency, and provide linkages to ministries of health, U.S. embassies, and other partners. Relationships established through CDC country offices build understanding of the local context and culture. These relationships foster in-country collaborations that address many health challenges.

In coordination with other key programs at CDC, CGH works with countries to strengthen public health systems, train public health personnel to prevent, detect, and respond to disease outbreaks, and implement science-based disease

eradication and elimination programs. This practice, known as public health capacity development, is defined as building the knowledge, skills, commitment, structures, systems, and leadership capabilities that enable public health actions to improve health. Public health capacity building is at the core of CGH's collaborative technical partnerships to implement and sustain science-based public health program interventions and strategies.

Building global health capacities for outbreak preparedness and response is possible. For example, since 2015, CDC has focused on building public health workforce, laboratory, surveillance, and emergency response capabilities in 17 partner countries as part of a U.S. government effort to improve global health security. These investments are showing promising results:



All **17** countries have established or expanded programs to train disease detectives, doubling the number of Field Epidemiology Training Program graduates between 2015-2020.



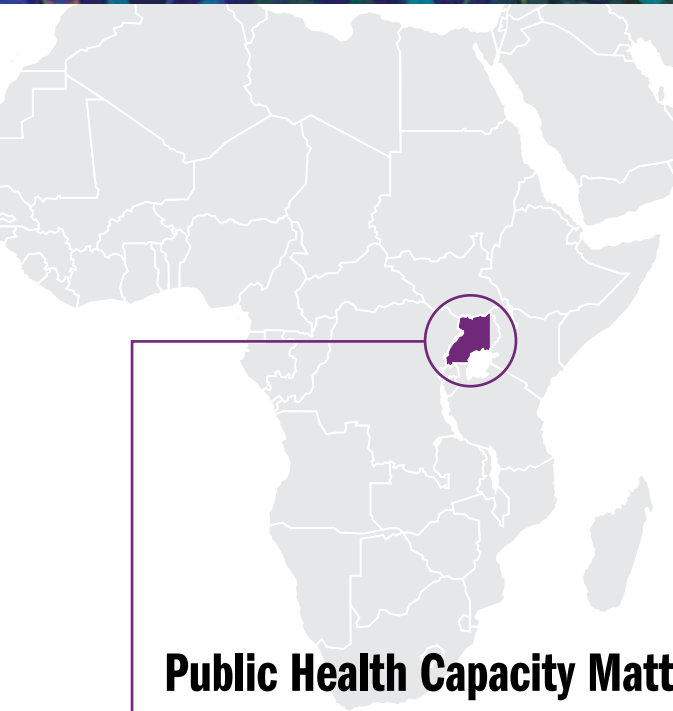
10 countries now have the capacity to conduct laboratory tests to detect their priority pathogens that cause disease, outbreaks, and deaths.



11 countries can now successfully detect and report antimicrobial-resistant pathogens.



All **17** countries have established public health emergency operations centers staffed by national, CDC-trained personnel.



Dr. Amy Boore with Milton Makoba Wetake, Emergency Management Laboratory and Logistics specialist, at work at the Public Health Emergency Operations Center in Kampala, Uganda, 2020. Credit: Samuel Wasike

Public Health Capacity Matters

Public health capacities developed over time become assets that countries can draw from during public health emergencies like the COVID-19 pandemic. Partner country capacity to address COVID-19 has been built on investments made through the President's Emergency Plan for AIDS Relief (PEPFAR) and global health security, as well as through assistance provided to address emerging infectious diseases and known threats like malaria, tuberculosis, and polio. These programs are also supporting country COVID-19 response activities including contact tracing, community engagement, and coordination of public health response efforts.

For example, CDC has invested in Uganda since 1991, including supporting HIV and malaria control programs and efforts to end tuberculosis, eradicate polio, eliminate measles, prevent other vaccine-preventable diseases like tetanus and rubella, strengthen laboratory testing for infectious diseases, and prepare for other epidemic and pandemic-prone diseases.

These long-term investments and scientific partnerships between CDC and Uganda Ministry of Health partners established the foundation for addressing COVID-19 as soon as the first case was identified in the country in March 2020. Within hours, Uganda's Field Epidemiology Training Program (FETP) responded to the case.

Strong partnerships and CDC investments in Uganda's public health system have been critical to the country's ability to respond early to COVID-19. *"Prior U.S. government investments in public health capacity are being utilized as part of Uganda's COVID-19 response,"* said Dr. Amy Boore, CDC Uganda's Global Health Protection Director.

Dr. Boore adds, *"The biggest satisfaction of this year has been seeing what CDC, as an agency, has accomplished over decades of investment here. When we activated for COVID-19 on January 26, 2020 the EOC here was activated for Ebola as well as five other outbreaks simultaneously. Uganda is no stranger to outbreaks, but COVID has been different. It has required full mobilization of all [national] resources and personnel: the lab and sentinel surveillance systems; the infection prevention and control program; the border health program; the EOC and the rapid response teams; the FETP graduates that we called up and put to work in key positions; the investments from PEPFAR, global health security, malaria, flu, and many more CDC programs – all in place and working. It's what allowed Uganda to stall the transmission of COVID-19 for months after other countries were being heavily impacted, and it's what is allowing Uganda to continue to sustain a strong and effective response."*

Global Health in Action: In 2013, Uganda was one of two global health security demonstration countries and successfully established a Public Health Emergency Operations Center (EOC) in partnership with CDC. Since being established, the EOC has been used to coordinate 35 responses in Uganda, including mother-to-child transmission of HIV, outbreaks of viral hemorrhagic fevers including Ebola, and now COVID-19. Since being established, Uganda has reduced national outbreak response times from a high of 30 days to less than 48 hours.



CGH Responds to Outbreaks Where They Happen

This infographic highlights select recent global outbreaks and the Center for Global Health (CGH) assets that are essential for CDC to respond effectively.



In 2019 CGH supported more than **130** outbreak responses in nearly **90** countries.



CGH staff work in more than **60** CDC country offices as part of CDC's global footprint.



Global Disease Detection Operations Center

The GDD Operations Center exchanges real-time information with U.S., international agencies, and countries. It is often the first to alert the U.S. government about international outbreaks and the risk they pose to the American public. Every year the center reviews approximately **50,000** signals. Since 2007 it has reported over **1,000** events of international public health importance involving **150** diseases in over **200** countries and territories.



Global Rapid Response Team

The GRRT is composed of multi-disciplinary CDC public health experts ready to deploy on short notice. GRRT has coordinated over **1,440** deployments and **45,000** cumulative days of field support in more than **85** countries since 2015. In response to COVID-19, GRRT pivoted from a global focus to a domestic one, deploying over **250** staff to support **40** states and CDC's emergency operations center.



Field Epidemiology Training Program

The FETP strengthens countries' public health capacities to respond to outbreaks. The program trains national public health professionals to become field epidemiologists, "disease detectives", who can prevent, track, contain, and control outbreaks. Trainees and graduates work locally to communicate crucial information about health problems and make response recommendations.



United States: Cyclospora

CGH's parasitic diseases program addresses parasitic infections in the United States and abroad. Cyclosporiasis is a foodborne illness caused by a parasite. People can become infected by consuming contaminated water or food. More than **1,200** cases were reported in 2020 in the United States. CDC—in close collaboration with state and federal public health partners—investigated clusters of cases ultimately leading to the recall of certain salad products. In order to stop outbreaks more quickly and prevent future ones from happening, CDC has developed new Advanced Molecular Detection (AMD) tools that help link cyclosporiasis cases with shared exposures and identify sources of contaminated foods.

■ CDC's Global Presence



Measles

In 2019, the highest number of cases and deaths of measles worldwide was reported in over 10 years, and global outbreaks resulted in importation to the United States. CGH deployed responders to provide technical assistance for measles outbreak investigations in eight countries—Ukraine, Mauritania, Nigeria, DRC, South Sudan, Madagascar, **Samoa**, and Tonga. CDC experts and partners agree that to prevent outbreaks, recover global progress, and eliminate measles, public health programs must increase vaccination coverage.



CGH's Global Disease Detection Operations Center monitors close to **40** threats every day.



Over **350** CDC experts ready to deploy to any part of the world when an outbreak arises.



CGH-trained epidemiologists have investigated almost **6,000** outbreaks and public health emergencies since 2005.



Democratic Republic of the Congo: Ebola

Between August 2018 and June 2020, the Democratic Republic of the Congo (DRC) experienced the second largest Ebola outbreak in history, and the 10th outbreak for DRC. CDC scientists and other U.S. government partners worked to stop the outbreak in the politically unstable, and at times violent, eastern part of the country. CDC assisted partners to vaccinate over **300,000** people and with disease surveillance, infection prevention and control, safe and dignified burials, laboratory testing, community engagement and social mobilization, and risk and crisis communication. At the time this outbreak was winding down, CGH began working on the 11th Ebola outbreak in DRC, centered in the western part of the country which was declared over on November 18, 2020.



Pakistan: HIV

In April 2019, fifteen children living in the city of Ratodero, were diagnosed with HIV. The response strategy focused on HIV testing and identified an additional **900** people living with HIV; **80%** were children under the age of 15 years. At the request of the Ministry of Health of Pakistan, CGH analyzed samples sent to CDC headquarters for sequencing and interpreted data collected by Pakistan's FETP. CGH and partners determined that unsafe injection practices and poor infection control were likely the drivers of this outbreak.



Polio

Afghanistan and Pakistan are the only countries with wild poliovirus type 1 transmission. In Afghanistan, **41** cases were reported during Jan. - July 2020 compared to **15** during the same period in 2019. In Pakistan, **72** cases were reported as of Sept. 2020 and **147** cases in 2019, compared to just **12** reported in 2018. Outbreaks of type 2 circulating vaccine-derived poliovirus (cVDPV2) have emerged in areas with low vaccination coverage. Between Jan. and Aug. of 2020, **236** cases occurred worldwide, compared to **358** in 2019 and **71** cases in 2018. In response to these spikes of cVDPV2, CDC stood up the Polio Surge in Sept. 2019 and sent 108 deployers to **13** countries.



Mozambique: Cyclones and Cholera

In 2019, two powerful cyclones made landfall in Mozambique. CDC deployed GRRRT staff—including Portuguese speakers—to provide technical assistance and public health strategy in outbreak investigation and emergency response. The cyclones left more than two million people in need of assistance. The government of Mozambique, FETP graduates, and CDC's in-country office staff and GRRRT responders pivoted to address the aftermath of both cyclones including aftermath cholera outbreaks that resulted in **7,000** confirmed cholera cases and eight deaths.

CDC Pivots Global Resources to Address COVID-19

In December 2019, COVID-19 was first identified in Wuhan, Hubei, China. Subsequently, confirmed cases were detected in Thailand and Japan before spreading to the United States. On January 21, 2020 the United States confirmed its first COVID-19 case. On January 30, 2020, following recommendations of the Emergency Committee, the World Health Organization (WHO) Director General declared the outbreak a Public Health Emergency of International Concern (PHEIC) and on March 11, 2020 the WHO declared COVID-19 a global pandemic.

CDC works with other U.S. agencies to implement the U.S. government's international COVID-19 strategy. The goals of CDC's global response to COVID-19 are to:

- **Limit** human-to-human transmission
- **Minimize** the impact of COVID-19 in vulnerable countries with limited preparedness capacity
- **Reduce** specific threats that pose current and future risk to the United States

To support implementation of the U.S. government's international COVID-19 strategy, CDC received emergency supplemental funding from Congress. CDC activities enhance COVID-19 response capabilities abroad and continue to build long-term, sustainable capacity for future responses to highly communicable diseases. CDC is funding activities across several areas of work and, in partnership with other U.S. government agencies, aims to draw on assets and relationships built overseas.

To accomplish the U.S. government's international COVID-19 strategy, CDC:

- **Strengthens** public health capacity to prevent, detect, and respond to local COVID-19 cases
- **Mitigates** COVID-19 transmission in the community, across borders, and in healthcare facilities
- **Supports** rapid identification of COVID-19 cases to improve patient care and minimize disruptions to health services
- **Addresses** unknowns regarding clinical severity, extent of transmission, and infection support for special investigations
- **Ensures readiness** to implement vaccines and therapeutics when available

Potential Impact of COVID-19 on the Global Economy

The COVID-19 pandemic could shrink global economic growth by **4.5%** to **6%** in 2020 with a partial recovery of a rate of 2.5% to 5.2% in 2021.



Global trade could fall by an annual amount of **9.2%**, depending on the depth and extent of the global economic downturn.

(source: <https://fas.org/sgp/crs/row/R46270.pdf>)



In addition to the tragic loss of life and devastating effects on the health and wellbeing of people around the world, disease outbreaks:



Disrupt global business continuity



Decrease tourism and travel



Lower worker productivity



Disrupt the market for U.S. exports and support for U.S.-based jobs



CDC Health Scientist Kimberly Won and Microbiologist Keri Robinson demonstrate the proper technique for fingerstick blood collection during a virtual training for the American Samoa Department of Health, 2020. Due to the COVID-19 pandemic, CDC has adapted to provide technical assistance virtually. Credit: Tara Brant, CDC

Center for Global Health Responds to COVID-19

To help countries build and strengthen their public health systems, the Center for Global Health (CGH) supports three interconnected programs: the Field Epidemiology Training Program (FETP), the National Public Health Institute (NPHI) program, and the Global Rapid Response Team (GRRT). During global emergencies, preparedness, coordination, and strong global public health capabilities are critical assets.



FETP resident interviewing a close contact of a confirmed COVID-19 case in Kenya, 2020.

Field Epidemiology Training Program—Disease Detectives First to Respond to COVID-19

A survey of 65 active Field Epidemiology Training Programs (FETP) around the

world conducted between March and April 2020 showed that 85% of programs have trainees supporting their country's COVID-19 response efforts. Since then, 100% of programs surveyed have reported graduates involved in data collection, response, or investigation of COVID-19 cases and contacts. FETP graduates and residents are involved in COVID-19 screening at borders, risk communication,

and response coordination at country, regional, and district levels.

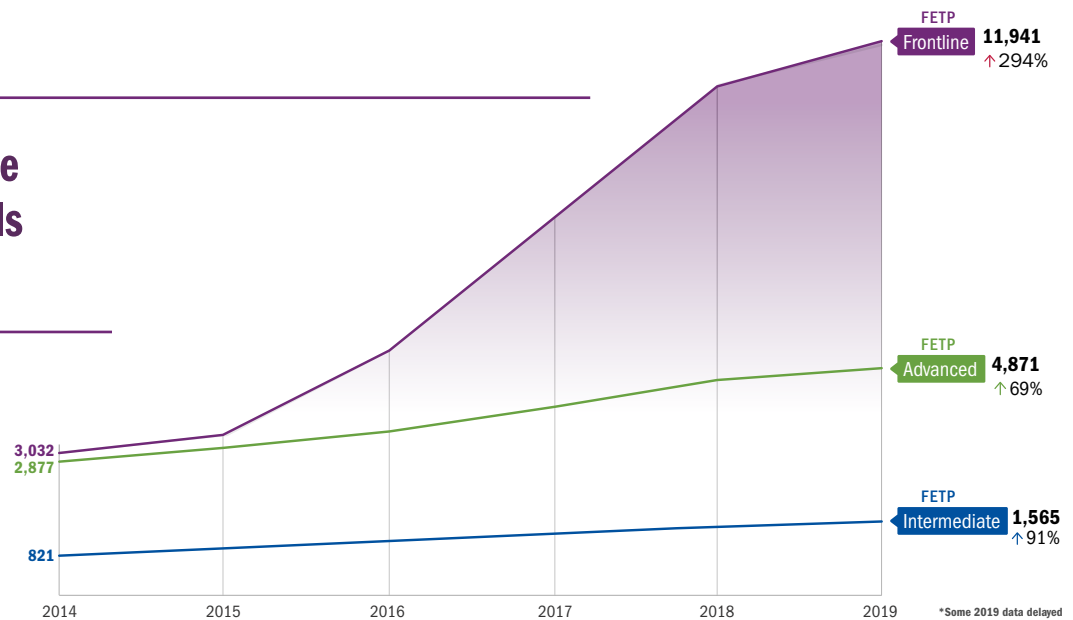
When the first cases of COVID-19 were detected in **Kenya**, public health officials responded quickly. The capital, Nairobi, is a major travel hub for the East, Central, and West Africa regions. It is also a connecting point for most travelers originating from China and going to other African countries. Between February and March 2020, Kenya FETP deployed 15 disease detectives to airports to screen passengers and provide recommendations based on information from health intake forms. In March, as international air traffic lessened and the first COVID-19 case was identified in Kenya, the disease detectives were redeployed to Kenya's emergency operations center to carry out contact tracing. Kenya FETP graduates are managing the emergency operations center and rapid response teams, responding to alerts, and providing guidance and technical support to Kenyan health officials.

"Without Kenya FETP's response to COVID-19, there would have been heartbreak, and the response would have been very difficult. All of the COVID-19 task forces are run by FETP graduates, and the heads of most EOC leaders are graduates," said Dr. Ahmed Abade, Kenya's Field Epidemiology Training Program Resident Advisor.

**The Kenya FETP program is officially named the Field Epidemiology and Lab Training Program (FELTP)*



Growth in Cumulative Number of Individuals Trained in FETP*



Global Health in Action: Since 1980, CDC has helped train more than 18,300 disease detectives in over 75 countries through the Field Epidemiology Training program.

National Public Health Institutes Take the Lead to Coordinate COVID-19 Response Strategies

Since 2011, CDC has worked with more than 25 countries to develop National Public Health Institutes. These public health entities serve as a “home” for a country’s public health pillars of work and help streamline public health activities to enable efficient outbreak detection and response. National public health institutes (NPHI) consolidate public health functions at the national level, bring data and expertise together, and coordinate response efforts across sectors. Many NPHIs are taking the lead within their countries to coordinate public health preparedness and response activities for COVID-19.

In 2015 CDC began support to Pakistan’s National Public Health Institute in emergency response and preparedness capacity building. Now, Pakistan’s NPHI is leading the nation’s COVID-19 response. It supports



Global Health in Action: Between 2006 and 2019, CDC supported training for 245 advanced disease detectives and 324 front line epidemiologists in Pakistan, who have responded to 679 outbreaks.

testing and emergency operations; formulates case definitions and standard operating procedures; prepares health advisories and guidelines; and compiles and disseminates daily COVID-19 situation reports. Pakistan’s NPHI also directed resources to the country’s COVID-19 response by providing personal protective equipment, lab supplies, test kits, and infection prevention and control training to provincial COVID-19 labs. These efforts enhanced the country’s COVID-19 diagnostic capabilities and strengthened health care worker safety.

Ministry of Health **without** a National Public Health Institute (NPHI)



Ministry of Health **with** a National Public Health Institute (NPHI)



Global Rapid Response Team Provides Surge Capacity

CDC's national security role is crucial. The Global Disease Detection Operations Center monitors between **30 to 40** potential global health threats daily. CDC Global Rapid Response Team (GRRT) staff is ready to deploy when needed. Since its establishment in 2015, GRRT has played a crucial role in CDC's response to global outbreaks, with over **1,440** deployments and **45,000** cumulative days of field support in more than 85 countries. The program has set a goal to double recruitment for the GRRT surge staff for the 2021-2023 cohort.

The Global Rapid Response Team was instrumental in responding to the 2018 Ebola outbreak in the Democratic Republic of the Congo (DRC). GRRT provided subject matter expertise on surveillance, contact tracing, infection prevention and control, vaccination, risk communication, and community engagement; and supported preparedness efforts in neighboring countries. From 2019 to 2020, GRRT responded to concurrent and ongoing outbreaks of Ebola, polio, measles, and COVID-19. Additionally, CDC leveraged the Global Rapid Response Team's strong partnerships and incorporated these global health assets into the agency's domestic response. GRRT quickly pivoted from a global focus to domestic COVID-19 response needs, deploying over 250 surge staff to support response activities in six countries, 40 U.S. jurisdictions (not including tribal nations and Washington D.C.), and four territories.

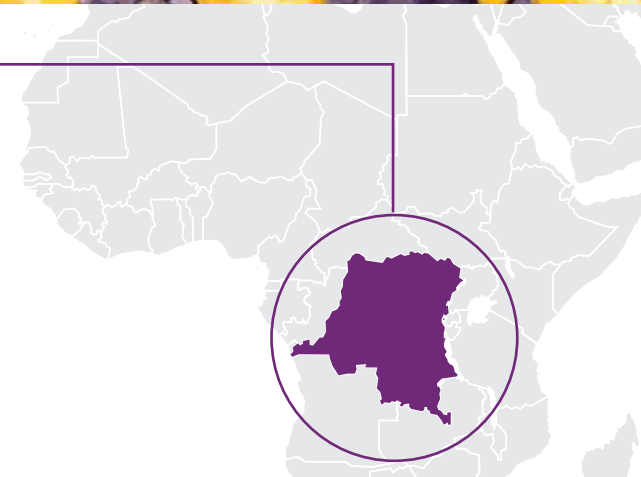


CDC Responds

over **1,440** deployments

45,000 cumulative days
field support

in more than **85** countries



Local health care workers practice the donning and doffing of personal protective equipment (PPE) in DRC, 2020. Credit: Mary Claire Worrell, CDC



GRRT responders Julia Smith (l) and JoAnna Powell conduct COVID-19 swabbing during a home visit on Navajo Nation, 2020. Credit: GRRT, CDC

Global Health in Action: The DRC's 10th Ebola outbreak lasted 20 months and was the 2nd largest Ebola outbreak in history.



DRC

The Center for Global Health Programs Adapt to Provide Lifesaving Services During COVID-19

A pandemic can disrupt years of progress and set back prevention and control of diseases. The COVID-19 pandemic presents multiple challenges, especially for countries with fragile health systems already working to address epidemics like HIV, malaria, measles, and other vaccine-preventable diseases. COVID-19 mitigation measures such as physical distancing and enhanced sanitation create challenges for delivery of

lifesaving prevention and treatment programs as do additional pressures on health systems caused by COVID-19. The Center for Global Health's programs are partnering with host countries' ministries of health, U.S. government agencies, and other partners both in responding to COVID-19 and in adapting interventions for malaria, HIV, neglected tropical diseases, and vaccine-preventable diseases.

Center for Global Health Key Accomplishments

Global Health Protection



Workforce Development: More than **17,900** people have received laboratory training from CGH's Division of Global Health Protection since 2006.



Response to Outbreaks: In 2019, FETP had **1,405** graduates in total across Frontline, Intermediate, and Advanced programs, with a subset of residents responding to over **450** suspected outbreaks.

HIV



Provide Antiretroviral Treatment (ART): By the end of 2019, more than **10.5 million** people were on ART as a result of CDC's support of HIV care and treatment, through the President's Emergency Plan for AIDS Response.



Conducting Population-Based Household Surveys: 15 countries have completed these surveys since 2015. These CDC designed and implemented HIV surveys measured reductions in new infections, high rates of viral load suppression, and identified sub-populations yet to be fully reached, all integral in achieving epidemic control.

Parasitic Diseases and Malaria



Eliminating Parasitic Diseases: Scale up of proven interventions has led to:

- **315 million** people no longer requiring treatment for lymphatic filariasis
- **3.5 million** people no longer at risk for Guinea worm disease
- **150 million** people no longer requiring treatment for trachoma



Reducing Malaria Deaths: CDC and global partners have helped save more than seven million lives and prevented more than one billion cases of malaria since 2000.

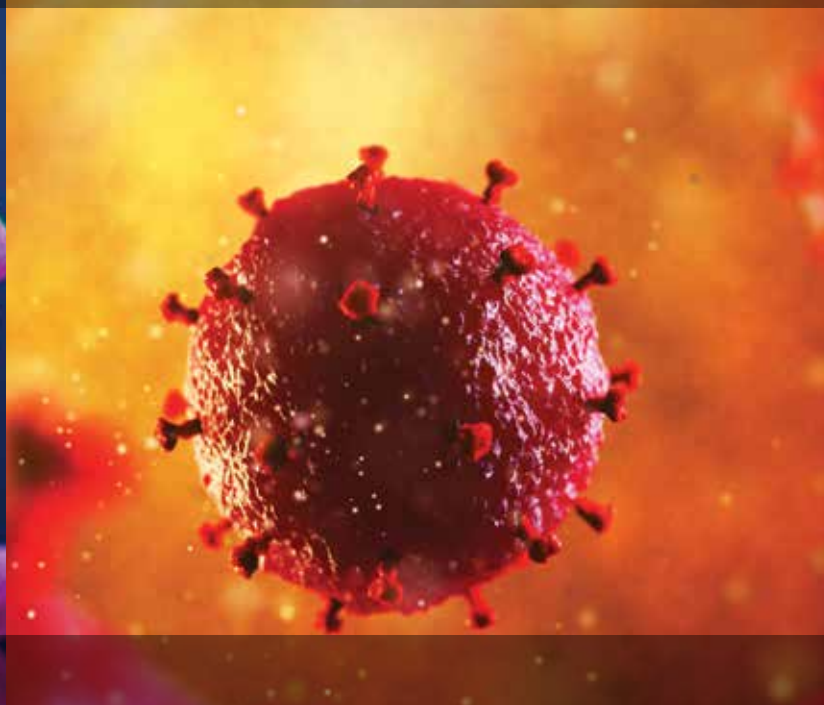
Polio and Other Vaccine Preventable Diseases



Eradicating Polio: Polio cases have dropped more than **99%** since 1988. In August 2020, the African Continent was certified free of wild polio virus. Afghanistan and Pakistan are the only countries that have not interrupted wild poliovirus transmission. More than **90%** of the world is free from wild poliovirus.



Measles and Rubella Elimination: Since the launch of the Measles & Rubella Initiative (M&RI) and during the period 2000-2019, more than **25.5 million** measles deaths have been prevented through vaccination and measles deaths declined by **62%** in that period.



CDC Supports Innovation in HIV and Tuberculosis Service Delivery

HIV remains a leading cause of death in many countries and is the leading cause of mortality among women of reproductive age. Tuberculosis (TB) is the leading infectious disease killer globally. CDC is at the forefront of the HIV and TB fights, tackling these epidemics in more than 45 countries and regions around the world. CDC ensures that data and science lead to effective public health practice for the most efficient, high impact results. As an implementer of the President's Emergency Plan for AIDS Relief (PEPFAR), CDC works with countries to build sustainable national programs and public health systems that can respond effectively to their HIV and TB epidemics. Working in Africa, Asia, Central America, and the Caribbean, the global HIV program's foundational investments—including expertise in epidemiology, surveillance, contact tracing and laboratory—continue to be key assets for addressing global health threats like TB, Ebola, and COVID-19.

By 2025, researchers predict that COVID-19 could trigger as much as a ten percent increase in HIV deaths and a 20 percent increase in TB deaths for many countries with which CDC partners*. These increases are closely linked to interruption in HIV treatment and decreases in TB

diagnosis and treatment caused by the pandemic. To forestall this, CDC's PEPFAR country teams are working with partners to expand differentiated service delivery models. These models increase access to lifesaving antiretroviral treatment through multi-month medication dispensing, community-based delivery options, and increasing clinic hours. CDC teams across the globe are working to ensure continued access to treatment while reducing the opportunity for exposure to COVID-19.

For example, in Thailand, CDC works with national and local partners to ensure people living with HIV continue to have safe access to care and treatment. There, teams are sending antiretroviral treatment by *Thailand Post*, the local postal service. Additionally, partners are providing online healthcare worker trainings on antiretroviral treatment, supply management, and care for people living with HIV during the COVID-19 pandemic. In South Africa, Nigeria, Zambia, Zimbabwe, Uganda, and other African countries, teams are delivering lifesaving medications directly to patients' homes or to close community distribution points. Teams across the continent are also offering facility-led community-based testing, medication refill services, and other clinical services.

* [https://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(20\)30288-6/fulltext](https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(20)30288-6/fulltext)



Global Health in Action: To decrease morbidity and mortality among persons living with HIV, PEPFAR is committed to providing TB preventive treatment to all eligible people receiving antiretroviral treatment by 2021. In 2019, 1,532,141 people on antiretroviral treatment completed CDC/PEPFAR-supported TB preventive treatment, significantly reducing their chances of acquiring TB.

As with HIV, approaches that were developed to combat tuberculosis are now being used in the fight against COVID-19. The public health platforms built by CDC and health partners—as well as the innovative approaches to TB surveillance, treatment, prevention, and infection control—have improved multiple national and global health care systems. By encouraging robust implementation of infection prevention and control measures, CDC and partners work to ensure TB services continue to be deemed essential. These measures are critical to ensure the safety of health care workers and patients accessing care at health facilities. CDC works with partners to ensure that TB health facilities implement respiratory infection control measures for COVID-19. Such measures include triage, early identification, and separation of symptomatic patients; fast-tracking service; implementation of droplet and contact precautions; frequent handwashing; environmental engineering

controls; and use of personal protective equipment.

Namibia has one of the highest TB infection rates in the world. In 2018, an estimated **13,000** people in Namibia fell ill with TB; more than **5,000** were undiagnosed. CDC is working with Namibia's Ministry of Health and Social Services to ensure TB patients continue to receive care during the COVID-19 pandemic. Community health workers are now providing more TB services to patients where they live, reducing the number of clinic visits, thereby reducing patients' chance of exposure to COVID-19 at healthcare facilities. Before COVID-19, the Ministry was already scaling up community services. Since the pandemic began, the Ministry has intensified roll out of these services. Community healthcare services are more convenient for patients who need medicine refills and other simple support services.



Social distancing in the waiting area at Nyasho clinic, Mara region, Tanzania, 2020.
Credit: Amref Health Africa Tanzania



Malaria and Parasitic Diseases Innovation

President's Malaria Initiative supported Indoor Residual Spraying after Cyclone Idai, Mozambique, 2019. Credit: Joy Peters, Department of State

CDC is a global leader in malaria and parasitic diseases research and technical innovation to effectively control and eliminate these deadly diseases. CDC's laboratories in Atlanta, including the insectary and parasitic diseases laboratories, provide critical support required to achieve these priorities.

CDC's malaria program works to understand how to safely deliver malaria control interventions such as insecticide-treated bed nets, indoor residual spraying, and rapid diagnostic tests in the context of the COVID-19 response. Part of this work is done through the U.S. President's Malaria Initiative. CDC assisted in developing WHO's guidance for tailoring malaria interventions in the COVID-19 response. CDC has also provided specific technical guidance to maintain essential services for malaria in low-resource countries, and to inform the global malaria community on provision of safe and accessible malaria care and tools in the most affected countries

CDC's neglected tropical disease (NTD) program works with global partners to continue critical work to control, eliminate, and eradicate NTDs despite the

COVID-19 pandemic. CDC works with partners to restart and monitor NTD programs safely. CDC continues to provide programmatic support to American Samoa for the elimination of lymphatic filariasis, making use of pre-recorded sessions and live virtual trainings with health workers to ensure quality implementation of this program.

CDC experts also work on validating SARS-CoV-2 antigens on the multiplex serological platform for integrated surveillance of NTDs, malaria, enteric diseases, and vaccine preventable diseases.

In August 2020, in collaboration with international partners, scientists from the Center for Global Health authored a paper calling attention to the potential impact of co-infection with malaria or NTDs and COVID-19. They also provided technical input into WHO's recommendations for safely conducting NTD activities in COVID-19-affected settings. These recommendations describe the importance of close coordination between NTDs and COVID-19 programs during activity planning, modification of strategies to ensure COVID-19 precautions, protocols for protecting health workers, and mitigation measures for targeted communities.



Global Health in Action: Typically, about 2,000 cases of malaria are still reported in the United States each year, almost all among travelers returning from malaria endemic areas. CDC distributes otherwise unavailable, life-saving treatment for many of these cases.

Innovating Vaccine-preventable Disease Activities

Strong immunization programs in the United States have reduced domestic disease burden and are critical to keep Americans safe and healthy. However, Americans remain at risk from imported vaccine-preventable diseases, such as measles. The Center for Global Health (CGH) is the U.S. government scientific lead in the global effort to eradicate polio. CDC's global immunization activities focus on reaching children in developing countries who are at the highest risk for illness and death from vaccine-preventable diseases. These interventions also help prevent these diseases from reaching U.S. borders.

In the midst of the COVID-19 pandemic, CDC's global immunization program worked with partners to develop infection prevention and control guidance for vaccinators to safely undertake immunization work in the COVID-19 environment. Ethiopia used these guidelines to inform their June/July 2020 measles vaccination campaign. The campaign mobilized an additional 6,300 health workers to minimize crowding and increase physical distancing at vaccination posts. Ethiopia also extended the vaccine campaign for three additional days to decrease crowd size and masks and hand sanitizer were provided to all campaign support staff. The result was >95% campaign coverage and more than 14 million children vaccinated. Lessons learned from the implementation of measles campaigns, as well as ongoing campaigns for polio and other vaccines during a pandemic, will help inform the rollout of COVID-19 vaccines across the globe.

In order to re-start vaccination campaigns, CDC provided technical advice to the Global Polio Eradication Initiative, the Global Measles Outbreak Strategic Response, and the maternal and neonatal tetanus elimination work plans. CDC collaborated with ministries of health to develop a framework for the resumption of immunization activities. For example, before COVID-19, CDC had surged personnel into countries with outbreaks of type 2 circulating vaccine-derived poliovirus (cVDPV) to help them respond with high quality vaccine rounds. CGH has since been working with countries to restart vaccination in a COVID-19 environment safely where possible. CGH is also helping plan for the introduction of oral polio vaccine (nOPV2) to help stem current outbreaks of vaccine-derived polio and avoid future ones.

CGH is supporting global COVID-19 vaccine implementation planning by working with countries to strengthen national immunization advisory groups, develop vaccine introduction and communication protocols that engage stakeholders and communities, and create monitoring and evaluation plans for COVID-19 vaccine implementation. CDC is also providing technical assistance to 30 low-and middle-income countries to strengthen readiness to implement and monitor COVID-19 vaccines when they become available. These and other activities are focused on reducing the COVID-19 disease burden, enhancing global health security, and strengthening capacity to vaccinate in response to future epidemic and pandemic threats.



A child receives polio drops during a vaccination campaign in Katsina State, Nigeria, 2014. Credit: CDC STOP Program, A.J. Williams



Global Health in Action: In 2019, CDC supported 43 countries with the introduction of vaccines, including hepatitis B, inactivated polio vaccine, rubella, and rotavirus.



The Center for Global Health Activates the Measles Incident Management System

A baby is weighed and vaccinated in the health center of Gonzagueville, a suburb of Abidjan, in the Côte d'Ivoire. His mother and the nurses wear masks and gloves to protect against the COVID-19, 2020. Credit: UNICEF

Despite having a safe and effective vaccine for more than 50 years, measles cases surged worldwide in 2018 and 2019, claiming hundreds of thousands of lives, which could have been prevented. On top of this resurgence, the unprecedented COVID-19 pandemic has further slowed efforts to bring the global measles epidemic under control. More than 148 million people in 36 countries – mostly children and babies – are at risk for missing measles vaccinations due to delays or suspensions of planned measles vaccination campaigns in 2020. Several of these countries were already experiencing national or geographically specific measles outbreaks.

In response to the global increase in measles outbreaks, the Center for Global Health activated the Measles Incident Management System in February 2020.

This activation allows CDC to:

- **Leverage** existing and new assets to provide technical support and direction for priority countries.

- **Investigate and respond** to outbreaks (currently from Atlanta).
- **Enhance** efforts to detect and prevent outbreaks from occurring in high-risk areas.



More than **148** million people in **36** countries – mostly children and babies – are at risk for missing measles vaccinations due to delays or suspensions of planned measles vaccination campaigns in 2020.

Pandemic-driven vaccination disruptions could reverse hard-earned progress around the globe, causing a devastating impact on child health and mortality. Vaccine-preventable diseases have not disappeared during this pandemic, and infants and children who are not protected by vaccines remain vulnerable to measles and other potentially deadly diseases.



Over **29,000** polio staff and contractors worldwide have participated in the COVID-19 response.

Polio Eradication Efforts Continue

Due to the COVID-19 pandemic, partners in the Global Polio Eradication Initiative recommended countries temporarily pause house-to-house polio vaccination campaigns and made the polio program's workers and resources available to fight COVID-19. While restoring polio surveillance, CDC has continued to work with countries to use its polio surveillance and response networks to conduct COVID-19 case detection, contact tracing, laboratory testing, and data management. Polio data management systems and front-line staff in many countries are accelerating COVID-19 detection and response. Over **29,000** polio staff and contractors worldwide have participated in the COVID-19 response.

In August 2020, CDC joined international partners in recognizing the certification of the African Region as wild poliovirus free. This milestone marks a huge step forward on the road to global polio eradication. Now, over **90%** of the world's population is certified free of wild poliovirus. CDC has been committed to eradicating polio in Africa since 1993 when the agency supported the first efforts to establish a viable polio eradication program. To protect global progress against polio, countries around the world must maintain high population immunity to mitigate importation of polioviruses from the two remaining endemic countries, Pakistan and Afghanistan. Countries must also quickly stop outbreaks of circulating vaccine-derived poliovirus, wherever they occur. In Pakistan and Afghanistan, CDC is providing technical guidance on resumption of services, revised immunization activity scheduling, geographical prioritization, and operational and communication adjustments.



Mike Staley (CDC) and Alie Brima Tia (Sierra Leone Ministry of Health), transporting Ebola specimens from a UN helicopter, to the CDC Bo Lab in Sierra Leone, 2015. Credit: Tara Sealy



Global Health in Action: CDC, a founding member of the Global Polio Eradication Initiative partnership, has helped prevent more than 18 million children from being paralyzed by polio through vaccination with the cooperation of 200 countries.

Lessons Learned and Looking Forward: What's Next for the Center for Global Health in 2021?

Among the most critical lessons learned from the COVID-19 pandemic is that national security requires health security. While we know that progress in global health security preparedness and response is possible, the COVID-19 pandemic calls us to take stock of the work that remains. Two-thirds of all countries are not prepared to respond to outbreaks and other public health emergencies. The global shift towards urbanization is bringing people closer together in often crowded cities, increasing opportunities for infectious diseases to be introduced and outbreaks to affect large numbers of people and spread quickly. In addition, disease outbreaks, such as the recent Ebola outbreak in the Democratic Republic of the Congo, can occur in politically unstable regions, creating special control challenges. The Center for Global Health is focused on improving the health, safety, and security of Americans while reducing morbidity and mortality worldwide.

Looking forward, CGH will:

- **Strengthen our U.S. based rapid response workforce** with our Global Rapid Response Team and continue to expand our global disease detection and 24/7 monitoring and analysis capacities.
- **Strengthen global preparedness** by supporting the development and sustainability of public health infrastructure through the National Public Health Institute program. Creating National Public Health Institutes overseas brings together professionals, disease monitoring, and laboratories so that countries detect and diagnose diseases with a ready, trained workforce.
- **Provide leadership for CDC's Global COVID-19 Response efforts**, building on relationships with country partners to implement key strategies including vaccine roll out, distribution, and surveillance.
- **Build preparedness and response capacity and collaboration** from global and domestic efforts across the agency to prepare for the next global health emergency.
- **Conduct scientific research of global health significance** and ensure our scientific research is translated into programs to achieve health equity and meet our public health goals across the global health portfolio.
- **Intensify, innovate, sustain, and accelerate** known, proven interventions and advance the science base to develop the public health tools to continue the fight against HIV, TB, malaria, neglected tropical diseases, and vaccine-preventable diseases, including measles and polio.
- **Support efforts to extend CDC's global reach** to ensure coverage in all vulnerable regions of the world, including the establishment of regional platforms to increase efficacy of disease control and prevention efforts.

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