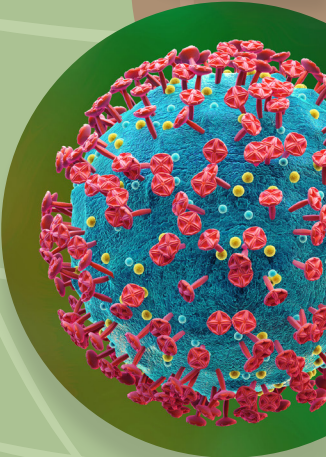




CDC Advances Health Equity Around the World

2022 CDC Global Annual Report



CDC's Global Health Mission

The Centers for Disease Control and Prevention (CDC) aspires to create a world where people in the United States and around the globe live healthier, safer, and longer lives. CDC's global health mission is to improve and maintain the health, safety, and security of Americans by working 24/7 to reduce morbidity and mortality worldwide. CDC works to address global health threats before they affect the United States. CDC is the lead U.S. government agency for public health and infectious disease outbreak preparedness and response activities.



Five pillars support and guide CDC's global health work: scientific expertise, diverse partnerships, innovation, sustainability, and health equity. By focusing on initiatives and interventions that reach the most vulnerable populations, CDC seeks to eliminate health disparities and achieve optimum global health. Translating knowledge and experience across domestic and global health efforts is critical to strengthening health systems and 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 to and stop health threats.

CDC staff deployed overseas are America's first line of defense to protect Americans' health when infectious disease outbreaks erupt around the world. As part of strengthening global health security, CDC works closely with ministries of health and other partners to build capacity in surveillance, laboratory, emergency response, and the public health workforce to respond to disease outbreaks and prepare for future threats.

Yerbulan Akhmetov, Health Communication Specialist for Centers for Disease Control and Prevention (CDC) and Olga Hegai, Microbiologist for National Center of Expertise (NCE), at NCE laboratory in Nur-Sultan, Kazakhstan, June 22, 2021. Credit: Maxim Malov CDC

**CDC's
Global
Health
Mission**

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

CDC's global health work includes:

- Protecting Americans by playing a leading role to advance health security in the United States and around the world
- Co-leading the implementation of the U.S. President's Emergency Plan for AIDS Relief (PEPFAR)
- Executing prevention and vaccination activities across the globe, including as a founding member of the Global Polio Eradication Initiative (GPEI), and targeting core vaccine preventable disease activities such as measles and rubella elimination
- Building global respiratory sentinel and event-based surveillance capacity and expanding the knowledge base on respiratory and vaccine-preventable diseases (VPDs)
- Co-implementing the U.S. President's Malaria Initiative (PMI)
- Overseeing the implementation of programs to address leading causes of death worldwide, including tuberculosis (TB), influenza, and hepatitis
- Strengthening worldwide laboratory testing and reporting capacities
- Partnering with government agencies and public health organizations to review and update data collection processes
- Preventing and managing neglected tropical diseases
- Fighting health issues at the human-animal-environment interface
- Implementing healthcare programs to prevent the spread of antibiotic resistance, including infection prevention and control programs; water, sanitation, and hygiene programs; and antibiotic/antifungal stewardship programs
- Helping countries build strong border health strategies
- Promoting and supporting innovative, evidence-based interventions to prevent and control noncommunicable diseases such as diabetes and heart disease

CDC is preparing for future public health challenges – including the next pandemic. No community, district, or province within a nation will be healthy until all are. No nation, including the United States, can be truly safe until all nations have the core public health capabilities and the health systems in place to protect the most marginalized. CDC works on behalf of the American people to save lives around the world by partnering with other nations to prevent, prepare for, and respond to infectious disease threats.



A health worker at a community health clinic in Tanzania tells a man about the benefits of getting vaccinated against COVID-19. This CDC-supported HIV/TB clinic - in Tanzania's Tabora Region - also offers COVID-19 vaccines to clients. Credit: Wasiwasi Kilave, Management and Development for Health

- **Health Impact:** Save lives, improve health outcomes, and foster healthy populations
- **Health Security:** Strengthen global health prevention, detection, and response to protect Americans and populations worldwide
- **Public Health Science Leadership:** Lead and influence the advancement of global health science and practice

**CDC's
Global
Health
Priorities**

CDC's Global Health Equity Strategy

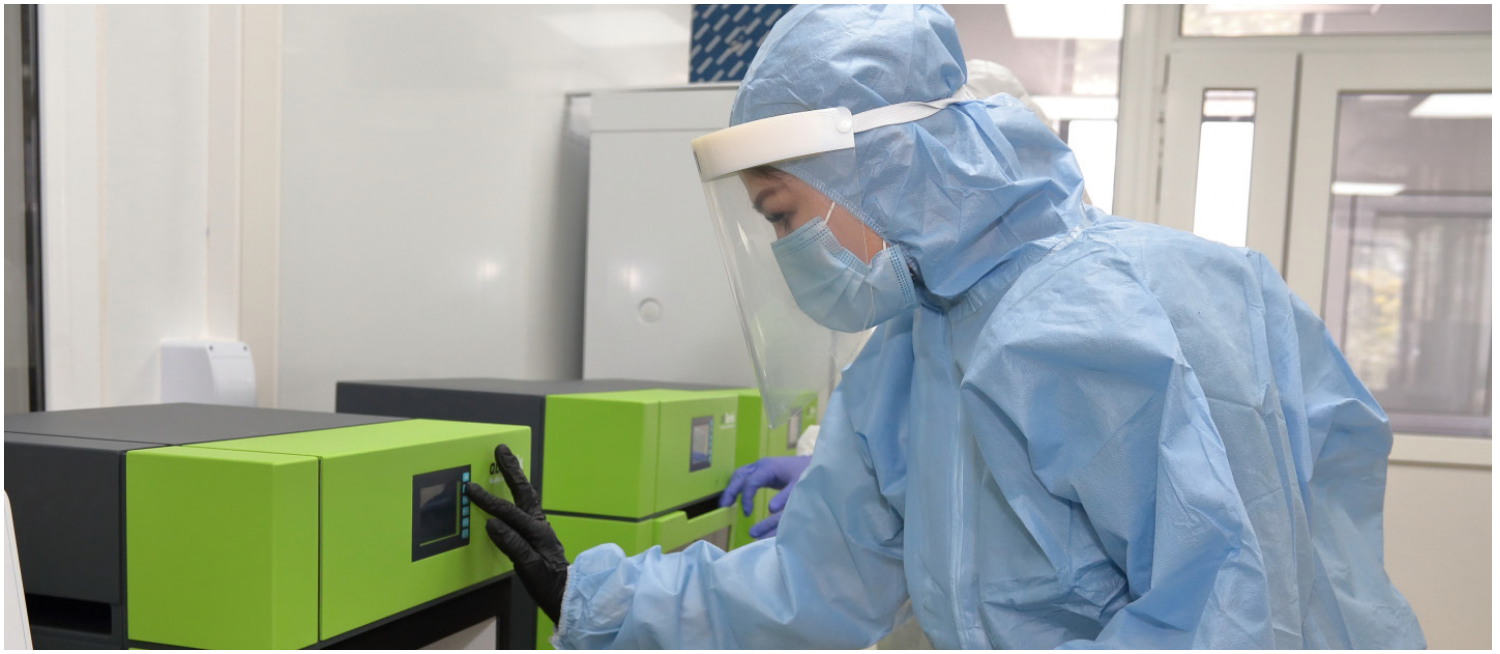
As the nation's leading public health agency – and the only U.S. government agency with global reach and an exclusive focus on public health – CDC is uniquely positioned to lead many critical aspects of the U.S. government's effort to address the world's leading health challenges. CDC envisions a world where everyone can achieve the highest attainable level of health. This vision of global health equity is integral to CDC's focus on serving the public through timely action and impact.

In 2022, CDC launched an agency-wide strategy that aims to integrate health equity into everything we do. As outlined in the strategy, CDC is committed to **cultivating comprehensive health equity science, optimizing interventions, reinforcing and expanding robust partnerships, and enhancing capacity and workforce engagement** (also known as CORE). This commitment ensures that health equity and the elimination of health inequities remain central to CDC's work and holistically transforms the agency's approach to public health.

Building on the CORE strategy, CDC developed the Global Health Equity Strategy to consistently and deliberately advance health equity principles and approaches within and throughout CDC's global science, interventions, partnerships, policies, and infrastructure.



Field researchers from Universidad del Valle de Guatemala (UVG) conduct a household interview for a survey to better understand antimicrobial resistance. Credit: Nick Tenorio, CDC



Laboratory technicians at the National Reference Laboratory for the Service for Sanitary and Epidemiological Wellbeing and Public Health (SSEWP) in Tashkent, Uzbekistan test samples for COVID-19 and other infectious diseases. Credit: Sharakhmedov Hamdam, Golden Minds

CDC's global health equity efforts are integrated throughout our global portfolio, including:

- **Public Health Preparedness:** Integrating health equity into essential public health functions, increasing representation in the workforce, and advancing pandemic preparedness to prepare, detect, and respond to public health threats more comprehensively.
- **HIV and TB:** Reducing health inequities among people living with HIV and TB by promoting policies, closing prevention and treatment gaps, eliminating systematic data and health infrastructure challenges, and enhancing programming in CDC-supported countries to reduce or eliminate stigma and discrimination among priority populations.
- **Immunization:** Implementing a health equity approach to identify and reach underserved populations with immunity gaps that supports measurable reductions in morbidity and mortality from targeted vaccine-preventable diseases.
 - Annual influenza epidemics disproportionately impact vulnerable populations in tropical low- and middle-income countries (LMICs). To reduce health inequities among people in LMICs, CDC collects data from a dozen countries to build the evidence base on risk factors that place subpopulations at higher risk of adverse outcomes from acute respiratory illnesses – like influenza. Data is then shared with local health authorities to decrease disparities in health promotion by using data-driven strategies to tailor risk communication messages encouraging influenza vaccination.
- **Parasitic Diseases:** Improving availability and access to disease prevention and treatment services in places at high-risk for parasitic diseases worldwide with a focus on neglected tropical diseases and malaria.
- **Data Modernization:** Partnering with government agencies and public health organizations to review and update data collection processes to address groups that have been historically under-represented in statistical data and to include new data elements, like injury and violence data.
- **Infectious Diseases:** Identifying research gaps and opportunities to improve health outcomes and reduce the risk of infectious diseases among historically marginalized populations.
- **Laboratories:** Ensuring all countries have access to high quality laboratories by building global laboratory capacity to support surveillance for VPDs and rapid detection.

Global Health Equity in Action



Influenza vaccination programs reduce annual disease burden and enhance pandemic vaccine readiness. The **Partnership for Influenza Vaccine Introduction (PIVI)** is a CDC-supported public-private partnership to support the expansion and sustainability of influenza vaccination in low- and middle-income countries. PIVI partners leveraged the skills and public health programs built or strengthened by influenza vaccination programs to equitably support planning, implementation, and evaluation of COVID-19 vaccinations. PIVI provided financial support for COVID-19 vaccination programs in 35 countries, including many with limited or no experience in conducting vaccination campaigns targeted at adult populations. Seasonal influenza programs continue to be important components to vaccinate all communities efficiently and equitably.



CDC collaborated with interagency and implementing partners to optimize HIV and TB molecular diagnostic networks in countries supported by the **U.S. President's Emergency Plan for AIDS Relief (PEPFAR)**. Through geospatial laboratory and clinic mapping, modeling, and quality improvement exercises, testing infrastructure and equipment, human resources, and specimen types were adjusted. This led to improved patient access to HIV and TB molecular laboratory testing and decreased time from sample collection to availability of results for clinical action.



The World Health Organization Regional Office for Europe, CDC, implementing partners, and bilateral country partners from Ukraine, Georgia, Kyrgyzstan, Uzbekistan, and Kazakhstan designed a regional training program called **Informatics and Data Science for Health** aimed to create and use public health information systems that enable the capture, management, analysis, dissemination, and use of reliable, timely information to improve population-level health. The first cohort of the innovative 12-month certificate-based fellowship training will begin in April 2023.



A young child sits on his bed, covering his eyes, about to play a game of hide and seek in the National Tuberculosis Institute in Bishkek, Kyrgyzstan. Credit: Yekaterina Malukova, National TB Institute Ministry of Health Kyrgyzstan

CDC's Global Presence

CDC's global health work is enabled by country and regional offices located in more than 60 countries worldwide. CDC Country Offices leverage expertise from across CDC to provide specialized scientific and program support to bilateral country partners, the World Health Organization, multilateral institutions, and implementing partners. CDC also has six Regional Offices that collaborate with multiple countries and partners throughout a region to identify shared health priorities, coordinate activities across the region, and facilitate engagement with CDC programs, priorities, and scientific expertise both in countries and at CDC headquarters.

In addition, CDC Regional Offices:

- **Provide a cohesive strategy** for advancing health security
- **Mobilize catalytic funding** for regional and strategic priorities
- **Support CDC Country Offices** to advance programs bilaterally and through intra-regional collaboration
- **Facilitate partnership** with regional non-governmental organizations in support of the CDC regional strategy
- **Serve as a backstop** and technical support hub for CDC Country Offices during peacetime and emergencies

In addition to broad-based public health surveillance and data use, CDC also focuses on laboratory capacity, workforce development, and emergency preparedness/outbreak response as well as specific capabilities in infection prevention and control, antimicrobial resistance, vaccine readiness, disease prevention, border health, and special investigations.

Malaria Cases: United States

The number of Malaria cases diagnosed in the United States and its territories have increased since the mid-1970s, mostly driven by the rise in international travel. Malaria infections are preventable but can be fatal if not diagnosed and treated promptly with appropriate antimalarial medications. The number of malaria cases in the United States remains unacceptably high, and CDC continues to address the growing problem of domestic malaria cases by:

- Working alongside partners to reduce the global burden of malaria.
- Educating Americans about the risk of malaria and offering guidance for prevention measures that should be taken when visiting malaria-endemic regions.
- Assisting healthcare providers to diagnose and treat malaria in the United States.


Vaccines: Mozambique and Burkina Faso


CDC partnered with the Bill & Melinda Gates Foundation in Mozambique and Burkina Faso to measure the impact of a schedule change for the pneumococcal conjugate vaccine (PCV). CDC's research, technical assistance, and policy leadership will inform future vaccine policy that may help these countries achieve higher and more equitable PCV coverage. High PCV coverage can improve quality of life and save the lives of thousands of vulnerable children.

Public Health Surveillance: South Africa and Uganda

The Enhanced Gonococcal Antimicrobial Surveillance Programme (EGASP) is a collaborative effort between CDC and the World Health Organization established in South Africa and Uganda. EGASP will allow for surveillance reporting in a global region with limited or no antimicrobial resistant gonorrhea surveillance or laboratory capacity. Prior to this program, there was no availability for urethritis testing in both countries. EGASP has since established the laboratory capacity and identified gonococcal strains concerning for resistance.

 CDC presence

 Regional Office

 Regional Office opening 2023

HIV Data: Botswana

With funding from CDC through the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), the University of Maryland, Baltimore, conducted the fifth Botswana AIDS Impact Survey (BAIS V). In 2022, BAIS V found that Botswana was the first country to surpass the ambitious UNAIDS 95-95-95 targets for HIV epidemic control an impressive four years before the target date. According to BAIS V, 95% of persons nationally living with HIV age 15-64 reported knowing their status, 98% of people who knew their status were receiving antiretroviral treatment, and 98% of adults on treatment achieved viral load suppression.

Emergency Preparedness: Georgia

CDC's Emergency Response Capacity Team and CDC's Country Office in Tblisi, Georgia supported the Georgia National Center for Disease Control and Public Health's establishment of a Public Health Rapid Response Team Program. The multidisciplinary team was trained and equipped to rapidly deploy specialists to respond to a public health emergency, serve as resources for non-emergency public health activities, safeguard against future public health emergencies, and provide a model for strengthening emergency management structures in the region.

Leveraging Expertise: Eastern Europe/Central Asia Region

Within two weeks of Russia's invasion of Ukraine, CDC's Eastern Europe/Central Asia Regional Office provided staff with the technical expertise, linguistic capabilities, and cultural competencies to support the response and recovery. CDC also led local emergency response trainings focusing on assessment, quality assurance, infection prevention and control, and surveillance for healthcare-associated infections and antimicrobial resistance to address the surging burden of traumatic wounds.

Birth Defects: Southeast Asia and Africa

CDC worked with international partners in Southeast Asia and Africa to assess folate status and inform neural tube defects prevention efforts. By analyzing red blood cell folate concentrations, CDC helped identify disproportionately affected populations and monitor neural tube defects burden in these areas. The results of this assessment helped inform policies regarding the fortification of food with folic acid that can prevent anemia and neural tube defects.

Data-Driven Strategies: Mozambique

CDC partnered with PEPFAR, Together with Girls, and interagency partners to support Mozambique in launching its Violence Against Children and Youth Survey (VACS) report. The Mozambique VACS report will guide recommendations and data-driven strategies to end all forms of violence against children and youth in Mozambique.



Health Equity in Action: CORE



Cultivating comprehensive health equity science



Optimizing interventions



Reinforcing and expanding robust partnerships



Enhancing capacity and workforce engagement

Health equity is when everyone has the opportunity to be as healthy as possible. As an agency, CDC is transforming its public health research, surveillance, and implementation science efforts to shift from simply listing the markers of health inequities to identifying and addressing the drivers of these disparities.



CDC has offices in four Central Asia countries and partners with ministries of health in each to address COVID-19 and HIV, and to strengthen public health emergency management, laboratory, surveillance, and workforce capacity to respond to disease outbreaks. Credit: Sharakhmedov Hamdam, Golden Minds

Published in 2022, CDC's Global Health Equity Strategy commits the agency for the first time to advance health equity through a comprehensive approach. CDC's Global Health Equity Strategy applies the CORE framework to the agency's global health functions to drive health equity into CDC's global programs. This includes coordinating efforts to promote CORE implementation and accelerate innovative improvements.

CDC's Global Health Equity Strategy builds upon a human-rights based approach to specifically address the availability, accessibility, acceptability, and quality of global health programs. It acknowledges that the right to health can be pursued by numerous and complementary approaches. Specific programmatic and cross-cutting goals in CDC's Global Health Equity Strategy help countries eliminate health disparities and highlights determinants of health that negatively impact historically, socially, or geographically excluded or marginalized groups.



Cultivating Comprehensive Health Equity Science

CDC embeds health equity principles into the design, implementation, and evaluation of its research, data surveillance, and intervention strategies. CDC aims to build health equity data science capacity to conduct, translate, and disseminate analysis or statistical studies and use multi-level modelling and predictive analytical approaches. This includes prioritizing science agendas that build the evidence base for eliminating health inequities.

Health Equity in Action:

How CDC Helps Those with Lymphatic Filariasis

Lymphatic filariasis (LF), often known as elephantiasis, is a neglected tropical disease (NTD) caused by microscopic, thread-like worms spread by the bite of an infected mosquito. LF affects more than 50 million people throughout **Asia, Africa, the Western Pacific, and parts of the Caribbean and South America**. CDC collaborates with United States Agency for International Development's NTD Program, ministries of health and in-country partners, and other global health organizations to leverage \$26 billion in donated drugs to accelerate elimination of LF and other NTDs.

Nevertheless, millions of people already suffer from the debilitating effects of NTDs and need ongoing treatment and care. CDC continues to work with partners to eliminate new LF infections, including supporting mass drug administration campaigns in Haiti and American Samoa. CDC also develops tools and guidance, generates data, and administers trainings to help people who already have LF.



Lymphatic filariasis (LF) is a leading cause of permanent disability worldwide. Some people with LF develop lymphedema (fluid collection and swelling, which often affects people's legs).

Credit: Kristen Little, CDC

In Kolondiéba, **Mali**, a 47-year-old mother of eight named Mia has suffered with the painful symptoms of LF for more than 30 years. Because of her LF infection, Mia's lymphatic system does not function properly, and she frequently deals with painful fluid build-up and episodes of skin infection that leave her bed-ridden and her children without care.

Several years ago, Mia participated in a morbidity management and disability prevention program offered by Mali's Ministry of Health, with technical expertise from CDC and CDC Foundation. She learned essential lymphedema management, and since going through the training, her acute episodes have dwindled and the pain in her legs has become manageable. She is proud of how she is able to care for her own health and children again.



Mia has suffered from the painful effects of lymphatic filariasis (LF) for decades. Morbidity management and disability prevention (MMDP) trainings have helped her learn how to better manage her symptoms. Credit: Caitlin Worrell, CDC

Health Equity in Action:

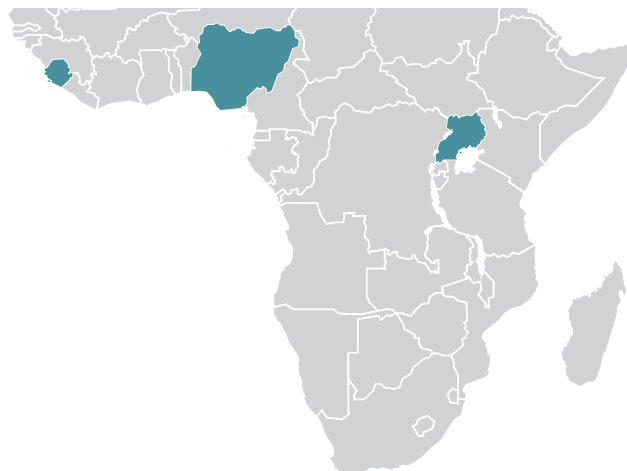
Combating Hepatitis B Infections

CDC uses its Global Immunization Strategic Framework to guide investments in building global immunization program capacity and scientific expertise to advance the control, elimination, and eradication of vaccine-preventable diseases. The framework prioritizes vaccine equity and coverage and works to identify and reach under-immunized populations with tailored delivery strategies.

Using this framework, CDC supports several countries throughout the **African region**, which has the highest rates of hepatitis B virus infection in children:

- In **Sierra Leone**, a study conducted by CDC revealed that most of the infections among children are due to mother to child or early childhood transmission of infection due to the absence of hepatitis B birth dose vaccination (HepB-BD).
- In **Uganda**, CDC supported the National Immunization Technical Advisory group to compile the evidence needed to recommend the introduction of HepB-BD.
- In **Nigeria**, CDC is implementing interventions to improve timely HepB-Dd coverage. Nigeria has the highest number of children infected with hepatitis B globally, yet timely HepB-BD coverage is fewer than 50%.

Progress towards the elimination of mother-to-child transmission of HepB-BD continues. In 2020, 190 (98%) of 194 countries had introduced universal infant hepatitis B vaccination compared with 186 (96%) in 2016.





Optimizing Interventions

CDC uses scientific, innovative, and data-driven intervention strategies to address environmental, place-based, occupational, policy, and systemic factors that impact health outcomes to address the drivers of health disparities. This includes transforming surveillance systems to incorporate these drivers and inequities and implementing key multi-sector policy levers to advance health equity.

Health Equity in Action:

CDC Support Improves Uzbekistan's Detection of COVID-19

Preparations to improve Uzbekistan's ability to respond to public health emergencies were well under way before COVID-19 arrived. With support from CDC, Uzbekistan's government and Ministry of Health were already in the process of building a public health emergency management (PHEM) program to respond to public health emergencies.

CDC recommended that the Government of Uzbekistan develop a public health emergency program that would help the government protect the health of its people. Just six months later, the Government of Uzbekistan officially opened its public health emergency operations center (PHEOC). The establishment of this PHEOC was supported by CDC's Country Office in Uzbekistan along

with partners such as Integral Global and the U.S. Civilian Research and Development Foundation. Uzbekistan's PHEM program puts the Uzbekistani Ministry of Health in a better position to assess public health threats and take steps to ensure strong coordination and decision-making. The creation of Uzbekistan's PHEM program, like programs in neighboring Kazakhstan, Tajikistan, and Kyrgyzstan, helps to train staff to lead public health responses and better prepare for the next public health emergency.

In the past year, 36 public health experts, including 24 epidemiologists were trained at Uzbekistan's PHEOC on how to participate in an emergency response.



Public health specialists work on Uzbekistan's COVID-19 response in the new PHEOC. The CDC team in Uzbekistan trained the national PHEOC core staff in and will continue training staff in health departments throughout the country. Credit: Hamdam Sharakhmedov, Golden Minds

LOVES



First-Line Support Training for Youth Mentors

Health Equity in Action:

Training Youth Mentors

U.S. President's Emergency Plan for AIDS Relief (PEPFAR) implements the DREAMS (Determined, Resilient, Empowered, AIDS-Free, Mentored, and Safe) program aimed at reducing the high rate of HIV infection among girls and young women. CDC supports implementation of DREAMS in Haiti and 12 sub-Saharan African countries where girls and young women are five to 14 times more likely to be infected with HIV than their male peers. They are also more likely to experience gender-based violence — putting them at increased risk of HIV infection while impacting their ability to access HIV prevention and response services. Grounded in equity, DREAMS focuses on the economic, social, cultural, behavioral, and biomedical factors that put adolescent girls and young women at risk for HIV by empowering them to make informed choices about their health.

DREAMS mentors are older peers and support the implementation of programming by serving as confidants to DREAMS participants and assisting them in building positive relationships within their support networks. Mentors also work to promote active linkages to needed services.

CDC's implementing partners train mentors to respond to disclosures of violence through an adapted first-line support approach called LOVES (Listen, Ongoing Connection, Validate, Encourage Safety, Support). Through LOVES, mentors gain hands on skills on how to validate and support participants and refer them to appropriate services. In 2022, CDC conducted four virtual LOVES trainings with 275 implementing partner staff in 15 countries.

As a result of DREAMS and LOVES training, the most marginalized adolescent girls and young women are now receiving support from trained and skilled mentors, along with improved access to needed post-violence care and sexual and reproductive health resources and services. DREAMS continues to prioritize empowering girls and young women and reducing gender health disparities.

Health Equity in Action

Measles Vaccinations During Humanitarian Crisis in Ethiopia

The ongoing humanitarian crisis in Tigray that began in 2020 led to interruptions in most health services and major increases in internally displaced persons (IDPs). In early January 2022, the Government of **Ethiopia**, with support from the Measles and Rubella Initiative (MRI), conducted an integrated vaccination and nutrition screening campaign in Tigray.

Prior to the conflict, Tigray had relatively low routine immunization coverage and frequently reported outbreaks of measles. The disruption of immunization services combined with an influx of IDPs created an increased risk of vaccine preventable diseases outbreaks, particularly measles. A rapid nutrition assessment showed high levels of acute malnutrition, which leads to higher rates of severe measles disease and deaths. In close partnership with the MRI Outbreak Response Working Group and MRI Management Team, CDC worked with the World Health Organization, UNICEF, and other partners to vaccinate over 760,000 children under 5 against measles in 52 woredas (Ethiopian administrative divisions). The integrated campaign also included nutrition screenings, vitamin A distribution, and deworming.



A lab technician operates an automated viral load testing machine at the CDC-supported National Health Laboratory and Diagnostic Services facility in Uganda. Credit: Chris Lubega, U.S. Embassy Uganda

Health Equity in Action:

Shifting to Virtual Laboratory Trainings

When all but CDC's mission-critical activities were postponed due to the COVID-19 pandemic, CDC staff saw the need to continue to help countries strengthen their laboratory diagnostics and capacity within national reference laboratories. The agency's Bacterial Meningitis Laboratory and Pertussis and Diphtheria Laboratory pivoted from on-site trainings for outbreak response and preparedness to an innovative series of live virtual trainings. These trainings helped over 24 countries in **Africa, Central America, and South America** to be better equipped to tackle the seasonal epidemics of bacterial meningitis and sporadic outbreaks of diphtheria that continue to occur globally. CDC's real-time response to a global health need provided state-of-the-art, culturally appropriate, laboratory trainings with simultaneous translations in English, Spanish, French, and Portuguese. CDC enhanced in-country capacity to diagnose and respond to outbreaks that disrupt the lives of thousands of people annually by providing trainings that were not restricted by geographic distance or financial constraints.



Reinforcing and Expanding Robust Partnerships

Through worldwide collaboration, CDC enhances cross-cutting coordination on health equity through partnerships, extramural support, and external communication. This allows CDC to seek out and strengthen sustainable multi-level, multi-sectoral, and community partnerships to advance health equity.



U.S. CDC's Oscar Rwabiyago, MD, observes a healthcare worker as she performs all the services offered at this mobile health clinic. U.S. CDC in Tanzania and HIV-prevention partners set up a temporary clinic in the Ilmela District of the Mwanza Region. It provided access to COVID-19 vaccines and other healthcare services including HIV testing and counseling. Credit: Kokuhabwa Mukurasi, CDC Tanzania

Health Equity in Action:

CDC and Tanzania Speed Up COVID-19 Vaccinations

For more than 30 years, CDC has been at the forefront of the fight against HIV and TB in the United States and around the world. Through PEPFAR, CDC provides HIV and TB treatment services in 11 districts on **Tanzania's** mainland and the island of Zanzibar. By leveraging PEPFAR's reach, more than 40% of people with HIV and 80-90% of CDC-supported partner staff, community, and health facility workers received at least one dose of COVID-19 vaccine during the six-week surge campaign. Tanzania was one of 11 countries selected to receive additional support from the U.S. government's Initiative for Global Vaccine Access (Global VAX) program in June, 2022. With the additional Global VAX support, CDC and partners launched a broad vaccination campaign in Dar es Salaam and other regions, including remote areas around Tanzania's lake zones.

In many low- and middle-income countries, geographical barriers can be a major impediment for populations to access health services and life-saving prevention tools, further exacerbating inequities and health disparities. CDC staff sometimes traveled 200 miles each way to make sure COVID-19 vaccines were available to people in remote areas by setting up temporary vaccination sites with partners already engaged in HIV prevention through PEPFAR. The sites provided COVID-19 vaccinations along with other health services like blood pressure screening and reproductive health services.

With CDC Tanzania's support, nearly half of the eligible population received the primary series of COVID-19 vaccines as of September 2022.

Health Equity in Action:

Improving Healthcare Safety in East Africa

In low- and middle-income countries (LMICs), safe delivery of health services can be challenging due to lack of investment in infection prevention and control programs, leading to higher rates of healthcare-associated infections (HAIs) and antibacterial resistance (AR). HAIs and AR disproportionately impact vulnerable populations in LMICs. Establishing communities of practice in these countries provides an efficient and cost-effective method for training and mentoring healthcare workers. The communities of practice support development, implementation, and strengthening of IPC programs and prepare those on the frontlines to keep themselves and their patients safe.

CDC supported ICAP at Columbia University to establish the East Africa Infection Prevention and Control (EA IPC) Network in 2020, a community of practice aimed at building healthcare worker capacity to improve adherence with IPC standards. The network aims to

reduce the incidence of COVID-19 and healthcare-associated infections and includes 20 hospitals in **Ethiopia, Kenya, Tanzania, and Uganda**. Network activities include weekly case-based learning sessions, collaborative quality improvement projects, facility assessments to evaluate IPC performance for COVID-19, and tailored professional development.

When a new outbreak of Ebola caused by *Sudan ebolavirus* was declared in Uganda in September 2022, the EA IPC Network rapidly responded with a webinar presented by the Ugandan Ministry of Health. Almost 100 participants from across East Africa attended to share and learn about the response and preparedness activities already underway. The network will continue to leverage its existing activities to disseminate key Ebola prevention and control information.



Individuals and families are waiting in line to be screened for COVID-19 in Ethiopia. Credit: CDC Ethiopia



Enhancing Capacity and Workforce Engagement

CDC builds workforce capacity and engagement by developing internal capacity to create a multi-disciplinary workforce with more inclusive climates, policies, and practices for a broader public health impact.

Health Equity in Action:

PulseNet International - Building Capacity in the Asia Pacific Region

Globally, antibiotic resistance (AR) is a growing concern and is one of the top global health threats facing humanity according to the World Health Organization. As a result, global initiatives have been developed to support surveillance and identify emerging drug-resistant strains circulating within regions and globally. PulseNet International was established in the early 2000s as a worldwide network for detecting foodborne disease clusters and outbreaks using molecular subtyping methods such as whole genome sequencing. PulseNet International recently joined a larger CDC initiative, the Global Antimicrobial Resistance Laboratory & Response Network, focusing on building laboratory capacity for antibiotic resistance surveillance within PulseNet International regions.

This year, CDC, the Association of Public Health Laboratories, and other PulseNet International partners launched a feasibility study targeting four low- and middle-income countries within the **Asia Pacific region** to demonstrate the impact of the PulseNet surveillance system for detecting potential foodborne outbreaks and monitoring emerging antibiotic resistance trends. A key goal of this study is to determine feasibility and encourage the development of whole genome sequencing and analysis capacity for antibiotic resistance surveillance in the Asia Pacific region. This study will also allow participating countries to improve access to sequencing, ability to analyze data, and data sharing globally. CDC will provide laboratory and data analysis training and technical assistance to participating laboratories throughout the project.



A public health scientist from CDC's PulseNet team analyzing whole genome sequencing (WGS) data on a sequencing instrument. WGS provides detailed genetic information about pathogens that cause foodborne outbreaks. Credit: Lauren Bishop, CDC



Outpatient clinic in Mai Son District, Son La Province, Vietnam. Credit: CDC Vietnam

Health Equity in Action:

Cultivating Health Equity Through Training in the Vietnam Country Office

In September 2022, CDC's Country Office in **Vietnam** became the first overseas U.S. Department of Health and Human Services (HHS) office to receive health equity training supported by the HHS Equity Technical Assistance Center (ETAC). A team comprised of ETAC consultants, and CDC and HHS staff adapted equity training materials originally developed for a U.S. domestic audience to be applicable to the Vietnamese context. The training enabled CDC Vietnam staff – Americans and Vietnamese – to better understand equity principles and apply those principles in their work. Responding to results from an equity landscape assessment of CDC Vietnam staff, the training also provided a foundational understanding of equity, incorporating contextual background from the United States and Vietnam.

Topics included distinguishing equity versus equality, understanding intersectionality, and operationalizing equity principles. In addition to CDC Vietnam leadership,

U.S. Embassy Hanoi Deputy Chief of Mission Melissa Bishop provided closing remarks, noting, “[equity] is not a one-time action; it is a consistent lens we can apply to everything we do.” She commended CDC Vietnam for “establishing Vietnam as a champion for equity in the health sphere.”

Four weeks after the training, 89% of participants indicated that it helped them understand how to advance health equity through their work. CDC's Country Office in Vietnam will continue to affirm its commitment to health for all, with the consistent and deliberate advancement of health equity principles and approaches within its science, interventions, partnerships, and policies. The lessons learned from this pilot training in Vietnam will inform scaling of equity support to other CDC overseas offices, ensuring CDC beneficiaries across the globe can achieve their highest attainable level of health.


CORE in Action

CDC collaborated with the International Organization for Migration to conduct a quality assurance review of the Guatemala Youth Survey. The survey includes data on violence and health from indigenous populations from the Northern Highlands region of Guatemala. These groups have been historically under-represented in statistical reports in Guatemala, leading to inequities and disenfranchisement. The quality assurance review provided recommendations for the Government of Guatemala regarding the analysis, interpretation, and application of survey results. Additionally, CDC provided a final report of survey findings and led a workshop in Guatemala to develop responses to address the findings. With a focus on promoting health equity of indigenous populations in Guatemala, these efforts led to a redefined national framework for building the resiliency of communities and protecting children from violence.

“Since the beginning of CDC’s lymphatic filariasis program, we have realized that we can prevent future generations from suffering the consequence of this disease without losing sight of those who already suffer from its debilitating impacts,” says Caitlin Worrell, a CDC epidemiologist. “With such a large, global focus on prevention, those who already have diseases can sometimes be forgotten. It’s definitely a big challenge to ensure everyone is cared for.”

“People with filarial lymphedema and hydrocele not only feel socially stigmatized but suffer economically,” notes Emily Toubali, the LF Technical Advisor in USAID’s NTD Division. “Bringing care and treatment to those who have morbidity associated with LF means that the most marginalized are being reached by the health system with a set of interventions that directly improve their quality of life.”

The Birth Defects Surveillance Toolkit (available in both English and Spanish) is a collaborative effort between the International Clearinghouse for Birth Defects Surveillance and Research, the World Health Organization, and CDC that is used globally to enhance capacity and workforce training on identification and surveillance of major external birth defects. The toolkit builds internal capacity to cultivate a multi-disciplinary workforce with more inclusive climates, policies, and practices.



The region of Quiché, located in northwest Guatemala, has a population of 1.6 million people – 88% of which are indigenous and 90% live in poverty. With no HIV care or treatment center in Quiché, the 305 people previously diagnosed were forced to travel an average of 2.5 hours to seek HIV care and treatment. In Quiché and other regions, indigenous communities have organizations led by a local leader called Alcalde Indígena who represents their community in a municipal and provincial organization. CDC engaged the Alcalde Indígena of Santa Cruz Del Quiché, Mr. Juan Zapeta, and the Director of the Hospital of Santa Cruz del Quiché, Dr. Salomón Delgado, who gave their support to opening the care and treatment center in the Regional Hospital of Santa Cruz Del Quiché in April 2022. Indigenous people living with HIV in Quiché now have better access to HIV care and treatment, helping to reduce health inequities in this vulnerable population.

“ As we grew to understand this virus [COVID-19], it really became more about figuring out how we were going to work together with health officials in Uzbekistan,” says Dr. Daniel Singer, U.S. CDC’s Central Asia director at the time. “It was important for us to understand what capabilities Uzbekistan already had in place to limit the spread of COVID-19 so we could determine how to best assist them. ”

“ I was chosen and trained to be a DREAMS mentor and to represent other girls. Here I built my circle and impacted the lives of many girls and changing their stories with my life story, being a voice for the voiceless girls, and identifying the most vulnerable girls to benefit from DREAMS services. ”

- Mozambique DREAMS Mentor

CDC's Global Impact: Responding to COVID-19 Around the World

CDC global health experts have worked tirelessly with partners and public health officials to respond to the COVID-19 pandemic by leveraging and adapting longstanding investments, systems, and programs for the global COVID-19 response. CDC also simultaneously implemented innovative strategies to mitigate the impact of COVID-19 on flagship global health programs.

Supporting U.S. Embassies Around the World



CDC staff in countries around the world helped over **50 embassies** stay safe during the COVID-19 pandemic.

Zambia: In Zambia, CDC has served as the principal advisor to the Chief of Mission on workplace safety and development of guidance and procedures related to COVID-19. Early in the pandemic, before testing was available at the Embassy, CDC staff supported testing of Embassy staff using PEPFAR infrastructure. CDC staff also conducted contact tracing for over 300 Embassy staff and families who were exposed to SARS-CoV-2 (the virus that causes COVID-19). CDC supports the Chief of Mission with town halls for staff and live Facebook sessions for American citizens to address concerns about COVID-19.



Tanzania: In Tanzania, following the first confirmed case within the Embassy in March 2020, CDC led contact tracing, case investigation, and quarantine decisions. CDC also provided critical guidance on home care and maintaining healthy office space, and provided consultations to Chief of Mission staff and families. CDC also advised other Embassies in Tanzania, and gathered ambassadors to share the latest information and guidance on keeping Embassy communities safe.



Collaborating Globally with Ministries of Health



CDC worked hand-in-hand with Ministries of Health in over **60 countries** to provide critical support during the COVID-19 pandemic.

India: When the government of India reported its first case of COVID-19 in January 2020, CDC's country office in India mobilized immediately, establishing teams that aligned closely with Government of India response efforts across the country. CDC supported establishment of a fully functioning Government of India Incident Management System and assisted with response and mitigation efforts, including COVID-19 clinical management, risk communication, hospital and community mitigation activities, and a tiered training program to establish a specialized cadre of epidemiologists in India.



Haiti: Haiti is experiencing multiple concurrent crises, including COVID-19, political unrest, and, in 2021, a devastating earthquake. To expand access to COVID-19 diagnosis, CDC developed additional testing sites, building on a model used for HIV and TB programs. Because of this CDC support to the Ministry of Public Health and Population (MSPP), citizens can now get tested for COVID-19 at pharmacies, private sector labs, and international airports. CDC has also facilitated the delivery of USG-donated vaccines and continues to support MSPP to increase vaccine uptake.





Leveraging Investments in Cross-Cutting Systems for COVID-19

CDC's ability to leverage core capacities overseas for the global COVID-19 response is built on longstanding investments in surveillance, laboratory networks, emergency management, and workforce development.

Surveillance/Laboratory Networks:

200

CDC helped over **200 laboratories** overseas get International Organization for Standardization 15189 accreditation.

23

CDC supported rollout of Global Laboratory Leadership Programs in **23 countries**, with a focus on COVID-19.

18

CDC supported over **18 national laboratories** in high-containment operations to enhance biosafety and biosecurity during COVID-19.

Emergency Management:

30

CDC supported development and strengthening of **over 30 national Emergency Operations Centers** worldwide.

1,500

CDC hosted emergency response trainings and workshops for over **1,500 participants** in **60+ countries**.

Workforce Development:

98%

98% of CDC's Field Epidemiology Training Program (FETP) residents or graduates have supported global COVID-19 epidemiologic investigations, data collection and analysis, and information dissemination.



Since the start of the pandemic, participants and alumni of the Stop Transmission of Polio program (STOP) have been supporting national COVID-19 responses in **47 countries**, with **119,000 public health workers** trained by STOP participants.



CDC's PEPFAR-supported investments have been critical to COVID-19 diagnosis and surveillance, with nearly **1,450 facilities** supported with molecular testing capacity for SARS-CoV-2, HIV, and TB..



Two CDC global divisions alone contributed over **1,650,000 person-hours** to the global COVID-19 response, including over **350,000 person-hours** from in-country staff around the world.

Increasing HIV Service Delivery During COVID-19



When the COVID-19 pandemic hit, there was widespread concern that people living with HIV would not receive HIV treatment. Due to data-driven, person-centered programs and innovations to support access to care, through PEPFAR, CDC has continued to grow global treatment cohorts through the COVID-19 pandemic, Monkeypox, and Ebola outbreaks, with nearly **12.5 million people currently on HIV treatment in FY22, an 17.5% increase from FY20.**

Nigeria: CDC has worked quickly to put Nigeria on the path to HIV epidemic control, rolling out an HIV anti-retroviral therapy surge in the nine Nigerian states with the largest numbers of people with HIV not receiving treatment. The first 18-months of the Nigeria HIV treatment surge resulted in an eight-fold increase in the weekly number of newly identified people with HIV who started treatment in the nine focal states, even amidst the COVID-19 pandemic. Based on this initial success, CDC worked with partners to expand efforts to nine additional states. The ongoing Nigeria treatment surge has led to a near tripling of people receiving HIV treatment in **18 states**, from 454,000 in 2019 to **1,239,000 in 2022.**



Accelerating Global COVID-19 Vaccination



CDC supports over 70 countries to receive and administer COVID-19 vaccines. Around the world, CDC is committed to widespread and equitable access to safe and effective COVID-19 vaccines, while continuing to build capacity for essential immunization systems.

Kenya: CDC and USAID supported an accelerated COVID-19 vaccine drive in Kisumu, after health officials identified nearly 15,000 vaccines at risk of expiring. Based on lessons learned in Kisumu, CDC launched COVID-19 vaccination outreach support in five additional counties in Kenya, with over **85,000 people** fully vaccinated within the first month of the project. In February 2022, all counties exceeded their target.



Nigeria: CDC recruited and trained religious leaders to educate more communities about COVID-19 risks and vaccine confidence.



Belize: CDC helped the Ministry of Health and Wellness increase the number of trained staff who could administer COVID-19 vaccines. This was instrumental in Belize's success in vaccinating **50.4%** of the eligible population against COVID-19 by late 2021.



Tanzania: CDC's PEPFAR implementing partners established **1,000** COVID-19 vaccination points in HIV clinics and trained 1,000 vaccinators.



Year in Review: Emergency Response

Protecting Americans from infectious disease threats is a top priority, and CDC is working to build the core public health capacities needed to respond to emerging disease outbreaks and prepare for future threats. CDC's forward-deployed staff overseas are America's first line of defense to protect Americans' health when infectious disease outbreaks erupt.

CDC has extensive experience in planning for and responding to infectious disease outbreaks both within and outside of the United States. CDC's world-renowned experts in specific disease areas, high consequence pathogens, and numerous cross-cutting programs contribute to the worldwide success in responding to emergencies. These subject matter experts provide essential global leadership and support during emergency responses. In addition to providing critical scientific knowledge to the COVID-19 response, CDC experts also supported global outbreak responses to Ebola, mpox, and several humanitarian crises in 2022.

Mpox Emergency Response

As countries around the world respond to the current 2022 outbreak, CDC worked in collaboration with other U.S. government agencies, international governments, and international partners to prevent, detect, and respond to mpox. CDC's support for mpox-endemic and non-endemic countries included strengthening laboratory diagnostic capacity, enhanced surveillance, ecological investigations, and vaccine research.



Ebola Emergency Response in Uganda

Working closely with the Ugandan Ministry of Health, neighboring countries, the World Health Organization, non-governmental organizations, and interagency partners, CDC supported the global emergency response to the 2022 Ebola outbreak in Uganda. CDC deployed U.S.-based CDC staff and CDC staff already in Uganda to provide response expertise and support in surveillance, epidemiology, laboratory, ecological investigations, infection prevention control, safety and security, border health, management and operations, and communications.

Ukraine Humanitarian Response

Ukrainian cities have been brutally attacked by the Russian Federation since February 2022, causing widespread destruction of infrastructure, loss of civilian lives, and the largest and fastest displacement of people from their homes since World War II. To respond to the complex health needs within Ukraine and border countries, CDC quickly mobilized to support the humanitarian response and recovery efforts of the U.S. government, Ukrainian Ministry of Health, regional partners, United Nations, and non-government organizations.

TRAUMA AND INJURIES



Conflict-related wounds, healthcare-associated infections, antimicrobial resistance, and rehabilitation following injury

INFECTIOUS DISEASES



COVID-19, polio, measles, and diphtheria

CONTINUITY OF CARE



Cardiovascular and respiratory diseases, cancer, HIV, TB, opioid use disorder, and maternal healthcare

WATER, SANITATION, HYGIENE (WASH)



WASH services to prevent waterborne diseases such as cholera, typhoid, and hepatitis

FOOD INSECURITY AND NUTRITION



Shortages of infant formula, disruptions in grain, sunflower oil, and fertilizer affecting malnutrition in Ukraine and globally

WEAPONS OF MASS DESTRUCTION



Assessment of health threats associated with chemical, biological, and radiological/nuclear agents

MENTAL HEALTH AND PSYCHOSOCIAL NEEDS



Anxiety, depression, and post-traumatic stress disorders

HEALTH DISPARITIES



Sexual and gender-based violence, human trafficking, and inequities for vulnerable groups such as the elderly and disabled

Haiti Cholera Response

After three years without a reported cholera case and six months into the World Health Organization's process to declare the country cholera free, cholera cases were confirmed among children in the largest informal settlement in Haiti in October 2022. Cholera cases spread to nearly all departments of the country by the end of 2022. CDC led the interagency U.S. response, in close collaboration with the government of Haiti, to provide technical assistance and support in surveillance/laboratory capacity, vaccination, treatment and case management, risk communication and community engagement, and water, sanitation and hygiene.



Operation Allies Welcome - Afghanistan

CDC worked with other government agencies in determining precautions needed to prevent the spread of COVID-19 and other infectious diseases during this resettlement process for Afghans coming to the United States by providing technical assistance to the U.S. Department of Homeland Security and the U.S. Department of Defense in close coordination with local and state public health authorities and resettlement agencies.

Global Health Equity in Action



“ The COVID-19 pandemic taught us that health crises don't happen in isolation – they have ripple effects across the globe. By engaging in response and recovery efforts alongside longstanding partners, CDC can help reduce illness and death in Ukraine while bolstering global health security moving forward. ”

– Dr. Leisel Talley,
CDC Incident Manager for the Ukraine response



CDC organized the global distribution of over 3,091 kits of the Influenza SARS-CoV-2 (Flu SC2) multiplex assay to 163 laboratories in 142 countries, corresponding to over 1,545,500 tests since October 1, 2020. Many of these kits supported **National Influenza Centers** in partner low- and middle-income countries to conduct more tests in less time while optimizing the use of important testing materials and facilitating uninterrupted surveillance for both influenza and SARS-CoV-2.



To ensure artemisinin-based combination therapies (ACTs) (the World Health Organization's recommended first-line treatment for uncomplicated malaria) retain their efficacy, CDC and the **U.S. President's Malaria Initiative (PMI)** have collaborated with African malaria researchers and national malaria control programs since 2015 to monitor drug resistance in Africa. CDC established the PMI-supported **Antimalarial Resistance Monitoring in Africa (PARMA)** network so malaria experts in the United States and across Africa can work together to quickly identify emerging resistance and adapt treatment practices. In 2022, the **CDC Foundation** and **Bill & Melinda Gates Foundation** supported a PMI initiative to equip a lab in Senegal to offer the same trainings and services as CDC's Malaria Lab.

CDC supported the NCE with the attainment of ISO 15189 certification, an international standard that specifies the quality management system requirements for medical laboratories, by helping Kazakh counterparts to organize specialized trainings for the staff, conduct assessments of biosecurity and biosafety, and strengthen internal audit programs. Credit: Maxim Malov, CDC



Looking Forward: Advancing Health Equity

Moving forward, CDC is building on the lessons learned from COVID-19 to improve how we deliver our science and programs, policy, and the words we choose to communicate. With a keen focus on advancing health equity, CDC is working to share scientific findings and data faster, translating science into practical, easy to understand policy; prioritizing public health communications; promoting results-based partnerships; and developing a workforce better prepared for future emergencies. CDC's Global Health Equity Strategy highlights and expands upon CDC's global health goals.

CDC works to direct and sustain our focus on health equity scientific research, programs, interventions, policies, and communication by:

- **Prioritizing** needs of people who are most disadvantaged or disproportionately affected
- **Engaging** affected populations and communities
- **Collaborating** with external partners, including non-traditional and local partners
- **Confirming** that programs uphold principles of human rights
- **Implementing** good and ethical public health practice
- **Cultivating** ethical and knowledgeable staff

Through CDC's commitment to these six guiding principles, CDC recognizes health as interdependent and interrelated with human rights. CDC efforts work to ensure that everyone can attain the highest attainable level of health, and no one is disadvantaged from achieving this potential because of social position or any other social, economic, demographic, or geographic circumstance or physical condition.

Thembi, right, is an HIV advocate who provides peer support in a rural area of Eswatini through CDC's CommLink Peer Linkage Program. Credit: Brittany K. Moore

For more information about CDC's Global Health activities, visit
<https://www.cdc.gov/globalhealth/index.html>

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