

Updates from the Field

Protecting Health and Building Capacity Globally

Driving Global Health Security: The power of collaboration

Dear Colleagues:

In our first issue of *Updates from the Field* in 2015, I want to express my deep gratitude for the opportunity to make a difference in protecting the public's health through our division's programs, which currently reach 68 countries around the world. Along with our committed colleagues, we continue efforts to combat Ebola and other disease outbreaks, reduce the effects of non-communicable diseases, reduce gender-based violence in areas affected by conflict, and advance capabilities for emergency preparedness and effective global health security.

Last August, near the peak of the epidemic, my greatest concern was that Ebola might secure a foothold in West Africa that would take years to overcome. While it may take a long time to stop this epidemic, our efforts are making a difference. Nigeria, Senegal, and Mali are now Ebola-free, and Liberia is making great strides towards becoming Ebola-free. These positive changes are a testament to the tremendous fortitude, focus, and goodwill of thousands of people from all over the world.

But we can't let our guard down. Ebola still presents challenges in Guinea and Sierra Leone, and neighboring countries are still at high risk. I visited five West African countries in January and was reassured that our fight against Ebola is maintaining momentum in the hardest hit countries (Guinea, Liberia, and Sierra Leone). We continue to work with partners on the Global Health Security Agenda in Cote d'Ivoire and Burkina Faso, where we are implementing new programs.

The Ebola epidemic is an unprecedented event in our history and, while it has presented many challenges, it has also given rise to opportunities for the public and private sectors to work together toward a common goal of building capacity to prevent, detect, and rapidly respond to disease threats before they become epidemics. I am encouraged by the results I have seen so far and by the demonstrated potential of these collaborations to create real and lasting change.

I thank you for your commitment to public health and helping to make our world a safer and healthier place. I hope the stories in this newsletter will give you greater insight into our work and the progress we are making.

Captain Jordan W. Tappero, MD, MPH
Director, Division of Global Health Protection
Center for Global Health, CDC



CDC and Médecins Sans Frontières/Doctors Without Borders (MSF) staff don PPE before entering the Ebola treatment unit (ETU), ELWA 3, operated by MSF. From right to left: Dr. Jordan Tappero; Dr. Armand Sprecher, MSF; Dr. Tom Frieden, Director, CDC; and Dr. Joel Montgomery, CDC.

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Seeking Submissions:

If you would like your program to be featured in an upcoming issue of *Updates from the Field*, please send a 200-400 word summary of your program's activities and photos to Ruth Cooke Gibbs at icn6@cdc.gov.

CDC Investigates Unexplained Neurologic Illness Affecting Hundreds of Children in Muzaffarpur, India

Submitted by: Padmini Srikantiah, MD MPH, CDC-India Global Disease Detection Program

Since 1995, young children in the Muzaffarpur district of Bihar state in India have been affected by outbreaks of an unexplained acute neurologic illness, which causes seizures and decreased consciousness that can lead to death within hours of onset. These outbreaks generally peak in June and decline weeks later with the onset of monsoon rains.

A wide spectrum of causes for this illness has been proposed, including infectious encephalitis (swelling of the brain), and exposure to pesticides. Many have also wondered about an association between this illness and litchi (lychee) fruit because Muzaffarpur is a litchi fruit-producing region, and the outbreak period coincides with the month-long litchi harvesting season.

Potential Causes

To evaluate the potential cause of illness, the Indian National Centre for Disease Control (NCDC) and CDC investigated outbreaks in 2013 and 2014. In both years, officers from the first and second cohorts of the India Epidemic Intelligence Service (India-EIS) formed the core of the field-based disease detective team.

In 2013, 133 children (15 years of age or younger) admitted to hospitals in Muzaffarpur met the case definition of acute onset seizures or altered mental status within 7 days of admission. Of these, 71% were 1–5 years old; 94% had generalized seizures, and 93% had altered mental status. Most (61%) had no fever at admission; and 44% of the children affected by this illness died.

Building on these findings, NCDC and CDC again investigated this syndrome in 2014 and used the same case definition. Between May 26 and July 17, 2014, a total of 390 patients met the case definition. Again, the majority of ill children (72%) were aged 1–5 years, 94% had seizures on admission, and 77% had altered mental status. The case fatality rate was 31%. Notably, 62% of children had very low blood glucose (sugar) levels on admission.

Clinical and Laboratory Findings

The clinical and laboratory findings of the 2013 and 2014 Muzaffarpur investigations indicated that this outbreak illness is an acute encephalopathy (syndrome of brain dysfunction). Laboratory data confirms that significant hypoglycemia (low blood sugar) is an important presenting feature of illness. Furthermore, the implementation of the 2013 recommendations for rapid assessment and correction of hypoglycemia might, in part, have helped to reduce mortality (44% in 2013 versus 31% in 2014).

Initial clinical and laboratory results of the 2014 investigation, including the consistent finding of hypoglycemia in affected children, confirm the importance of systematically evaluating toxins with the potential to result in low blood sugar, seizures, and altered mental status. This includes markers for a naturally occurring compound found in litchi seeds (methylenecyclopropylglycine (MCPG)) that is known to cause hypoglycemia in animal studies. MCPG can cause acute hypoglycemia and illness through a similar mechanism to hypoglycin A, a naturally occurring toxin that has been reported to cause acute encephalopathy in the West Indies and West Africa after consumption of unripe ackee, a fruit in the same botanical family as litchi.

As part of the collaborative investigation, blood and urine specimens of affected children are being systematically analyzed for possible causes, including pesticides and heavy metals, and markers for MCPG. Until a specific cause for this illness is identified, public health recommendations have been focused on reducing mortality by urging affected families to seek prompt medical care, and ensuring rapid assessment and correction of low blood sugar in ill children.

For more information, contact: **Dr. Padmini Srikantiah** at pbs6@cdc.gov.



Dr. Somashekar, India-EIS officer, collecting data during an acute encephalitis illness outbreak investigation in Muzaffarpur, Bihar, India. July 2014. Photo courtesy of Mohan Papanna, India.

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Highlights of Investigations

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A hospital ward in Muzaffarpur, India where young children affected by an acute encephalitis illness are comforted by their loved ones. Photo courtesy of Dr. Rajesh Yadav, India-EIS Second Cohort, 2013.

Litchi orchard, Muzaffarpur, Bihar, India. Photo courtesy of Dr. Mayank Dwivedi.



A young child in Muzaffarpur, Bihar, India sits in her mother's arms as India-EIS officers discuss an acute encephalitis outbreak investigation and the importance of getting blood samples from children in the community affected by this illness. Photo courtesy of Dr. Rajesh Yadav, India-EIS Officer, June 2014.



Dr. Somashekar, India-EIS officer, Second Cohort, interviewing community health worker in Muzaffarpur, 2014. Photo courtesy of Padmini Srikanthiah.



India-EIS officer meeting with parents during an investigation of acute encephalitis illness affecting young children in Muzaffarpur, Bihar, India in July 2014. Photo courtesy of Mohan Papanna, India.

Investigating a Potential Crimean-Congo Hemorrhagic Fever Outbreak in Georgia

Submitted by: Ashley Greiner, MD, MPH, Epidemic Intelligence Officer, CDC

By September 2014, the country of Georgia's National Centers for Disease Control and Public Health (NCDC) identified 22 cases of Crimean-Congo Hemorrhagic Fever (CCHF), including three deaths. Although CCHF is endemic in the South Caucasus region, this is the highest annual number of cases since Georgia initiated surveillance in 2009. In response, a team from CDC's Global Disease Detection Branch, consisting of senior epidemiologist, Stephanie Salyer and Epidemic Intelligence Service Officer, Ashley Greiner, deployed to Georgia to assist NCDC with the investigation of a possible outbreak. The goal of the mission was to determine the extent of the outbreak, identify risk factors, and understand how the disease was spreading.

CCHF is usually spread to people by ticks, or contact with infected animal blood. Human-to-human transmission can also occur from exposure to infected bodily fluids, including blood. Although the virus does not cause symptoms in its animal hosts, it can cause serious illness in humans. Symptoms range from headache, high fever, and joint pain to vomiting, nosebleeds, bruising, and uncontrolled bleeding.¹

In collaboration with NCDC, the team extracted data from the Electronic Disease Surveillance System. A review of all 22 patients' records revealed that the majority had exposure to ticks and animal blood prior to becoming sick.

The team subsequently conducted a knowledge, attitudes, and practices survey in conjunction with a seroprevalence survey in the 12 rural villages that had at least one 2014 CCHF case. Within a week, the team conducted a total of 620 interviews, and collected 440 blood specimens. Data analysis and blood sample testing are currently ongoing. Results will determine the risk of CCHF and the current level of CCHF in the villages.

Since the completion of the field investigation in October, a recent additional case of CCHF has been identified, indicating ongoing transmission, and therefore, the importance of continuing close surveillance in Georgia. The current recommendations provided to the NCDC are to intensify current educational campaigns by focusing on 1) preventing tick exposure and encouraging safe tick handling practices for at-risk populations including herders, farmers, and veterinarians, and 2) minimizing contact with infected animal blood and tissues, with messaging targeted towards slaughterhouse workers, veterinarians, and healthcare workers.

For further information, contact: **Dr. Ashley Greiner** at iwh2@cdc.gov.

A survey team (on the right) looking for a study participant at the edge of a herding field in Igoeti, Georgia.



Giorgi Maghlakelidze of NCDC interviewing a participant in their garden. Finding and interviewing households required lots of equipment. Pictured here is a GPS (in yellow), satellite maps (in white), a cooler (in blue), a biohazard receptacle (in red), and personal protective equipment for phlebotomy (in purple).



Crimean-Congo Hemorrhagic Fever investigation team composed of previous and current FETP residents, NCDC staff, and other Republic of Georgia public health organizations. Borjomi, Georgia. Photo courtesy of Pikria Shavreshiani.



¹<http://www.cdc.gov/vhf/crimean-congo/>

CDC Disease Detective Shares Lessons Learned while Supporting the Ebola Response in Conakry, Guinea

Submitted by: Kate R. Scully, MPH Candidate, Emory University, Rollins School of Public Health, Intern; and Ruth Cooke Gibbs, MIS, MPH, CDC-Atlanta

John Ngulefac is an epidemiologist for the Centers for Disease Control and Prevention. As a native of Cameroon, fluency in French and other West African languages and customs made him an especially valued resource during the peak of the Ebola outbreak last year. While working in Guinea, John was part of the contact tracing team in Conakry tasked with finding everyone who had direct contact with patients sick with Ebola. His understanding of the culture gave him unique insight into barriers to treatment for Guineans in Conakry, as well as a significant level of credibility and trust in the field.

Mentoring Health Workers

Most of Ngulefac's time was spent monitoring the contacts of Ebola cases, mentoring health workers, and interviewing those who may have been exposed to the virus. Unlike Nigeria and other parts of Africa, Guinea does not have a Field Epidemiology Training Program (FETP) where residents are trained in detecting and monitoring disease outbreaks, analyzing data and making recommendations to health officials to control the spread of disease. As a result, part of Ngulefac's assignment in Conakry was to take local community health workers with him to ensure that they gained valuable field experience and knowledge about contact tracing, to increase the public health capacity in outbreak investigation.

Traditional Healers and Volunteer Community Health Workers

When asked what lessons he most wanted to share from his time in Conakry, Ngulefac leaned forward confidently and stated, "I really want to emphasize the importance of engaging traditional

healers. These men and women have significant influence in their communities and need to be brought into any public health solutions being developed." During his interview, he discussed the tremendous influence that traditional healers and imams have over their communities and mentioned that they are a valuable resource to educate the community about how Ebola spreads, its symptoms, and life-saving measures that can be taken to prevent the spread of Ebola and other infectious diseases within the community and beyond. Ngulefac emphasized that when traditional healers and community leaders are not informed about the various aspects of infectious diseases, it perpetuates misinformation and mixed messages within communities and can have an adverse effect on the response.

In times of crisis, communities turn to their traditional healers and leaders for advice. They need to be incorporated into any and all public health response efforts and interventions, especially communities in remote areas, said Ngulefac. In the future, Ngulefac hopes that there will be more engagement and training with traditional healers and community leaders to create solutions and avoid misinformation that can lead to adverse effects within communities and among public health workers.

Lack of Resources

Another perspective Ngulefac shared about the response in Conakry was his observations about the community health workers. He observed that the volunteer community health workers were passionate about their country and working hard to prevent the spread of Ebola. However, they were limited by the lack of necessary logistical resources and basic training on how to conduct contact tracing, as well as how to complete the necessary forms, look for Ebola symptoms and report findings. "Most of these community health workers complained of inadequate resources and many used their own personal resources," Ngulefac said. Although resources are being donated by international organizations and other entities to supply public health workers with bikes or motorcycles, additional budget is needed for fuel so that volunteer public health workers can carry out activities without having to dip into their personal funds.

As one might expect, the accuracy of some of these health workers' contact tracing efforts was affected by their lack of resources, knowledge and skills. In Ngulefac's view, they would benefit from being mentored by qualified personnel and given performance-based evaluations. Despite these gaps, he insists that he was impressed by community health workers' determination and personal sacrifice.

For further information, contact: **Dr. John Ngulefac** at igb2@cdc.gov.



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CDC Disease Detective Shares ...

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Dr. John Ngulefac, visits a community health center in Conakry, Guinea while seeking information about the spread of Ebola in Guinea. Photo courtesy of Carol Guensburg, VOA.



The Director of a district health center in Conakry where students from Chad were being monitored for 21 days, meets with Dr. Ngulefac to share some of the challenges in monitoring students from other countries.



Dr. Ngulefac meets with two medical students from Chad who were suspected of having had close contact with a patient with Ebola during their field assignment. Dr. Ngulefac monitored the students and provided counseling during their 21-day monitoring period. Both students are Ebola free.



Community agents, working with CDC epidemiologist John Ngulefac, played a vital role in tracing Ebola contacts and monitoring their health. Here, two are shown at the Centre de Sante de Macire, a health center in Conakry, Guinea.



CDC Epidemiologist Dr. Richard Franka works aboard a pirogue (a small handmade boat) en route to assess contact tracing capabilities on Kassa, an island near Conakry, Guinea. Photo courtesy of Loren Rodgers.

Highlights of Investigations

Shining a Light on Gender-Based Violence in Haiti

Submitted by: Meaghan Novi, Emory University, Rollins School of Public Health Intern; and Julia Smith-Easley, MPH, CHES, CDC

In 2011, President Obama signed the [US National Action Plan \(NAP\) on Women, Peace, and Security](#) to help “empower half the world’s populations as equal partners in preventing conflict and building peace in countries threatened and affected by war, violence, and insecurity.”

One goal of the NAP is to protect women and children from harm and abuse in conflict affected areas. To address this issue, [CDC](#) and the [International Rescue Committee \(IRC\)](#), with funding from the [USAID Office of Foreign Disaster Assistance \(OFDA\)](#), distributed handheld solar lights to all households in two internally displaced persons (IDP) camps in Port-au-Prince, Haiti. The goal of the intervention was to evaluate the use and benefits of handheld solar lights and to explore how the lights impacted perception of safety among women and girls living in the camps.

Michelle Dynes, an EIS Officer with CDC’s [Emergency Response and Recovery Branch](#), lead the follow-up study of this intervention and she noted that, “many organizations are giving out solar lights, but there’s not a lot of scientific evidence to support the distribution. It makes intuitive sense, but we don’t have data to back it up. This was an attempt to begin to build a foundational level of evidence in support of or against the use of portable solar lights in camps.”

“The fact that the evaluation was carried out over a 9 month period helped us gather important information such as ‘how long were these lights lasting? Were they being sold by residents? Were women using them as often at the end of the evaluation period as compared to beginning?’ We were getting answers to a lot of questions you wouldn’t be able to answer if you simply conducted a cross sectional study at one point in time.” Dr. Dynes noted.

Evaluation findings led the team to ask many more questions. “One finding showed that at the end of the evaluation, women and girls reported going out more at night than they did before the lights were distributed.” Dr. Dynes commented, “We can’t attribute that directly to having the solar lights because the evaluation wasn’t designed with a control group, but it is an interesting pattern that should be explored in future research. It is possible that women feel safer with the lights, but does that mean that they actually are safer? We just don’t know yet.”

Dr. Dynes goes on to say, “We often take something as basic as lighting for granted because it is part of our everyday lives. When you have a vulnerable population like women and girls in a camp setting, adequate lighting becomes critical. We found that handheld solar lights improve women and girls’ day-to-day lives in straightforward ways. With the solar light, children can study in the evening and women can continue their economic work, such as sewing or weaving, in the evenings.”

While the evaluation concluded that the lights improved women and girls’ lives in many ways, the evaluation did not address their most commonly held fears (e.g., physical violence, gunshots). Future studies need to be developed and expanded to other settings to further evaluate the role of lighting in the prevention of gender-based violence in emergency settings.

For more information, contact: **Julia Smith-Easley** at jsmith6@cdc.gov.



Dr. Dynes (middle) with members of the solar light evaluation team.



Camp Toto, a village in Port-au-Prince, Haiti where the endline survey of the solar light project was conducted, March 2014.

CDC and Partners Launch Toolkit to Help Manage Treatment and Control of the “Silent Killer”—Hypertension

Submitted by: Pragna Patel, MD, MPH, CDC

High blood pressure also known as hypertension has become a global crisis. In the United States, 67 million or 1 in 3 adults have high blood pressure, and only about half of these adults have their condition under control. Worldwide, high blood pressure is estimated to cause 9 million preventable deaths, and by 2025 that number is expected increase to 1.5 billion. Commonly referred to as the “silent killer” because it often has no warning signs or symptoms, hypertension is a leading risk factor for cardiovascular diseases, such as heart attack and stroke.

Global Standardized Hypertension Treatment Project

In recognition of the need to meet the challenge of improving the control of hypertension worldwide, the Centers for Disease Control and Prevention (CDC), in collaboration with the Pan American Health Organization (PAHO), has launched the [Global Standardized Hypertension Treatment Project](#) (the Project). The Project’s goal is to improve hypertension treatment and reduce associated morbidity and mortality by developing and implementing a framework for standardizing the pharmacologic treatment of hypertension globally. The Project proposes a *Framework* that includes three key elements:

1. Using a core set of medications for the treatment and control of hypertension
2. Increasing the availability and affordability of these medications
3. Strengthening health care delivery systems by using standardized treatment protocols, registries for cohort monitoring, and team-based care, to improve controlled hypertension at a population level and sustain long-term control for every patient



Patient at the Edgar Cochrane Polyclinic in Barbados having her BP taken.

In May 2013, the World Health Assembly, as part of a Global Monitoring Framework, endorsed a set of targets and indicators, including three that this project will directly contribute to achieving by 2025—

- 25% relative reduction of raised blood pressure
- 25% reduction in the relative risk of mortality due to cardiovascular disease
- 80% coverage of multidrug therapy for persons with a significant (>30%) risk of heart disease or stroke, or existing cardiovascular disease

Managing Hypertension

Many people who have hypertension have no idea that they have it. A friend of mine didn’t know she had high blood pressure until she went to a routine dental appointment. The hygienist asked if she could take my friend’s blood pressure and was completely surprised when the hygienist told her it was 167/95 – stroke level! Luckily, my friend immediately made an appointment to see her physician. She’s now on blood pressure medication, monitoring her blood pressure, and dieting and exercising to prevent further health risks.

Many persons with hypertension are at high risk for cardiovascular disease even if they do not have symptoms. Because hypertension is “silent”, often patients do not seek medical attention or are not adherent to their treatment regimens. Although hypertension can be life-threatening, the good thing is that it is fairly easy to treat. There are effective, affordable medications that are not difficult to take but in some settings are not widely available.

Value of the Hypertension Toolkit

The main objective of the Project’s toolkit is to provide health care providers and clinic administrators with the tools they need to improve blood pressure control among their clinic population. The materials provided include information on how to create registries to manage panels of patients and track indicators, as well as how to use standardized hypertension treatment protocols to improve the treatment and control of hypertension in clinical settings. Also included are educational materials for patients and providers as well as clinical tools for hypertension management and for improving medication adherence. In addition, CDC recently hosted a hypertension webinar which has been incorporated into the toolkit. The toolkit is available online at: <http://www.cdc.gov/globalhealth/ncd/hypertension-toolkit.htm>.

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CDC and Partners Launch ...

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Partner Engagement

In low- and middle-income countries, a major challenge of controlling hypertension is medication availability and affordability. Therefore, CDC is currently working with partners to improve access to antihypertensive medications. For example, PAHO has included 5 of the 6 primary medications identified for the core set in the Americas on their list for the PAHO Strategic Fund: http://www.paho.org/hq/index.php?option=com_content&view=category&layout=blog&id=1159&Itemid=986&lang=en. The Barbados Drug Service has done the same: <http://drugservice.health.gov.bb/>.

While there have been many advances in electronic data collection, the technology necessary for electronic registries is not available in most low- and middle-income countries. CDC and the Lighthouse Trust is working with Baobab (<http://baobabhealth.org/>) in Malawi to develop hypertension modules to enhance electronic medical record systems. We hope this enhancement will be widely adopted in Malawi and will facilitate the scale-up of hypertension screening and treatment programs within the country.

CDC's NCD Unit is working with partners to stand up hypertension treatment programs by leveraging existing infrastructure, such as enhancing HIV care delivery at PEPFAR-funded sites to include hypertension screening, diagnosis, and treatment in Malawi. CDC is also providing technical assistance to improve quality of care at clinical sites in Barbados, where many of the Project's components are being implemented. CDC is currently in discussion with the Ministries of Health in Colombia and St. Lucia, about project implementation and open to discussions with any country interested in improving hypertension treatment and control.

Health care institutions and other public health partners can help disseminate information about the project and engage ministries of health, academic institutions, and private organizations in adopting the components of the Project's framework into their clinical care delivery sites. Raising awareness about the disease and its associated complications is important as well.

For further information on the Global Standardized Hypertension Treatment Project, contact: **Dr. Pragna Patel** at plp3@cdc.gov.



Drs. Kakoli Roy, Pragna Patel, Sonia Angell, Alice Maida, and Fleetwood Loustalot at the Martin Preuss Center in Malawi for a pre-implementation site visit for the Project.



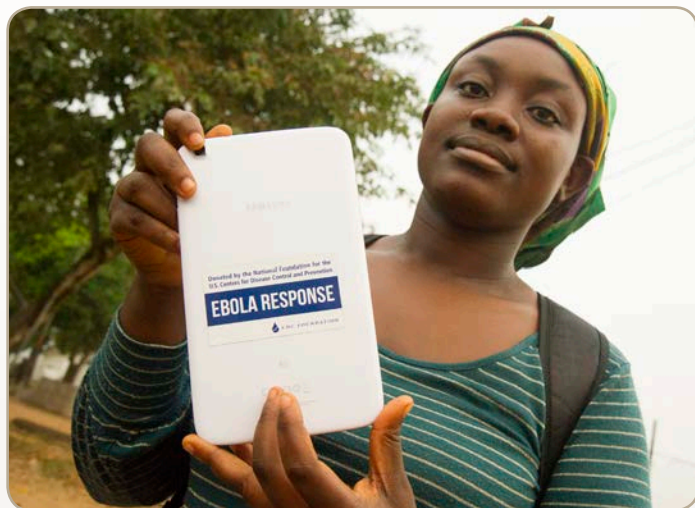
Dr. Pragna Patel (left front) with Jamario Skeete, Addison St. John, and Dr. Kenneth Connell (left to right back), the Barbados Pilot Implementation Team at the Project office during a site visit.



Dr. Colin Speight conducts a training for his staff at the Lighthouse Clinic in Lilongwe, Malawi on February 17, 2015 for integration of hypertension services into this PEPFAR-funded clinical service delivery system.

Private Sector Funding Extends Work of International Community in Ebola Fight

Submitted by: Pierce Nelson, Vice President of Communications, CDC Foundation



Contact tracer tablet. Photo courtesy of David Snyder/CDC Foundation®. Contact tracers are essential in following up with those individuals who have been exposed to the Ebola virus. Donors to the CDC Foundation provided funding for hiring many contact tracers and the equipment they use.

Ebola has proven a tough enemy, one which has brought together the public and private sectors to mount a full-scale response.

The epidemic, which raged in late summer and fall, has recently begun to subside in West Africa, though much work remains to achieve zero Ebola cases. Through donations made by foundations, corporations, and individuals, the CDC Foundation has worked hand-in-hand with the U.S. Centers for Disease Control and Prevention (CDC), providing flexible funding to extend and accelerate the agency's response.

The CDC Foundation is an independent nonprofit created by the U.S. Congress to connect CDC to the private sector to advance public health priorities. Following CDC's build-up in staff deployed to West Africa in July, the CDC Foundation activated its Global Disaster Response Fund in early August. The fund provides an outlet for individuals and organizations to contribute to international public health emergency response efforts.

"CDC has government funding, which is central to facilitating the important work it conducts in this country and around the world," said Charles Stokes, president and CEO of the CDC Foundation. "Outside funding can extend CDC's work and the agency's own government funding. That's important during normal times, but particularly during emergencies."

To aid in the response, a variety of donors have provided more than \$50 million in funding through the CDC Foundation. This funding is being deployed to purchase much-needed supplies, equipment, and services for use on the ground in West Africa, primarily in the nations of Guinea, Liberia, and Sierra Leone, which have the largest outbreaks.

Some of the items and services procured for the response include infection control tools, information technology equipment (computers, tablets, and internet connectivity), generators, lab equipment, and supplies for airports such as thermal scanners to detect fever. In addition, funding has been provided for hiring locally employed staff, training, and a variety of social mobilization efforts in the region.

In addition, for the immediate Ebola response as well as for future public health responses, sustainable emergency operations centers are being established in the three countries, with funding provided through a \$12.9 million grant from the Paul G. Allen Family Foundation. This funding also supported various aspects of the start-up or enhancement of emergency call centers in the three countries similar to 9-1-1 call centers in the United States.



Call Center. CDC Foundation donors provided funding to help start up or enhance emergency call centers in Guinea, Liberia, and Sierra Leone. Photo courtesy of David Snyder/CDC Foundation®.



EOC. An emergency operations center to direct the Ebola response and future public health emergencies is online in Guinea. The Paul G. Allen Family Foundation provided funding for the center here as well as in Liberia and Sierra Leone. Photo courtesy of David Snyder/CDC Foundation®.

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Private Sector Funding ...

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Another real need has been vehicles for moving patients, health workers, and supplies and for transporting bodies of the deceased to ensure safe burials. The CDC Foundation purchased 206 four-wheel-drive vehicles based on the needs of each country: 100 for Guinea, 82 for Liberia, and 24 for Sierra Leone. For these purchases, the CDC Foundation used a portion of a \$25 million grant from Facebook founder Mark Zuckerberg and his wife, Dr. Priscilla Chan. The CDC Foundation has also purchased more than 400 motorcycles for the response using funding from a variety of donors.

"Each vehicle donated represents more than transportation," said Stokes. "Reliable transportation for each country is leading to a faster, more efficient response to the Ebola outbreak that will translate to more lives saved."

For the vehicles, the CDC Foundation is working in coordination with its logistics partner eHealth Africa to secure drivers, purchase fuel, acquire insurance, and provide maintenance for between two to six months. Before the new vehicles arrived, trucks were also leased and drivers acquired to meet interim needs.

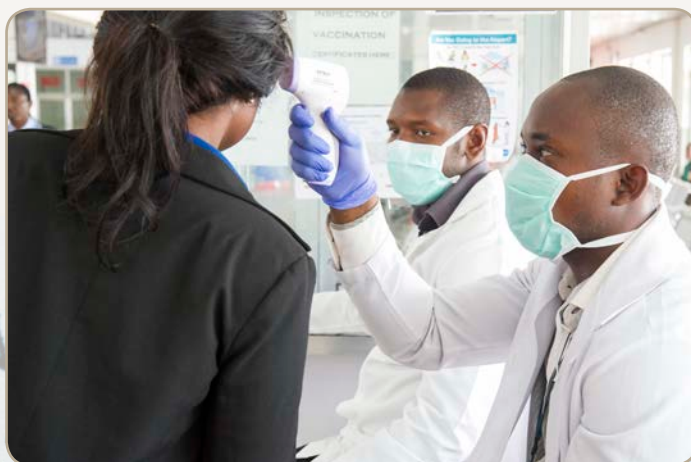
While Ebola has been a very real challenge for the international community, the effort to beat back the epidemic has shown again just how critical it is to bring together all groups—governments, foundations, corporations, nongovernment organizations, and individuals—in response.

To learn more about the CDC Foundation's Global Disaster Response Fund, visit: www.cdcfoundation.org/ebola-outbreak.



Vehicles have been a critical need in the West African Ebola response. Through a donation from Facebook founder, Mark Zuckerberg and his wife, Dr. Priscilla Chan, 206 vehicles were purchased and distributed to Guinea, Liberia, and Sierra Leone. Photo courtesy of John Pitman /CDC®.

Airport exit screeners. The CDC Foundation has provided support for many airport exit screening staff in Sierra Leone, including funding for in-country employees, training, and equipment. Photo courtesy of David Snyder/CDC Foundation®.



CDC Launches FETP-STEP in Cote d'Ivoire and Other High-risk Unaffected Countries in West Africa

Submitted by: Victor Caceres, MD, MPH; and Sekou Sidibe, MPH

Although significant progress has been made in controlling the spread of Ebola in West Africa, CDC remains vigilant in building surveillance capacity in the West Africa region. Working with Ministries of Health (MOH) and other international partners, such as the African Field Epidemiology Network (AFENET), Training Programs in Epidemiology and Public Health Intervention Network (TEPHINET), and World Health Organization (WHO), CDC successfully launched the Field Epidemiology Training Program (FETP) Surveillance Training for Ebola Preparedness (STEP) in January 2015.

"FETP-STEP is a 5-week training course on surveillance that focuses on identifying and responding rapidly to a possible introduction of Ebola by improving the collection, analysis, and dissemination of public health data from local public health workers in high-risk unaffected countries in West Africa, including Cote d'Ivoire, Guinea Bissau, Mali, and Senegal," said Dr. McKenzie Andre, CDC's lead for STEP in Cote d'Ivoire.

STEP targets surveillance officers in high-risk districts, who are often the first point of contact for disease surveillance, data compilation, analysis, reporting, outbreak detection and response.

The training has an Ebola focus but can also be applied to other infectious diseases. According to Dr. Richard Dicker, head of CDC's FETP Curriculum Development Unit, "STEP is a competency-based training that builds on the Integrated Disease Surveillance and Response (IDSR) framework and uses the FETP model of mentorship and field work." FETP STEP has three distinct parts: a one-week interactive workshop (including group exercises); three weeks of field work in the participants' home districts in which participants, supervised by mentors, complete two disease surveillance field projects; and a three-day workshop in which participants present their work.

The FETP STEP pilot was held in Yamoussoukro, Cote d'Ivoire, in January with 24 participants comprised of disease surveillance officers and public health physicians from each of the 12 "high risk" districts. FETP staff and an Epidemic Intelligence Service officer from CDC Atlanta were joined by a senior epidemiologist from the Council of State and Territorial Epidemiologists (CSTE), a recent Rwanda FETP graduate sent by TEPHINET, and a logistician from AFENET. Cote D'Ivoire was represented by participants from the MOH, Institut National d'Hygiene Publique, and the WHO office in Cote D'Ivoire.

The opening ceremony for the Cote D'Ivoire training was led by the Director General of the Ministry of Health, Professor Boa Yapo Felix, CDC's Country office Director Dr. Fazle Khan, and WHO representative Dr. Aka Tano-Bian. Lessons learned from this first course were immediately incorporated into curriculum revisions for subsequent trainings in other high-risk unaffected countries in West Africa.



Dr. Eric Brenner, CDC senior epidemiologist consultant, detailed to CDC's FETP-STEP training in Cote d'Ivoire, working through disease surveillance exercises with course participants to practice all the components of managing their surveillance data - Yamoussoukro, Cote d'Ivoire January 13, 2015.



Border districts participated in teams of two, applying the principles of IDSR to Ebola surveillance and preparedness in highly interactive sessions during FETP-STEP, Yamoussoukro, Cote d'Ivoire.



Group photo of the Welcoming Officials, Course Facilitators and Participants in the first Cote d'Ivoire FETP-STEP course—Yamoussoukro, January 12, 2015.

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CDC Launches FETP-STEP...

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"A key factor in ensuring that the training was performance-based was having each participant write statements that described exactly how they would use what they had learned during the training," said Denise Traicoff, Lead Instructional Designer for the project. These statements were analyzed and linked to the Ministry's objectives. For example, one participant's goal was to develop posters of the different case definitions, distribute them, and make sure that they were posted in health clinics. This goal was linked to the Ministry's objective of reducing misdiagnosis through the use of standard case definitions.

Fifty surveillance officers were trained in Cote D'Ivoire over the course of two consecutive trainings. Since then, STEP was rolled out in Guinea Bissau, and plans are being made to implement the training in Mali and Senegal with the goal of training approximately 200 public health workers in Ebola outbreak preparedness.

Professor Felix led the closing ceremony for the workshop and expressed how pleased he was after interviewing several of the participants. "They stated that the course helped them to better understand their responsibility in collecting data, but especially to better analyze and share the data, and propose solutions for reporting on time." He added, "More alert and responsible workers came out of this training and I would like to see this training extended to a larger number of personnel in all districts."

For more information, contact: **Victor Caceres** at Vac5@cdc.gov.



Felix Boa Yapo, Director General of the Ministry of Health, awarding a well-deserved certificate of completion of the FETP-STEP course to Dr. Ngouessan Kouakou Jean-Claude, public health physician, from the district of Touba, Yamoussoukro, February 11, 2015.

EBOLA VIRUS DISEASE



WHO and UNICEF Partner with CDC and Pakistan FELTP to Build Capacity for Responding to Polio and Ebola Outbreaks

Submitted by: Rana Jawad Asghar, MD, MPH, Pakistan FELTP Resident Advisor

Now more than ever before, international public health agencies are working closely with ministries of health and other partners towards a common goal: to strengthen each country's ability to prepare for and respond to infectious disease outbreaks.

In Pakistan, polio is a disease of international public health concern and a global health security threat that requires close cooperation and support from multiple partners. The Pakistan Field Epidemiology Training Program (P-FELTP) brings all of these partners together to work toward a shared vision of polio eradication in the areas of the country at highest risk.

Recently, the P-FELTP organized a five-day training workshop in Islamabad to train new National Stop the Transmission of Polio (NSTOP) officers, fellows, and alumni. NSTOP officers received training on polio eradication and were also provided with a short course on investigating and responding to Ebola outbreaks.

Thankfully, Pakistan has not had any Ebola cases during the current epidemic. Previously, the P-FELTP organized an Ebola training for the Pakistan Army because it has soldiers stationed in West Africa and manages a field hospital in Nigeria. Ebola was added to the curriculum for the current group of P-FELTP fellows because they play a critical role in any outbreak response in their districts. Building skills in Ebola detection and infection control ensures the fellows are prepared for any possible imported cases of Ebola.

In total, 51 doctors and public health professionals participated in the workshop, which was jointly conducted and facilitated by WHO, UNICEF, and the P-FELTP. Results from pre- and post-tests showed a 15% increase in the participants' knowledge and skills in infection control and Ebola outbreak investigation and response.

The close cooperation of multiple international partners was appreciated at the highest level when the Health Minister and Deputy Surgeon General of the Pakistan Army attended the closing ceremony for the training, where final certificates were distributed. The ceremony was chaired by the Honorable State Minister for Health, Madam Saira Afzal Tarar; Deputy Surgeon General of the Pakistan Army, Major General Asif Sukhera; senior WHO advisor on Polio eradication, Dr. Elias Durray; and USAID Deputy, Dr. Anna McCurry.

For more information, contact: **Dr. Rana Jawad Asghar** at bvv9@cdc.gov.



Concluding and certificate distribution ceremony chaired by (left to right) Dr. Kamaluddin Soomro, Dr. Rana Jawad Asghar, FELTP/CDC Resident Advisor, Major General Asif Sukhera (Deputy Surgeon General Pakistan Army), Honorable State Minister for Health Madam Saira Afzal Tarar, Dr. Elias Durray, Senior WHO advisor on Polio Eradication, and Dr. Anna McCurry, USAID Deputy.



NSTOP and P-FELTP fellows engaged in breakout sessions during the Polio Eradication and Ebola outbreak investigation workshop in Pakistan, December, 2014.



Dr. Rana Jawad Asghar, Resident Advisor, P-FELTP/CDC co-facilitating training workshop on Polio Eradication and Ebola outbreak investigation and response, Pakistan, December 2014.

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WHO and UNICEF Partner ...

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NSTOP and FELTP team who participated in the Polio Eradication and Ebola outbreak investigation workshop in Pakistan, December, 2014.



Dr. Wende, WHO Training Coordinator, and Dr. Mumtaz Laghari, Deputy National Coordinator, NSTOP, FELTP



Mr. Keith Feldene, Campaign Coordinator, WHO



Ms. Saria, Campaign Support Officer, UNICEF



Dr. Abdurahman, WHO



Dr. Malik, WHO, PTP Coordinator



Dr. Salman, Laboratory Virologist, WHO



Dr. Rana Safdar, Emergency Coordinator, EOC, Pakistan, NPM, EPI



Dr. Mirza Amir Baig (FELTP)



Ms. Mehwish Syed, Federal Training Officer, UNICEF



Dr. Rana Jawad Asghar (FELTP)

FETP in Action



Veterinarian Hasan Alfaif, takes samples from a camel during the first reported Middle East Respiratory Syndrome Coronavirus case, Haramout, Yemen, April 2014. Submitted by of Awadh Mohammed Ba Saleh.



China FETP resident Chaowu Wu undergoes disinfection procedure during an outbreak investigation of an Himalayan Marmot plague in Ba Tang, Sichuan, China, July 15, 2014. Submitted by Chaowu Wu.



Pakistan FELTP resident Dr. Najma Javed checks for the Bacillus Calmette-Guérin (BCG) vaccine scar on the shoulder of a young child. Submitted by Rana Asghar.



Nigeria FELTP resident Dr. Mariam Florence Ogo examines a 12-year-old child affected by polio, Manjekin, Adamawa, Nigeria, April, 2014. Submitted by Mariam Florence Ogo.



China FETP residents collect environmental samples in a poultry market in Dongguan, Guangdong, China, January 14, 2014. Submitted by Shuang Zhao.



Cambodia FETP resident Sreang Kosal investigates a suspected foodborne illness outbreak among 35 monks at a Buddhist temple, Sway Rieng, Cambodia, May 2014. Submitted by Amy Elizabeth Parry.



During a polio eradication campaign in Egypt, an FETP resident supervises the vaccination of children at a health office in Gharbia, April 2014. Submitted by Mai Mohamed.



A laboratory technician prepares to collect a blood sample from a young child recovered from acute encephalitis illness, Muzaffarpur, Bihar, India, June 25, 2014. Submitted by Arghya Pradhan.



Philippines FETP residents work with the WHO in Sultan Kudarat, Mindanao, Philippines on the investigation of an outbreak associated with the death of 11 people and 10 horses, May 2014. Submitted by Katrina Ching.



Bangladesh FETP fellow, Dr. Rabeya Sultana interviews a patient during a cholera outbreak in Chuadanga, Bangladesh. Submitted by Rabeya Sultana.



Children at an elementary school in Bukittinggi, West Sumatra, Indonesia show their fingers marked with ink, indicating that they have taken the medication against filariasis. Submitted by Eka Budi Satria.



FETP residents in Indonesia conduct an outbreak investigation of leptospirosis affecting farmers in the Boyolali District, Indonesia, May-June 2014. Submitted by Evi Susanti Sinaga.



Bangladesh FETP resident Dr. Samsad Rabbani Khan interviews a patient with a lesion under his left eye from exposure to cutaneous anthrax, August 27, 2014. Submitted by Samsad Rabbani Khan.



India EIS officers provide staff from the Government Hospital in Chennai, in Tamil Nadu, India with training on how to operate a fire extinguisher. Submitted by Mohan Kumar.



Nigeria FELTP resident and two data collectors hike down an extremely difficult terrain in Sokoto, Nigeria to collect immunization data from underserved settlements. Submitted by Mariam Florence Ogo.



FETP residents in Indonesia conduct an outbreak investigation of leptospirosis affecting farmers in the Boyolali District, Indonesia, May-June 2014. Submitted by Evi Susanti Sinaga.



Nigeria FELTP resident Dr. Mariam Florence Ogo administers oral polio vaccine to a child at an underserved farming and pastoring community in Pakka, Adamawa, Nigeria. Submitted by Dr. Ogo.



Iraq FETP graduate Wisaam Altaai completes a health assessment visit at a displacement camp in Diyala, Iraq. Submitted by Wisaam Altaai.



Entomologists with the Yemen FETP team collect samples from a stagnant water basin during an outbreak investigation of dengue fever in Albulaidah, Yemen, November, 2014. Submitted by Aref Al Ahmadi.



A teacher in a Hidayatullah Islamic Boarding School in Sleman, Indonesia holds a child affected by measles. Submitted by Eddy Purba.



Dr. Ambreen Chaudhri, N-STOP field epidemiologist/FETP officer, checks for finger marks to verify vaccination status for oral polio vaccine, Pakistan, November, 2014. Submitted by Ambreen Chaudhri.



A child in the pediatric ward of the National Psychiatrist Center in Bishkek, Kyrgyzstan. Submitted by Dilyana Nabirova.



Bangladesh FETP fellow Dr. Samsad Rabbani Khan interviews a family member of a child with Japanese Encephalitis, May 31, 2014. Submitted by Samsad Rabbani Khan.