

Updates from the Field

Protecting Health and Building Capacity Globally

Spring 2014, Issue 14

CDC joins hands with other USG agencies, WHO, Ministries of Health and other partners in Global Health Security Agenda Launch

Submitted by Capt. Jordan Tappero, MD, MPH, CDC

“Today’s interconnected world means we’re all linked by the air we breathe, the water we drink, and the food we eat. Global travel speeds the rate at which infectious disease threats can be delivered to our doorstep,” said Dr. Thomas Frieden, Director of the U.S. Centers for Disease Control and Prevention, (CDC) when talking last year about the spread of measles. The interconnectedness of our world and the risks brought by global travel and trade has led to growing concerns about global health security. These concerns are well-founded as demonstrated by the emergence and spread of dangerous pathogens such as H7N9 influenza in China and Middle East Respiratory Syndrome coronavirus (MERS-CoV) in Saudi Arabia. Because microbes are often no longer isolated to one country, the U.S. government (USG), in collaboration with the World Health Organization (WHO), the Food and Agriculture Organization (FAO), the World Organization for Animal Health (IOE), and the support of 26 other nations has formally committed to a new [Global Health Security Agenda](#) (GHS).

In support of the GHS, the U.S. Department of Defense (DOD), Defense Threat Reduction Agency, and CDC have devoted \$40 million to fund Global Health Security (GHS) activities in up to 10 countries in fiscal year 2014. CDC’s Division of Global Health Protection



Secretary Kathleen Sebelius, Department of Health and Human Services (right) looks on as Dr. Tom Frieden, Director of the U.S. Centers for Disease Control and Prevention opens a meeting on February 13, 2014, of 27 countries and 3 international organizations (WHO, OIE, and FAO) to launch the Global Health Security Agenda (GHS). Over the next five years the United States plans to work with at least 30 partner countries (totaling at least 4 billion people) to prevent, detect and effectively respond to infectious disease threats, whether naturally occurring or caused by accidental or intentional releases of dangerous pathogens.

(DGHP) is leading implementation of CDC’s GHS activities. The overarching mission of the USG’s GHS is to prevent avoidable catastrophes and epidemics, detect threats early, and respond to outbreaks as rapidly and effectively as possible. Specifically, GHS aims to respond to the threat of emerging diseases, as well as drug-resistant infections and intentionally created/altered infectious agents. The USG recognizes that in order to achieve GHS, all countries need to have the capabilities to rapidly and effectively detect and respond to infectious diseases and other health threats. With more than 80% of WHO Member States failing to meet the International Health Regulations (IHR) compliance by the June 2012 deadline, the

Continued on page 2

Inside this issue:

Disease Prevention

- ▶ CDC joins hands with other partners in GHS Launch 1

Highlights of investigations

- ▶ CDC Responds to the Spread of Chikungunya in the Americas 3
- ▶ Monkeypox in the Democratic Republic of Congo 5

Partnership Matters

- ▶ Motorcycle Helmets as a Vaccine: CDC and Asia Injury Prevention Foundation 6
- ▶ CDC response to Typhoon Haiyan 7

Training and Resources

- ▶ Improving disease prevention, detection and response capacities through IDSR eLearning course 8
- ▶ Emergency Operations Centers: Health Security for an Interconnected World 10

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 joins with partners in Global Health Security Agenda Launch *continued from page 1*



Dr. Tom Frieden, Director of the Centers for Disease Control and Prevention (left), Secretary Kathleen Sebelius, Department of Health and Human Services (center), and Rand Beers, Under Secretary of Homeland Security (right), represent the U.S. government at the launch of the Global Health Security Agenda on February 13, 2014. Twenty-six countries joined the US, committing to accelerate progress toward a world safe and secure from the threat of infectious disease: Argentina, Australia, Canada, Chile, China, Ethiopia, Finland, France, Georgia, Germany, India, Indonesia, Italy, Japan, Kazakhstan, Mexico, Netherlands, Norway, Republic of Korea, Russian Federation, Saudi Arabia, South Africa, Turkey, Uganda, United Kingdom, and Vietnam.



Lab workers in Vietnam run diagnostic tests. Photo: Niki Pham/CDC Vietnam



In September 2012, Uganda epidemiologists collect virus samples from the field, to test for deadly Ebola virus. Photo: Justin Williams/CDC

CDC conducted a similar demonstration project in Vietnam. Working together with the MoH, CDC provided technical assistance for emergency operations, information systems and laboratory training to strengthen existing capacity. A culturally tailored emergency operations handbook containing internationally-recognized functions and procedures for response management, as well as an EOC, was created. An electronic communicable disease surveillance system, Epi Info TM 7.0, was also incorporated into the training to

U.S. in partnership with other countries and WHO, are committed to disease surveillance, detection and response capacity building activities such that all countries can meet IHR compliance.

As part of its 2013 GHS activities, CDC completed demonstration projects in Uganda and Vietnam to strengthen public health emergency detection and response capacities. In Uganda, CDC collaborated with the Ministry of Health (MoH), leveraging the existing health system capacity to enhance laboratory systems, communications and information systems, as well as to develop a public health emergency operations center (EOC). The Ugandan MoH chose three priority diseases for focus: multidrug-resistant (as well as extensively drug-resistant) tuberculosis, cholera, and viral hemorrhagic fever (including Ebola). CDC provided laboratory training in addition to conducting drills to test the capabilities of the EOC. The result of the demonstration project included the creation of a comprehensive MoH plan to detect priority diseases, an increase in laboratory response and effectiveness, as well as the creation of Uganda's own EOC. The project resulted not only in a stronger and more prepared public health system in Uganda, but also increased the region's ability to respond to new and reemerging pathogens more rapidly and effectively.

enhance bio-surveillance proficiencies. CDC conducted drills at the end of the project, with similar enhancements being made to GHS capabilities and emergency management.

The demonstration projects in Uganda and Vietnam are just two examples of the work CDC is doing to enhance GHS. Over the next five years, with additional funding, CDC's goal is to continue to work with partners across the globe, training up to an additional 10 countries in capacities such as field epidemiology and new diagnostic tests, as well as increasing capacity in emergency management and pathogen detection. Our increasing interconnectedness means that GHS is a global effort, one that relies on extensive partnerships in order to achieve our goals to prevent, detect, and respond to emerging and reemerging diseases. "Global health security is a shared responsibility," says Kathleen Sebelius, U.S. Health and Human Services Secretary, "no one country can achieve it alone." As we have already seen with Uganda and Vietnam, a small investment can go a long way in helping countries meet IHR compliance and create a safer and more secure world.

For further information, please contact Dr. Jordan Tappero, Director, Division of Global Health Protection, Center for Global Health, CDC. at jwt0@cdc.gov.

Highlights of Investigations

CDC Responds to the Spread of Chikungunya in the Americas

Submitted by: Catherine Chow, MD, MPH, Serena Fuller, MPH, and Erin Staples, MD, PhD

CDC learned of the first two locally-transmitted cases of chikungunya on the Caribbean island of St. Martin on December 6, 2013. Although imported cases of chikungunya had been reported in the Americas among recent returning travelers, the infected patients in St. Martin had no recent travel history and were therefore the first cases of local (autochthonous) transmission of chikungunya virus reported in the Western Hemisphere.

Chikungunya is a mosquito-borne viral disease characterized by fever and joint pain. Chikungunya often occurs in large outbreaks with a high attack rate; during outbreaks in populations without prior exposure to the chikungunya virus, one-third to three-quarters of the population may become infected with the virus. Although death is rare, the acute joint pain can be debilitating and can persist in some people for months or years. There is no vaccine or specific treatment for chikungunya. The mosquitoes that transmit the chikungunya virus disease are present in many countries in the Americas, therefore the autochthonous transmission of chikungunya in St. Martin raises concerns about the potential spread of the virus in the Americas.

Historically, chikungunya virus has shown rapid global spread over the past decade. First identified in East Africa in the 1950s, the virus caused sporadic cases in Africa, and large urban outbreaks in Thailand and India during the 1960s and 1970s. Starting in 2004, a large outbreak occurred on the Kenyan coast that contributed to the further spread of the virus throughout islands in the Indian Ocean, India, and parts of Southeast Asia. Traveler-related cases also introduced the virus into Italy and France, resulting in autochthonous transmission, with several hundreds of chikungunya cases, in Europe. More recently there have been large outbreaks of the disease in Pacific Ocean islands.

Since 2006, experts in CDC's Division of Vector-Borne Diseases (DVBD), in collaboration with the Pan American Health Organization (PAHO), have been preparing for the possible introduction of chikungunya to the Americas. They developed a regional surveillance and response plan, a diagnostic test training and proficiency evaluation program for regional reference laboratories, and traveler health notices for chikungunya outbreaks in other regions. DVBD has provided training and supplies to strengthen the regional reference laboratory network, producing a stockpile of diagnostic tests for rapid distribution.

Upon the finding of the first autochthonous chikungunya cases in the Americas, DVBD, in coordination with PAHO, has shared



Photo of *Aedes aegypti* mosquito feeding on a human.

Chikungunya is a mosquito-borne viral disease characterized by fever and joint pain. Although death is rare, the acute joint pain can be debilitating and can persist in some people for months or years.

chikungunya virus test controls and reagents as needed, as well as has provided confirmatory testing in support of the Caribbean Public Health Agency (CARPHA) and others. CDC's Global Disease Detection (GDD) Center for Central America has been assessing laboratory capacity in the region

to identify areas for capacity building. Within a week of first notice of chikungunya cases in the Americas, DVBD had alerted state and local authorities in the U.S. and contacted domestic laboratories performing chikungunya virus testing to alert them about the potential for increased demand in testing. A CDC Health Advisory, providing information to public health officials and clinicians (including cruise ship directors) on how to recognize, manage, and report chikungunya in travelers returning from the Caribbean was released through the Health Alert Network (HAN) on December 13. A CDC press release issued December 18 urged U.S. travelers to the Caribbean to be vigilant for symptoms consistent with chikungunya. Approximately 9 million U.S. travelers visit the Caribbean each year. Most recently, a CDC Clinician Outreach Communication Activity (COCA) call was held in February to maintain vigilance among the medical and public health community.

PAHO-CDC teleconferences were quickly initiated to share information and discuss urgent laboratory needs in the region to enable the rapid detection of patients infected with chikungunya and timely implementation of prevention and control measures. These teleconferences which include CARPHA, Public Health Agency of Canada, European Centre for

Continued on page 4

Highlights of Investigations

Chikungunya in the Americas

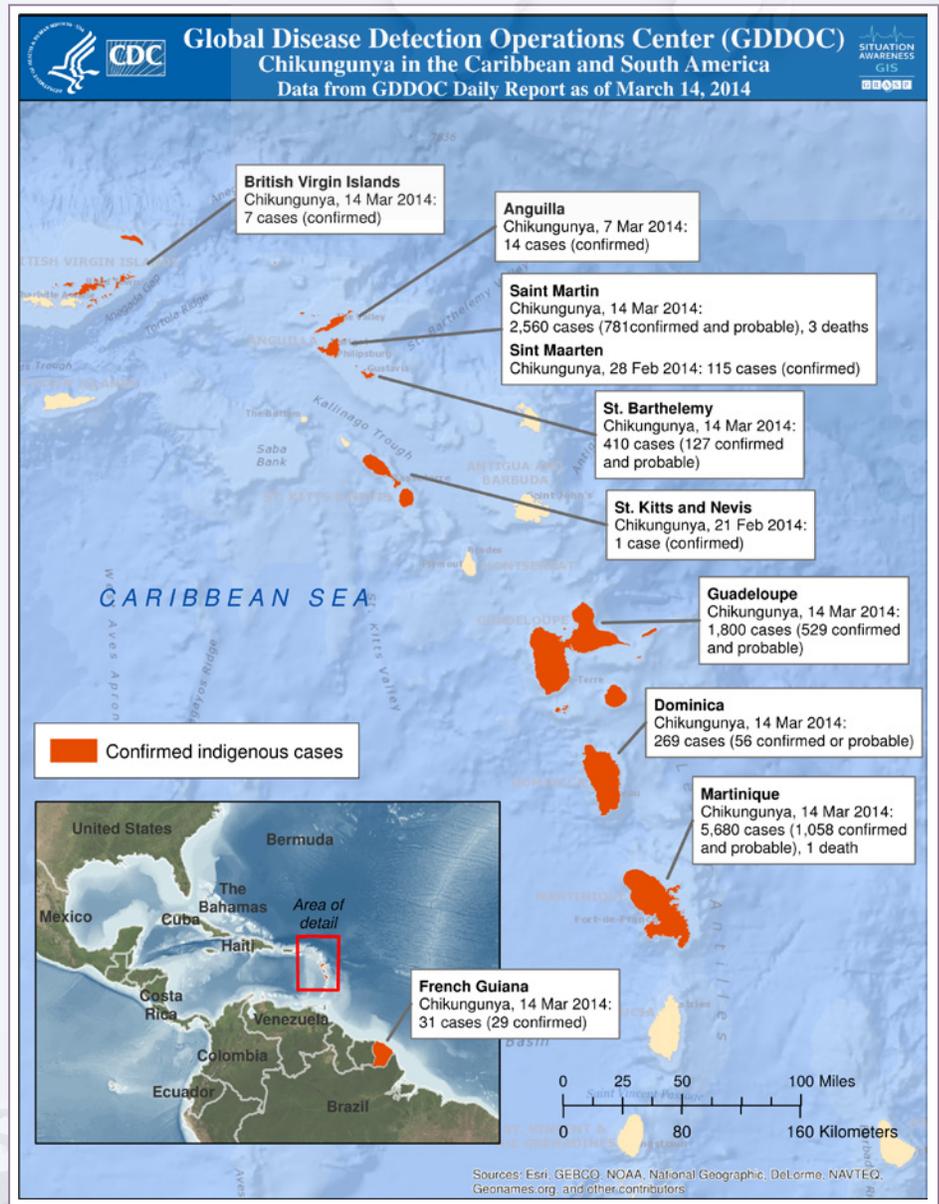
continued from page 3

Disease Prevention and Control, Public Health England, British and U.S. Virgin Islands, and Puerto Rico, have enabled international and domestic public health partners to share case report updates, coordinate laboratory testing, and review communication products. In addition to the official information received from PAHO and European colleagues, the GDD Operations Center scans the media for newly reported cases in media pending official confirmation for early notification of the CDC community regarding new areas reporting locally transmitted chikungunya cases.

As of March 14, more than 10,800 suspected cases and 2,727 laboratory confirmed cases of chikungunya since early December have been reported to PAHO from countries in and around the Caribbean. Local transmission has occurred in St. Martin, St. Maarten, St. Barthélemy, Guadeloupe, Martinique, the British Virgin Islands, Dominica, Anguilla, St. Kitts and Nevis, and French Guiana. Cases among travelers to the Caribbean have also been reported by several countries in the region.

The introduction of chikungunya into the Caribbean illustrates how quickly diseases can spread with international travel. The actions taken to date by CDC exemplify how the agency protects the United States and the world from infectious disease threats by building capacity and establishing networks to rapidly detect and respond to outbreaks in collaboration with international partners to ensure global health security.

For more information, please visit <http://www.cdc.gov/chikungunya/>.



Map of current outbreak in Caribbean by GRASP and GDDOC, "Chikungunya in the Caribbean and South America, data as of March 14, 2014."

Highlights of Investigations

Monkeypox in the Democratic Republic of Congo

Submitted by: Yassa Ndjakani, MD, MPH, Andrea McCollum, PhD and Catherine Chow, MD, MPH, CDC

On October 14, 2013, CDC's office in Kinshasa, Democratic Republic of Congo (DRC) was contacted by the Ministry of Health about an unusually high number of suspected human Monkeypox cases and deaths in the Bokungu health zone, located in the central part of the country. Based on the past trend of 6 to 9 cases each year in Bokungu, a surprising 65 Monkeypox cases were reported from August-October 2013 causing the Ministry to be concerned and request assistance from CDC.

Human Monkeypox virus is a zoonotic Orthopoxvirus, causing illness that can look very similar to smallpox; the majority of cases occur in Central Africa. Between 2011 and 2012, no deaths had been reported in Bokungu, yet within this three 3 month period, there had been eight deaths. Staff from the district Monkeypox surveillance office quickly travelled to Bokungu to collect specimens; 24 of 25 specimens yielded positive results for Orthopoxvirus, the genus of poxviruses, including Monkeypox virus.

At the invitation of the Ministry, CDC Monkeypox experts from the Poxvirus and Rabies Branch with logistical and financial support from CDC's Global Disease Detection Operations Center, were deployed from Atlanta. The CDC team joined personnel from the Kinshasa School of Public Health, Institut National de Recherche Biomédicale, UniKin, CDC-DRC, and two-residents of the newly established DRC Field Epidemiology Laboratory Training Program (FELTP). The DRC FELTP started in February 2013 with its first cohort of 12 residents.

The 31 member team assembled in Bokungu on December 8 and worked collaboratively to establish four primary Monkeypox response activities: epidemiologic investigations, health facility assessments, community outreach, and animal surveillance. During the ensuing weeks, the team's accomplishments included:

- Interviewing and assessing over 60 suspect human cases for Monkeypox (13 confirmed);
- Evaluating household transmission and community acquisition of the virus;
- Assessing infection control, patient care and the capacity for Monkeypox case recognition in 19 health facilities;
- Educating more than 2,000 community members about Monkeypox disease basics; and
- Collecting animal specimens in case households and in the area to assess potential sources for virus transmission.



FELTP resident, Jacques Likofata obtaining a filter paper blood specimen from a household contact of a suspect monkeypox patient. This specimen will be used to test for Orthopoxvirus antibodies.

While conclusions are not finalized yet, preliminary findings suggest that human-to-human transmission played a large role in this outbreak.

Since around 1980, throughout Africa, there has been a discontinuation of routine smallpox vaccination (protective against Orthopoxvirus infections including Monkeypox) and a reported increase in Monkeypox cases, mostly in DRC, is being detected. Disease detectives need additional data to better understand the cause of this trend, including whether the increase in cases is due to the smallpox vaccine no longer being given or additional factors. Each outbreak investigation provides more clues regarding the changing epidemiology of modern Monkeypox disease activity. The Ministry of Health, the DRC FELTP and CDC will continue to collaborate in these investigations whenever possible.



FELTP resident, Jacques Likofata, and Epidemic Intelligence Service Officer, Dr. Leisha Nolen conducting an interview with a household.



Dr. Joelle Kabamba (CDC-Kinshasa) performing outreach to school children.

The data collected during this investigation will be invaluable in the years to come.

For further information, please contact Dr. Yassa Ndjakani, FELTP Resident Advisor at xzt7@cdc.gov

Motorcycle Helmets as a Vaccine: CDC and Asia Injury Prevention Foundation Partner in Cambodia and Uganda

Submitted by: Dave Ederer MPH, Erin Parker PhD, David Sleet PhD, CDC

In many low- and middle-income countries, motorcycles are a primary mode of transportation. Motorcycles are relatively inexpensive, easy to maneuver through crowded streets, and use less fuel than automobiles. However, motorcyclists are frequently at higher risk of crashes, injuries, and death.

Worldwide, road traffic injuries are the leading cause of death for young people (15-29 years of age). Motorcycles accounted for nearly one in four road traffic deaths globally in 2010. Motorcyclists who properly wear a helmet can significantly reduce their risk of death and injury.

Recognizing that vaccines are a well-known effective public health intervention, the Asia Injury Prevention Foundation (AIP) developed the Global Helmet Vaccine Initiative (GHVI) to promote helmet use as an affordable and effective “vaccine” to prevent the most severe, long lasting effects of road traffic crashes, according to Greig Craft, the CEO of AIP in Vietnam. Over the past three years, CDC has partnered with AIP to evaluate GHVI’s expansion to Cambodia and Uganda. CDC supports research and evaluation efforts through direct technical assistance to GHVI staff in every phase of their work – from developing surveillance tools to analyzing motorcycle helmet observation data. CDC helped identify high risk populations, barriers to motorcycle helmet use, and effectiveness of the program.

Cambodia’s motorcycle helmet law does not require passengers, including children, to wear helmets. As a result, few passengers wear helmets. AIP’s efforts in Cambodia thus focus on increasing passenger helmet use. GHVI’s school-based component, *Helmets for Kids*, has been particularly successful. Motorcycle helmet observations conducted at schools before the intervention program reported that less than 1% of students wore helmets. Helmet observations conducted 10-12 weeks after the Helmet for Kids intervention found that motorcycle helmet use increased to 86%, on average, at intervention schools while remaining less than 1% at schools without the intervention.

In Uganda, many motorcycles operate as taxis, locally known as “boda bodas.” GHVI efforts focus on these high-risk motorcycle users. Helmet observations at taxi stands where motorcycle riders participated in GHVI road safety workshops and received helmets



Cambodian students participating in the Helmets for Kids program observe a mural illustrating proper helmet use. (Photo courtesy of the Asia Injury Prevention Foundation)



Motorcycle taxi operators (“boda boda”) leave a Global Helmet Vaccine Initiative (GHVI) workshop wearing their newly issued helmets. (Photo courtesy of the Asia Injury Prevention Foundation)

showed an increase in helmet use by motorcycle riders from 31% to 57%, on average, in 2012.

Recently, support has been marshalled to expand programs like these in other countries. As GHVI gains popularity abroad, CDC continues to provide technical support to prevent motorcycle injuries and, thereby, increase the health and well-being of communities.

Motorcycle helmet promotion can be achieved with small investments in education and helmet distribution programs. NGOs and other organizations can play a critical role in implementing effective programs to increase helmet use.

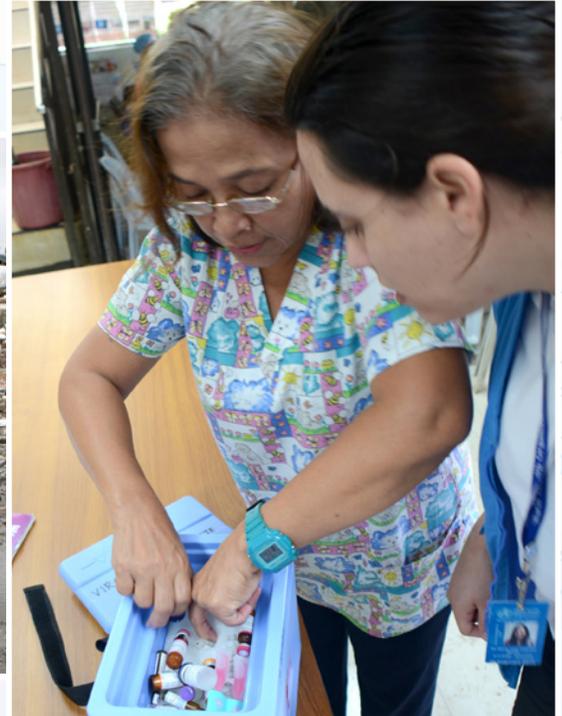
For further information, please contact Erin Parker, Ph.D. (vig4@cdc.gov) and Dave Ederer, M.P.H. (xhj2@cdc.gov).

Emergency Response and Recovery: Typhoon Haiyan, Phillipines

Submitted by: Benjamin Levy, MD, Preetha Iyengar, MD, Jolene Nakao, MD, MPH, Julia Smith Easley, MPH, Joseph Woodring, DO, MPH, CDC



In Tacloban the damage from Typhoon Haiyan was devastating.



A WHO member is overseeing the vaccinations that a nurse from the Tacloban City Health Office will be administering later that day. In preparation for the measles vaccine campaign, she has measles, vitamin A and oral polio ampoules in the portable vaccine cooler.

In November 2013, Typhoon Haiyan struck the eastern side of the Philippine Islands, home to 11 million people. The storm, with sustained winds of 195 mph and gusts up to 240 mph, is the strongest typhoon to strike landfall in recorded history. Typhoon Haiyan also created a 20 foot tall, tsunami-like storm surge, which further decimated the coastal communities. More than 6,000 people lost their lives and an estimated 4 million people were displaced from their homes by the storm.

In the wake of the disaster a large international relief effort was mobilized. CDC deployed experts in epidemiology to provide assistance in the post-disaster response. CDC contributions to the relief efforts have included responding to vaccine shortages and an outbreak of measles, preparing for potential infectious disease outbreaks including cholera and other diarrheal diseases, and dengue. CDC is also providing technical support to the World Health Organization (WHO) and the Ministry of Health as part of the Emergency Management Team to help strengthen and implement emergency disease surveillance systems.

A lack of electricity in impacted areas caused critical failures in the refrigeration of vaccinations. Vaccine supply and distribution were halted in these areas, impacting 1.8 million children needing life-saving childhood vaccines. CDC worked with the Regional Director of Health and UNICEF to restore routine immunization services and rehabilitate the region's overall vaccination system.

The impacted areas have been involved in an outbreak of measles. In response to the outbreak, CDC worked with partners to implement immunization

campaigns for those most at risk and helped UNICEF secure enough measles vaccine to immunize 80,000 children. As of February 2014, more than 78,000 children (6-59 months) were immunized against measles.

The impacted region is also at increased risk of [cholera](#) and other diarrheal diseases due to damage to the water supply infrastructure, and to [dengue](#) due to vector breeding sites formed by deposited debris. In coordination with the WHO and the Philippine Department of Health, CDC experts working within UNICEF developed rapid response plans for potential outbreaks of acute watery diarrhea and dengue. This team also conducted large-scale preparedness workshops for partners operating in the affected region. The program will be expanded beyond the original affected areas to a national preparedness scheme.

As of February 2014, the death toll from Typhoon Haiyan was 6,201 persons with 1,785 people still missing. Thousands of families remain in temporary tent housing. Electricity in the region is inconsistent. Rural communities and less traveled roads remain under-assisted and poorly recovered. The farming, fishing, timber, and tourism industries have been severely damaged.

As the affected region recovers, CDC remains committed to providing support to the Government of the Philippines.

For further information, please contact: Julia Smith at zrc2@cdc.gov

Training and Resources

Integrated Disease Surveillance and Response (IDSR) eLearning course *continued from page 8*

in November 2013 in Addis Ababa, Ethiopia. Participants included Field Epidemiology Laboratory Training Program (FELTP) residents, physicians, epidemiologists, researchers, veterinarians and pharmacists from more than 10 countries in Africa. Feedback from the participants was very favorable.

- 99% of the participants agreed that the content was relevant and the learning materials address a need or gap in their knowledge
- 97% of the participants thought that the delivery method was appropriate and the course was visually appealing
- 97% of the participants agreed that the navigation icons were clearly laid out
- 95% of the participants agreed that they will be able to apply the knowledge gained from this activity to improve performance

The AFENET conference provided an excellent opportunity to receive valuable input from segments of the target audience. All suggestions and comments collected were carefully reviewed and shared with the development group to ensure improvements to the course units; suggestions included making the course available to training programs such as FELTPs or universities.

The course is currently in the final stages of development, and the IDSR team is working closely with instructional designers from CDC's Center for Surveillance, Epidemiology and Laboratory Services (CSELS). A series of formal field tests are expected to begin in April 2014. The final course will consist of interactive course maps, instructional videos and real life case studies. French and Portuguese versions will also be developed for dissemination in the near future.

Overall, the pre-test units were very well-received by the participants. A majority of participants even indicated that they wanted to be notified when the course becomes available online or in CD-ROM, indicating that the modules will be a valuable and much-used training tool in the future.

Stay tuned for more updates on the development of the course.

For further information, please contact Dr. Helen Perry at HAP5@cdc.gov.

Course Introduction

IDSR e-Learning Course Map

Select a unit below to go to its content. If this is your first time taking this course, please proceed in the order indicated. After successful completion of a unit, a check mark should appear. If you exit and then continue this course from the same computer, then your progress should be saved and you should be able to begin where you left off.

Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7
Identify Cases of Priority Diseases, Conditions, and Events	Report Priority Diseases, Conditions, and Events	Analyze and Interpret Data	Investigate and Confirm Suspected Cases, Outbreaks, and Other Events of Public Health Importance	Prepare to Respond to Outbreaks and Other Public Health Events	Monitor, Evaluate, and Improve Surveillance and Response	Supervise and Provide Feedback
✓	✓	✓	✓	✓	✓	✓

Please note that you must successfully pass each Unit Knowledge Check in order to access the final assessment for this course and receive your certificate of completion.

Please select a unit above to continue

Technical Guidelines | Glossary | Job Aids | BACK | NEXT

Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA 30333, USA
800-CDC-INFO (800-232-4636) TTY: (888) 232-6348 New Hours of Operation 8 am - 8 pm ET/Monday - Friday Closed Holidays - cdcinfo@cdc.gov

USA.gov Government Made Easy

IDSR eLearning course home screen



AFENET IDSR Booth at the UNCC exhibition area.

Emergency Operations Centers: Contributing to Global Health Security

Submitted by: Lise Martel, PhD, M.Ed, MPH, CEMR, and Peter Rzeszotarski, CDC

The proliferation of emerging and re-emerging infectious diseases combined with increased international travel presents unique challenges for global health security (GHS). Highly contagious pathogens are able to spread rapidly across international borders in infected travelers or on contaminated products. To ensure global health security, the International Health Regulations (IHR, 2005) requires that all countries have the appropriate surveillance, laboratory, and emergency management capacity to rapidly detect and respond to infectious diseases.

However, many countries are still unable to meet the IHR. Recognizing the public health importance of all countries being in compliance, the Centers for Disease Control and Prevention (CDC) is committed to helping countries increase their public health capacities to meet the IHR, thereby protecting the health of people around the world. As a part of its GHS capacity building activities, CDC's Global Health Security Branch (GHSB), in collaboration with CDC's Division of Emergency Operations (DEO), is helping Ministries of Health (MoH) to rapidly and efficiently respond to infectious disease emergencies.

CDC's GHSB and DEO are helping to develop Emergency Operations Centers (EOCs) in India, Uganda, and Vietnam. An EOC provides a centralized location where the MoH and their partners can communicate and collaborate during an emergency response, such as a disease outbreak or natural disaster. To be functional, an EOC requires investment in equipment, staff, and systems. The systems include having operational plans and procedures that can be used by trained EOC staff during a response to a public health emergency. CDC assisted MoH staff in all three countries to increase their emergency management capacity by providing training in concepts of emergency management, assistance for the development of plans, protocols, and procedures, and by using exercises to test the newly developed systems.

CDC assisted India's National Center for Disease Control (NCDC) in laying the foundation for an all-hazards public health response plan through the development of an infectious disease plan. The plan outlines NCDC's preparedness and response strategies and defines the role of the EOC during an infectious disease emergency. In Vietnam, CDC helped develop an EOC handbook that includes standard operating procedures and forms for daily management and operations of the EOC. In 2013, CDC and local MoH staff created drafts for the Emergency Management Program Framework, EOC Handbook, EOC Position Descriptions, Incident Management System training, and Watch Team Standard Operating Procedures and criteria for long-term EOC activation to support a chronic health crisis.

Multiple training activities and modalities have been employed across these three countries. In addition to dedicated training on



Members of the Uganda MoH Incident Management Team meet in the new Emergency Operations Center during a Meningitis outbreak.

various emergency management concepts in each country, staff from Vietnam and Uganda have participated in intensive two-week training immersions at the U.S. CDC. Vietnam is prepared to send staff to participate in a comprehensive six-month public health emergency management fellowship at the U.S. CDC.

In all three countries exercises were used to test the created plans and system enhancements. Activities in India included a table top exercise based on a scenario of an outbreak of Crimean-Congo Hemorrhagic fever, providing India's NCDC with an opportunity to practice information sharing and rapid response deployment, and to familiarize itself with its emergency operations center management system. Drills were conducted in Vietnam and Uganda to test and improve the procedures for disease recognition, communication, specimen transport, and EOC management of disease response. The Uganda exercise tested the country's increased capability and capacity to identify, track, test, and respond to three pathogens: viral hemorrhagic fever, multi-drug resistant tuberculosis, and cholera. In Vietnam, the exercise focused on practice of EOC functions in an emerging illness outbreak, including operations, planning, and information sharing capabilities at the national level.

While the three countries represent different stages in the EOC development process, they collectively embody global buy-in regarding the need for interconnected and appropriately scaled EOCs that are able to mobilize rapidly to respond effectively to public health emergencies. The global health security landscape is changing. As our world becomes increasingly interconnected through trade, travel, and technology, a constant cycle of prevention, detection, and response is required. A network of collaborating EOCs around the world will play an important role in ensuring global health security in a world where diseases know no borders.

For further information, please contact Dr. Lise Martel, at diz0@cdc.gov