

Updates from the Field

Protecting Health and Building Capacity Globally

Summer 2014, Issue 15

Global Health Security – Why does it Matter?

Submitted by Tom Frieden, MD, MPH, Director, CDC

The globalization of travel and trade of foods and drugs has increased opportunities for dangerous pathogens, which can arise anywhere in the world, to spread faster than ever. This poses serious threats to the United States as well as to other countries. We face a perfect storm of infectious disease threats that know no borders. New and deadly pathogens, such as H7N9 avian influenza and Middle East Respiratory Syndrome coronavirus (MERS-CoV), are emerging with increased frequency—and these diseases can travel across the globe in less than 24 hours.

That's why the launch of the Global Health Security Agenda (GHSA) earlier this year in Washington, D.C. and Geneva, Switzerland is so important. Experience has taught us that new, dangerous and highly mobile microbes—whether created by nature or by man—can weaken a robust nation and devastate less-prepared countries. Strengthening day-to-day public health programs and surveillance systems in each country is the best way to deal rapidly and effectively with inevitable emergencies, and why global cooperation and collaboration are critical to prevent, detect, and respond to health threats of all types.

Take MERS-CoV. It was first reported in Saudi Arabia in 2012; when it appeared in the U.S. in May of this year, we were prepared and took swift action.

Or take the 2003 SARS outbreak. Although only eight people in the U.S. became ill and none died, the six-month global outbreak left



Tom Frieden, MD, MPH, Director, Centers for Disease Control and Prevention (CDC).

“When CDC works with ministries of health and other partners to strengthen the public health infrastructure and build disease surveillance and response capacity in other countries, we also help keep the U.S. and the whole world safe and save lives.”

nearly 800 people dead worldwide with costs topping \$40 billion. With the expansion in air travel, infectious diseases can spread more rapidly and have a devastating global impact.

The GHSA will accelerate progress toward the goal of making people around the world safer against the threat of infectious disease epidemics. With such threats in mind, on May 5 and 6, RADM (Dr.) Scott Dowell, Dr. Joel Montgomery and I joined senior leaders from 36 countries and 4 international organizations in Helsinki, Finland, for the first GHS Commitment Development Meeting to accelerate progress toward implementing the GHSA. Discussions at the meeting

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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.

Global Health Security – Why does it Matter? *continued from page 1*

focused on making commitments that are measurable, substantive, and support the *WHO's International Health Regulations (2005)*.

As part of the GHS effort, the U.S. Centers for Disease Control and Prevention (CDC) and the Defense Threat Reduction Agency have jointly committed to work in 12 countries (Ethiopia, Georgia, India, Jordan, Kazakhstan, Kenya, Philippines, South Africa, Tanzania, Thailand, Uganda and Vietnam) to rapidly accelerate our shared goals. Work in these countries will build on the success of demonstration projects last year in *Uganda* and *Vietnam*. The President's Budget for Fiscal Year 2015

government agencies, and other stakeholders will develop and implement initial activities, develop country-specific 5-year GHS Strategic Plans, and develop an implementation plan for Fiscal Year 2015. All of these activities will be in alignment with the *GHS Agenda objectives and measures*.

In our interconnected world, we are all vulnerable to infectious disease threats such as MERS-CoV as well as new pathogens, such as the novel orthopox (a relative of cowpox) recently detected in the Republic of Georgia. The World Health Organization recently declared the spread of polio a public health emergency of international concern, the first such

declaration following the H1N1 influenza pandemic in 2009. Marburg, Ebola and many other infectious and deadly diseases are still out there ready to cross into a neighboring country or board a plane and cross the globe. Because no single country can achieve global health security by itself, the CDC is working 24/7 to assist with containing the spread of these deadly pathogens.

These examples underscore why the GHSA as well as programs such as the Epidemic Intelligence Service (EIS) and the Field

Epidemiology Training Program (FETP) are so important. EIS serves as a global model

for the FETP, which provides applied epidemiology training to health staff around the world. These EIS officers and FETP residents are the disease detectives who are our first line of defense.

CDC's work is only one part of the U.S. government's commitment to global health security. Other agencies contributing to this effort include the Department of State, Department of Agriculture, Department of Defense, and Agency for International Development. When CDC works with ministries of health and other partners to strengthen the public health infrastructure and build disease surveillance and response capacity in other countries, we also help keep the U.S. and the whole world safe and save lives. Working with other nations to ensure global health security is not an option, it's imperative. And it's the right thing to do.

Thomas R. Frieden, MD, MPH
Director, CDC, and
Administrator, ATSDR



On February 13, 2014, CDC helped to launch the Global Health Security Agenda (GHS) in Washington, D.C. and Geneva, Switzerland.

requests an additional \$45 million for CDC's global health security activities. For example, under the GHS, nations would receive necessary support to secure laboratories that contain potentially dangerous agents to reduce the threat of infectious disease outbreaks.

The GHSA will also help ministries of health establish career paths and training to build a public health workforce able to protect people from the threat of infectious diseases. Over the next five years, the GHSA aims to strengthen the health infrastructure of at least 30 partner countries and thus protect and improve the health and lives of more than 4 billion people. Within CDC, the GHSA is an agency-wide effort, with implementation activities being coordinated by the *Global Health Security Branch* in the Center for Global Health and involving programs and subject matter experts from across the agency.

CDC field staff and programs across the agency, in collaboration with ministries of health, other U.S.

Highlights of Investigations

South-South Collaboration: CDC and Kenyan FELTP Residents Investigate Ebola Outbreak in Liberia

Submitted by Wences Arvelo, MD, MSc – Kenya FELTP Resident Advisor

Despite the pouring rain, physical exhaustion, inherent danger, and endless stories of tragedies experienced while conducting the Ebola outbreak response in Liberia, Kenyan medical epidemiologists Drs. Elizabeth Mgamb, Athman Mwatondo and Shikanga Otipa, say they would do it all again!

The Ebola outbreak was initially reported to the World Health Organization (WHO) by the Guinea Ministry of Health (MoH) in February, 2014. The virus spread rapidly and within weeks over 100 cases and 66 deaths were reported. The virus spread to neighboring countries, resulting in eight cases and six deaths in Liberia. The U.S. Centers for Disease Control and Prevention's (CDC) National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), Viral Special Pathogens Branch in collaboration with the Center for Global Health (CGH), Division of Global Health Protection (DGHP), Global Disease Detection Operations Center quickly responded and supported the deployment of staff from Atlanta and trained Kenyan medical epidemiologists to assist their Liberian counterparts.

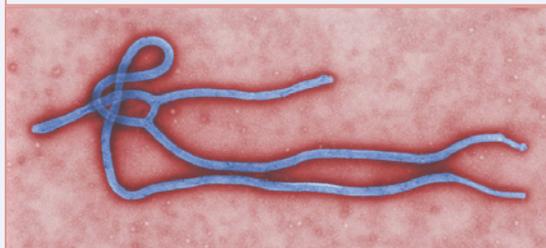
On April 25th, equipped with the necessary personal protective gear, medical supplies, communications equipment and their epidemiological training, Dr. Mgamb and Dr. Mwatondo, both current residents of the Kenya Field Epidemiology and Laboratory Training Program (FELTP)

accompanied by Dr. Otipa, Kenya FELTP graduate and current officer within Kenya's Disease Surveillance and Response Unit, were deployed to Liberia. Before departing, the team was briefed by Dr. Joel Montgomery, subject matter expert and CDC Kenya DGHP Director, who was also in Liberia the two weeks prior during the initial planning phase of the investigation. Working collaboratively with the Liberian MoH, and subject matter experts from WHO and CDC, the Kenyan epidemiologists acquired valuable knowledge and field experiences that will help them respond to similar hemorrhagic fever outbreaks that may occur in Kenya and other countries in the region.



Dr. Elizabeth Mgamb training healthcare workers on infection control practices in Foya District in northern Liberia on the border with Guinea.

Ebola virus disease (EVD), also referred to as Ebola hemorrhagic fever, is a severe and often fatal illness in humans. Ebola first appeared in 1976 in two simultaneous outbreaks in Yambuku, Zaire (now the Democratic Republic of Congo (DRC) and Nzara, Sudan.



Established in 2004 with support from CDC, the Kenya FELTP has matured and become a leading field epidemiology training program in Africa. In the past 10 years, 131 residents have been enrolled in the program resulting in a robust cadre of trained epidemiologists highly experienced in conducting outbreak investigations and implementing surveillance activities. As a result, when the Ebola outbreak erupted in West Africa, they were one of the first groups to respond. The Kenyan FELTP team assisted in the investigation and control of the outbreak in Liberia from April 25–May 11, 2014.

The objectives of the investigation were to: support line listing and case reporting; conduct contact tracing; develop cross-border surveillance strategies; and train healthcare workers on proper infection control procedures.

During the investigation, the Kenya FELTP team worked closely with Dr. David Blaney, a medical epidemiologist from CDC's NCEZID Bacterial Special Pathogens Branch. Sending the Kenyan FELTP residents to assist in the response not only increased the South-South collaboration but also will enable the residents to use their newly acquired knowledge and skills to identify and respond to future hemorrhagic fever outbreaks in Kenya and the region.

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Highlights of Investigations

Outbreak in Liberia *continued from page 3*

Waqo Boru, a graduate of the Kenya FELTP and currently acting head of the training program said, "We are very thankful for CDC's support in having Kenyan officers participate in the Ebola response, as this strengthens our national and regional capacity to respond to emerging and re-emerging threats in the future."

"To be part of a multi-disciplinary team coordinated by the Liberian Ministry of Health at the national level managing such a high profile outbreak was quite an interesting experience," said Kenya FELTP resident, Dr. Mwatondo. When outbreaks like this occur in Africa or in any part of the world, FELTP residents are the "boots on the ground" and stand ready to rapidly respond and support Ministries of Health in stopping the spread of deadly infectious disease outbreaks like Ebola. This is what they are trained to do. Their support and the knowledge gained through these real-life field experiences are invaluable.

Dr. Montgomery said, "The current outbreak in West Africa has claimed more than 200 lives. The efforts of partners including CDC, Medecins Sans Frontieres, and the WHO among many others have managed to suppress the spread of the virus, which has had a 50-90 per cent case fatality proportion in previous outbreaks. This event highlights the critical importance of the Global Health Security Agenda to increase national capacities to prevent, detect, and respond these health threats".

As of June 4, 2014, the total number of deaths in Guinea stands at 208, out of 328 cases. Recently, in neighboring Sierra Leone, 79 cases and 6 deaths have been reported to date, with most cases coming from areas near the Guinean-Sierra Leonean border. Since April 6, no cases of Ebola have been reported from Liberia.

Background

Ebola virus disease (EVD), also referred to as Ebola hemorrhagic fever, is a severe and often fatal illness in humans. Ebola first appeared in 1976 in two simultaneous outbreaks in Yambuku, Zaire (now the Democratic Republic of Congo) and Nzara, Sudan. Yambuku is a village near the Ebola River, giving the virus its name. Since then, Ebola outbreaks have occurred in both DRC and Sudan and several other countries in Africa, notably, Gabon, Uganda and the current outbreak in Guinea, Sierra Leone, and neighboring Liberia.

Transmission

The Ebola virus is transmitted from an as yet unidentified reservoir. Humans' infections have resulted from contact with the organs, blood, secretions, or other bodily fluids of infected animals. In Africa, infection has occurred through handling ill or infected chimpanzees and monkeys, and also possibly through contact with fruit bats, forest antelopes, and porcupines found in the rainforest. Ebola spreads through communities through human-to-human transmission through direct contact with blood, secretions, or other bodily fluid and cadavers of infected



Dr. Elizabeth Mgamb, Kenya FELTP resident, conducting medical records review during active case search in a health facility in Foya District in northern Liberia on the border with Guinea.

people. The virus can also be transmitted through indirect contact with environments contaminated with infected fluids.

Signs and Symptoms

Patients with Ebola often experience the sudden onset of fever, sore throat, muscle pain, and severe weakness. The onset of these symptoms can take as little as two days, but up to 21 days from infection with the virus. Only after this period of time, known as the incubation period, the patient becomes contagious. As the disease progresses, skin rash can develop, along with impaired liver and kidney function, diarrhea, and vomiting. In extreme cases, bleeding can occur externally, but more commonly internally. Patients who do succumb to infection with EVD normally die from frank shock due to multi-organ failure.

For more information, please contact Dr. Wences Arvelo at dwi4@cdc.gov.

Highlights of Investigations

Improving Immunization Coverage through Short Message Service (SMS) Reminders in Zimbabwe

Submitted by: Prof Mufuta Tshimanga, Zimbabwe FETP Director

Despite significant increases in routine immunization coverage worldwide since the launch of the Expanded Program on Immunization (EPI) in 1974, non-attendance for immunization appointments remains a global challenge. Low immunization coverage persists in sub-Saharan Africa due to failure by parents or caregivers to bring their children for immunization. The WHO estimated that in 2011, only 71% of children in sub-Saharan Africa completed the full course of three Diphtheria, Pertussis and Tetanus (3DPT) vaccinations in their first year of life. As a result, there is an urgent need to develop new and innovative strategies to fully immunize more children, especially those in hard-to-reach and vulnerable areas. The adoption of short message services reminders (SMS) has been shown to enhance attendance in some medical settings.

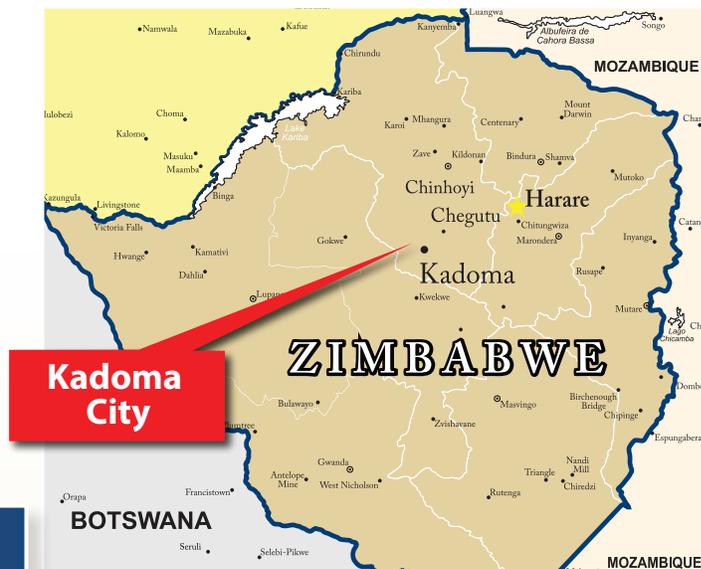


Figure 1: Map of Kadoma City, Zimbabwe.

Kadoma City population is 92,000 (CSO 2012); One hospital and 5 clinics; Expected deliveries per year – 2469.

reminders were sent. All women in both groups received routine health education on the recommended immunization schedule for their children and were issued with immunization cards post-delivery.

A total of 304 participants were recruited (152 for inclusion in the intervention group and 152 for the non-intervention group). (Figure 2) At 6 weeks, immunization coverage was 97% for the intervention group and 82% for non-intervention. At

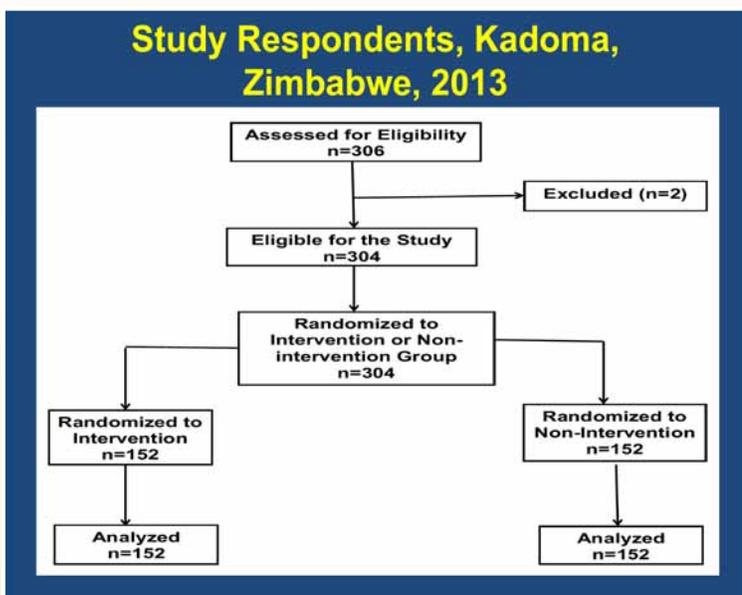


Figure 2: Study Respondents Kadoma City, Zimbabwe, 2013.

To investigate the effectiveness of SMS reminders for immunization in Kadoma City (Figure 1), a randomized controlled study was conducted at Kadoma City Clinics, Zimbabwe, in 2013 by Mr. Bangure Donewell, a recent graduate of the Zimbabwe Field Epidemiology Training Program (FETP). Through this study, he assessed the effectiveness of SMS reminders on improving childhood immunization coverage. He also determined the cost associated with the use of SMS reminders on childhood immunization in Kadoma, Zimbabwe. Women who were residents of Kadoma and delivered children at Kadoma City Clinics were recruited. In the intervention group, three SMS reminders were sent to mothers 7, 3 and 1 day before their children were scheduled for their 6, 10 and 14 week immunization visit. In the non-intervention group no message

Immunization Coverage at 6, 10 and 14 Weeks, Kadoma, Zimbabwe, 2013

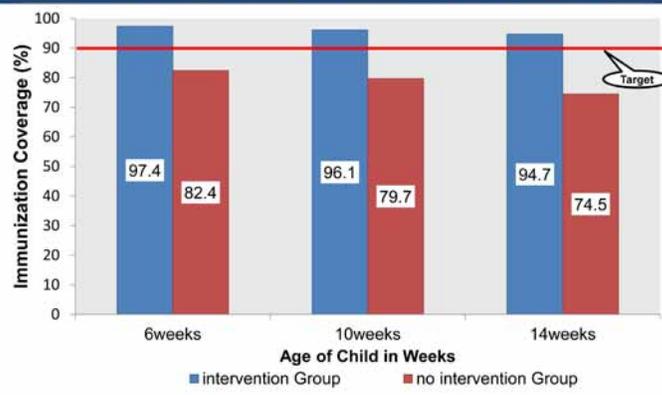


Figure 3: Immunization Coverage at 6, 10 and 14 Weeks, Kadoma, Zimbabwe, 2013.

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Strengthening Tobacco Control Surveillance in Pakistan: Experience from the Global Adult Tobacco Survey (GATS)

Submitted by: Samira Asma, DDS, MPH, Martine Chaussard, MPH and Lauren Bartell, MPH, CDC

Worldwide, tobacco use is responsible for approximately 6 million deaths per year, and is the single largest preventable cause of death and disease. In Pakistan, the WHO estimates that approximately 32% of adult men and 6% of adult women use tobacco products¹. Cigarettes are also becoming increasingly affordable in Pakistan; currently, a pack of 20 cigarettes costs less than USD \$2.00.

Pakistan is conducting the Global Adult Tobacco Survey for the first time, establishing an accurate baseline of tobacco use and key tobacco control strategies. In April 2014, training was held to enhance surveillance capacity.

To generate reliable and accurate data on the burden of tobacco and measure the impact of actions taken in response to this public health problem, the Global Tobacco Surveillance System (GTSS) was launched in 1999 and assists countries in establishing tobacco control surveillance and monitoring programs. Implementing GTSS fulfills obligations around tobacco control surveillance and monitoring for countries that have signed the WHO FCTC- a public health treaty. Pakistan has signed the WHO FCTC and is utilizing GTSS to evaluate MPOWER measures- an evidence-based technical package of strategies that reduce tobacco use.

A component of GTSS, the Global Adult Tobacco Survey (GATS) is a nationally representative household survey of adults aged 15 years and older that uses a standard protocol. GATS is active in 31 countries, covering 61% of the world's population. CDC is partnering with the Pakistan Ministry of Health, Pakistan Bureau of Statistics, and WHO to provide support for the implementation of GATS and thereby obtain a baseline on tobacco use and tobacco control indicators. To enhance country capacity in tobacco control surveillance and monitoring, CDC is offering ongoing training and technical assistance. CDC facilitated a training workshop in Islamabad, Pakistan on interviewing techniques, electronic data collection and management procedures. Electronic handheld devices and software were provided for survey implementation. Pakistan will use electronic data collection for the very first time to collect data from 9,856 households. Such capacity-building investments will contribute to efficiency and sustainability. Pakistan is scheduled to complete GATS by December 2014 and release



Colleagues from the Pakistan Bureau of Statistics participate in a CDC facilitated training on pretest methods and procedures for the Global Adult Tobacco Survey implementation.



Pakistan Bureau of Statistics and CDC in the field, conducting an interview with a Pakistani woman.



- M**onitor tobacco use & prevention policies
- P**rotect people from tobacco smoke
- O**ffer help to quit tobacco use
- W**arn about the dangers of tobacco
- E**nforce bans on tobacco advertising, promotion, & sponsorship
- R**aise taxes on tobacco

the results by June 2015, tentatively. GATS is supported by the Bloomberg Initiative to Reduce Tobacco Use, a program of the Bloomberg Philanthropies.

For more information on global tobacco control and GATS, please visit <http://www.cdc.gov/tobacco/global/>.

¹WHO. WHO report on the global tobacco epidemic: 2013. Geneva: World Health Organization, 2013.

As Haiti Cholera Cases Decline— Maintaining a Focus on Prevention

Submitted by Shelly Bratton, MPH, CDC, and Sean Kennedy, BA



Drinking water in Haiti is routinely collected from unsafe sources such as this river.

In October, 2010, cholera was recognized in Haiti for the first time in more than 100 years. With far less access to safe drinking water and appropriate sanitation than any other population in the Americas, Haitians were highly vulnerable and the outbreak quickly spread to all 10 departments of the country.

At the request of Haiti's Ministry of Public Health and Population (MSPP), CDC quickly responded by developing and implementing trainings for health workers on clinical care and prevention of cholera and by providing technical and financial support to MSPP to enhance laboratory capacity for cholera diagnosis, and to establish systems to track the epidemic. CDC also supported the evaluation of water, sanitation and hygiene (WASH) conditions in settlements for Haitians displaced by the January 2010 earthquake and provided emergency water treatment supplies that helped limit spread of cholera in the settlements. Building on the PEPFAR platform established to implement HIV/AIDS programs, CDC was able to use supplemental funds made available following the earthquake to provide direct support for cholera prevention and treatment. The case-fatality rate—originally above 4%—fell quickly and has been maintained at or below the international standard of 1%.

The epidemic has been massive; by the end of 2013, more than 700,000 cases and more than 8,000 deaths were reported. From 2011 through 2013, cases from Haiti accounted for more than half the reported cases of cholera in the world.

Over time, CDC support has expanded beyond the initial emergency response. CDC worked with the Government of Haiti and other partners such as the Pan American Health Organization and UNICEF to develop a national strategic plan for cholera elimination, provided technical and financial support to the national Directorate responsible for water and sanitation (DINEPA), helped establish a laboratory-enhanced sentinel surveillance system for cholera and other infectious diseases, and is supporting critical evaluation work related to cholera vaccines.

The efforts to improve water and sanitation are expected to have important health impacts beyond cholera control, since these are



During the emergency response to the cholera epidemic in Haiti, buckets and water treatment tablets were distributed to almost 100,000 households to allow treatment of household water supplies.

critical to control a broad range of waterborne and foodborne diseases such as hepatitis and typhoid fever. In conjunction with DINEPA and MSPP, CDC has helped assess the quality of drinking water supplies in both urban and rural communities and in collaboration with DINEPA and UNICEF is developing a national household water treatment strategy. CDC is directly supporting household water treatment interventions through a number of partners and is supporting the chlorination of small water systems in rural Haiti.

Cases of cholera have waned dramatically; the number of cases during the first 4 months of 2014 is 97% below the number during the same period for 2011. But there is no space for complacency. Dr. Eric Mintz, CDC epidemiologist and cholera expert explains that “for the first quarter of 2014, the numbers are at record lows. However, cholera remains a major public health problem in Haiti; it is likely to flare up again in the rainy season.”

Indeed, there is a clear need for a continued response. According to Dr. Barbara Marston, the lead for the Health Systems Recovery Team in the Emergency Response and Recovery Branch of CGH's Division of Global Health Protection that is coordinating CDC's support for public health interventions in the wake of the 2010 earthquake, “a great deal more remains to be done to address the underlying problems of lack of access to safe water and sanitation. We continue to work with MSPP, DINEPA, and partners to address these deficiencies over the long-term, and to maintain actions targeted at cholera prevention and control in the short-term.”

Improved access to safe drinking water, sanitation and hygiene—taken for granted elsewhere in the world—is required to achieve Haiti's goal of cholera elimination, but these services will also be the key to sustained reduction in diarrheal disease of all causes, and will serve as a cornerstone in Haiti's path toward overall improved public health and development.

For further information, please contact Dr. Barbara Marston at bxm5@cdc.gov.

June 20th is World Refugee Day!

Submitted by *Cyrus Shahpar, MD, MBA, MPH, Medical Epidemiologist, CDC*

Since 2000, the United Nations (UN) has recognized June 20th as World Refugee Day to call attention to the millions of displaced people around the world. This includes refugees, which according to the 1951 Refugee Convention are persons who "owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, are outside the country of his nationality, and are unable to, or owing to such fear, are unwilling to avail themselves of the protection of that country." It also includes internally displaced persons or IDPs, who like refugees, are displaced from their homes but have not crossed an international border and remain in their home countries.

The United Nations High Commissioner for Refugees (UNHCR) is mandated to lead and coordinate international action to protect refugees and ensure their safety and well-being. According to UNCHR, there were over 45 million refugees and internally displaced people in 2013, which was the highest level in nearly 20 years. This includes over 1 million people who fled the ongoing crisis in Syria to neighboring countries, and over 2 million who were internally displaced in Syria.

CDC's Emergency Response and Recovery Branch (ERRB) within the CGH's DGHP coordinates, supervises, and monitors CDC's international work with refugee or displaced populations. The mission of ERRB is to apply public health science to mitigate the impact of disasters, complex humanitarian and other emergencies among refugees and other populations, and to support the recovery of health systems in these settings. Our work is conducted in partnership with other U.S. government agencies, UN agencies (including UNHCR), and non-governmental organizations such as Doctors Without Borders, iMMAP



Women and children from the Bambasi Refugee Camp in Ethiopia filling vessels with water.



A young child at the Bambasi Refugee Camp in Ethiopia draws water from a portable hand-washing bag.



Nutrition survey in Zaatri refugee camp with Syrian refugees in Jordan, April 2014.



Blanket supplementary feeding in refugee camp in Wajir Kenya, 2011.

Refugees are an extremely vulnerable population that often requires life-saving aid in the form of shelter, water, food, healthcare, education, and other critical needs. For this reason, on this day we honor the courage, resolve, and determination of those who are forced to flee their homes under threat of violence, persecution, and further destruction.

For additional information, please contact Julia Smith-Easley at zrc2@cdc.gov.

EIS International Night 2014— Congratulations to this year's award winners!

Submitted by: Ruth Cooke Gibbs, MIS, MPH, CDC and Alannah Kittle, BA



On Wednesday, April 30, 2014, CDC's Division of Global Health Protection (DGHP) within the Center for Global Health, and the Training Programs in Epidemiology and Public Health Intervention Network (TEPHINET), co-hosted International Night – one of the highlights of the 63rd Annual Epidemic Intelligence Service Conference. Bringing together over 400 epidemiologists, and other public health professionals from around the world, International Night provides an opportunity for Field Epidemiology Training Program (FETP) residents to present and defend their research findings and recommendations through photos, posters and oral presentations.

The evening began with opening remarks by Dr. Jordan Tappero, DGHP Director. In his remarks, Dr. Tappero shared how pleased he was with the submissions, saying "Every year, the response to the call for abstracts and photos increases. While I am pleased that the numbers have increased, I'm extremely pleased that the quality of the submissions continues to improve. During the past year, through CDC-supported Field Epidemiology Training Programs and working collaboratively with our global partners, we have made significant progress in strengthening public health systems, building workforce capacity, and developing public health institutions that emphasize sound public health science and practices and ensure global health security."

Dr. Thomas Kenyon, Director of CDC's Center for Global Health, and Dr. Fadzillah Kamaludin, TEPHINET Advisory Board Chair served as co-moderators for the oral presentations given by Ryan Wallace from the United States, Bo Liu (China), Tony Frederick (India), Dilber Aktas (Turkey), Susanne Schink (Germany), and Donewell Bangure (Zimbabwe).

CDC's Director, Dr. Thomas Frieden, an advocate of FETPs' important contributions to improving global health security, welcomed the presenters and audience and spoke about the commonalities and strategies that all FETPs share in surveillance, evaluation, implementation, and in addressing policy change. "We do even more to find threats promptly, to respond effectively, to prevent them wherever possible...and that's what our work to expand FETP is all about," said Dr. Frieden. "That's what's going to help us be united, not only in our approach, not only in the threats we face, not only in the opportunities that we are going to seize together, but also ...united in the progress that we are going to make helping people live longer and healthier lives through rigorous application of the science of epidemiology."

Prior to the oral presentations, 15 scientific posters were presented by FETP residents whose abstracts were selected from 261



Drs. Dionisio Herrera, Jordan Tappero, Fadzilah Kamaludin, and Tom Kenyan present Woubayehu Kassa from Ethiopia FELTP with the Jeffrey P. Koplan Award for Best Scientific Poster Presentation. Photo courtesy of Ken Johnson.



Drs. William Foege, Dionisio Herrera, Jordan Tappero, Fadzilah Kamaludin, and Tom Kenyan present Mr Donwell Bangure from Zimbabwe FELTP with the William H. Foege Award for Best Scientific Oral Presentation. Photo courtesy of Ken Johnson.

entries. Poster presentation topics ranged from investigations of outbreaks of cholera, hepatitis E, influenza, and dengue, to surveys of antibiotics use and breast cancer prevention. Another feature of the EIS International Night was the photo exhibit featuring 65 photographs by FETP residents (and graduates) from 18 countries. The photo exhibit documented a wide range of FETP disease surveillance and response activities. The top three photographs were determined by a panel of judges, who rated each on

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Graduate Corner

EIS International Night continued from page 9

technical skill as well as depiction of field epidemiology in action. Dr. Muhammad Bilal Khan's (Pakistan) photograph won first place, followed by Dr. Adam Hassan Haji (Kenya) – 2nd place, and Dr. Ed Maes (Georgia) – 3rd place.

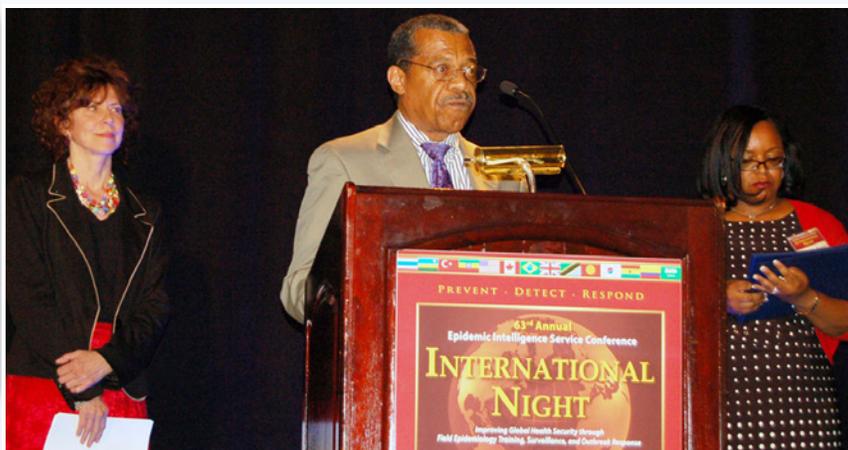
Dr. Dionisio Jose Herrera Guibert, Director of TEPHINET, and Dr. Linda Quick, DGHP's FETP Branch Chief, ended the evening with the presentation of awards. This year marked the launch of the Jeffrey P. Koplan Award for Excellence in Scientific Poster Presentation in honor of Dr. Koplan, former Director of CDC and current Vice President for Global Health at Emory University. This award will be presented annually to the individual whose scientific poster most effectively emphasizes the results of the investigation and its impact on public health. Dr. Steve Blount, Director of Special Projects with the Carter Center and former Director of CDC's Coordinating Office for Global



CDC Director Dr. Thomas Frieden speaks at EIS International Night, held on April 30, 2014 at the Crowne Plaza Ravinia in Atlanta, Georgia. Photo courtesy of Ken Johnson.



Yogita Tulsian – India FETP listening to the Oral Presentations during International Night 2014, Atlanta, Georgia. Photo courtesy of Stacey Hoffman.



Stephen B. Blount, MD, MPH, Director of Special Health Programs, The Carter Center, providing remarks on behalf of Dr. Jeffrey Koplan, as Dr. Linda Quick, Chief, FETP Branch and Cindy Brown, FETP Branch facilitate the Awards Ceremony. Photo courtesy of Ken Johnson.

Health spoke on behalf of Dr. Koplan who could not attend. Dr. Blount conveyed how pleased Dr. Koplan has been watching the dramatic and steady improvements in the quality and diversity of the International Night presentations, and how humbled he is to have an award named in his honor. He also said that Dr. Koplan “looks forward to seeing how the talent and skill on display [that night] will be translated into improvements in health for the people in greatest need across the world.” The winner of the Jeffrey P. Koplan Award was Woubayehu Kassa from Ethiopia for her poster entitled “Dengue Fever Outbreak, Diredewa, Ethiopia, November, 2013”.

The highlight of the evening was the presentation of the William H. Foege Award for Best Scientific Oral Presentation presented by the world renowned epidemiologist and former CDC Director, Dr. William Foege. Before he presented the award Dr. Foege said, “Fifty-two years ago there was very little interest in global health. It was difficult to find anyone interested. Now everything has changed. When I think of the tools, resources, and interest that has developed, I think of what you’re going to be doing in the future. The people in this room working in global health are going to write stories that we never even dreamed about, and I thank you all for that.” The recipient of the William H. Foege Award was Mr. Donewell Bangure from Zimbabwe for his presentation entitled “Effectiveness of Short Message Services Reminder on Childhood Immunization Programme in Kadoma, Zimbabwe—A Randomized Control Trial, 2013”.



Drs. Dionisio Herrera (not pictured), Jordan Tappero, Fadzilah Kamaludin, and Tom Kenyan present Dr. Ed Maes, Resident Advisor, Republic of Georgia with certificate for 3rd place in the photo contest. Photo courtesy of Ken Johnson.

For further information on EIS International Night and FETP, please contact Dr. Linda Quick at maq2@cdc.gov.

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Graduate Corner

EIS International Night continued from page 10



Participants reviewing scientific poster during International Night 2014, Atlanta, Georgia. Photo courtesy of Stacey Hoffman.



Marsha Vanderford, Center for Global Health, Associate Director for Communications looking at photos from the field during International Night 2014. Photo courtesy of Stacey Hoffman.



Ryan Wallace, Poxvirus and Rabies Branch, CDC EIS Officer, presenting on "Re-emergence of Rabies on an Island Nation: A Once in a Lifetime Event, of an Indication of More to Come?" – International Night, 2014, Atlanta, Georgia. Photo courtesy of Stacey Hoffman.



Tony Frederick - India FETP presenting on "Burden of Retinopathy and Associated Risk Factors Amongst Diabetic Patients Attending Rural Health Facilities, Kancheepuram, India 2013". Atlanta, Georgia 2014. Photo courtesy of Ken Johnson.



Bo Liu - China -FETP giving his presentation on "Risk Factors for Influenza A (H7N9) Disease, China, 2013" at EIS International Night. Atlanta, Georgia 2014. Photo courtesy of Stacey Hoffman.



Dr. Donna Jones, FETP Branch Team Lead - Africa Region talks with colleagues during International Night. Photo courtesy of Stacey Hoffman.



Susanne Schink - Germany FETP presenting on "Trichinellosis Outbreak: Rapid and Concerted Public Health Action Limits Infection through Early Post-Exposure Prophylaxis, German, 2013" – International Night 2014, Atlanta, Georgia. Photo courtesy of Ken Johnson.



Ms. Dilber Aktas - Turkey FETP presenting on "Outbreak of Oropharyngeal Tularemia from Drinking Contaminated Tap-Water—Sancaktepe Village, Bayburt Province, Turkey, July - August 2013" – International Night, 2014, Atlanta, Georgia. Photo courtesy of Ken Johnson.



Participants reviewing photos during Photo Exhibit, International Night 2014, Atlanta, Georgia. Photo courtesy of Stacey Hoffman.



Dr. Richard Dicker, Africa Regional Team Lead, FETP Branch and one of the oral presentation judges, International Night 2014, Atlanta, Georgia. Photo courtesy of Stacey Hoffman.



Ken Johnson, FETP Branch Public Health Advisor and Dr. Mohannad Al-Nsour, EMPHINET Executive Director listening to the Oral Presentations during International Night 2014, Atlanta, Georgia. Photo courtesy of Stacey Hoffman.

Partnership between the Pakistan FELTP and the Pakistan Armed Forces to Improve Skills in Applied Epidemiology and Outbreak Response in Pakistan

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

In Pakistan, as with many countries around the world, when a natural disaster occurs, the armed forces are normally called upon to assist. Recent examples in Pakistan include the earthquake in Kashmir in 2005 which killed more than 75,000 persons and the devastating floods in 2010 which caused 20% of Pakistan's total land area to come under water and affected 20 million people. In such national emergencies, the Pakistan Army's medical staff are among the first responders. The Pakistan Army's medical staff provides clinical and public health services to active duty forces, reserves, and retired military members and their family members. In certain geographic areas, the Army also provides all health services to the general population.

The Pakistan Armed Forces Post Graduate Medical Institute (AFPGMI) is the central medical training institute for the armed forces. In early 2014, the Pakistan AFPGMI requested the assistance of the Pakistan Field Epidemiology and Laboratory Training Program (FELTP) to improve the training of the Army's medical officers in applied field epidemiology, especially disease surveillance and outbreak response. The Pakistan FELTP arranged a 5-day workshop on Disease Surveillance and Outbreak Response at the Pakistan AFPGMI from March 10 to 14, 2014. Thirty-eight military medical officers from the Army Medical Corps participated in the training. Participants included Brigadier Generals, and other senior medical staff and Army and Air force public health assistants. Training included lectures, case studies, and class exercises facilitated by the Pakistan FELTP Resident Advisor, Dr. Jawad Asghar, and other Pakistan FELTP faculty members, Dr. Tamkeen Ghafoor and Dr. Mirza Amir Baig. On the Pakistan AFPGMI side, Brigadier Haroon



Dr. Jawad Asghar, Pakistan FELTP Resident Advisor explaining next steps in case study during Disease Surveillance training in Pakistan. Dr. Tamkeen Ghafoor (FELTP faculty) is on the left.



Senior female medical officers in the Pakistan Army doing a class assignment as a group during the disease surveillance training workshop in Pakistan, March 2014.

Rasheed worked closely with the Pakistan FELTP to make the course a success.

Commandant Major General Viqar Ahmed Khan of the Pakistan AFPGMI stated, "This training course is of tremendous value in improving disease surveillance capacity in Pakistan. We look forward to working with Pakistan FELTP to provide additional training for our medical staff."

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Training and Resources

Partnership between the Pakistan FELTP and the Pakistan Armed Forces continued from page 12



Dr. Mirza Amir Baig, Dr. Tamkeen Ghafoor (both FELTP faculty), Dr. Jawad Asghar, Maj. Gen. Viqar Ahmed Khan (commandant AFPGMI), Dr. Kamaluddin Soomro (National Coordinator NSTOP(FELTP)), Brigadier Haroon (course coordinator) with course participants from the Armed Forces Postgraduate Medical Institute in Pakistan, March 2014.



Major General Viqar Ahmed Khan (commandant AFPGMI), giving sign of AFPGMI and certificate of appreciation to Pakistan FELTP Resident Advisor, Dr. Jawad Asghar, Pakistan, March 2014.



Major General Viqar Ahmed Khan (commandant AFPGMI), giving sign of AFPGMI and certificate of appreciation to Dr. Tamkeen Ghafoor (Faculty FELTP).

Also earlier this year, the Pakistan FELTP Steering Committee meeting, at the 5th Annual Meeting, agreed to begin enrolling Pakistan Armed Forces medical officers in the Pakistan FELTP.

As these examples demonstrate, the partnership between the Pakistan FELTP and the Pakistan Armed Forces continues to develop as both groups strive to develop well-trained medical staff and field epidemiologists capable of responding to important public health events.

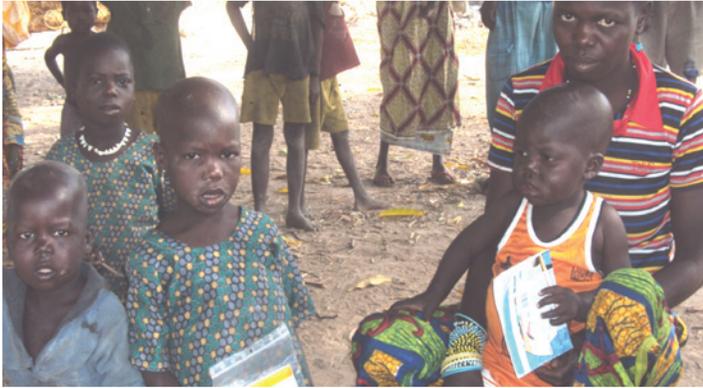
For further information, please contact, Dr. Rana Jawad Asghar at Rasghar@cdc.gov.



Major General Viqar Ahmed Khan (commandant), Dr. Jawad Asghar (Pakistan FELTP Resident Advisor), Dr. Kamaluddin Soomro (National Coordinator NSTOP (FELTP)), and senior staff of AFPGMI, Pakistan, March 2014.

Central African Republic FELTP residents remain committed to strengthening disease surveillance and outbreak response in CAR

Submitted by *Els Mathieu, MD, Resident Advisor, Central African Republic FELTP*



Children affected by measles outbreak in Paoua, Central African Republic, April 2014.

The Central African Republic (CAR) is one of the world's least developed nations and has experienced several periods of political instability, as well as deadly attacks and violence by rebels that have forced nearly 1 million people from their homes in search of refuge. With so many civilians fleeing to refugee camps in the capital, Bangui, and the provinces, there is an increased need to strengthen disease surveillance and response.

In 2010 the Centers for Disease Control and Prevention (CDC) with the support from the CDC Foundation and the Bill & Melinda Gates Foundation helped establish the CAR-Field Epidemiology Laboratory Training Program (CAR-FELTP) to build local capacity in disease surveillance and response. Thousands of children in CAR die each year from vaccine-preventable diseases. Improved surveillance through the CAR-FELTP has provided important information that can be used to develop effective vaccination campaigns and build local capacity to detect and respond to the spread of cholera, yellow fever, and other infectious diseases endemic in the region. Despite the political unrest and insecurity in the CAR-FELTP residents remain committed to honing their skills and braving difficult terrain to save lives. Two residents give testimonials of their recent experiences in the field.

CAR-FELTP Resident 1

There has been insecurity in the Central Africa Republic since the end of 2012. The crisis began in December 2012 and progressively took over the entire country in March 2013. Since November 2014, several waves of violence both in Bangui and in the provinces have occurred. Confrontations between armed groups and violence against the civilian population have led to massive displacement of populations.

In November 2014, we [CAR-FELTP] conducted a mission to investigate an outbreak of yellow fever in the town of Bambari. There was no political authority (administrative or military) on the site. The investigation area was controlled by rebel groups. The violent clashes in Bangui and in the provinces led to numerous brutal killings that affected the neighborhood where I live. My

house was completely looted and as a result, my family and I had to stay in a refugee camp for a month.

Earlier this year, as part of the re-launch of the fight against HIV, I led a Department of Health mission to raise awareness about HIV and conducted mass HIV screenings in two cities. A total of 350 individuals were screened. The first mass screening was conducted from February 12-19, 2014 about 200 kilometers (km) from the center of the country, and the other was conducted from March 5-12, 2014, about 450 kilometers northwest.



CAR FELTP Residents conducting a vaccination campaign in CAR, 2013.

On February 19th, on our way back to Bangui after completing our mission in the first city, a group of armed men stopped our vehicle and forced us to change our route and drive towards the center of the country. During the six hour journey, several fights broke out between the armed men who had kidnapped us and other armed men dispersed in different villages that we passed through. When we arrived in the center of the country we managed to escape and spent the night in hiding. We returned to Bangui on February 20, 2014, shaken, but alive.

CAR-FELTP Resident 2

In April 2014, we conducted a measles outbreak investigation in the southwestern part of the country in the town Paoua. During the measles investigation, our team was caught between two armed groups. During the confrontation, there was an exchange of gun shots, grenades and rockets by the two opposing camps. Several lives were lost and many cattle were slaughtered. The situation was very challenging and our team was forced to go to a nearby village where we stayed for several hours before continuing the mission. We received protection from the MISCA (Mission internationale de soutien à la Centrafrique sous conduite africaine – French acronym for the African Union peace-keeping mission to CAR). We were squatting in the vehicle hoping to avoid

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Training and Resources

Central African Republic FELTP residents committed to strengthening disease surveillance and outbreak response in CAR continued from page 14

the bullets that were coming from every angle. After struggling for a while, I suggested we should cancel the mission, but the MISCA reassured us that we would be protected so we continued.

MISCA opened gunfire for more than 20 minutes and threw grenades to intimidate and disperse the two adversaries. All along the road bands of young men - some armed with machetes and firearms - had erected barriers every 10 kilometers and were requiring money to cross each time.

Clashes between groups are very common; it is imperative to always ask for safety before beginning a mission. We did that, but unfortunately the area where we were conducting the measles outbreak investigation was in the heart of the rebel infested area and we were trapped in the cross fire. Heavily armed men with ill intentions were present virtually every day during the investigation. One day during an investigation

in a village, a group of heavily armed rebels emerged from the bushes and walked in our direction. Quite naturally, we panicked as we thought we were about to be attacked. Later we found out that it was the rebel leader who was going to Church with his security men. Somehow this gave us a sense of security, and helped us to continue the work. Despite the constant threat of danger, we were able to confirm the measles outbreak which is critical for effective response activities.

Despite the ongoing political and civil unrest in CAR, residents of the CAR-FELTP continue their work and are hopeful that one day the violence will stop and they will no longer be forced to leave outbreak investigations, meetings, and classes due to civil unrest in their country.

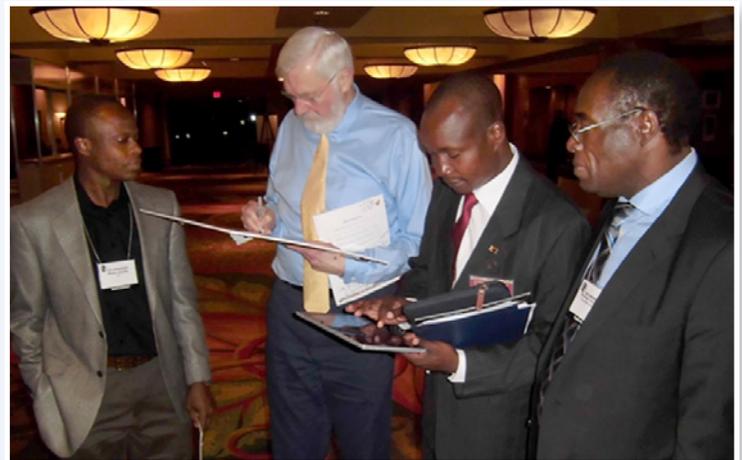
For more information on the CAR-FELTP please contact Dr. Els Mathieus, Resident Advisor, CAR-FELTP at emm7@cdc.gov.

Improving Immunization Coverage through SMS Reminders in Zimbabwe continued from page 5

Attribute	Number of messages	Cost per message (US\$)	Total Cost (US\$)
Message to study participants	1368	0.04	57.46
Message to researcher	42	0.04	1.76
Cost for capturing and sending SMS (5 mins/SMS at US\$4/hr)	1368	0.33	451.44
Total Cost		0.41	510.66

Figure 4: Cost Associated with for Immunization , Kadoma, Zimbabwe, 2013

10 weeks, immunization coverage was 96% for the intervention group and 80% for non-intervention group. At 14 weeks it was 95% for intervention and 75% for non-intervention group (Figure 3). Those who delayed receiving immunization at 14 weeks were 82% for the intervention and 8% for non-intervention group. Median delay for intervention was 0 days and 10 days for the non-intervention group. The results of the study showed that the immunization targets in Kadoma City, Zimbabwe can be achieved if SMS reminders are used. In addition, the associated costs for SMS per child for 18 months is very low — U.S \$0.99. (Figure 4) The SMS study results were shared with the Kadoma City Health Director, Mr Daniel Chirundu. In response, he has started mobilizing resources to ensure that the SMS intervention



(L-R) Mr. Notion Gombe, Dr. William H Foege (Signing the plaque), Mr Donewell Bangure (Award winner) and Prof Mufuta Tshimanga (Zimbabwe FELTP Director) at the International Night, EIS Conference 2014.

is implemented at all health facilities in Kadoma that are offering routine childhood immunization.

On April 30th 2014, Mr. Bangure presented this study during International Night at the 63rd Annual Epidemic Intelligence Service Conference in Atlanta, Georgia, USA. The title of his paper was "Effectiveness of Short Message Service Reminders on Childhood Immunization Program in Kadoma, Zimbabwe, 2013 - A Randomized Controlled Trial". For his efforts, Mr. Bangure received the 2014 William H. Foege Award for Most Outstanding Public Health Scientific Oral Presentation.

For further information, please contact: Mr. Bangure at bangured@yahoo.com.