

# CDC GLOBAL HEALTH STRATEGY (2012-2015)



## 2012 ANNUAL PROGRESS REPORT



# CDC GLOBAL HEALTH STRATEGY (2012-2015)

CDC Global Health Strategy 2012 - 2015:  
<http://www.cdc.gov/globalhealth/strategy/>

## 2012 ANNUAL PROGRESS REPORT

*February 2014*



## Contents

Executive Summary .....	1
<b>GOAL 1. HEALTH IMPACT: Improve the Health and Wellbeing of People around the World</b>	
1.1 Prevent New Infections and Serve the Needs of HIV Positive Individuals Globally.....	3
1.2 Reduce Tuberculosis Morbidity and Mortality.....	5
1.3 Reduce Malaria Morbidity and Mortality.....	7
1.4 Reduce Maternal and Perinatal Mortality.....	9
1.5 Reduce Child Morbidity and Mortality .....	11
1.6 Eliminate and Control Targeted Neglected Tropical Diseases.....	13
1.7 Control, Eliminate, or Eradicate Vaccine-Preventable Diseases.....	15
1.8 Reduce Burden of Non-Communicable Diseases.....	17
<b>GOAL 2. HEALTH SECURITY: Improve Capabilities to Prepare and Respond to Infectious Diseases, other Emerging Health Threats and Public Health Emergencies</b>	
2.1 Strengthen Capacity to Prepare for and Detect Infectious Diseases and other Emerging Health Threats .....	19
2.2 Respond to International Public Health Emergencies and Improve Country Response Capabilities.....	21
<b>GOAL 3. HEALTH CAPACITY: Build Country Public Health Capacity</b>	
3.1 Strengthen Public Health Institutions and Infrastructure .....	23
3.2 Improve Surveillance and Use of Strategic Information .....	24
3.3 Build Workforce Capacity .....	26
3.4 Strengthen Laboratory Systems and Networks.....	28
3.5 Improve Research Capacity .....	30
<b>GOAL 4. ORGANIZATIONAL CAPACITY: Maximize Potential of CDC’s Global Programs to Achieve Impact</b>	
4.1 Strengthen Organizational and Technical Capacity to Better Support CDC’s Global Health Activities .....	32
4.2 Enhance Communications to Expand the Impact of CDC’s Global Health Expertise .....	34



# CDC GLOBAL HEALTH STRATEGY 2012 ANNUAL PROGRESS REPORT

## Executive Summary

### Background

The vision of CDC's global health strategy is a world where people live healthier, safer, and longer lives through science, policy, partnership, and evidence-based public health action. CDC's Global Health Strategy was released in 2012, and includes four goals to be achieved between 2012 and 2015: improved health impact, enhanced global health security, increased country public health capacity, and maximized organizational capability.

CDC's Global Health Strategy outlines the agency's approach to achieving its global health vision. The 2012 Annual Report demonstrates how the Strategy has been integrated into CDC's global health planning and decision-making, as well as into the implementation and evaluation of CDC's global health activities. In addition, the Annual Report demonstrates how CDC has worked across the agency, as well as with its partners across the U.S. Government, international organizations, MOHs, civil society groups and partner countries as CDC continues to achieve lasting impact in global health.

The highlights below, though not an exhaustive list, effectively illustrate the breadth and depth of CDC's global health accomplishments in 2012 in the areas of health impact, health security, health capacity, and organizational capacity.

### 2012 Highlights

#### Goal 1. Health Impact: Improve the Health and Wellbeing of People around the World

Since its creation, CDC has focused on improving health and preventing disease, whether through leading research and laboratory activities or developing and implementing programs. Improvements in global health and wellbeing are documented in the 2012 Annual Report, encompassing work under eight strategic objectives and cutting across the agency and the globe.

In 2012, for example, CDC's Division of Global HIV/AIDS worked side by side with 37 Ministries of Health on HIV/AIDS program planning and implementation. Four CDC Divisions tackled tuberculosis in 33 countries, leveraging each Division's strengths in a shared effort to reduce tuberculosis morbidity and mortality. Five CDC Centers and Offices collaborated on global non-communicable disease activities in 24 countries, focusing efforts on chronic diseases, injuries and violence, and environmental health. The 2012 Annual Report also includes accomplishments in the areas of malaria, maternal health, child health, neglected tropical diseases, and vaccine-preventable diseases.

*CDC's Global Health Strategy for 2012–2015 includes four goals to be achieved between 2012 and 2015: improved health impact, enhanced global health security, increased country public health capacity, and maximized organizational capability.*



## **Goal 2. Health Security: Improve Capabilities to Prepare and Respond to Infectious Diseases, other Emerging Health Threats and Public Health Emergencies**

The health of Americans is integrally connected to the health of the rest of the world, and in 2012, CDC worked together with host country governments and partner organizations to strengthen health security by improving the ability of countries to prepare for and respond to disease threats on a global scale. In 2012, CDC assisted 81 countries on global health security and disease surveillance capacity development. Building on the strength of CDC's Emergency Operations Center (EOC) in Atlanta, CDC provided support to more than 20 countries to support EOC development and related activities. CDC's Global Disease Detection Centers promoted scientific discovery through partnerships with host countries to identify new health threats and reduce endemic disease burdens. These Centers also assisted in responding to 209 disease outbreaks worldwide in 2012, most of which were responded to within 24 hours by experts from across the agency. The 2012 Annual Report details CDC's activities and accomplishments as CDC works to promote health security worldwide.

## **Goal 3. Health Capacity: Build Country Public Health Capacity**

Building, strengthening, and maintaining country capacity to improve the health and well-being of their citizens is vital for sustainability. In 2012, CDC worked to build capacity through National Public Health Institutes in Rwanda, Malawi, India, and Kenya, documenting institutional progress towards improved public health system capacity in these countries. CDC trained epidemiologists, laboratorians, and other public health professionals through Field Epidemiology Training Programs and other activities focused on the global public health workforce. CDC also worked to build laboratory, surveillance, and research capacity through all of its global programs, and accomplishments in these areas can be found in the 2012 Annual Report.

*CDC builds its global health strategy on a foundation of 60 years of domestic and global public health leadership, expertise, and strong collaborations with ministries of health (MOHs), World Health Organization (WHO), U.S. Government agencies, and other critical partners.*

## **Goal 4. Organizational Capacity: Maximize Potential of CDC's Global Programs to Achieve Impact**

Finally, CDC's Center for Global Health supports the agency's field staff and country offices and works to enhance communication and coordination of global health activities across CDC. In 2012, the Center for Global Health worked across the agency to strengthen CDC's global country office governance framework which promotes an integrated approach to global programming in CDC country offices. In addition, the Center for Global Health improved coordination and integration of global health efforts through shared communication strategies and platforms.

## **Future Directions**

Building on the accomplishments detailed in the 2012 Annual Progress report, CDC will continue implementing its Global Health Strategy to improve health impact, enhance global health security, increase country public health capacity, and maximize organizational capability. This process will continue to be guided by CDC's vision of a world where people live healthier, safer, and longer lives.



# 1.1

## Prevent New Infections and Serve the Needs of HIV Positive Individuals Globally

### Background

CDC is an essential partner in the President's Emergency Plan for AIDS Relief (PEPFAR) and is integral to the success of this program. By using its technical expertise in public health science and long-standing partnerships with Ministries of Health and global partners, CDC helps to build strong national programs and sustainable public health systems that are tailored to the needs of each country and that can respond effectively to the HIV/AIDS epidemic. CDC provides HIV/AIDS scientific and programmatic support and mentoring through its headquarters in Atlanta and its 45 offices in Africa, Asia, Central America, South America, and the Caribbean. To support the goal of an AIDS-free generation, CDC is scaling up three interventions proven to be pivotal in reducing the spread of new HIV infections: (1) increase numbers of HIV-infected patients on antiretroviral therapy, (2) prevent mother-to-child HIV transmission, and (3) increase numbers of males with voluntary medical circumcisions.

### 2012 Accomplishments

#### HIV/AIDS Service Delivery

- CDC provided leadership for costing and modeling of **treatment scale-up** and implementation of the Track 1.0 Antiretroviral Treatment (ART) program, including **transitioning programs to local partners** in all 13 Track 1.0 ART countries in sub-Saharan Africa.
- In 2012, CDC provided leadership, technical assistance, and support in the implementation and monitoring of Option B+, an **innovative strategy to prevent mother-to-child transmission (PMTCT)** of HIV and improve mothers' health. One year after implementation of Option B+ in Malawi, the number of pregnant and breastfeeding women started on antiretroviral therapy through Option B+ in Malawi totaled 10,663, an increase of 748%.



Note: PEPFAR totals include CDC contributions  
Source: PEPFAR World AIDS Day 2012 Update; CDC, 2012

#### Monitoring and Evaluation of Global HIV/AIDS Programs

- In 2012, CDC implemented a series of robust **accountability, oversight, and quality management mechanisms to ensure optimal public health impact and stewardship of U.S. government funds** for its global HIV programs. The framework is built on intensive fiscal oversight and program monitoring and evaluation to formulate data-driven strategies that increase effectiveness and maximize epidemic impact.

## 2012 Accomplishments (continued)

### *HIV Combination Prevention Intervention*

- In 2012, CDC developed the study protocol for **the Botswana Combination Prevention Project (BCPP)**. This project is designed to test the hypothesis that bringing to scale a package of core combination prevention interventions will impact the HIV/AIDS epidemic by significantly **reducing population-level HIV incidence** and will be cost-effective.

### *HIV/AIDS Research*

- CDC designed, led, and conducted clinical trials to determine the **efficacy of pre-exposure prophylaxis** using one- or two-drug ART in Thailand and Botswana among people who inject drugs and among heterosexual young adults, respectively. Results of these trials were also critical for the **development of U.S. domestic policy** for pre-exposure prophylaxis to prevent HIV infection.

### *Country Capacity Building*

- In 2012, CDC worked with **45 Ministries of Health** to build their technical and operational capacity for leading and sustaining their national responses. CDC's approach is to carefully transition programmatic and financial responsibilities to host governments and local partners over time.

## Future Directions

Under the Global Health Strategy, CDC will continue working with our partner countries to build their capacity for a sustainable approach. CDC is working towards its targets for preventing new infections and serving the needs of HIV positive individuals globally. Priorities for 2013 include:

- 1) Increasing the number of adults and children with HIV infection who receive ART;
- 2) Increasing the number of HIV positive pregnant women who receive ART to reduce the risk of mother-to-child transmission;
- 3) Increasing the number of males circumcised as part of the minimum package of HIV prevention services; and,
- 4) Conducting national household surveys in four countries to measure the burden of violence against children to support the development of national action plans to reduce violence against children.



# 1.2

## Reduce Tuberculosis Morbidity and Mortality

### Background

WHO estimates that approximately 2 billion persons are infected with tuberculosis (TB), with 8.6 million new TB cases and 1.3 million deaths in 2012. TB remains the leading cause of death for people living with HIV (PLHIV), causing one in four deaths. CDC's global TB strategies focus on strengthening local capacity, building the evidence base for improved TB control and prevention strategies, and translating research into practice. Key priority areas include surveillance and impact measurement, laboratory systems, HIV-associated TB, drug-resistant TB, TB infection control, and case-finding among vulnerable populations. In 2012, CDC led operational research and provided technical support to partner governments on TB activities in **more than 30 countries on four continents. CDC continues to work in partnership with key U.S. government and international organizations, host country governments, and local implementing partners** to achieve progress towards the shared objectives of reducing TB morbidity and mortality globally.

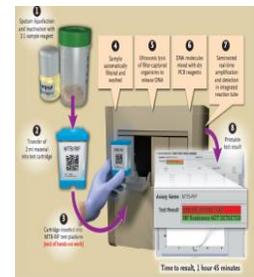
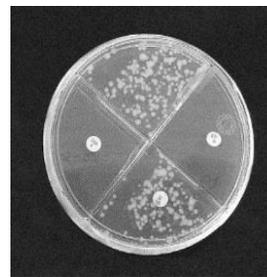
### 2012 Accomplishments

#### TB Surveillance & Impact Measurement

- In 2012, CDC assisted more than **30 Ministries of Health** in evaluating and strengthening national TB programs and TB/HIV surveillance systems, and led development of global standards for monitoring and evaluation through the WHO Global Task Force on TB Impact Measurement.

#### Laboratory Systems

- In 2012, CDC **trained laboratorians** from 27 countries in TB diagnostics **and strengthened laboratory management systems** in eight countries in accordance with WHO, CDC, and regional standards<sup>1</sup> to help national laboratories achieve accreditation.



Moving toward better, faster TB diagnostics. From left to right: smear microscopy in a laboratory in Botswana; agar plate proportion method for diagnosis of drug-resistant TB; and the GeneXpert platform.

- CDC is evaluating the performance of Xpert MTB RIF<sup>®</sup>, a **faster, more sensitive TB test**, to improve TB case-finding among people who may have multi-drug resistant (MDR) TB or HIV-associated TB in nine countries.

<sup>1</sup> African Centre for Integrated Laboratory Training (ACILT); CDC's Strengthening Laboratory Management Towards Accreditation (SLMTA) Program; WHO-AFRO's Stepwise Laboratory Improvement Process Towards Accreditation (SLIPTA); and the GLI Stepwise Implementation Guide for Accreditation of National TB Laboratories (Available at [www.gliquality.org](http://www.gliquality.org).)

## 2012 Accomplishments (continued)

### *Drug-resistant TB*

- Unless patients with drug-resistant TB receive appropriate treatment, they can develop greater resistance to more drugs, making treatment more difficult and increasing the risk of transmission. CDC led a study in nine countries to describe how and why this happens, which informed WHO's New Global Framework, a re-envisioning of how WHO supports countries in achieving **high quality drug-resistant TB programs**.

### *TB/HIV*

- CDC provided programmatic and laboratory support to **evaluate the impact of national scale-up of integrated TB/HIV services** for intensified case-finding (ICF), isoniazid preventive therapy (IPT), and TB infection control (IC) on morbidity and mortality in Zambia and Namibia. Results of this evaluation will inform and guide scale-up in other countries.

### *TB Infection Control*

- CDC developed a **TB infection control training and implementation package** for use in HIV clinics, which is being rolled out widely in high HIV burden settings.
- CDC has established regional **Centers of Excellence for infection control in Eastern Europe and East Africa** and has assisted 16 countries in developing and implementing TB infection control guidelines.

### *Vulnerable Populations, including Children, Refugees, and Migrants*

- TB among children presents unique challenges for clinicians and TB programs because it requires different approaches to diagnosis and treatment compared to adults. CDC is leading research in several countries to enable **better prevention, diagnosis, and treatment of TB among children** by characterizing the pediatric epidemic, evaluating new approaches to TB diagnosis, and investigating vaccine candidates.

## Future Directions

Under the Global Health Strategy, CDC will continue working towards achieving global targets for reducing TB morbidity and mortality by supporting partner governments to increase:

- 1) The proportion of TB patients in CDC-supported countries who know their HIV status;
- 2) The proportion of HIV-positive registered TB patients given ART during TB treatment in CDC-supported countries;
- 3) The number of CDC focus countries reaching global targets to reduce TB mortality and prevalence; and,
- 4) The proportion of MDR TB cases detected in CDC focus countries.

# 1.3

## Reduce Malaria Morbidity and Mortality

### Background

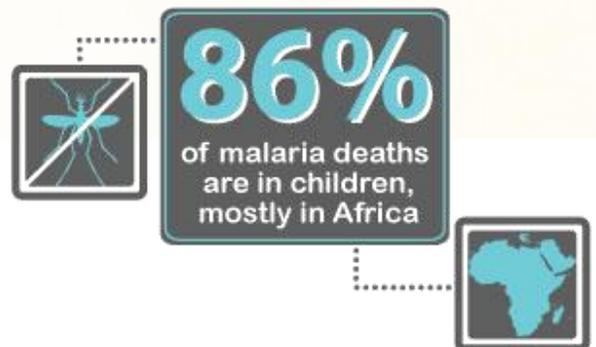
Approximately half of the world's population lives in areas at risk of malaria transmission. WHO estimates that, in 2010, malaria caused approximately 216 million clinical episodes and 655,000 deaths. Of these malaria deaths, 86% were children under five, and 91% occurred in sub-Saharan Africa. CDC provides scientific leadership in the fight against malaria through technical expertise in policy development, program guidance and support, scientific research, and monitoring and evaluation of progress toward Roll Back Malaria goals.

In 2012, **five CDC programs and offices** collaborated with **13 key partners** and **numerous host country governments** on malaria prevention and control activities. Much of this work was done as part of CDC's role as co-implementer of the **President's Malaria Initiative (PMI)**, which was established in 2006 to reduce malaria-related deaths by 50% in **19 focus countries** in Africa and the Greater Mekong Subregion in Asia. CDC also has malaria activities in Haiti and the Americas.

### 2012 Accomplishments

#### *Leadership and Technical Expertise*

- Under the PMI, CDC recruited and placed malaria resident advisors in **18 sub-Saharan African countries and the Greater Mekong Subregion**, while also developing an interagency strategy and prioritizing a list for operations research in support of PMI.
- In 2012, CDC technical experts participated in multi-national research consortia **to evaluate new interventions**, including insecticide-treated wall liners, novel diagnostics, and the RTS,S malaria vaccine candidate.



#### *Malaria Prevention and Control*

- In 2012, CDC provided technical guidance to program the procurement and distribution of **32 million insecticide-treated bed nets, 29 million malaria rapid diagnostic tests, and 73 million doses of antimalarial combination treatment** in PMI focus countries. CDC also conducted **global product testing** to ensure that donors and malaria control programs can procure quality diagnostic tests.
- CDC's work in malaria prevention and control as a key implementer of the PMI in 2012 **protected 30 million people from malaria** through indoor residual insecticide spraying.

## 2012 Accomplishments (continued)

### *Malaria Surveillance and Monitoring*

- In 2012, CDC provided technical assistance and support for **antimalarial drug resistance monitoring** and surveillance systems in 19 PMI focus countries and the greater Mekong Subregion, as well as in Haiti and the Americas.
- CDC provided direct **technical assistance to vector control programs in 19 PMI focus countries** as well as endemic countries in Latin America and the Greater Mekong Subregion.

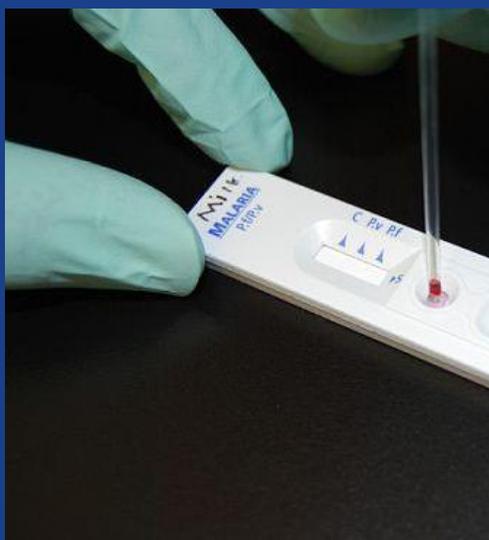
### *Training and Collaborative Research*

- In 2012, CDC provided training to **12 visiting scientists** from endemic countries, **3 Epidemic Intelligence Service Officers**, and **2 Association of Schools of Public Health Fellows**.
- In partnership with Emory University's Rollins School of Public Health, CDC developed and conducted an **intense course on malaria biology, epidemiology, prevention, and control**.

## Future Directions

Under the Global Health Strategy, CDC will continue working towards its targets for reducing malaria morbidity and mortality. Targets for 2013 include:

- 1) Contributing to a reduction in malaria incidence, both globally and in PMI focus countries;
- 2) Contributing to a reduction in malaria-related deaths, both globally and in PMI focus countries; and,
- 3) Increasing the proportion of at-risk children under five sleeping under an insecticide-treated mosquito net in 19 PMI countries.



# 1.4

## Reduce Maternal and Perinatal Mortality

### Background

Progress is being made in reducing maternal and perinatal mortality; nevertheless, many countries still have maternal mortality ratios greater than 500 deaths per 100,000 live births. Given the importance of maternal and perinatal health in the global health arena, CDC is working to strengthen and expand its contributions to achieve U.S. government and global maternal health goals.

In 2012, CDC programs and offices collaborated with key partners and numerous host country governments on maternal and perinatal health activities in Africa, Asia, and the Americas. Key initiatives and focus areas include the **Flour Fortification Initiative, Maternal Death Surveillance and Response, Saving Mothers Giving Life, Elimination of Mother-to-Child Transmission (EMTCT) of HIV and syphilis, and Intermittent Preventive Treatment of malaria in pregnancy.**

### 2012 Accomplishments

#### Maternal Mortality

- The **Saving Mothers Giving Life (SMGL)** is a multi-partner initiative that was launched **in Uganda and Zambia** with significant CDC support. SMGL is a comprehensive, district approach to reducing maternal mortality by increasing demand for and access to **emergency obstetric care.**
- CDC supported the development of “**Maternal Death Surveillance and Response Technical Guidance**” with WHO, UNFPA, DFID, FIGO, and other partners. The document was finalized in 2012.

#### Perinatal Mortality

- With PAHO, CDC conducted **initial field studies in St. Lucia and Chile** to assess methods for **validating elimination of MTCT of HIV and congenital syphilis.** Results contributed to the development of WHO and UNICEF’s “Global guidance for validation of elimination of mother-to-child transmission (EMTCT) of HIV and syphilis”, in which CDC also participated.
- CDC participated in the WHO evidence review group, which resulted in a simplified WHO recommendation on the provision of **Intermittent Preventive Treatment of malaria in pregnancy (IPTp),** and provided support to the **Roll Back Malaria (RBM) Malaria in Pregnancy** working group which works **with eight priority sub-Saharan countries** to develop and implement country action plans to improve uptake of IPTp.

IN 2012  
**6** NEW COUNTRIES PASSED MANDATORY NATIONAL FOLIC ACID FLOUR FORTIFICATION REGULATION  
**75** COUNTRIES NOW HAVE SUCH LEGISLATION WHICH PREVENTS FATAL OR DISABLING BIRTH DEFECTS  
**WORLDWIDE**



## 2012 Accomplishments (continued)

### *Perinatal Mortality*

- CDC's work on **integration of water treatment and hygiene kits with maternal health services in Malawi and Kenya** led to documented improvements in women's health outcomes, such as more women with four or more ANC visits, syphilis testing in ANC, health facility deliveries, postpartum check-ups, household water treatment, and ability to demonstrate proper handwashing technique. In Malawi, the requirement of partner attendance in ANC to receive the kits resulted in HIV counseling and testing uptake for 99% of mothers and partners, and 98% partner disclosure of HIV status.

### *Birth Defects*

- Six new countries passed mandatory, national **regulation for the fortification of flour** with at least iron and folic acid, bringing the total number of countries with such legislation to 75 (from 33 in 2004).
- CDC contributed to a new **Southeast Asian regional strategic framework for birth defects** prevention and control, conducted two **birth defects surveillance workshops**, and supported advanced **neural tube defect surveillance and prevention in Kenya, Mexico, and Colombia**.

## Future Directions

Under the Global Health Strategy, CDC will continue working towards its targets for reducing maternal and perinatal mortality. Activities for 2013 include:

- 1) SMGL will evaluate the impact of its interventions on maternal and perinatal health and scale-up successful intervention to additional districts and expand to additional countries.
- 2) The Maternal Death Surveillance and Response guidance document is published and disseminated, and implementation of MDSR systems will begin in at least five countries in sub-Saharan Africa.
- 3) CDC will support WHO in laboratory and field evaluations of novel diagnostics including dual, rapid HIV/syphilis tests on a single device. Such tests can greatly simplify antenatal testing for HIV and syphilis, ensure infected women are promptly treated, and MTCT of HIV and syphilis averted.
- 4) CDC staff are working in 17 countries funded by the President's Malaria Initiative to ensure that countries update and implement the new WHO guidance on IPTp.
- 5) CDC is working with partners in Kenya to increase ANC use, health facility deliveries, and postnatal care through the use of supply side and demand side interventions.
- 6) CDC will continue to provide technical assistance to achieve birth defects prevention and surveillance in three countries in Southeast Asia and two countries in Africa.



# 1.5

## Reduce Child Morbidity and Mortality

### Background

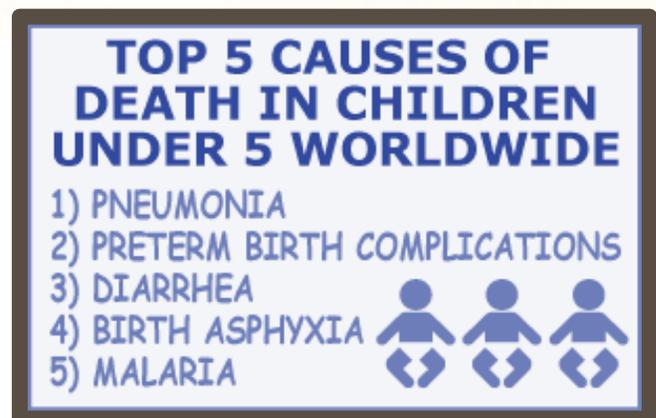
Children represent the future generations and the growth of societies; ensuring their healthy growth and development are of paramount concern. As part of its efforts to improve child health worldwide, CDC supports countries in achieving Millennium Development Goal (MDG) 4: Reduce Child Mortality by 2015. Of 25 countries with the highest mortality rates for children under five and which also have a CDC Country Office presence, 20 (80%) are not on track to reach this important goal. In 2011, these countries had child mortality rates ranging from 67-176 per 1000, and accounted for approximately 2.8 million (41%) of the estimated 6.9 million global deaths of children under five.

In 2012, CDC's work on child health covered many programs and activities to address children under-five mortality. Priority areas of intervention included **respiratory and diarrheal disease prevention**, **micronutrient supplementation and fortification**, and **information systems for child health**, including surveillance, vital registration, periodic surveys, routine program monitoring and evaluation, and capacity building

### 2012 Accomplishments

#### *Respiratory Diseases*

- As part of the GAVI-supported Accelerating Vaccine Introduction Technical Assistance Consortium, CDC contributed to the development of **new WHO recommendations for the use of pneumococcal conjugate vaccine (PCV)** by completing extensive reviews of optimal vaccine schedules and serotype replacement.
- As of December 2012, 86 (44%) of 194 WHO member states had **introduced** PCV into national immunization programs, representing 31% of all children born in WHO member states.
- In 2012, CDC and partners completed data collection for a **field trial of six cookstoves** in Kisumu Province, **Kenya**; hosted a workshop to harmonize **smoke exposure assessment**; and supported a study in **Guatemala** to evaluate the **effect of indoor air pollution on development and growth in infants**.



## 2012 Accomplishments (continued)

### *Diarrheal Disease*

- CDC and an extensive group of partners are supporting the Gates Foundation-funded **Global Enteric Multicenter Study (GEMS)**, a multi-country, multi-year effort to understand **the infectious causes of severe diarrhea and death in infants and young children** in four sub-Saharan African and three South Asian countries.
- In 2012, CDC partner Population Services International treated **16 billion liters of water** for household use, contributing to the **prevention of diarrheal disease**.
- CDC, in conjunction with WHO and other partners, continues supporting **rotavirus surveillance, vaccine introduction, and vaccine effectiveness activities**, as well as the **development of new rotavirus vaccines** for global immunization efforts.



### *Childhood Morbidity and Mortality Research*

- In 2012, CDC and partners conducted or supported **surveillance for influenza in more than 45 countries**, including 10 countries that set up procedures for real-time testing for multiple respiratory pathogens.
- CDC and an extensive group of partners began enrollment in the Gates Foundation-funded **Aetiology of Neonatal Sepsis in Southeast Asia (ANISA) study**, a multi-country, multi-year effort to understand the **infectious causes of death and severe infection in newborns**.

## Future Directions

Under the Global Health Strategy, CDC will continue working towards its targets for reducing child morbidity and mortality. Efforts in 2013 will focus on increasing the number of priority countries that:

- 1) Are on track to reach MDG4 by 2015;
- 2) Have introduced rotavirus and/or pneumococcal conjugate vaccine;
- 3) Have at least 90% exclusive breast-feeding up to 6 months;
- 4) Reduce anemia in children <5 years by 3% points annually;
- 5) Have 75% national coverage of antihelminthics among preschool age children; and
- 6) Have expanded household water treatment and storage programs.

# 1.6

## Eliminate and Control Targeted Neglected Tropical Diseases

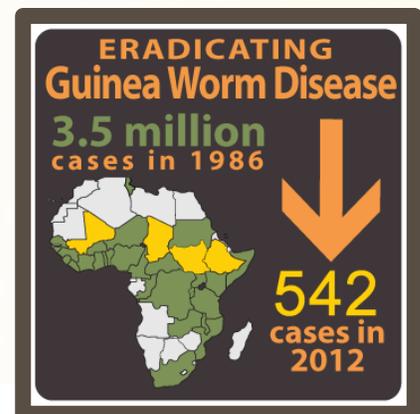
### Background

More than one billion people suffer from one or more neglected tropical diseases (NTDs)<sup>2</sup>. These NTDs are a group of infectious diseases that are the source of tremendous suffering because of their disfiguring, debilitating, and sometimes deadly impact. Many diseases have been grouped under NTDs, including dengue, Guinea worm disease, rabies, and yaws. Five NTDs have been targeted by U. S. government efforts, including the Global Health Initiative, CDC, and other global programs: lymphatic filariasis (LF), onchocerciasis, schistosomiasis, trachoma, and soil-transmitted helminths (STH)<sup>3</sup>. In 2012, CDC collaborated with **23 key partner organizations on NTD research and activities** in more than **10 countries**.

### 2012 Accomplishments

#### NTD Prevalence

- CDC works with The Carter Center and WHO on the global Guinea Worm Eradication Program. In 1986, there were approximately 3.5 million cases of Guinea worm disease worldwide. In 2012, there were 542 cases reported from four countries.
- In fiscal year 2012, CDC facilitated STH treatment with single dose albendazole for more than 38,000 (75%) U.S.-bound refugees for whom presumptive treatment was recommended. This predeparture treatment program has been shown to **significantly reduce STH infections in refugees newly resettled in the U.S.**
- In 2012, CDC created a training module for WHO's **lymphatic filariasis Transmission Assessment Survey (TAS)**. Following the development of the module, CDC conducted three TAS trainings for two WHO regions. The TAS survey is used by countries to determine if they can stop mass drug administration (MDA) in specific areas.



#### Lymphatic Filariasis Elimination in Haiti and the Americas

- The first round of MDA in Haiti, completed in February 2012, reached 2.3 million people, **helping Haiti achieve nationwide coverage of MDA for lymphatic filariasis for the first time**. The MDA was followed by an intensive CDC-supported evaluation to assess coverage, which found that additional emphasis needed to be put on social mobilization to ensure high participation rates.

<sup>2</sup> Working to overcome the global impact of neglected tropical diseases: the first WHO report on neglected tropical diseases. Available at [http://whqlibdoc.who.int/publications/2010/9789241564090\\_eng.pdf](http://whqlibdoc.who.int/publications/2010/9789241564090_eng.pdf)

<sup>3</sup> Global Health Initiative. Results. Available at <http://www.ghi.gov/about/goals/index.htm>; World Health Organization; Tribute to the over one million Community Directed Distributors (CDDs): an unprecedented commitment to eliminating Onchocerciasis from Africa through a unique Partnership [Internet] Available at <http://www.who.int/apoc/en/>; World Health Organization. The Partners for Parasite Control. [Internet] Available at [http://www.who.int/wormcontrol/about\\_us/en/](http://www.who.int/wormcontrol/about_us/en/)

## 2012 Accomplishments (continued)

### *Evidence-Based Diagnostic and Epidemiologic NTD Tools*

- The **Schistosomiasis Consortium for Operational Research and Evaluation (SCORE)** project in 225 villages in Kenya demonstrated that in this setting the prevalence of *Schistosoma mansoni* infection among 9-12 year-old school children is a good predictor of infection prevalence among first year students and adults in the same community.
- The WASH Away NTDs Activity in Guatemala and Kenya is underway with the goal of generating evidence to identify potential household-level water, sanitation, and hygiene interventions that could be paired with MDA to **effectively prevent and control STH infection**.
- CDC's work on dengue in 2012 included the development, evaluation, and implementation of **dengue diagnostic tests** which included obtaining U.S. Food and Drug Administration approval of the CDC DENV 1-4 Real-Time PCR Assay. This assay is being made available domestically and internationally.
- CDC scientists developed a **less costly, less complicated rabies diagnostic test** which does not require specialized equipment or refrigeration and allows a diagnosis to be made in less than one hour, making it ideal for use in resource-poor settings.

### *Evaluation of Integrated NTD Programs*

- CDC is engaged in data collection activities in **Kenya, Mozambique, and Tanzania** to **assess the impact of NTD treatment programs** on NTD prevalence and other health outcomes. This work is focused on *Schistosoma mansoni* and STH infections in Kenya; LF, *Schistosoma haematobium*, STH, and trachoma in Mozambique; and LF, hematuria, and trachoma in Tanzania.

## Future Directions

Under the Global Health Strategy, CDC will continue working towards its targets for eliminating and controlling neglected tropical diseases. Targets for 2013 include:

- 1) Achieving five consecutive years of effective MDA for lymphatic filariasis in select communities in Haiti;
- 2) Increasing the proportion of districts that have reached the critical threshold of LF infection to stop MDA; and,
- 3) Reducing the number of worldwide confirmed cases of Guinea worm disease per year.



# 1.7

## Control, Eliminate, or Eradicate Vaccine-Preventable Diseases

### Background

Immunizations are estimated to prevent more than 2.5 million child deaths annually around the globe, primarily due to the prevention of measles, diphtheria, polio, pertussis, and tetanus. CDC's work on vaccine-preventable diseases (VPDs) includes providing technical expertise to strengthen the performance of national immunization programs, to strengthen national and global VPD surveillance systems, to inform policy development and governance, and to introduce new and expand underutilized vaccination. CDC is also involved in global polio eradication efforts as well as measles and rubella control and elimination.

In 2012, **10 CDC programs** and offices collaborated on VPD activities worldwide, working with **16 key partner organizations** and numerous host country governments. CDC's goal is to **protect each new birth cohort of approximately 130 million infants** born around the world each year from VPDs.

### 2012 Accomplishments

#### *Eradication and Elimination Activities*

- CDC's Emergency Operations Center was activated for **polio eradication** in December 2011 as part of CDC's participation in the Global Polio Eradication Initiative. In 2012, CDC engaged **20 new staff** to support polio eradication, and deployed 73% more staff to the field than in 2011.



#### *Immunization System Strengthening*

- In 2012, CDC engaged in successful efforts to strengthen the capacity of health systems to deliver routine immunization services in **Democratic Republic of the Congo, Ethiopia, Haiti, India, Nigeria, South Sudan, and Uganda**. Of particular note is CDC's work with Haiti's Ministry of Health and other partners on the development of a strategy to **rebuild the vaccine cold chain** to prepare for the introduction of lifesaving vaccines such as pneumococcal and rotavirus.
- CDC strengthened evidence-based decision making capacity by conducting **national immunization technical advisory group workshops** in collaboration with WHO regional offices and peer-to-peer exchanges with the U.S. Advisory Committee on Immunization Practices.



## 2012 Accomplishments (continued)

### *VPD Health and Information Systems*

- Through the *Surveillance en Afrique Centrale (SURVAC)* project, CDC organized workshops to build national capacity and to reinforce **sentinel surveillance for bacterial meningitis and rotavirus gastroenteritis**.
- CDC conducted **surveillance activities** to monitor the impact of MenAfriVac, an initiative covering many countries in sub-Saharan Africa's meningitis belt. Surveillance in **Burkina Faso**, the first country to introduce the meningococcal vaccine, has shown greatly **reduced annual incidence of meningitis** compared to years preceding vaccine introduction.

### *Vaccine Development and Introduction*

- CDC supports the **introduction of pneumococcal conjugate vaccines (PCV)** in eligible countries through the GAVI-funded Accelerated Vaccine Initiative (AVI), in partnership with PATH and Johns Hopkins University. By end of 2012, 86 (44%) of 194 WHO member states had introduced PCV into national immunization programs, representing 31% of all children born in WHO member states.
- CDC is also engaged in vaccine introduction work for **HPV, seasonal influenza, rubella, oral cholera vaccine, and typhoid**. In 2012, for example, CDC provided technical support for the use of oral cholera vaccine in Haiti and initiated implementation of an expanded **overseas vaccination pilot program** for more than **50,000 U.S.-bound refugees** resettling to the United States from five countries (Ethiopia, Kenya, Malaysia, Nepal, and Thailand).

### *Synergies between Immunization and other Public Health Interventions*

- CDC's work to promote synergies between immunization and other public health interventions in 2012 included support for the development of the **Global Action Plan for Prevention of Pneumonia and Diarrhea (GAPP-D)**, studies to evaluate the **impact of cookstoves** on reduced childhood pneumonia, **HPV vaccine introduction** in the context of cervical cancer prevention, and collaboration with CDC's **Field Epidemiology Training Program** to strengthen surveillance systems and build national capacity.

## Future Directions

Under the Global Health Strategy, CDC will continue working towards its targets to control, eliminate, or eradicate VPDs. Targets for 2013 include:

- 1) Decreasing the number of countries in the world with endemic wild poliovirus;
- 2) Increasing the number of countries that have introduced one or more of nine underutilized vaccines recommended by WHO; and,
- 3) Increasing the number of WHO regions that have adequate and representative surveillance data.

# 1.8

## Reduce Burden of Non-Communicable Diseases

### Background

CDC's role in addressing non-communicable diseases (NCDs) focuses on:

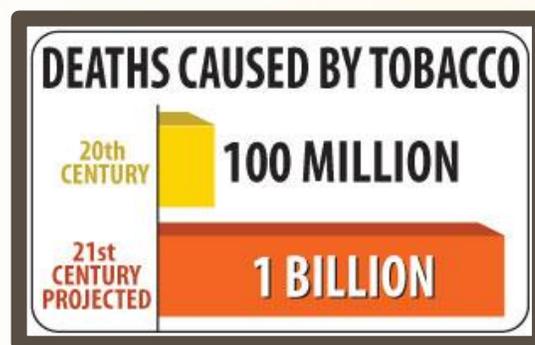
- 1) Surveillance, epidemiology, and laboratory support;
- 2) Identifying risk factors and evidence-based prevention strategies;
- 3) Strengthening data, data systems, and using data to increase effective policy development and public health action; and,
- 4) Increasing country capacity and workforce skill development.

In 2012, **11 CDC programs** and offices collaborated on NCD activities in **23 countries**, working with **24 key partner organizations** and numerous **host country governments** to achieve progress towards the shared objective of reducing the global burden of NCDs.

### 2012 Accomplishments

#### Chronic Diseases

- In 2012, CDC developed and piloted **24 training modules on NCD topics** for the Field Epidemiology Training Program (FETP), which were used in workshops in **China, Thailand, Colombia, Jordan, and Tanzania**.
- In 2012, CDC collaborated with 15 countries on the **Global Adult Tobacco Survey (GATS)**--**Argentina, Colombia, Indonesia, Kazakhstan, Kenya, Malaysia, Nigeria, Pakistan, Panama, Qatar, Romania, South Africa, Thailand, Turkey, and Uganda**. Thailand and Turkey had previously collaborated on GATS. CDC's involvement included orientation for new countries, training workshops, field work, and reviewing and disseminating results released from country surveys.
- CDC provided technical assistance to four countries (Thailand, Jordan, China and Colombia) on their efforts to **reduce sodium consumption and high blood pressure**. CDC also developed a sodium reduction toolkit that includes seven webinars focused on implementing population **sodium reduction programs and policies**.



#### Injuries and Violence

- CDC worked on **Helmet Vaccine Initiative Programs** to enhance the surveillance and evaluation of motorcycle helmet use in **Uganda, Cambodia, and Vietnam**. In Cambodia, the Helmets for Kids program documented an **increase in helmet wearing rates from a baseline of 0-5% to 85-100% post-intervention**. In Vietnam, the Global Helmet Vaccine Initiative documented an **increase in helmet use among motorcycle riders from 30% to 90% and a 16% decrease in road traffic head injuries**.

## 2012 Accomplishments (continued)

### *Injuries and Violence*

- CDC implemented **Violence Against Children Surveys (VACS)** in five countries to date: **Swaziland, Tanzania, Zimbabwe, Kenya, and Cambodia**. In Swaziland, VACS data was used to support **new legislation to increase child protection**. Indonesia and Malawi will complete the survey in 2013 and 12 additional countries are considering implementation in 2014-2015.

### *Environmental Health Hazards*

- CDC trained **20 trainers in Haiti's Directorate for Potable Water and Sanitation**, who provided subsequent **training to 264 rural water and sanitation technicians**, using **18 CDC-developed water, sanitation, and hygiene training modules**.
- CDC collaborated with Mercy Corps on **the closure of the Roma IDP camp in Mitrovica, Kosovo in response to a lead outbreak**. Relocating families to environments with safe lead levels contributed to **statistically and clinically significant reduction in blood lead levels**.

## Future Directions

Under the Global Health Strategy, CDC will continue working towards its targets for reducing the burden of NCDs. Targets for 2013 include:

- 1) Engaging two new countries in the use of CDC-developed NCD training modules designed to increase their public health workforce capacity;
- 2) Engaging one new focus country in enacting a national strategy for sodium reduction;
- 3) Engaging one new focus country in the development of an integrated surveillance system capable of documenting the burden of road traffic injuries; and,
- 4) Achieving a 2.5% reduction per year in the prevalence of current tobacco use in countries with a Global Adult Tobacco Survey (GATS).



# 2.1

## Strengthen Capacity to Prepare for and Detect Infectious Diseases and Other Emerging Health Threats

### Background

In recent decades the world has faced an accelerating assault from emerging infections, both from new diseases and from changing endemic ones. HIV, West Nile virus, and SARS are examples of diseases caused by previously unknown or minor pathogens that have had global impact. CDC works worldwide to strengthen the preparedness of public health systems to detect and respond to emerging health threats. This entails not only supporting Ministries of Health infrastructure development, but also helping to build the human capacity to conduct surveillance, diagnose illness, communicate and analyze evidence, and respond effectively.

In 2012, CDC engaged in a range of global health security activities, working with **key partner organizations** and **numerous host country governments** to strengthen global capacity to prepare for and detect infectious diseases and other emerging health threats and meet requirements of the International Health Regulations.

### 2012 Accomplishments

#### *Early Detection of Emerging Health Threats*

- CDC was instrumental in leading many successful efforts to detect and stop the transmission of infectious diseases, including **plague and Ebola in Uganda**. It responded to outbreaks of **dengue in Angola, Kenya and Tanzania**. Its scientists **discovered previously unknown human viruses in Indonesia and East Africa**.
- CDC has provided support to **more than 20 countries** to support **Emergency Operations Center (EOC) development**, exercise development and training in emergency operations, incident command systems, and emergency risk communications.
- The Global Disease Detection Operations Center **identified 122 new outbreaks** via event-based surveillance and supported cross-agency **Epi-Aids to 19 outbreaks in 16 countries** in 2012.

#### *Country Capacity to Comply with the International Health Regulations*

- In 2012, CDC supported **global health security planning** in **Kenya, Uganda, Tanzania, Georgia, and Kazakhstan**.



## 2012 Accomplishments (continued)

### *Laboratory Capacity to Detect and Identify Pathogens*

- CDC worked to improve the capacity of laboratories worldwide to detect unusual pathogens by improving their capacity to accurately identify their endemic pathogens. Efforts in 2012 **supported laboratories in Armenia, Egypt, Georgia, India, Republic of Korea, Uganda, and Zimbabwe.**
- In **Uganda**, CDC built lab capacity to identify viral hemorrhagic and vector-borne viruses and plague. In **Indonesia**, it built the country's first lab capable of the molecular diagnosis of emerging viruses.

### *Technical Assistance to Improve Disease Detection in Vulnerable Populations*

- CDC worked in **Ethiopia, Kenya, Somalia, Haiti, South Sudan, and Syria** to improve the **detection of disease in vulnerable populations.**
- In **Haiti**, for example, CDC partnered with the Ministry of Health and the International Centre for Diarrheal Disease Research (Bangladesh) to train more than 500 clinical staff on the **clinical management of cholera.**

### *Detect and Prevent Emerging Pathogens that result from Increased Human Contact with Animals, Vectors, and Poor Sanitation*

- CDC worked in **Democratic Republic of the Congo, Georgia, Azerbaijan, Indonesia, Kazakhstan, Kenya, Thailand, Uganda, and Ukraine** to improve methods to detect and prevent emerging pathogens that result from social and demographic trends that increase human contact with animals, vectors, and poor sanitation.
- In **Kenya**, CDC supported the 2012 establishment of the Zoonotic Disease Unit (ZDU), which **successfully responded to an outbreak of Human African Trypanosomiasis**, and in **Thailand** CDC established for the first time the burden of zoonotic bacteria as causes of chronic heart disease.



## Future Directions

Under the Global Health Strategy, CDC will continue working to strengthen country capacity to prepare for and detect infectious diseases and other emerging health threats. Priorities for 2013 include identifying priority countries for global health security capacity building, increasing the number of countries receiving CDC assistance in this area, and increasing the number of priority countries with surveillance and lab capacity to detect and identify endemic and emerging pathogens.

## 2.2

# Respond to International Public Health Emergencies and Improve Country Response Capabilities

## Background

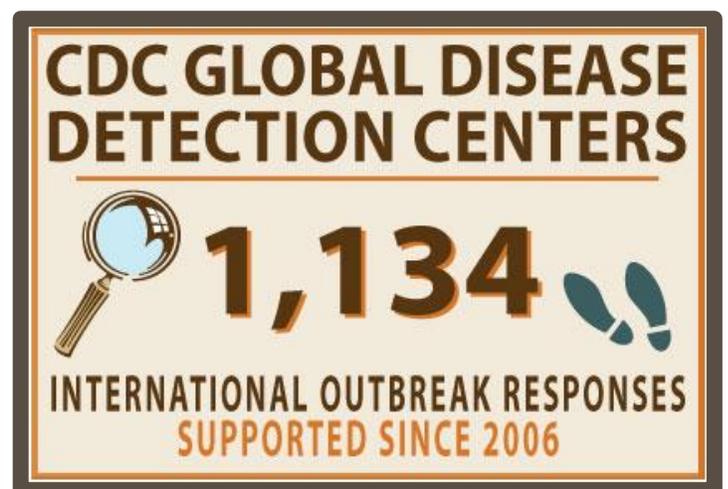
When a humanitarian or natural emergency compromises health security, or when global public health systems fail to detect a threat, it is vitally important that CDC work with international partners and Ministries of Health (MOHs) to quickly respond to urgent needs. At the same time, the agency must also plan for long-term systems infrastructure support. In addition to large scale events, day-to-day efforts to control, manage, and treat populations with certain diseases (e.g., multi-drug-resistant TB) are of critical importance. A delayed response can increase the magnitude of the problem and the challenges with containment.

At the invitation of MOHs or WHO, CDC is able to quickly mobilize response units comprising a wide array of public health experts. When an emergency occurs, it is critical to respond early to control and reduce morbidity, mortality, and spread, and to help countries improve capabilities to prepare for future events following the response.

In 2012, CDC programs from across the agency collaborated on outbreak response activities in **13 countries**, as well as on emergency preparedness and response capacity building work in **Egypt, Kenya, Bangladesh, Guatemala, India, China, South Africa, Thailand, Kazakhstan, and Georgia**. CDC works closely with **MOHs and Field Epidemiology Training Programs (FETPs)** on outbreak response and emergency preparedness activities.

## 2012 Accomplishments

- During 2012, CDC's Global Disease Detection Centers worldwide provided assistance in **responding to 209 outbreaks**; of these, 140 (67%) were responded to in less than 24 hours. See the next page for information about CDC's involvement in outbreak response worldwide.
- CDC's FETPs continue to assist with the **training of public health professionals** to prepare and respond to disease threats in-country, improving country response capabilities.



## 2012 Outbreak Responses

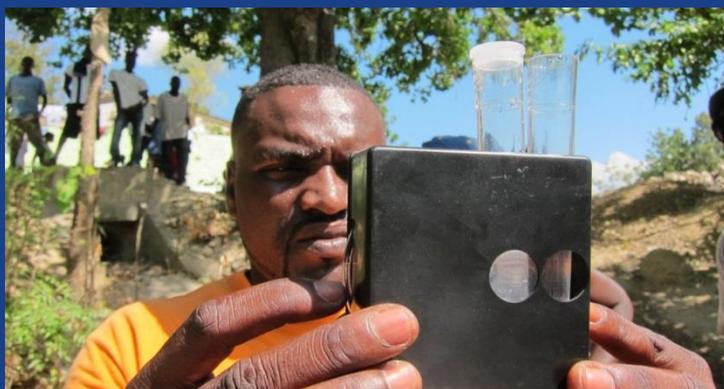
Highlights from CDC's 2012 outbreak response activities include:

- Deploying staff to **Georgia** to strengthen **anthrax** disease surveillance, identify risk factors, and improve health education.
- Responding to outbreaks of **cholera** in **Democratic Republic of Congo (DRC)** and **Sierra Leone**, strengthening disease surveillance in DRC neighborhoods affected by munitions explosions and in sites for internally displaced persons.
- Investigating an increase in **gastroenteritis**-associated deaths among children under five in **Botswana**.
- Providing support for laboratory capacity development in response to outbreaks of **Ebola** in **Democratic Republic of the Congo** and **Uganda**.
- Supporting the first international conference on nodding syndrome in conjunction with outbreak responses in **South Sudan, Tanzania, and Uganda**.
- Assisting the Kingdom of Saudi Arabia in the investigation of the first identified novel coronavirus case, the virus was later named Middle East Respiratory Syndrome coronavirus (MERS-CoV).

## Future Directions

Under the Global Health Strategy, CDC will continue working to strengthen country capacity to prepare for and detect infectious diseases and other emerging health threats. Priorities for 2013 include:

- 1) Continuing to enhance CDC's ability to provide a timely response to requests for direct support for outbreak investigations;
- 2) Increasing the number of countries with FETPs that have at least one rapid response team per administrative area; and,
- 3) Using FETPs to ensure that priority countries are on track to have at least one trained epidemiologist per 200,000 population to ensure country capability to respond to public health emergencies.



# 3.1

## Strengthen Public Health Institutions and Infrastructure

### Background

CDC works to build and strengthen global public health capacity to achieve lasting health improvements. In many countries, limited capacity to detect and respond to public health threats has hampered progress toward improving health outcomes. Investment in public health institutes can reduce morbidity and mortality and improve population health in resource-poor settings. CDC works to establish or strengthen existing science-based National Public Health Institutes (NPHIs) to provide expertise and leadership in core public health functions in low- and middle-income countries. In addition, CDC supports One Health (OH) activities globally to address the spread of infectious diseases that are passed from animals to humans.

In 2012, CDC supported the **establishment and strengthening of NPHIs in Rwanda, Malawi, India, and Kenya**, documenting institutional progress towards improved public health system capacity in these countries. **Ministries of Health**, as well as the **International Association of National Public Health Institutes (IANPHI)**, were key partners in these activities. CDC also worked with the government of Kenya to establish an OH office.

### 2012 Accomplishments

#### *Establishment and Strengthening of National Public Health Institutes*

- CDC is supporting **Rwanda's Institute for HIV/AIDS, Disease Prevention and Control** to strengthen organizational performance.
- The newly created **Public Health Institute of Malawi** was named one of the top national priorities by President Banda, and is being strengthened with support from CDC and IANPHI.
- CDC is also supporting **India's National Center for Disease Control** in its efforts to streamline public health data collection and to improve scientific reporting.

#### *Improving Public Health Outcomes through National Public Health Institutes*

- In 2012, the **government of Kenya** established an **OH office to bridge the ministries of livestock and human health**. With CDC and other partner support, a five-year plan for the implementation of OH in Kenya was launched to 1) promote OH in the country; 2) strengthen surveillance, detection, prevention, and control of zoonoses in both humans and animals; and 3) stimulate and conduct research and training at the human-animal-ecosystem interfaces.

### Future Directions

Under the Global Health Strategy, CDC will continue working towards its targets for strengthening public health institutions and infrastructure. Targets for 2013 include increasing the number of NPHI project plans developed with partner countries; developing a public health institute assessment tool; and increasing the number of countries with an established, multi-sectoral zoonotic disease unit.



## 3.2

# Improve Surveillance and the Use of Strategic Information

## Background

CDC helps countries establish surveillance systems to produce reliable, timely information on health determinants, health status, and the performance of health systems. It also supports the development and implementation of complementary health information systems to support patient management and program monitoring. In 2012, global surveillance capacity building activities occurred under all areas of the Global Health Strategy. A few examples are listed below.

## 2012 Accomplishments

### *Country Surveillance and Strategic Information Capacity*

- CDC supports the development of **country capacity to implement the International Health Regulations** (2005), which includes disease surveillance and dissemination of surveillance information. In 2012, 28 (61%) of 46 African countries reported regular dissemination of surveillance feedback bulletins. Eight (28%) of these countries include district-level information in their dissemination.

### *Examples of Surveillance Activities under other Strategy Objectives*

- **Objective 1.1 (HIV):** With the WHO in 2012, CDC's Division of Global HIV/AIDS developed field guidance on "Guidelines for assessing the utility of data from prevention of mother-to-child transmission (PMTCT) programs for HIV sentinel surveillance among pregnant women," which are being implemented in a variety of sub-Saharan African countries. The shift to using PMTCT program data for HIV sentinel surveillance will both strengthen PMTCT routine data reporting systems and will improve the cost effectiveness and sustainability of surveillance systems in sub-Saharan Africa.
- **Objective 1.2 (Tuberculosis):** CDC assists Ministries of Health in evaluating national tuberculosis (TB) surveillance systems that monitor TB case-finding efforts, the diagnostic cascade, linkages to HIV care and treatment, and patient outcomes. In 2012, CDC piloted a tool for validating TB surveillance systems in Kenya and Thailand, using standardized measures and benchmarks to inform similar evaluations around the world.
- **Objective 1.3 (Malaria):** In 2012, CDC provided direct technical assistance to establishing and conducting antimalarial drug resistance surveillance in Ethiopia, Mozambique, and Kenya.
- **Objective 1.4 (Maternal and Perinatal Mortality):** In 2012, CDC provided technical assistance and advanced neural tube defect surveillance in Kenya, Mexico, and Colombia.
- **Objective 1.5 (Child Morbidity and Mortality):** CDC, in conjunction with WHO and other partners, supports rotavirus surveillance to reduce diarrheal disease deaths in children.

## 2012 Accomplishments (continued)

- **Objective 1.6 (Neglected Tropical Diseases):** CDC collaborates with the African Field Epidemiology Network, Ghana Health Services, and Noguchi Institute on post-lymphatic filariasis treatment surveillance activities in Ghana.
- **Objective 1.7 (Vaccine-Preventable Diseases):** CDC programs collaborated to strengthen vaccine-preventable disease surveillance capacity through training and infrastructure improvements in Cameroon, Central Africa Republic, and the Democratic Republic of the Congo.
- **Objective 1.8 (Non-Communicable Diseases):** CDC's National Center for Chronic Disease Prevention and Health Promotion and the Center for Global Health worked with Colombia to develop a National Non-communicable Diseases (NCDs) surveillance plan which will expand data collection on NCD risk factors and to address surveillance of pediatric cancers.
- **Objective 2.1 (Prepare for and detect Infectious Diseases and Other Emerging Health Threats):** CDC's Field Epidemiology Training Programs (FETPs) and Global Disease Detection Regional Centers demonstrated success in improving early detection for emerging threats through enhanced surveillance. In the Democratic Republic of the Congo, for example, CDC worked with the Kinshasa School of Public Health through a newly established FETP program to train professionals in both human and animal health, including laboratorians, to conduct an evaluation of existing surveillance systems for a variety of public health priority diseases.
- **Objective 2.2 (Respond to International Public Health Emergencies):** The majority of CDC's support for global public health emergency response includes surveillance activities. In Georgia, for example, CDC deployed staff to strengthen anthrax surveillance, identify risk factors, and develop health education.
- **Objective 3.1 (Strengthen Public Health Institutions):** CDC's work to build and strengthen National Public Health Institutes encompasses surveillance systems. In Kenya, for example, the establishment of the One Health office with CDC support lays the groundwork for strengthening surveillance of zoonoses in both humans and animals.
- **Objective 3.4 (Strengthen Laboratory Systems and Networks):** CDC has developed innovative assays for public health surveillance and laboratory diagnosis of a broad range of infectious diseases found in resource poor settings, including Taqman Array Cards for respiratory and febrile illnesses, HIV incidence assays, point of care tests for cryptococcal meningitis, and others.

## Future Directions

Under the Global Health Strategy, CDC will continue working to improve surveillance and the use of strategic information. Strategic priorities for future work include a focus on health information systems, translation of health data into effective public health practice, building country surveillance capacity, and providing leadership in establishing consistent standards for global public health informatics.



## 3.3

# Build Workforce Capacity

## Background

Effective public health systems depend on a trained and motivated workforce to carry out the services needed to achieve health goals. CDC's experts work with Ministries of Health (MOHs) and other partners to establish a sustainable public health workforce globally. Establishing sustainable public health workforce capacity is more than just training—it requires strengthening a complex system of human resource dynamics, including planning and management of the health workforce; producing new health workers through preservice education; ensuring adequate recruitment into the public health system; improving the quality of training, mentorship, and supervision; and providing appropriate retention incentives. CDC's highly trained medical officers, public health advisors, epidemiologists, health economists, behavioral scientists, laboratorians, veterinarians, and program managers offer unique technical and scientific expertise to strengthen sustainable public health workforce capacity.

## 2012 Accomplishments

- Since 1980, CDC has helped **develop 46 international Field Epidemiology Training Programs (FETPs)** serving **69 countries**, graduating over **2800 epidemiologists** prepared to evaluate health programs and to detect and respond to health threats.
- In 2012, CDC supported the establishment of **two new training programs**—India's Epidemic Intelligence Service and Yemen's FETP.
- In 2012, CDC supported 25 FETPs with 229 graduates. A multi-site evaluation of FETPs showed that approximately 80% of FETP graduates continue to work in their home country after graduation.
- In 2012, FETP residents in programs conducted **408 outbreak investigations**, planned **190 studies**, engaged in **447 surveillance activities**, and **presented 156 presentations** at national and international public health conferences.
- In addition to the full FETP programs, CDC supports **short epidemiology training courses** in **Haiti, Laos, Cambodia, and South Sudan**. In 2012, these programs supported 64 trainees and 24 graduates.
- In 2012, CDC supported preservice training for **8,742 health care workers** in support of the **President's Emergency Plan for AIDS Relief (PEPFAR)**.



## 2012 Accomplishments (continued)

- As part of the PEPFAR program, CDC collaborated with WHO and the Nigerian Federal MOH to launch a **national human resource information system** and a registry of the national health workforce. This system helps MOHs to plan, manage, and monitor their scarce human resources for health at all levels of the health system to ensure the most **efficient and effective allocation and training of staff to support health goals**.
- Also as part of the PEPFAR program, CDC is implementing a four-year initiative to improve HIV service delivery by strengthening nursing and midwifery leadership, policy, and regulation. The **African Health Professions Regulatory Collaborative** is a south-to-south learning collaborative that convenes nursing leadership teams from MOHs, regulatory bodies, professional associations, and academic sectors to build the nursing workforce in **17 countries in east, central, and southern Africa**.
- Local clinical and laboratory research staff who support CDC's HIV/AIDS prevention research teams in **Botswana, Kenya, and Thailand** also receive training which allows them to find **new opportunities for work** in the healthcare systems of their respective countries following the completion of the CDC studies.
- Several FETPs have a long history of accepting veterinarians into their programs and graduating veterinarian epidemiologists who significantly contribute to **developing human and animal health systems** and building work force capacity to implement a One Health approach. This includes the establishment of a **One Health fellowship**, which graduated its first class in 2012, including six health professionals from **Kenya and Uganda**.
- FETP trainees in **Nigeria** have been critical to their country's polio eradication efforts. In 2012, select residents received special training to form a **Stop Transmission of Polio (STOP)** team to support the country's **2012 polio eradication emergency plan**.



## Future Directions

Under the Global Health Strategy, CDC will continue working towards its targets for strengthening the capacity of the global public health workforce. Priorities for 2013 include focused CDC support for preservice training of public health workers, as well as continued support for in-service training programs like FETP. CDC will continue to explore opportunities to work with multi-national partners to establish new FETPs where appropriate, and to conduct in-country assessments to evaluate and strengthen existing FETPs and develop workforce plans.

## 3.4

# Strengthen Laboratory Systems and Networks

## Background

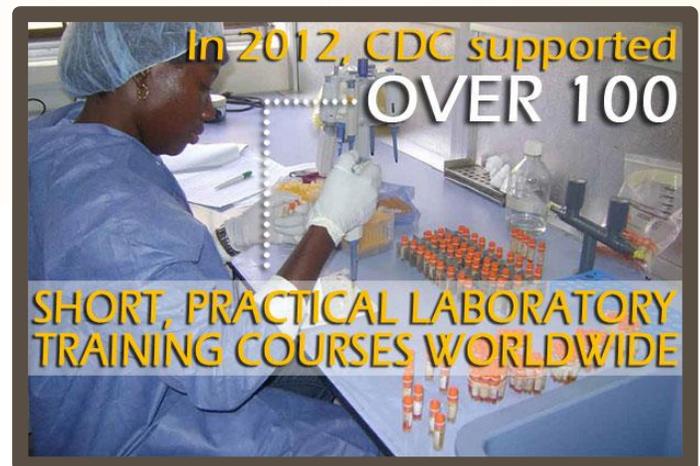
Laboratories have a vital role in the early detection and monitoring of a variety of diseases and health events, and in surveillance to monitor the impact of vaccination programs, which enables countries to better respond, treat, control, and prevent spread of disease in a population. Laboratories also have a critical role in monitoring and evaluating the impact of program interventions to control and eliminate diseases. CDC assists countries in building sustainable and integrated laboratory networks as a critical and core component of the overall health system.

In 2012, **five CDC programs and offices** collaborated on global laboratory activities, working with **five key partner organizations** and **numerous host country governments** to achieve progress towards the shared objective of strengthening laboratory systems and networks.

## 2012 Accomplishments

### *Laboratory Policies, Standards, and Strategic Plans*

- Through PEPFAR, CDC has supported the formation of the **African Society for Laboratory Medicine (ASLM)**. ASLM aspires to increase the **visibility and professional integrity of laboratories on the African continent**. CDC works with ASLM on the development of national **laboratory strategic plans** and supports advocacy for **regional laboratory accreditation bodies** on the continent.
- CDC continues to support laboratory development to ensure **country readiness to implement the International Health Regulations**.



### *Laboratory Workforce*

- CDC has devised the **Stepwise Laboratory Management towards Accreditation Training Program** resulting in significant **improvement of workforce performance** in support of global HIV/AIDS and other public health programs.
- CDC subject matter experts have continued to provide **short, practical laboratory courses** (five days or more) both in Atlanta and overseas to **improve laboratory workforce capacity**, and to encourage ministries of health to establish leadership positions for ministry laboratory programs.

## 2012 Accomplishments (continued)

### *Laboratory Capacity*

- CDC has developed **innovative assays for public health surveillance and laboratory diagnosis** of a broad range of infectious diseases found in resource poor settings, including Taqman Array Cards for respiratory and febrile illnesses, HIV incidence assays, and point-of-care tests for cryptococcal meningitis and syphilis.
- CDC continues to maintain and expand **global laboratory networks supporting vaccine preventable disease programs** for polio, measles, rubella, rotavirus, influenza, and invasive bacterial infections to improve disease surveillance.

### *Laboratory Quality Management Systems*

- CDC has worked with ASLM and WHO/AFRO to develop the Stepwise Laboratory Improvement Process Towards Accreditation checklist to **measure quality improvement in African laboratories** while reducing the cost of formal accreditation preparedness. This approach has been modified and implemented in **Central America, the Caribbean, and Southeast Asia**.
- CDC worked with WHO and Department of Defense to introduce **laboratory quality management systems in Central Asia and the Caucasus**, and with the Global Laboratory Initiative to design a program to improve the **quality of national tuberculosis reference laboratories**.

## Future Directions

Under the Global Health Strategy, CDC will continue working towards its targets for strengthening laboratory systems and networks. Targets for 2013 include:

- 1) Increasing the number of CDC-supported laboratories or laboratory networks that achieve or maintain accreditation or certification to an accepted quality standard;
- 2) Increasing the number of CDC-supported laboratory training courses to support international laboratory-based surveillance and program implementation; and
- 3) Maintaining a consistent proportion of laboratory residents in CDC's Field Epidemiology Training Programs.



# 3.5

## Improve Research Capacity

### Background

The primary objective of research for public health is to provide sound scientific evidence to develop tools and strategies to improve public health impact and public health systems, and to inform and improve relevant policy and guidelines. CDC conducts epidemiologic and laboratory research to improve existing or develop new promising interventions and tools, while examining the cost-effectiveness and efficiency of programs. CDC also conducts public health systems research to examine the organization, financing, and delivery of public health services within communities and the impact of these services on public health. Through its focus on research, CDC also works with partners to strengthen the capacity of Institutional Review Boards in countries to achieve improved guidance and safeguards for research activities.

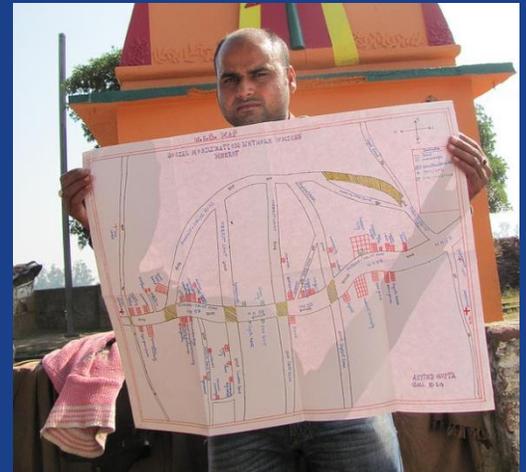
### 2012 Accomplishments

#### Research Capacity

- In 2012, CDC's Center for Global Health advanced **34 new research protocols** and **306 new project determinations**, and had **188 active CDC-Institutional Review Board protocols** based on global health activities in CDC presence countries.

#### Examples of Research Activities under other Strategy Objectives

- **Objective 1.2 (Tuberculosis):** In several countries in sub-Saharan Africa, CDC is conducting research to enable better prevention, diagnosis, and treatment of tuberculosis (TB) among children by characterizing the pediatric epidemic, evaluating new approaches to TB diagnosis, and investigating vaccine candidates.
- **Objective 1.3 (Malaria):** In 2012, CDC subject matter experts participated in multi-national research consortia to evaluate new interventions including insecticide-treated wall liners, novel diagnostics, and the RTS,S malaria vaccine candidate.
- **Objective 1.6 (Neglected Tropical Diseases):** In 2012, CDC's dengue prevention and control activities included conducting research to improve methods for dengue vector surveillance and to assess novel methods for dengue vector mosquito control.



## 2012 Accomplishments (continued)

- **Objective 1.7 (Vaccine-Preventable Diseases):** In 2012, CDC conducted implementation research on the synergy between immunization services and supplemental immunization activities, and practices and policies of vaccine wastage in Nigeria.
- **Objective 1.8 (Non-Communicable Diseases):** In 2012, CDC provided small grants to engage in-country public health researchers in injury-related work. The first round of mini-grant projects was completed in Colombia, Kenya, Tanzania, and Yemen in September 2012.
- **Objective 2.1 (Prepare for and detect Infectious Diseases and Other Emerging Health Threats):** In 2012, CDC partnered with George Washington University and the Stimson Center to develop a costing model for country implementation of and compliance with the International Health Regulations (2005).

## Future Directions

Under the Global Health Strategy, CDC will continue working towards building research capacity in the countries in which we work. This will include:

- 1) Using research to identify new and strengthen existing public health interventions and tools;
- 2) Supporting the development of country research expertise and capacity;
- 3) Developing and disseminating guidelines to translate research into national public health initiatives;
- 4) Developing, evaluating, and deploying innovative public health technologies for field and low-resource settings; and
- 5) Collaborating with host countries and U.S. government partners to strengthen the capacity of local Institutional Review Boards.



# 4.1

## Strengthen Organizational and Technical Capacity to Better Support CDC's Global Health Activities

### Background

Fundamental to strong, sustained program implementation is an efficient organizational capacity to support those efforts. CDC's Center for Global Health, in close coordination with other CDC global programs and CDC business services offices, provides management and operational support to CDC country operations and field offices in a variety of areas, including country governance, overseas operations, and workforce planning and management.

### 2012 Accomplishments

#### *Country Office Governance*

- In 2012, CDC issued version 4.0 of its **Governance Document for Country Offices and Overseas Operations** in November 2012. This important document provides a framework for CDC global programs to work together within each country office and from Atlanta.
- In 2012, CDC expanded participation in Division of Global HIV/AIDS **Country Management and Accountability System** visits to provide a more robust review of CDC programs overseas with the goal of strengthening the governance structure of CDC country offices.



#### *Country Office Operations*

- In 2012, CDC released an updated **Guide to Global Operations**, a 400 page resource to ensure that CDC Country Offices operate in compliance with U.S. government laws, regulations, policies, rules, and procedures.
- In 2012, CDC worked with country offices on many management and administrative priorities, including in-country **program cost sharing, information resources and informatics, overseas business management, and country office safety and security.**

## 2012 Accomplishments (continued)

### *Overseas Workforce Planning*

- In 2012, CDC worked to **improve the process for recruiting, hiring, and deploying overseas staff**, including a review of the overseas staffing process and the establishment of a specialized global health staffing team within CDC's Human Capital and Resources Management Office.

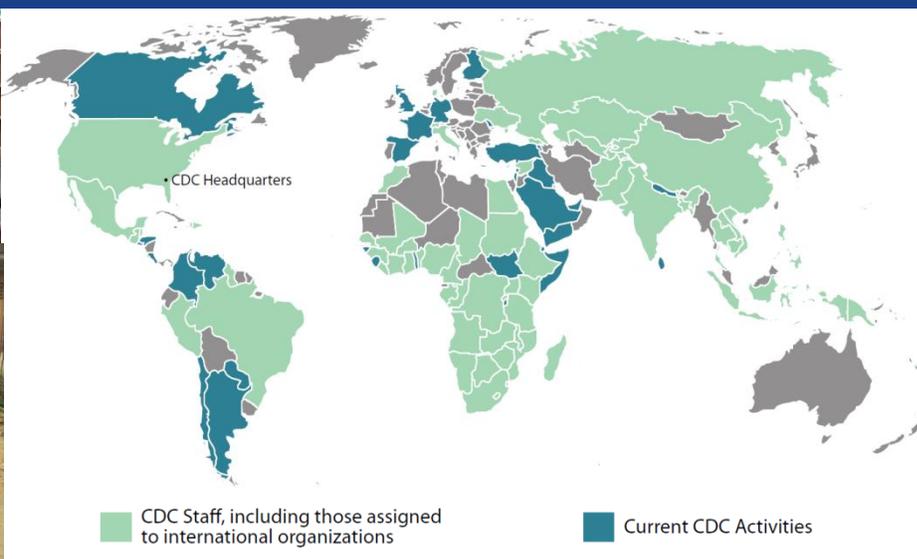
### *CDC Staff Capacity*

- In April 2012, CDC implemented **standardized predeployment training requirements** for staff in specified jobs prior to deploying overseas. This initiative helps ensure that CDC overseas staff are able to effectively address evolving global health priorities and to help build country capacity.
- The Center for Global Health continues to provide **training opportunities for global health staff** to increase the skills of CDC staff who in turn work to build the capacity of host-country counterparts. In 2012, there were **58 trainings** offered worldwide, with a total of **1089 participants**. Offerings included scientific writing, laboratory design, overseas supervisory training, and management-related courses.

## Future Directions

Under the Global Health Strategy, CDC will continue improving organizational and technical capacity to better support its global health activities. Priorities for 2013 include:

- 1) Using survey data to modify CDC's Governance Document for Country Offices Overseas Operations as well as the Guide to Global Operations to meet the needs of country offices; and,
- 2) Completing an assessment of country office business management requirements to inform the development of an Overseas Business Management System.



## 4.2

# Enhance Communications to Expand the Impact of CDC's Global Health Expertise

## Background

Critical to CDC's ability to maximize the impact of global programs are improvements in communication and coordination among CDC's headquarters programs and field offices and with its partners. CDC develops evidence for effective public health interventions, and the impact of its global health work is increased when knowledge about the relative impact and cost-effectiveness of those interventions is effectively communicated to a range of internal and external stakeholders.

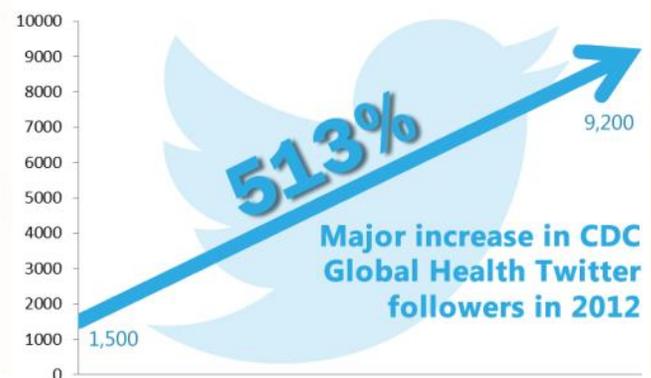
## 2012 Accomplishments

### *Cross-Agency Coordination*

CDC held monthly **Global Communicators Forum** meetings in 2012 for headquarters and country office communicators to improve coordination of global health messaging and outreach.

### *Articulation of CDC's Unique Role in Global Health*

- CDC uses its **web and social media strategies** to articulate CDC's unique role in global health. In 2012, CDC's **Center for Global Health website** was the 6<sup>th</sup> most viewed website among CDC's centers, and the number of CDC global health followers on Twitter increased by 4% per week.



### *Partnership Capacity of CDC's Global Health Programs*

- In 2012, CDC conducted a **review of 13 global health partners** to identify opportunities to systematically share CDC's key global health messages and materials. Following this review, CDC initiated a pilot partnership with ONE, an international, non-profit organization, collaborating on targeted global health communications.

### *Utilization and Maximization of Resources and Knowledge*

- In 2012, CDC streamlined the development and distribution of **cross-cutting core global health materials**, including country and program factsheets.

## Future Directions

Under the Global Health Strategy, CDC will continue enhancing communications to expand the impact of CDC's global health expertise. Priorities for 2013 include updating and sharing global communications resources across the agency, operationalizing CDC's global framework for web and social media strategies, and increasing collaboration with key global health partners.

