Division of Global Public Health Capacity Development

2007 Annual Report

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
Coordinating Office for Global Health

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Foreword

I am pleased to present the *Division of Global Public Health Capacity Development (DGPHCD) 2007 Annual Report,* our division's third annual report. Since our last report, several organizational changes have occurred resulting in a name change and the addition of a program to our division. The Division of Epidemiology and Surveillance Capacity Development has been renamed Division of Global Public Health Capacity Development, and we have incorporated the Sustainable Management Development Program (SMDP) into our division.

The addition of SMDP to our division has enabled us to strengthen our capacity to conduct management training for public health workers. SMDP partners with Ministries of Health, educational institutions, and nongovernmental organizations in developing countries to promote organizational excellence in public health through strengthening leadership and management capacity.

In addition to our focus on management training, a substantial amount of our work is devoted to helping countries set up Field Epidemiology Training Programs (FETPs) and Field Epidemiology and Laboratory Training Programs (FELTPs). Since 1980, we have been involved with these applied epidemiology programs, which are modeled after the Centers for Disease Control and Prevention's (CDC) Epidemic Intelligence Service. Because each program is uniquely tailored to meet the specific health and programmatic needs of the country, the implementation phase is a carefully detailed process that requires extensive preparation and collaborative work before trainees are able to enroll.

Sections one through three of the report cover FETPs and FELTPs. The first section describes the 10 FETPs and FELTPs we currently support, which cover 19 countries. The second section covers the five FELTPs that are currently under development and cover 10 countries. Most of these programs are scheduled to start in 2008 under the supervision of in-country CDC Resident Advisors. The third section includes FETPs that are largely self-sustained but to which we provide support on a limited basis. Most of these FETPs have been in existence for many years, including the Thailand FETP which was started in 1980 and was the first FETP created outside of North America.

Section four presents the work of SMDP. We are supporting program development in four countries. The results of the 2007 Management in International Public Health course are described, as well as plans for the development of a Center of Excellence for Management in partnership with the African Field Epidemiology Network. In addition, in 2007, we provided technical assistance to four countries whose programs are self-sustained. New programs in Ethiopia, Georgia, and Rwanda are being developed in 2008.

Finally, section five covers other division projects that deal with partnerships as well as non-country specific issues pertaining to the entire division such as the creation of a curriculum and the implementation of a monitoring and evaluation project.

We welcome your feedback on our third report; please send your comments to DGPHCDinfo@cdc.gov. To find out more about our activities, visit our website at www.cdc.gov/cogh/dgphcd.

I hope you will find this report informative.

Patricia M. Simone M.D.

Patricia M. Simone, M.D.
CAPT, U.S. Public Health Service
Director
Division of Global Public Health Capacity Development
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Centers for Disease Control and Prevention

Division Overview

Based in Atlanta, Georgia (U.S.A.), the Division of Global Public Health Capacity Development (DGPHCD) is part of the Coordinating Office for Global Health at the U.S. Centers for Disease Control and Prevention.

Vision

Our vision is that countries throughout the world have effective and equitable public health systems to protect communities and enable people to live healthy and productive lives.

Mission

Working with Ministries of Health (MOHs) and public health partners, we are committed to strengthening public health systems and developing the workforce using solid science and innovative programs.

We aim to build sustainable capacity that meets our partners' national priorities. We also believe that strong public health systems globally are needed to improve and protect the public's health and to respond effectively to the ever-changing global public health challenges. We are committed to effectively collaborate with our public health partners and to respect the diversity of global public health practices, resources, and experiences.

Goals

Using training programs such as the Field Epidemiology Training Program (FETP), the Field Epidemiology and Laboratory Training Program (FELTP), the Sustainable Management Development Program (SMDP), Data for Decision Making, and other programs, we help MOHs around the world build strong, effective, sustainable programs and capacity to improve public health systems on a local, regional, and national level.

Strategy

We work with partners to strengthen the global public health workforce, support public health systems, and achieve program sustainability through key strategies that emphasize applying public health science and practice and demonstrating measurable public health results. We aim to achieve these goals through:

- **Applied Epidemiology.** We work with MOHs and other public health institutions to strengthen their countries' epidemiology workforce through FETPs and FELTPs, which are residency-based programs in applied epidemiology. A combination of classroom-based instruction and mentored practical work allows trainees to receive hands-on multi-disciplinary training in public health surveillance, outbreak investigation, laboratory management, program evaluation, and other aspects of epidemiology research and methods.
- **Public Health Surveillance and Response Systems.** We work with partner MOHs to strengthen their public health surveillance and response systems for priority disease conditions. FETP and FELTP trainees learn detection, confirmation, reporting, analysis and feedback of disease data, and implementation of effective public health responses in a participatory approach. As graduates, they apply these skills in their work for the MOH to operate and further strengthen the public health surveillance and response systems and to use the information for more effective disease detection, control, and prevention.
- **Public Health Leadership and Management.** We help countries develop sustainable public health capacity to deliver effective leadership and management development programs through SMDP. Through strategic partnerships with public health training institutions, faculty development in SMDP's Management for International Public Health (MIPH) course, and technical program assistance, we develop leadership and management programs for public health professionals. SMDP combines experiential training and supervised applied management improvement projects to help public health professionals acquire the knowledge and skills needed to improve organizational performance, shape the public health agenda, and strengthen public health practice in their countries.

Workforce

Our teams of physicians, epidemiologists, public health advisors, management trainers, instructional designers, health communication specialists, and support staff provide scientific expertise, training consultations, and other programmatic support and advice to help MOHs enhance their health protection and health promotion programs.

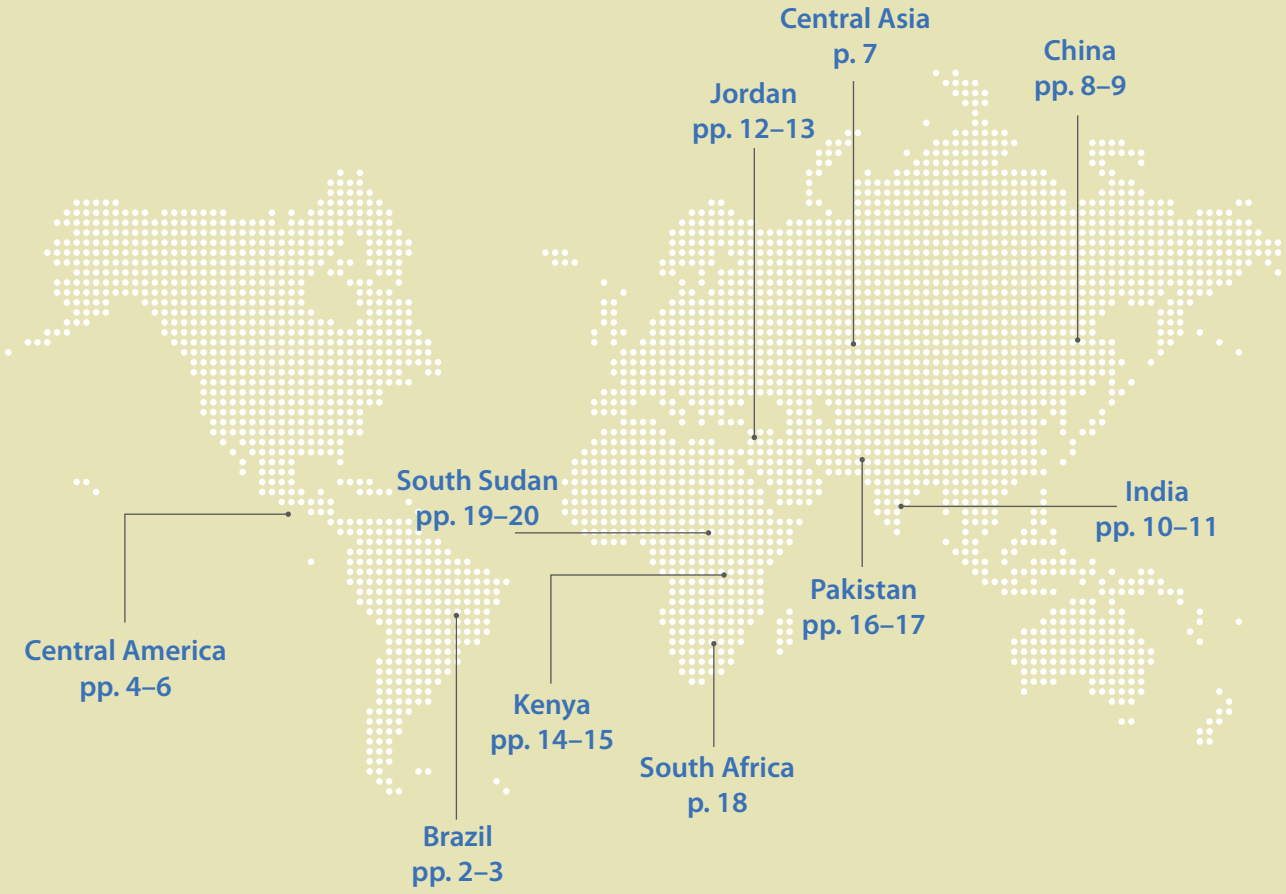
For example, we develop customized classroom curricula for epidemiology, biostatistics, management, and public health communication skills. We also provide additional training and technical assistance to sustain FETPs, FELTPs, SMDP, and related programs around the globe.

Partnerships

Developing partnerships is an important element of establishing, supporting, and sustaining our programs. Therefore, we regularly collaborate with national and international organizations such as the World Health Organization, the U.S. Agency of International Development, the Department of State, the Department of Defense, the Ellison Medical Foundation, the Carter Center, and the World Bank.✦

Section 1

Current Field Epidemiology Training Programs and Field Epidemiology and Laboratory Training Programs



Brazil Field Epidemiology Training Program

Program description

The Brazil FETP was created in 2000 by the Brazilian MOH, with support from CDC. The name of the program is "Programa de Treinamento em Epidemiologia Aplicada aos Servicos do Sistema Unico de Saude" (EPISUS).

Since 2000, more than 140 outbreaks have been investigated and more than 70 surveillance systems evaluated. Brazilian public health authorities recognize that EPISUS has created the capacity for scientifically-based outbreak investigation and response in the country. Chronic disease surveillance is a new priority for the MOH; a leading role for EPISUS in this area, with CDC support, is being defined at this time.

The first CDC Resident Advisor supported the program during 2000–2006 and a Technical Advisor was hired in 2007 to continue working with the program. EPISUS is currently located organizationally within the Emerging Infectious Diseases Branch of the Epidemiology Surveillance Division of the Secretariat of Health Surveillance (SVS) whose function in the MOH roughly corresponds to that of CDC. Trainees are posted throughout most of the divisions and branches of SVS.

Program data	
Start date	2000
First class enrolled	2000
Number of classes graduated	6
Graduates to date	45
Graduate placement	Central MOH: 27
FETP staff	4
Trainees in 2007	23
Select trainee activities in 2007	
Outbreaks	26
Planned investigations	13
Surveillance activities	13
International presentations	13

Team members

- **Atlanta:** Victor Caceres, Andrew Weathers
- **Brazil:** Jeremy Sobel (Technical Advisor)

Partners

- CDC Foundation
- Secretariat of Health Surveillance, MOH Brazil
- USAID Brazil
- WHO Global Salm Surv international network of epidemiologists and laboratorians
- World Bank

Outbreak investigations

The following are representative outbreak investigations:

- **Four outbreaks of orally-transmitted acute Chagas disease.** This novel mode of transmission has emerged as the leading cause of acute Chagas disease in Brazil, particularly in the previously non-endemic Amazon Basin. Transmission is linked to consumption of non-commercially processed açai, a fruit almost universally consumed in the region, which is contaminated by bugs, their feces, or bodily fluids of marsupial sylvatic hosts.
- **Outbreak of suspected Brazilian Hemorrhagic Fever.** This highly fatal, non-meningitic pediatric illness is caused by *Haemophilus influenza* biotype Agyptius. Worldwide, outbreaks of this disease have been reported exclusively in southern Brazil. This outbreak occurred in a remote jungle area of Para State in the Amazon region, indicating the spread of the pathogen in this area.
- **Persistent outbreak of beri beri.** This outbreak affected several hundred rural inhabitants of Maranhao State in northern Brazil. All forms of beri beri were encountered. Risk factors include poor thiamine intake due to a monotonous polished-rice diet, heavy field labor, alcohol intake, and consumption of subsistence-farming rice. Regional thiamine supplementation and environmental investigations of rice quality and potential contaminants have been undertaken.
- **Various outbreaks of rubella.** Mandatory vaccination of children and women of childbearing age was instituted in Brazil in the 1990s. These outbreak investigations have found cases of rubella among vaccine-targeted population groups, including pregnant women, and identified risk factors for non-vaccination.

Surveillance system evaluations

Trainees have conducted 78 surveillance system evaluations to date, ranging from complex national internet-based reporting systems to state and municipal systems in hyper-endemic regions of select diseases.

The changes and improvements resulting from these evaluations are numerous and include changes to case-definitions, alterations of data collection instruments, and changes in database structure.

An example is the complete restructuring of the national drinking water quality (environmental) surveillance system, planned as a result of an evaluation that demonstrated that despite great complexity and the use of vast resources, the system does not provide adequate data for its own objectives.

Research projects

Trainees have conducted 21 long-term research projects to date, ranging from field investigations with primary data collection to complex analyses of existing databases.

One representative example is the assessment of national mortality from hepatitis C by estimation of corrected death rate through capture-recapture of the national hepatitis surveillance system and the national deaths registry database. The study demonstrated a substantially higher mortality rate from hepatitis C than was reported, with consequent enhanced priority and resource allocation to national hepatitis C surveillance and control programs.

Other accomplishments

- Completed the first Field Investigation Biosafety course for trainees and supervisors
- Participated as instructors and trainees in three rounds of WHO Global Salm Surv Level I course on salmonella epidemiology and laboratory techniques for epidemiologists and laboratorians from each of Brazil's 27 states

Conferences

Abstracts were accepted for presentations at these conferences:

- 2007 European Scientific Conference on Applied Infectious Disease Epidemiology, Stockholm, Sweden: one presentation
- 56th Annual Meeting of the American Society of Tropical Medicine and Hygiene, Philadelphia: one presentation
- International Leptospirosis Society Meeting, Quito, Ecuador: one presentation
- 2007 Latin American TEPHINET Conference, Bogota, Columbia: 10 presentations✦

Epidemiologist gathering samples during an outbreak investigation

Central America Field Epidemiology Training Program

Program description

The Central America (CA) FETP started in 2000 as part of the post-Mitch/Georges Hurricanes reconstruction project for Central America. CAFETP was initially supported by funds given by USAID and most recently through the Global Disease Detection (GDD) initiative.

The CAFETP is a regional program of five national FETPs representing Costa Rica, the Dominican Republic, El Salvador, Guatemala, and Honduras. The program also includes individual trainees from Nicaragua and Panama. CAFETP is unique in that it was initiated with a regional vision.

The principal goals of CAFETP are to build institutional capacity within each country for epidemiologic assessment, investigation, and surveillance and foster a scientific, data-based approach for implementing effective public health programs and policies.

The CAFETP has designed and implemented a pyramidal, three-tiered FETP in Guatemala which has been cited as a successful model for FETPs in the global network. This model aims to build an effective career track and surveillance network for epidemiologists. The three tiers are

1. **Basic Level:** Training in Applied Epidemiology Locally (known as CEAL) for local health staff
2. **Intermediate Level:** Specialization in Applied Epidemiology (known as EEA in some countries) for mid-level district epidemiologists
3. **Advanced Level:** The FETP with a national focus for advanced epidemiologists

This tiered approach lets trainees establish a foundation of epidemiology skills that can be built upon as they graduate through higher levels of the training model.

This model also creates a mentorship "cascade" with FETP trainees serving as mentors to EEA trainees who in turn mentor CEAL trainees. For example, Guatemala has 130 graduates from the intermediate level and 774 graduates from the basic level programs.

The "multiplier effect" of this model has significantly improved surveillance in remote areas of the country as seen during Hurricane Stan where much higher quality post-hurricane surveillance data were obtained from those health areas employing graduates of the program.

The program measures long-term success by the attainment of self-sustaining national FETPs that produce high-quality graduates who become agents of change within their public health systems.

The regional FETP incorporates an academic component: a Masters degree in Field Epidemiology, accredited by the University del Valle in Guatemala.

The initial period of the CAFETP (2000–2005) was characterized as one regional FETP, managed primarily by CDC, with trainees from Central American countries and the Dominican Republic.

In the current transition (2006 to present), the CAFETP is becoming an interdependent network of national FETPs with countries at various stages of institutionalization.

CAFETP is supported in the field by three Resident Advisors located in the CDC-Central America and Panama (CAP) office. Current CDC support is focused on building strong, sustainable national programs, developing high-quality curricular materials with future Web-based delivery options, and developing political leadership and advocacy in the Regional Technical Committee, the steering body of the CAFETP.

Program data	
Start date	2000
First class enrolled	2000
Number of classes graduated	4
Graduates to date	58
Graduate placement	MOHs or Social Security Institute (Costa Rica)
Trainees in 2007	17 + 9 (Costa Rica)
Select trainee activities in 2007	
Outbreaks	20
Planned investigations	4
Surveillance activities	24
International presentations	61

Team members

- **Atlanta:** Victor Caceres, Juan Carlos Alandete, Hoang Dang, Lisa Manley, Denise Traicoff
- **Guatemala:** Augusto Lopez, Gloria Suarez, Carlos Alonso, Gabriela Illescas

Partners

- Pan American Health Organization (PAHO)
- Regional Technical Committee (made up of National Program Coordinators)
- University del Valle (UVG), Guatemala City, Guatemala
- University of North Carolina (UNC), Chapel Hill, U.S.A.
- Instituto Carlos III, Madrid, Spain
- Universidad Evangelica, San Salvador, Costa Rica
- Universidad Nacional Autonoma (UNA), San Juan, Costa Rica
- Universidad Catolic, Tegucigalpa, Honduras
- CDC partners: CDC-CAP, GDD, avian influenza (AI) activity, other Atlanta-based centers

Accomplishments

Regional CAFETP

- CAFETP is involving into a coalition of independent national programs with a strong regional identity. In addition to its own national FETP, the Guatemalan MOH, in collaboration with UVG, supports several AI program-sponsored trainees. UVG also is the academic home of the Dominican Republic FETP while it is negotiating with universities to develop its own domestic accreditation. Other countries made significant strides towards implementing their own integrated pyramid models using regionally developed competencies and learning objectives. Additionally, countries are contributing funds (national or donor-secured) to support program implementation in Costa Rica, the Dominican Republic, El Salvador, Guatemala, and Honduras. International donors helping to support national programs include the World Bank, USAID, and PAHO.
- In March 2007, CAFETP initiated its 5th cohort of 18 trainees (one trainee later had to drop out for health reasons) with the three-week introductory course held at UVG. Two additional modules (the one-week Surveillance module, and the two-week Planned Investigation module) were held in June and November. CDC supported the travel of national tutors to these modules to help them gain skills in organizing and presenting various topics. In 2007, negotiations were held with UVG that would eventually lead to full accreditation of this curriculum for a Masters degree in Field Epidemiology.
- The first year of a three-year Cooperative Agreement with UNC to establish a classroom and distance-based comprehensive curriculum in field epidemiology was completed. This collaboration has resulted in high-caliber, comprehensive curricular materials that are taught in modular format. The materials are designed to facilitate adaptation to a Web-based interactive format.
- Twelve monthly issues of the *Bulletin of the Regional FETP* (BREC) were published. This publication is distributed throughout the region and has been useful in advocacy (e.g., with national health authorities, at TEPHINET meetings). BREC highlights scientific investigations by trainees, significant milestones towards sustainability, and other news of general interest.
- CAFETP negotiated with the AI program to sponsor eight trainees to serve as primary responders to AI-related health emergencies in the region. The trainees have been assigned to seven countries (Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and Panama).
- The Regional Technical Committee held its annual meeting at the 2007 Americas Regional TEPHINET Conference in Bogota, Colombia. The chair of the committee was transferred from Guatemala to Honduras and a workplan for 2008 was developed. Representatives from five collaborating universities (UNC, UVG, Universidad Catolic, Instituto Carlos III, and UNA) also attended the meeting. The committee met monthly throughout 2007 using the Horizon Live virtual meeting space.
- CAFETP was well-represented at that same conference. A total of 70 abstracts were submitted and 60 (86%) were accepted. There were 19 oral and 41 poster presentations: 17 from Costa Rica, 17 from Guatemala, 11 from the Dominican Republic, 9 from Honduras, 4 from Nicaragua, 1 from El Salvador, and 1 from Panama.

Exemplary investigations with regional impact

- A trainee from Nicaragua presented "Outbreak of methanol poisoning in Leon, Nicaragua" at the April 2007 EIS Conference in Atlanta. This outbreak investigation prevented additional cases and potential deaths from methanol poisoning and led to new regulatory laws in Nicaragua.
- Another investigation was a case series study of gastrointestinal illness in Guatemala related to Salmonella Tennessee in imported peanut butter. A cluster of gastrointestinal illnesses was identified in four Americans living in Guatemala who had consumed peanut butter. Salmonella Tennessee was traced to a lot of peanut butter that had been previously implicated and widely distributed to many countries. As a result of the investigation, surveillance was heightened throughout the region and the implicated lot was removed from stores in Guatemala, Panama, and the Dominican Republic, thus preventing more illnesses.

Costa Rica FETP

- The program graduated two trainees in 2007.
- It implemented its own national advanced FETP in September 2006, housed in the Costa Rica Social Security Institute. Nine trainees are currently enrolled. The Costa Rica advanced level FETP is accredited by UNA.
- The program publishes a bi-yearly *Journal of Field Epidemiology* highlighting the work done by trainees and graduates.
- Though the program has offered various levels of training in the last several years, it is developing its own integrated pyramidal FETP for 2008 with basic and intermediate levels that follow the regionally developed competencies of the CAFETP.
- The advanced FETP level conducted 13 design/evaluations of a surveillance system (including those

related to injuries, pneumococcal infection, varicella, and leptospirosis) and 7 outbreak investigations (including dengue, pertussis in adults, salmonellosis, and respiratory illness).

Dominican Republic FETP

- The program graduated six trainees in 2007.
- It has five trainees in its current cohort which is getting its academic accreditation from UVG and is considering future accreditation through a domestic university.
- The program has offered various levels of training for the past several years. Discussions are ongoing regarding implementation of the integrated pyramidal approach.
- The program conducted one design/evaluation of a surveillance system and six outbreak investigations (including norovirus, leptospirosis, and organophosphate intoxication). The program was actively involved in the response to hurricanes and tropical storms that devastated parts of the country in 2007.

El Salvador FETP

- The program graduated three trainees in 2007.
- It began implementing its own national, integrated pyramidal FETP following the regional competencies by inaugurating the second tier "Diplomado de Epidemiologia e Campo" (DEC, equivalent to EEA) with 27 trainees enrolled.

Methanol-filled truck impounded during a methanol poisoning outbreak in Leon, Nicaragua

- The DEC will be accredited with a certificate from the Universidad Evangelica in San Salvador, which will also be the academic site of the future advanced FETP level planned for 2009.
- One program achievement was the substantial improvement that occurred in sentinel surveillance and diagnosis of rotavirus infection that resulted from a surveillance evaluation of one of its trainees.

Guatemala FETP

- In addition to anchoring the regional program, the Guatemala FETP has continued to implement the integrated three-tiered pyramidal training program in field epidemiology.
- Since 2000, it has graduated 12 FETP (advanced), 130 EEA (intermediate), and 774 CEAL (basic) level trainees.
- Two important programmatic developments occurred in 2007. One is the piloting of regional networks of epidemiologists (representing all three tiers in four provinces) that will serve as a basis for a "before/after" evaluation using process and impact indicators. Secondly, the Guatemala Social Security Institute initiated the development of its own training pyramid.
- The advanced FETP level conducted six design/evaluations of a surveillance system and six outbreak investigations.

Honduras FETP

- The program graduated four trainees in 2007.
- Honduras began implementing its own national, integrated pyramidal FETP in mid-2007 by selecting and training a first cohort of basic-level trainees in several departments. In 2007, there were 78 graduates of the CEAL (basic) level.
- Honduras also initiated an EEA (intermediate level) in mid-2007 with graduates from the CEAL and is planning to start the advanced FETP level in 2009.
- The program has negotiated an agreement with the Universidad Catolic to accredit the intermediate level as a certificate program and the advanced FETP level as a Masters degree.
- The program was honored when one of its CEAL-level trainee investigations, "Diarrhea caused by rotavirus in the Municipality of San Manuel de Colohete, Department of Lempira, Honduras" was accepted to the 2007 Americas Regional TEPHINET Conference.
- The Honduran Program Coordinator is chair of the Regional Technical Committee.✦

Central Asia Field Epidemiology Training Program

Program description

The Central Asia FETP was developed in 2003 with the MOHs from five Central Asian countries (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan), CDC, USAID Central Asia, and the Defense Threat Reduction Agency (DTRA).

Since 2003, the program has graduated 25 trainees and 15 are currently enrolled. The program has conducted 72 outbreak investigations and 22 surveillance evaluations. A total of 13 planned research studies have been completed.

The FETP is recognized by the MOHs as a trainer of the next generation of public health leaders in Central Asia.

Program data	
Start date	2003
First class enrolled	2003
Number of classes graduated	3
Graduates to date	25
Graduate placement	*
Trainees in 2007	15
Select trainee activities in 2007	
Outbreaks	9
Planned investigations	7
Surveillance activities	1
International presentations	3

*Two graduates hold senior level positions with the MOH and the Sanitary Epidemiological Service (SES).

Team members

- **Atlanta:** Edmond Maes, Judy Berry, Hiari Imara
- **Kazakhstan:** Simon Ajeilat (Resident Advisor), Dilyara Nabirova (FETP manager)

Partners

- USAID
- DTRA
- Kazakhstan MOH and SES
- Kyrgyzstan MOH and Republican SES
- Tajikistan MOH and Republican SES
- Uzbekistan MOH and Republican SES

Outbreak investigations and studies

The program conducted 16 investigations and studies in four countries in 2007. These included outbreaks of foodborne illness, hepatitis A, and HIV in Kazakhstan; planned studies of goiter and plague in Uzbekistan; outbreak investigations of anthrax in Kyrgyzstan; and outbreaks of leptospirosis in Tajikistan.

Conferences and publications

Trainees presented papers at local conferences and international meetings including the EIS Conference in Atlanta, the TEPHINET Bi-Regional conference in Taiwan, and the Emerging Infectious Disease Conference.

- Sailibayeva Gulmira, Kaspirova Anna, Kuatbayeva Ainagul. HIV outbreak investigation among children under 2 years, southern Kazakhstan, May–August 2006. *Periodicals of the Republican Sanitary Epidemiological Station.*
- Saribayeva Gulya. Hantavirus hemorrhagic fever outbreak, western Kazakhstan, November 1–February 3, 2006. *Periodicals of the Republican Sanitary Epidemiological Station.*
- Pudova Yelena. Gastroenteritis outbreak in a cafeteria in Ust-Kamenogorsk City, eastern Kazakhstan, August 4–11, 2005. *Epidemiology Magazine.*
- Saribayeva Gulya. Hantavirus hemorrhagic fever outbreak, western Kazakhstan, November 1–February 3, 2006. *Epidemiology Magazine.*
- Kaspirova Anna. HIV, HCV prevalence and incidence in Aktobe oblast, 2006. *Collection of the Karaganda Medical Academy.*
- Kaspirova Anna. Comparative analysis of sentinel surveillance data on HIV among high-risk groups of Aktobe City, 2005–2006. *Collection of the Western Kazakhstan Medical Academy.*
- Renat Latipov. Effect of hygiene promotion on the risk of reinfection rate of intestinal parasites in children in rural Uzbekistan. *Transactions of the Royal Society of Tropical Medicine and Hygiene.*✦

Uzbekistan nurses working during an outbreak investigation

China Field Epidemiology Training Program

Program description

The China FETP (C-FETP) was started in 2001 by China CDC. Since then, C-FETP officers and staff have played major roles in China's surveillance, epidemiologic investigation, and response activities.

Over the past six years, C-FETP has conducted about 50 investigations per year on a wide range of public health problems, including, most notably, SARS in 2003, but also avian influenza, HIV/AIDS, brucellosis, paratyphoid fever, measles, meningococcal meningitis, and other public health emergencies of national concerns.

In 2006, C-FETP was made a permanent part of the China CDC, Office of Epidemiology. With the emergence of avian influenza worldwide, China CDC has tasked C-FETP to lead the agency's surveillance, epidemiology, and response activities for the disease nationwide.

For their two years of training through service, C-FETP officers are assigned to either the China CDC in Beijing or to field sites within China's 31 provinces and administrative regions. When the program began, there were no field training bases outside of Beijing; since then, C-FETP has expanded to 13 field training bases with several more in development.

Program data	
Start date	2001
First class enrolled	2001
Number of classes graduated	5
Graduates to date	54
Graduate placement	*
Trainees in 2007	27
Select trainee activities in 2007	
Outbreaks	64
Planned investigations	19
Surveillance activities	43
International presentations	37

*China MOH, China CDC, C-FETP, and several at the provincial CDC level.

Team members

- **Atlanta:** Ronald Moolenaar, Hoang Dang, James Mendlein
- **China:** Robert Fontaine (Resident Advisor), Baoping Zhu (Resident Advisor), Zong Yiyang

Partners

- China CDC system, including 13 provincial field bases (Shandong Province, Anhui Province, Jiangsu Province, Henan Province, Fujian Province, Guangdong Province, Zhejiang Province, Sichuan Province, Shenzhen City, Chongqing, Shanghai, Bao'An District, Choayang District)
- WHO
- CDC's International Emerging Infections Program
- CDC's Influenza Division

Outbreak investigations

In 2007, C-FETP conducted 64 emergency investigations. For example, C-FETP was instrumental in gathering and presenting solid epidemiological data explaining cases of paraplegia among leukemia patients that led to a national recall of methotrexate and cytosine arabinoside from one national pharmaceutical manufacturer

Other accomplishments

- Three new field training bases were inaugurated (Bao'an District, Henan Province, and Chaoyang District).
- C-FETP received $920,000 in grants ($720,000 from the MOH and $200,000 from the Ministry of Science and Technology) for the ongoing investigation of sudden death clusters among remote villagers in Yunnan Province. C-FETP faculty and trainees have already contributed to a wide range of field studies investigating sudden death clusters during the past several years, including investigating the potential contributions of environmental, nutritional, and infectious disease factors.
- To help officers better write and evaluate scientific abstracts, the Calibrated Peer Review (CPR) method of Web-based rating of abstracts developed by UCLA was adopted. Trainees first rate three levels of exemplary abstracts to calibrate their ability to evaluate properly. They then evaluate their own and fellow trainees' abstracts for scientific content and style. After testing the effectiveness of this system for improving abstracts, C-FETP hopes to expand CPR to evaluate and strengthen other types of C-FETP scientific communications.
- The Second Annual C-FETP Conference was held in Beijing in September with more than 150 representatives from more than 20 provinces, MOH, and CDC attending. A total of 37 outbreak investigations from C-FETP and provincial FETPs were presented.
- Dr. Robert Fontaine received the National Friendship Award of 2007 from top Chinese government officials during the 58th National Day Celebration of China. This award is the highest honor given to foreign experts working in China. It recognizes their outstanding contributions to China's social development as well as economic, scientific, technological, educational and

cultural construction. Each year 1 in 10,000 foreign experts receive this award (see picture below).

Conferences and publication

- 33 abstracts were accepted to the following conferences:
  - 7 at the EIS Conference in Atlanta
  - 26 at the 4th Regional TEPHINET Scientific Conference in Taiwan
- The January 11, 2007, edition of the *New England Journal of Medicine* published a letter to the editor, "Injuries after a Typhoon in China," describing the hundreds of typhoon-related injuries and related risk factors ascertained in a field investigation led by Dr. Zhenyu Gong, a China FETP trainee.✦

Dr. Robert Fontaine *(left)*, **CDC Resident Advisor, receives the China Friendship Award during a ceremony in Beijing**

India Field Epidemiology Training Programs

CHENNAI FETP

Program description

The India FETP in Chennai is a collaboration between the National Institute of Epidemiology (NIE) in Chennai (a branch of the Indian Council for Medical Research), WHO/India, and CDC.

With assistance from CDC and WHO, NIE has developed and revised a curriculum for a two-year Masters of Applied Epidemiology (MAE) and established necessary academic linkages. The first class enrolled in 2000 and the seventh cohort of 27 people is now being trained.

The program has matured over the last seven years (e.g., recruitment of trainees, presentations, partnerships) and is well organized. Much progress has been made in 2007 in terms of building partnerships with public health and academic institutes that are involved in epidemiology training in India. CDC provided critical technical assistance to the India FETP faculty in setting up these networking and advocacy workshops.

Program data	
Start date	2000
First class enrolled	2000
Number of classes graduated	6
Graduates to date	43
Graduate placement	100% in public health*
Trainees in 2007	14 (2006 cohort) and 27 (2007 cohort)
Select trainee activities in 2007	
Outbreaks	20
Planned investigations	14
Surveillance activities	28
International presentations	52

*Mostly at district and state levels.

Team members

- **Atlanta:** Ron Moolenaar, Nabil Ahmed
- **India:** Yvan Hutin (Resident Advisor), Mohan Gupte (FETP Director)

Partners

- Indian Council for Medical Research (ICMR)
- NIE
- Several State Health Departments in India (e.g., Tamil Nadu, Maharashtra, Orissa, Andhra Pradesh, Mizoram, West Bengal)
- U.S. Embassy New Delhi, Science Section
- WHO India and WHO South East Asia Regional Office, New Delhi

Surveillance system evaluations

- A surveillance evaluation of measles reporting in a district in west Bengal found that only outbreaks and not individual cases were being reported. Changes were made to the reporting as a result of this evaluation and now sporadic cases are also being reported.
- An evaluation of malaria surveillance in Calcutta identified a lack of geographic analysis in the data; this was changed to incorporate a better understanding of geographic dispersion of cases.
- Several trainees are working for the new Indian Integrated Disease Surveillance Project, either as surveillance officers (state or district level) or trainers.

Outbreak investigations

- An outbreak of typhoid fever identified a bimodal pattern of cases. It was determined that a first outbreak, caused by an infected food handler, led to a second waterborne outbreak when a local water supply became contaminated from the first outbreak. This understanding of the relationships between the two outbreaks led to the expectation of potential complexity in future outbreaks.
- A similar situation occurred for two outbreaks of cholera, the first due to foodborne transmission and the second due to waterborne transmission.
- An outbreak of anthrax in a district of west Bengal underlined the fact that, while most of India has little anthrax, there are some focal points that need an integrated control plan.

Policy changes

- A cluster of malaria deaths in one district occurred due to a lack of staff in the public health system which led to infected patients being treated inadequately in the private system and subsequently dying. An investigation of the cluster identified the problem and this resulted in a reassignment of workers to cover vacancies.
- A diphtheria investigation in Hyderabad led to local policy changes to boost vaccine coverage. This will be published in the journal *Emerging Infectious Diseases*.
- A malaria program evaluation in one district region was used as a template to develop a program evaluation initiative at the national level.
- A compilation of all measles outbreak investigations from the FETP was used by WHO to cross-verify their national estimate of the case fatality ratio and to adapt the national Indian plan.

- A compilation of waterborne outbreaks investigated by the FETP in urban areas was used by a WHO/ Government of India working group examining options for access to safe water in urban areas.

Publication

Kumar SM et al. Post-traumatic stress disorder following the 26 December 2004 tsunami among adults in a coastal fishing village in Tamilnadu, India. *Am J Public Health* 2007; 97:99-101.

NEW DELHI FETP

Program description

The India FETP in New Delhi was started in 2006 as a degree-granting program, offering an MPH in Field Epidemiology.

This program is based within the MOH, in the National Institute for Communicable Diseases (NICD). It takes in recent graduates with the MBBS degree (but also non-medical graduates), typically in their late 20s and from the central and northern regions of India, and provides them with a two-year training program and a degree.

The program is currently structured more like a Masters of Public Health than a classic "training through service" FETP in that it does not allow participants to take the lead in outbreak investigations.

Team members

- **Atlanta:** Ron Moolenaar, Nabil Ahmed
- **India:** Yvan Hutin

Number of trainees

A total of 19, 16, and 10 trainees were admitted in the first three cohorts of the Masters program.

Outputs

- During their training, each student completes a short project and a planned study.
- Following the successful development of the FETP in Chennai from 2006 onward, the Resident Advisor extended his services to the newly established New Delhi FETP. This program has developed a multiple-level, core competency framework, with the integrated disease surveillance program. Two junior faculty members have been hired from recent program graduates.

Conference

Ten presentations were accepted at the Bi-Regional TEPHINET conference in Taiwan (four oral presentations and six posters). One obtained the third prize for posters.

Next steps or future plans

- Implement a viable plan for field posting through NICD branches to improve access to the field
- Crystallize a core faculty team by creating a trained core coordination team using graduates recently hired as junior faculty
- Update the second version of the curriculum ✦

Dr. Yvan Hutin *(third from left)*, **CDC Resident Advisor, with NICD faculty and New Delhi FETP trainees at their field station in Bangalore**

Jordan Field Epidemiology Training Program

Program description

The Jordan Project began in November 1998 with funding from the USAID-Jordan Mission. The project went through three phases and the name of the project changed with each phase to reflect its expanding scope.

Phase I (November 1998–October 2001), known as the Jordan Data for Decision Making Project, focused on improving the use of data at all levels of the MOH. Two main applied public health training programs were started: the FETP and the Data for Decision Making (DDM) program. Efforts to improve the collection, analysis, and response to surveillance data were also initiated.

Phase II (October 2001–September 2004), known as the Jordan Surveillance Project (JSP), represented a widened scope of work in response to MOH needs and priorities. JSP continued to build capacity for the MOH through FETP and DDM activities and strengthened the communicable disease surveillance system. Mortality surveillance and the Behavioral Risk Factors Surveillance System (BRFSS) were initiated to provide data on the main causes of death and to measure the behavioral risk factors that contributed to non-communicable diseases.

Phase III (October 2004–September 2008), known as the Jordan Applied Epidemiology Project (JAEP), worked on strengthening the surveillance of communicable and non-communicable diseases, including mortality surveillance and BRFSS. FETP and DDM continued to represent strategies to improve human capacity in the MOH and graduates of the training programs supported the projects and priority efforts of the MOH to strengthen existing systems and develop new ones. During 2007, JAEP focused on institutionalizing its functions to transition to become fully sustained by the MOH.

The program provided training to epidemiologists from neighboring countries: the Palestinian Authority (two residents trained in Jordan), and Iraq (three first-year residents in training in Jordan).

Program data	
Start date	1998
First class enrolled	1999
Number of classes graduated	5
Graduates to date	29
Graduate placement	MOH: 11; FETP staff: 1
Trainees in 2007	12
Select trainee activities in 2007	
Outbreaks	8
Planned investigations	1
Surveillance activities	2
International presentations	18

Team members

- **Atlanta:** Bassam Jarrar, Judy Berry, Yescenia Espinosa, Denise Traicoff
- **Jordan:** Russell Gerber (Resident Advisor), Sami Sheikh Ali and Mohannad Al-Nsour (MOH counterparts)

Partners

- Jordan MOH
- USAID-Jordan Mission
- CDC's National Center for Chronic Disease Prevention and Health Promotion
- CDC's National Center for Health Statistics
- WHO-Jordan Office
- WHO-Iraq Office
- U.S. Naval Medical Research Unit No. 3

Outputs

Trainees investigated eight outbreaks, including salmonellosis, measles, and methicillin-resistant *Staphylococcus aureus*. They conducted surveillance evaluations of animal rabies and the brucellosis surveillance system. They conducted a survey of knowledge, attitude, and behavior regarding avian influenza among health workers.

Other accomplishments

Human capacity building, applied epidemiology training

- FETP and DDM are used to strengthen and build human capacity.
- FETP has been institutionalized as the Division of Applied Epidemiology.
- Graduates hold key positions at central and local levels.
- Seven cohorts of FETP trainees have been enrolled (41 trainees).
- Two Palestinians were trained and three Iraqis are now being trained.
- Two veterinarians are being trained.
- FETP trainees include gender, age, and geographic diversity.
- Four cohorts of the DDM program have been enrolled.
- FETP and DDM graduates hold key positions at local and central levels.
- FETP and DDM work together to improve human capacity at the MOH and to establish a culture of using data to direct programs and policies.

Systems strengthening and development, infectious disease surveillance

- The Directorate for Communicable Disease Control institutionalized weekly meetings to review epidemiology and surveillance data and act upon unusual events.

- FETP trainees have performed surveillance system evaluations.
- Outbreaks or unusual health events have been detected, investigated, and rapidly acted upon.
- The list of notifiable communicable diseases with frequency of reporting was updated and modified in 2007.
- The electronic Jordan Infectious Disease Information System (JIDIS) was developed and installed at local and central level directorates that use it to report diseases weekly to the Directorate of Infectious Diseases.
- Staff from the 22 Governorates were trained on JIDIS and surveillance.
- The MOH, assisted by CDC's Foodborne Disease Branch and WHO, established five sentinel sites in Jordan to estimate the burden of foodborne diseases in the country.
- A weekly Notifiable Communicable Disease report and other information are at www.dcd.gov.jo.
- DDM is used to train personnel and establish a hospital infection control surveillance system.

BRFSS

- Surveillance is conducted on risk factors for chronic diseases, particularly those related to cardiovascular diseases, diabetes, and stroke.
- BRFSS has been institutionalized; three national surveys have been conducted (2002, 2004, 2007).
- BRFSS has a line item in the MOH budget.
- Findings of BRFSS 2002 and 2004 were presented at several regional and international conferences.
- Major results of the 2002 and 2004 BRFSS were published in the *MMWR.*

Mortality surveillance

- Forms and mechanisms for reporting deaths were modified to comply with international standards.
- Cause of death data are being coded and entered into a database at the Information Directorate. Mortality data are being analyzed annually.
- A national conference was held in 2007 to release results of the data analysis for the first full year of mortality surveillance from 2004.
- The annual report, *Mortality in Jordan 2004,* was published and is on the MOH website at www.dcd.gov.jo.
- Mortality surveillance has been institutionalized at the Directorate of Research and Information.
- A graduate of the FETP is Head of the Mortality Surveillance Unit.

Hospital discharge information system

- Advocacy for use of hospital discharge information has been created.
- More than 40 MOH employees have been trained in ICD-10 coding.
- Hardware and software have been installed at hospitals.
- A five-year joint plan with the MOH has been created to implement hospital discharge.

Other

The program hosted the Regional TEPHINET conferences in 2001 and 2007.

Conferences and publication

- 2007 International Epidemiology Association-Eastern Mediterranean Region Conference, Saudi Arabia: 10 presentations.
- 2007 Regional TEPHINET Conference, Amman, Jordan: seven presentations.
- 2007 European Scientific Conference on Applied Infectious Disease Epidemiology, Stockholm, Sweden: one presentation.
- Dababneh F, As'ad M, Gerber R, Anderson RN. 2007. *Mortality in Jordan 2004.* The Hashemite Kingdom of Jordan, Ministry of Health.✦

Trainees from the fifth cohort conduct a field investigation

Kenya Field Epidemiology and Laboratory Training Program

Program description

The Kenya FELTP is designed to strengthen the epidemiology and laboratory management capacity of Kenya and the East Africa region to meet the challenges of emerging infectious diseases and other public health problems.

The Kenya FELTP is a Masters degree awarding program in applied epidemiology and public health laboratory management. The FELTP uses CDC's existing infrastructure investments for emerging infectious diseases in Kenya and supports national and regional surveillance and response capacity.

This program was the first of its kind, coupling a laboratory management component with the established applied epidemiology curriculum into a degree granting program. It is a regional platform for training of field epidemiologists and laboratory managers that covers Ghana, Kenya, South Sudan, Tanzania, and Uganda.

Program data	
Start date	2004
First class enrolled	2004
Number of classes graduated	2
Graduates to date	14
Trainees in 2007	26
Select trainee activities in 2007	
Outbreaks	17
Planned investigations	13
International presentations	12

Team members

- **Atlanta:** Peter Nsubuga, Michele Evering-Watley, Juliette Mannie, Jim Vaughan, Andrew Weathers
- **Kenya:** Myat Htoo Razak (Epidemiology Resident Advisor), Joe Oundo (Laboratory Resident Advisor)

Partners

- Kenya MOH: Dr. Eric Muchiri, MOH counterpart
- Jomo Kenyatta University of Agriculture and Technology, Institute for Tropical Medicine and Infectious Diseases
- Kenya Medical Research Institute
- CDC-Kenya
- MOHs for Ghana, South Sudan, Tanzania, and Uganda
- African Field Epidemiology Network (AFENET)
- CDC Foundation
- Ellison Medical Foundation
- USAID

Outbreak investigations

Trainees led or participated in 17 outbreaks including:

- Cross-border response to a major outbreak of Rift Valley Fever in Kenya and Tanzania
- Outbreak of anthrax in Kenya
- Investigation of H5N1 avian influenza in Ghana

Planned investigations

Trainees conducted 13 planned investigations including:

- Prevalence and risk factors of hepatitis B infections among pregnant women attending antenatal clinics in Garissa District, Kenya
- Patients adherence to artesunate-amodaiquine combination therapy in Berekum District, Ghana
- Antiretroviral drug resistance in patients infected with HIV attending an infectious disease clinic in Muhimbili National Hospital, Dar-es-Salaam, Tanzania
- Patient and health service delay in the management of pulmonary TB patients, Central Equatoria State, South Sudan
- Risk factors for trachoma incidence in Lotimor Payam, Kapoeta East County, Eastern Equatoria State, South Sudan
- Use of insecticide-treated nets among pregnant women in Bomet District, Kenya

Output

An FELTP graduate of the Disease Outbreak Management Unit is in charge of the weekly publication of the surveillance bulletin.

Conferences

EIS Conference, Atlanta

- Investigation of an outbreak of cholera in Accra Metropolis, Accra, Ghana
- Hepatitis E outbreak investigation, Wau County, Western Bahr El Ghazal State, South Sudan, 2006

Fourth TEPHINET African Regional and Second AFENET Scientific Conference, Uganda

- Evaluation of acute flaccid paralysis surveillance system, South Sudan, 2006
- Evaluation of pneumonia surveillance, Bondo District, Kenya, 2006
- Cholera outbreak in Alek, South Sudan, 2007
- Investigation of cholera outbreak, West Pokot District, Kenya, 2007
- A study of rural telemedicine system in Wajir, Manera, and Ijara Districts, Kenya, 2005
- Improving immunization coverage in Siaya District, Kenya, 2006: A case for innovative strategies

- Risk factors for non-vaccination against measles among children under five years in Eastleigh, Nairobi, Kenya, 2006
- Outbreak of cholera, Gogrial East County, Warrap State, South Sudan, 2007
- Risk factors for cholera from a case-control study in West Pokot District, Kenya, 2007
- Aflatoxicosis outbreak investigation in Meru North District, Kenya, 2007✦

Trainees investigate an aflatoxin outbreak in Kenya

Pakistan Field Epidemiology and Laboratory Training Program

Program description

The Pakistan program has six components:

1. **Pakistan FELTP.** The two-year, in-service training program in field epidemiology currently includes eight medical epidemiologists from the MOH at the national level, Department of Health of Punjab Province and Northwest Frontier Province, federally administered Northern Areas, federally administered Tribal Areas, and national programs. The next cohort of trainees will include participants from all of Pakistan, including Baluchistan and Sindh Provinces.
2. **Viral hepatitis.** Viral hepatitis is a priority under the Prime Minister's National Plan for Hepatitis. In support of this plan, the FELTP developed a partner-driven protocol to establish hospital-based sentinel surveillance in three pilot sites in Islamabad, Peshawar, and Lahore.
3. **Legal framework for surveillance.** CDC, WHO, and the MOH are developing a legal framework for disease surveillance in Pakistan in light of the revised International Health Regulations.
4. **Laboratory Quality Systems (LQS).** In response to an identified need established in the 2005 surveillance assessment, a laboratory coordination cell at the Pakistan National Institute of Health (NIH) was established. This unit, headed by a senior LQS Manager, will oversee expansion of a public health laboratory network through training, assessment, and coordination. Pilot sites are in Peshawar and Lahore.
5. **Informatics.** CDC is working with a private company to develop and deploy an electronic disease surveillance system at three pilot sites, building on the hepatitis and influenza activities. This system is sufficiently robust for expansion to other diseases and deployment throughout the country.
6. **Influenza surveillance.** In response to poultry outbreaks of avian influenza (H5N1) in Pakistan in 2006 and a human outbreak in 2007 and in order to build respiratory disease surveillance, the project is working with CDC's National Center for Immunization and Respiratory Diseases (NCIRD) and the MOH to characterize the strains of influenza circulating in high-risk areas through sentinel site surveillance; seroprevalence; and knowledge, attitude, and practice surveys.

Program data	
Start date	2006
First class enrolled	2007
Trainees in 2007	8
Select trainee activities in 2007	
Outbreaks	1
Planned investigations	2
Surveillance activities	8

Team members

- **Atlanta:** Henry Walke, Nabil Ahmed, Julia Ershova, Eric Gogstad
- **Pakistan:** Rana Jawad Ashgar (Resident Advisor)

Partners

- Pakistan Federal MOH
- Pakistan NIH
- Pakistan Provincial Departments of Health
- WHO (Geneva, Eastern Mediterranean Regional Office, and Pakistan)
- University of Health Sciences, Lahore
- Health Services Academy, Islamabad
- CDC's NCIRD
- CDC's National Center for HIV, Hepatitis, TB, STD, Division of Viral Hepatitis
- CDC's Coordinating Center for Infectious Diseases, Division of Laboratory Systems

Outbreak investigation

Avian influenza (H5N1) in humans, December 2007

Planned investigations

- Survey of 1,300 households for prolonged fever, conducted in Lahore
- Cluster sample survey to estimate diarrhea prevalence in children under five, conducted in a semi-rural area

Surveillance evaluations

- Evaluation of surveillance of viral hepatitis in Pakistan
- Evaluation of surveillance of bacterial meningitis, Islamabad
- Evaluation of measles surveillance, District Attock
- Evaluation of tuberculosis (TB) surveillance, District Pakpattan
- Evaluation of surveillance of motor vehicle accidents, District Rawalpindi
- Evaluation of diarrhea surveillance, District Peshawar (NWFP)
- Evaluation of diarrhea surveillance, District Astore, Northern areas
- Evaluation of malaria surveillance, District Peshawar and Khyber Agency (NWFP)

Training of health professionals

- In February, the FELTP conducted its first four-week course for 24 participants nominated by Punjab, NWFP, Sindh, Baluchistan, Northern areas and National Programs. This stand-alone course on Disease

Surveillance and Outbreak Response was also used to screen applicants for the first cohort of trainees.
- The first eight FELTP trainees enrolled.

Other accomplishments

- NIH was selected as the host institute for the FELTP; an FELTP office was established within NIH.
- The MOH advised provinces to designate the course participants as leads in any future outbreak investigations.
- The MOH established the Pakistan National Steering Committee for the FELTP.
- The FELTP received accreditation from the University of Health Sciences. Upon completion of the program, trainees will receive a Masters of Science in Field Epidemiology, the first of its kind in Pakistan.
- NIH held a national meeting and wrote a strategic framework for a public health laboratory network.
- The FELTP and DVH completed a series of assessments of the Prime Minister's Program on Hepatitis Prevention and Control to discuss conducting viral hepatitis surveillance and implementing a public health laboratory network.
- CDC evaluated the alpha version of electronic disease surveillance and laboratory software.✦

First cohort of the Pakistan FELTP with Dr. Henry Walke *(fifth from left)*, **the CDC Team Lead, and Dr. Jawad Ashgar** *(sixth from left)*, **the Resident Advisor**

South Africa Field Epidemiology and Laboratory Training Program

Program description

The objective of the South Africa FELTP is to build integrated public health practices needed to support the goals and strategies laid out in South Africa's Integrated Public Health Surveillance and Epidemiology Strategy.

The program is suited for building the type of innovative human capacity needed to achieve these goals through 1) serving the government at the national, provincial, district, and local levels while undergoing training; 2) creating and training public health workers and leaders to support the public health system; and 3) strengthening the capacity of South Africa in applied epidemiology, laboratory, and management across public health institutions.

Trainees conduct activities to enhance disease-specific program monitoring and evaluation leading to evidence-based decisions for improvement, laboratory Quality Management System and information systems improvement, and data quality and data analysis integration into different cross-cutting disease programs.

The program is funded by PEPFAR, CDC, the South Africa National Health Laboratory Service (NHLS), the National Institute of Communicable Diseases (NICD), and the Department of Health (DOH).

Program data	
Start date	2006
First class enrolled	2007
Trainees in 2007	10
Select trainee activities in 2007	
Outbreaks	11
Surveillance activities	7
International presentations	7

Team members

- **Atlanta:** Peter Nsubuga, Eric Gogstad, Juliette Mannie
- **South Africa:** Faustine Ndugulile (Laboratory Resident Advisor), Chris Tetteh (Epidemiology Resident Advisor)

Partners

- CDC South Africa
- NICD
- National DOH
- Provincial DOHs
- NHLS
- University of Pretoria
- CDC's National Center for HIV, Hepatitis, TB, STD Programs, International Laboratory Branch
- CDC's Coordinating Center for Infectious Diseases, Division of Laboratory Systems

Outbreak investigations

- Acute pharingitis, Northern Cape Province
- Pharingitis, Western Cape Province
- Diarrheal outbreak, Western Cape Province
- Hepatitis A, Limpopo Province
- Diarrheal outbreak, North West Province
- Suspected cases of legionellosis, Mpumalanga Province
- Diarrheal outbreak, Limpopo Province
- Human rabies, Eastern Cape Province
- Diarrheal outbreak, Northern Cape Province
- Meningococcal meningitis, Eastern Cape Province
- Conjunctivitis, Northern Cape Province

Surveillance evaluations

- Diarrheal surveillance system, Western Cape Province
- Enhanced site surveillance system for invasive disease caused by salmonella
- Acute Flaccid Paralysis (AFP) surveillance system, Mpumalanga Province
- AFP surveillance, Gauteng Province
- Laboratory-based surveillance for AIDS, opportunistic fungal infection, selected sites
- Rabies surveillance system, Eastern Cape Province
- AFP, Eastern Cape Province

Training of health professionals

- Outbreak Investigation and Response (Epidemiology Track): 1 course/10 participants
- Outbreak Investigation and Response (Laboratory Track): one course/nine participants
- Supervision and Mentoring in the Field: 2 courses/10 participants
- Phlebotomy Training (held in conjunction with the American Society of Clinical Pathologists): 1 course/19 participants
- Quality Management Systems for HIV Testing: 18 courses/320 participants
- Disease Surveillance Development and Evaluation: 1 course/19 participants

Other accomplishments

- Inducted first FELTP cohort
- Became a member of AFENET
- MPH proposal accepted by the University of Pretoria✦

South Sudan Field Epidemiology and Laboratory Training Program

Program description

The South Sudan FELTP is also called the Sudan Health Transformation Project (SHTP). It was conceived and designed as a broad program under which the USAID/Sudan Field Office (SFO) and partnering organizations and agencies would improve the health conditions of the South Sudan population.

The SHTP would follow the health policy developed by the Sudan Peoples Liberation Movement (SPLM) Secretariat of Health (SOH) in 1998. The SHTP was planned to last for five years and was approved by the USAID/SFO in 2003. The mission of the SHTP, as stated in the policy document, is "to contribute to the improvement of the quality of life of the community by promoting good health through universal, comprehensive, and community-based healthcare."

CDC was tasked to implement one of the five primary focus areas, that is, technical support to the National Health Secretariat and County Health Departments (CHDs) to help CHDs develop annual workplans, improve supervision, and develop functioning disease surveillance and response systems.

This focus area was to be implemented over a three-year period, with the objective of training 20 County Medical Officers from 20 CHDs. At the end of the period, each county would have a functional, effective, and sustainable disease surveillance system and the capacity to effectively detect and respond to disease outbreaks and implement any necessary follow up actions. This would be achieved through strengthening field epidemiology, strengthening communicable diseases surveillance, and improving disease outbreak response.

After a review of implementing mechanisms and the prevailing environment, and after discussions with the then SOH (which has since been replaced by the MOH, Government of South Sudan) a change in implementation approach occurred in mid-2005. This was lead by the desire of the SOH to have trainees obtain an internationally recognized certification at the Masters level. The SOH also wanted to address weaknesses such as logistical limitations and the lack of human capacity in terms of skill and knowledge. They also wanted people to be trained at the CHD level. The new approach was to implement FELTP training and to include short-term (two to three months) training and workshops to help meet immediate needs at national, state, and county levels.

Program data	
Start date	2004
First class enrolled	2004
Trainees in 2007	4
International presentations	2

Team members

- **Atlanta:** Peter Nsubuga, Juliette Mannie, Andrew Weathers
- **South Sudan:** Mugo Muita (Resident Advisor), Charles Okello (Program Administrator), Allan Mpairwe (Surveillance Officer, Juba)

In November 2007, Dr. Allan Mpairwe was hired as a fellow through the African Field Epidemiology Network to serve as a surveillance officer connected to the MOH for South Sudan in Juba. He oversees the ongoing implementation of the Integrated Disease Surveillance and Response (IDSR) in South Sudan and participates in outbreak investigations at the MOH's request.

Partners

- South Sudan MOH
- USAID
- WHO
- CDC Kenya
- Carter Center

Number of trainees

Advertisement for the second cohort of South Sudanese FELTP trainees began in December 2006 and interviews of the short-listed candidates occurred in February 2007. Four trainees for the second cohort (three epidemiologists and one laboratorian) were notified of their selection in March and began their training in the FELTP in May.

Two trainees in the first cohort were named to key positions in the Directorates for Preventive Services.

Outbreak investigations

- Trainees assisted the MOH and WHO with responding to multiple reports of meningitis outbreaks.
- Trainees participated in the investigation of a large cholera outbreak in multiple towns and cities in South Sudan. The findings of the investigation that occurred in Juba will be published in CDC's *MMWR* in 2008 with one of the trainees listed as the lead author.
- Trainees participated in a cholera outbreak in Alek, South Sudan.

Training of health professionals

- A number of short trainings for local public health workers were conducted for avian influenza in conjunction with the MOH, WHO, and other partners.
- Trainees and the Resident Advisor assisted in teaching a pilot course for IDSR to 23 local public health workers.

Four current trainees successfully passed their first round of exams and began conducting initial research on potential projects for their Masters theses:

- Risk factors for Kala-azar in Upper Nile State, South Sudan
- Increase of motor vehicles and motor cycles and their relationship to an increasing incidence of road traffic injuries in Juba, South Sudan
- Risk factors for trachoma in Lotimor Payam, Kapoeta East County, Eastern Equatoria State, South Sudan
- Patient and health service delay in the management of pulmonary TB patients, Central Equatoria State, South Sudan

Conferences

Two trainees gave oral or poster presentations:

- 56th EIS Conference, Atlanta. Open shallow wells suspected as source of hepatitis E outbreak in Wau County, South Sudan, 2006. Poster presentation.
- Options for the Control of Influenza VI Conference, Toronto, Canada. Avian influenza outbreak survey in Juba, South Sudan, October 2007. Oral presentation.✦

Dr. Mugo Muita *(far right)*, **the South Sudan Resident Advisor, with local public health workers and village leaders during a suspected dengue fever outbreak in Wadega, South Sudan**

Section 2

Field Epidemiology and Laboratory Training Programs in Development

Ethiopia Field Epidemiology and Laboratory Training Program

Program description

Ethiopia is scheduled to begin its FELTP in September 2008. It will be a two-year, full-time, postgraduate competency-based training program consisting of about 25% class work and 75% field residency.

Trainees will be closely supervised and provide epidemiologic service to the MOH. Graduates will receive an MPH in Field Epidemiology. The program will join AFENET, through which it can exchange experiences and collaborate with similar programs in other countries in the region.

Leadership in Strategic Information (LSI)

LSI is a year-long in-service training that emphasizes learning the skills needed to make programmatic decisions based on current data. The target audience for LSI is health professionals that are currently working in HIV/AIDS.

LSI was developed as a response to help address the increasing burden of HIV/AIDS in Ethiopia. LSI consists of five classroom-taught modules and field projects that are reviewed and evaluated. The courses are led by faculty from Addis Ababa University and personnel from CDC-Atlanta. The Ethiopian Public Health Association, through a cooperative agreement with CDC-Ethiopia, has management responsibility for the LSI courses.

Four participants each from seven regions were chosen for the first cohort of the LSI training program. Participants came from Addis Ababa; Amhara; Dire Dawa; Harar; Oromiya; the Southern Nations, Nationalities, and People's Region; and Tigray. Trainees consisted of the regional HIV/AIDS Coordinator, the HIV/AIDS Planning and Control Officer, the Regional Disease Prevention and Control Head, and the Regional Laboratory Coordinator. The modules began in November 2006 and the last one was completed in November 2007.

Team members

- **Atlanta:** Peter Nsubuga, Wayne Brown, Michele Evering-Watley, Ken Johnson, Donna Jones, Italia Rolle, Jennifer Scharff
- **Ethiopia:** Aynalem Michael (EPHA, LSI Program Coordinator)

Partners

- Ethiopian Federal MOH
- Ethiopian Public Health Association
- Addis Ababa University
- CDC Global AIDS Program (GAP) Ethiopia

Accomplishments

- Completed first cohort for LSI course
- Completed four region research projects for LSI
- Formed Ethiopian FELTP Steering Committee
- Ethiopian FELTP Steering Committee completed a visit to the Zimbabwe FETP
- Conducted a curriculum workshop for the FELTP

Next steps or future plans

- Move forward with FELTP planning and implementation
- Establish continued funding
- Establish and receive accreditation for the curriculum
- Hire and provide orientation to the Epidemiology Resident Advisor and the Laboratory Resident Advisor
- Initiate first FELTP cohort
- Revise the second LSI based on findings from the evaluation of the first cohort
- Plan for the second LSI cohort
- Achieve accreditation of the LSI program from the MOH and Addis Ababa University✦

Georgia Field Epidemiology and Laboratory Training Program

Program description

CDC, the U.S. Defense Threat Reduction Agency (DTRA), and the U.S. Department of State propose to work with the MOH in Georgia, Azerbaijan, and Armenia to build public health capacity in disease surveillance, outbreak response, and program evaluation through training and service through the South Caucasus Regional FELTP (SCFELTP), based in Tbilisi, Georgia.

Trainees will take courses in epidemiology, scientific communications, health economics, and public health management. In addition, trainees will work in the field, where they will conduct epidemiologic investigations and field surveys, evaluate surveillance systems, perform disease control and prevention measures, report their findings to decision and policy-makers, and train other health workers.

The program duration will be two years, with approximately 25% time spent in classroom instruction and 75% time spent in practical, field-based disease detection, outbreak investigation and control, and related public health service activities.

Team members

- **Atlanta:** Edmond Maes, Eric Gogstad, Hiari Imara
- **Georgia:** Naile Malakmadze

Partners

- Republic of Georgia Ministry of Labor, Health and Social Affairs (MOHLSA)
- Georgia State Medical University
- Georgia National Center for Disease Control (NDCD)
- Georgia Ministry of Education
- Georgia Ministry of Agriculture
- Azerbaijan MOH
- Armenia MOH
- DTRA
- U.S. Department of State

Accomplishments

A three-day SCFELTP planning workshop was conducted in Tbilisi in September. The purpose of the workshop was for CDC, HHS/Office of Global Health Affairs (OGHA), and DTRA representatives to meet with Georgian partners and stakeholders to discuss the FELTP development and how it can meet identified public health training needs in Georgia and the South Caucasus Region (Azerbaijan and Armenia).

This workshop was a follow-up to an initial CDC/HHS visit in July–August to discuss the FELTP in Georgia.

Next steps or future plans

- **March 2008:** A curriculum workshop will be held. MOHs and universities will attend to review the standard FELTP curriculum and discuss an appropriate curriculum for Georgia.
- **March–April 2008:** An SMDP training and assessment workshop will be held in Georgia.
- **June 2008:** A SCFELTP Advisory Committee meeting will be conducted.
- **June 2008:** The MOU for SCFELTP will be reviewed during the Advisory Committee meeting and will be finalized and signed by CDC and MOHLSA.
- **August–September 2008:** A laboratory management training and assessment workshop will be held.
- **October 2008:** An SCFELTP introductory workshop will be conducted.
- A National Director of the SCFELTP will be identified.
- Resident Advisor positions (epidemiologist, laboratory scientist) will be selected.
- Initiation and completion of the recruitment, nomination, and selection process for the SCFELTP will take place.✦

Nigeria Field Epidemiology and Laboratory Training Program

Program description

The Nigeria FELTP is under development. Goals are to provide service to the Federal MOH and work towards improving public health systems within the country through the training of field epidemiologists and public health laboratorians.

Veterinary epidemiologists will join the program in order to address the ever-growing threats of zoonotic and epizootic diseases. The FELTP will be the first applied epidemiology program of its kind to offer a veterinary track. The program aims to increase collaboration between epidemiologists and laboratorians, as well as between the human and the animal health sectors.

The two-year program is expected to begin in September 2008. Until then, short courses in outbreak investigation and response are offered to state and federal public health professionals to strengthen their capacity to investigate and respond to outbreaks.

Team members

- **Atlanta:** Peter Nsubuga, Michele Evering-Watley, Ken Johnson, Jennifer Scharff
- **Nigeria:** EB Coker and Oladayo Biya (Nigeria Federal MOH), Nasir Sani-Gwarzo, Samuel Ngobua, and Obinna Oleribe (CDC GAP Nigeria)

Partners

- Nigeria Federal MOH
- CDC GAP Nigeria
- USAID

- WHO Nigeria
- Nigeria Universities Commission (NUC)
- AFENET/TEPHINET
- CDC South Africa
- CDC's National Center for Zoonotic, Vector-Borne, and Enteric Diseases

Number of trainees

To date, the program has sponsored a short course for 25 participants.

Accomplishments

- Held a two-day workshop with stakeholders to develop a shared vision for the training program, followed by an assessment to determine the current situation and gaps
- Held first Outbreak Investigation and Response short course with facilitation assistance from the South Africa FELTP. The 25 participants returned in October to present their applied learning projects. Projects covered topics such as risk factors, preparedness assessments, and outbreak investigations. It highlighted diseases such as cholera, malaria, meningitis, avian influenza, and Lassa fever. The top projects were presented at the AFENET/TEPHINET conference in December.
- Held a curriculum development workshop for the FELTP. The curriculum, including a veterinary epidemiology track, was finalized in October and is undergoing the accreditation process.
- Application to AFENET was accepted.
- The program was officially placed on the organogram at the Federal MOH.

Outputs

The program trained 25 epidemiologists, laboratorians, and veterinarians in outbreak investigation and response. Related projects include outbreak investigations, risk-factor analysis, outbreak investigation evaluations, and preparedness assessments.

Next steps or future plans

- Hire FELTP staff
- Complete the ongoing training of epidemiologists and laboratorians in all states in outbreak investigation and response
- Ensure that the curriculum is accepted by NUC for a September 2008 start date
- Develop courses to support the veterinary epidemiology curriculum✦

Tanzania Field Epidemiology and Laboratory Training Program

Program description

The Tanzania FELTP will provide graduates with an MPH and two years of supervised work experience and training. It is aimed at strengthening the practical skills and knowledge in applied epidemiology and public health laboratory practice.

The program will officially begin in October 2008, but selected activities, principally short courses, have begun in preparation for the start of the first cohort. Ten trainees for the first cohort will be selected by July 2008.

Team members

Atlanta: Peter Nsubuga, Wayne Brown, Michele Evering-Watley, Jim Vaughan, Andy Weathers

Partners

- Tanzania Ministry of Health and Social Welfare (TMOHSW)
- National Institute of Medical Research (NIMR)
- Muhimbili University College of Health Sciences
- CDC, Tanzania Country Office
- AFENET

Division role

The role of the division is primarily for program coordination across CDC partners and development of the structure to support the program for the initial years. The division has been involved in program planning, solicitation of funds, implementation of instruction, and evaluation of the activities to date.

Accomplishments

- Designed the initial working group to start the FELTP
- Initiated the organization of a Steering Committee to guide the design and implementation of the FELTP
- Developed a detailed multi-year budget proposal for the FELTP and approached CDC's Tanzania Country Office for funding
- Developed a detailed proposal for a curriculum, including the trainees' field work/service, leading to the successful completion of the program and the awarding of a graduate degree by the Muhimbili University College of Health Sciences. This has involved meetings between the MOHSW, the university, and CDC. Approval by the university is in the final stage.
- Conducted a two-week course in Outbreak Investigation and Control
- Introduced the FELTP monitoring and evaluation system to all African programs, including Tanzania, and made plans for its implementation
- Finalized the curriculum
- Tanzania became member of AFENET

Next steps or future plans

- **February 2008:** Complete the Outbreak Investigation and Control short course begun in October 2007
- **February 2008:** Conduct on-site consultation and participation in the Steering Committee meeting to further develop the funding proposal and to complete the development of the training curriculum. Submit this to the university for final approval as a basis for awarding a graduate degree for successful completion of the program.
- **May–June 2008:** Conduct the second Outbreak Investigation and Control short course
- **May 2008:** Conduct a site visit to review accomplishments related to the implementation of the FELTP in October and to continue plans and preparations
- **June 2008:** Attend the next meeting of the Steering Committee✦

West Africa Field Epidemiology and Laboratory Training Program

Program description

The West Africa FELTP will provide field epidemiology and laboratory management training to improve public health in Francophone West Africa.

Currently under development, the program will bring epidemiologists and public health laboratorians from Burkina Faso, Mali, Niger, and Togo to the WHO Multi-Disease Surveillance Center (MDSC) in Ouagadougou, Burkina Faso, for classroom training. Field work will be conducted in each trainee's country of origin. Once the program is established, it will undergo expansion to other countries in the region.

Accomplishment

An in-country coordinator, Dr. Sennen Hounton, has been hired and is currently sitting at MDSC. The coordinator conducted an advocacy and preliminary recruitment tour in each participating country along with university partners and the West Africa Health Organization.

Next steps or future plans

- An Outbreak Investigation Methods short course is planned for May 2008 for participants from each of the four countries. Epidemiologists and laboratorians will learn best practices in outbreak detection, investigation, response, communication, and Epi Info. Short course participants will then take part in case-based surveillance for efficacy studies as part of the Meningitis Vaccine Project.
- The curriculum for the two-year FELTP is currently being developed with the University of Ouagadougou in Burkina Faso.✦

Section 3

Self-Sustained Field Epidemiology Training Programs

Egypt Field Epidemiology Training Program

Program description

The Egypt FETP started in 1993 to strengthen the Ministry of Health and Population's (MOH&P) capacity to investigate disease outbreaks and improve the surveillance system.

In 2000, the program's success led to the formation of the Epidemiology and Surveillance Unit (ESU) responsible for disease surveillance, outbreak investigation and response, training, non-communicable disease surveillance, the Nile Cruise Boat Inspection, and the development of the National Egyptian Disease Surveillance System (NEDSS).

In 2004, the Egyptian Board of Applied Epidemiology was established to provide training to physicians who are interested in a public health career. Before they join the board, physicians have to complete the two-year FETP.

Team members

Atlanta: Bassam Jarrar, Hiari Imara, Tippavan Nagachinta

Partners

- Egypt MOH&P
- U.S. Naval Medical Research Unit No. 3
- CDC's Division of Global Preparedness and Program Coordination
- CDC's Division of Public Health Informatics
- CDC's National Center for Environmental Health

Trainees during an avian influenza training exercise

Number of trainees and graduates

The program had five graduates in 2007. To date, the program has graduated 62 medical epidemiologists and 21 are now in the training program. Most of the graduates (56) have remained in Egypt helping meet the country's public health needs.

The FETP has two main components: the distance-based FETP with 14 trainees from lower Egypt (north) and the central FETP with 7 trainees, including 3 from Sudan.

Division role

- Provide technical assistance to strengthen ESU's capacity to conduct avian influenza surveillance and case investigation
- Provide technical support to enhance the quality of epidemiology training for the Egyptian Board of Applied Epidemiology and FETP
- Provide technical assistance to conduct epidemiologic and surveillance studies
- Provide technical assistance to ESU and FETP for scientific publications

Accomplishments

The FETP has been involved in numerous outbreak investigations. After the first outbreak of avian influenza in Egypt in February 2006, the FETP played a major role in outbreak investigation and control of avian influenza. The comprehensive surveillance system for avian influenza has been set up to rapidly identify new H5N1 human cases.

Conference

Twelve abstracts were accepted to the 3rd EMRO Regional TEPHINET Scientific Conference in Amman, Jordan, June 2007.

Next steps or future plans

- Place a Resident Advisor in Cairo to assist the MOH&P and establish a regional applied epidemiology training program to help other programs in the region
- Continue to improve the quality of FETP training
- Expand FETP to include veterinarians✦

Ghana Field Epidemiology and Laboratory Training Program

Program description

The Ghana FELTP started in October 2007 as an outgrowth of CDC support to the MOH and the University of Ghana on Integrated Disease Surveillance and Response (IDSR) and Applied Epidemiology development which begun in 2000.

The University of Ghana School of Public Health is awarding an MPH in Applied Epidemiology and Disease Control to FELTP trainees. Ghana also has an existing one-year MPH, which is part of the Public Health Schools Without Walls program.

Team members

- **Atlanta:** Peter Nsubuga, Wayne Brown, Michele Evering-Watley
- **Ghana:** Fred Wurapa, Edwin Afari, Fred Binka (Ghana School of Public Health), Lawson Ahadzie (MOH), Simon Antara (AFENET), Simon Kwadje (AFENET)

Partners

- Ghana MOH
- University of Ghana School of Public Health
- USAID
- UN Foundation
- AFENET

Number of trainees

The FELTP includes one person from the reference laboratory, three epidemiologists, and one veterinarian. The program started its first cohort in 2007 with five trainees.

Division role

The division provides technical support.

Accomplishments

- Strengthened field training via the MPH program
- Was a founding member of AFENET
- Strengthened the completeness and timeliness of disease reporting
- Collaborated with the university to develop and conduct regional outbreak short courses in surveillance and outbreak investigation

Next steps or future plans

The next steps are to secure funding for a Resident Advisor.✦

Five trainees from the first cohort and a trainee from the Kenya FELTP *(2d from left)* **attend a scientific communications course in Accra, Ghana**

Thailand Field Epidemiology Training Program

Program description

In 1980, the Thailand Ministry of Public Health (MOPH), in collaboration with WHO and CDC, established the first FETP in Southeast Asia.

The FETP is now well-sustained and well-anchored within the MOPH and receives its full support. In 1998, the program expanded its mission to strengthen regional capacity in field epidemiology by accepting trainees from the neighboring countries of Cambodia, Laos, Malaysia, Myanmar, Southern China, and Vietnam.

Since its inception, the program has performed scores of outbreak investigations and dealt with numerous high-priority public health issues. For example, the FETP has been a key player in the MOPH response to the HIV/AIDS epidemic since 1987 when the first case of AIDS was diagnosed in Thailand. The AIDS-related surveillance activities conducted by the FETP led to the creation of the HIV/AIDS collaboration in 1990.

In 2001, WHO designated the program as a WHO Collaborating Center. The program has demonstrated its strength in detecting and responding to emerging diseases and public health threats following the SARS outbreak, the tsunami disaster, and ongoing avian influenza outbreaks.

The FETP led the initiation of new surveillance strategies to rapidly detect emerging diseases and health threats by setting up and training over 1,000 Surveillance and Rapid Response Teams (SRRT) throughout the country.

More recently, trainees and graduates have detected several new avian influenza cases nationwide through the review of clinical signs and symptoms, which were confirmed by the Thai NIH and other reference laboratories.

In response to the 2004 tsunami and ongoing emergence of avian influenza, the MOPH increased the number of Thai FETP trainees and international trainees since 2006. Therefore, at the request of the MOPH, CDC assigned a Technical Advisor to Thailand in March 2006 to help the program enhance the quality of the field training and to strengthen its international mentoring component.

Team members

- **Atlanta:** Tippavan Nagachinta, Hoang Dang
- **Thailand:** Michael O'Reilly (Technical Advisor)

Partners

- Thailand MOPH, Bureau of Epidemiology
- Thailand's MOPH-US CDC Collaboration
- International Emerging Infectious Program (IEIP)
- Immigrant and Refugee Health
- CDC GAP Thailand
- WHO/Southeast Asia Regional Office (SEARO) sub-unit Bangkok
- Yunnan CDC
- USAID
- Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy/Association of Southeast Asian Nations and the three East Asian nations of China, Japan and South Korea, and Makong Basin Disease Surveillance
- Cambodia MOH
- Institut Pasteur, Cambodia

Number of trainees and graduates

To date, the program has graduated 150 field epidemiologists (126 from Thailand and 24 from Cambodia, Laos, Malaysia, Myanmar, Southern China, and Vietnam). The program currently has 24 trainees (11 first year and 13 second year); five are from Cambodia and Southern China.

Division role

- Provide a full-time Technical Advisor to the MOPH
- Provide technical assistance to the International FETP-Thailand to sustain the high quality of the epidemiology training
- Provide guidance in the expansion of the training program to meet the field epidemiology needs in Thailand and neighboring countries
- Provide assistance to the FETP in cross-border outbreak investigations
- Provide assistance to the FETP in developing the Mekong Basin Disease Surveillance Network
- Provide assistance to the FETP with developing scientific publications

Outbreak investigations

- **Two botulism outbreaks.** Trainees responded to two large outbreaks in March and December of 2006 in northern Thailand that led to almost 200 cases; the rapid detection and response led to a much lower mortality than expected. Published studies, as well as Thailand's historical botulism case-fatality ratio, suggested that 16 to 32 deaths would have been expected among this number of cases. However, no deaths occurred in these outbreaks. A plan to develop antitoxin stockpile was initiated following these outbreaks. Also, in partnership with IEIP/Global Disease Detection, and SEARO, Bureau of Epidemiology, FETP held a meeting and discussed a plan to set up the new center that provides epidemiologic, laboratory, and stockpile management aspects, which will serve Thailand and the region.
- ***Streptococcus suis* outbreak.** Trainees detected and investigated the first outbreak of *Streptococcus*

suis among humans in Thailand. Previous field investigations, review of all known cases in Thailand, and enhanced surveillance in two provinces led to a better understanding of the persistent occurrence of endemic cases and the detection of this first outbreak. The investigation included a case-control study that found ingestion of raw pork, including raw pork blood, as the predominant risk factor; this exposure had not been a significant risk factor in a previous outbreak of *Streptococcus suis* in China.

- **Legionellosis outbreak.** Trainees investigated a legionellosis outbreak among Phuket hotel workers and Europeans, Asians, and North Americans who stayed at the hotel. The environmental component of this outbreak investigation uncovered an island-wide hotel water supply problem which was subsequently fixed and included substantive collaboration with staff of the European Working Group for Legionella Infections. This led to earlier notification and more rapid response of a second outbreak among European travelers to Thailand, this one in Pattaya.
- **Avian influenza (H5N1) outbreak.** Trainees conducted a joint cross-border outbreak investigation of the first human H5N1 case in Laos, with FETP-Thailand international alumni. They investigated components of the outbreak in Laos and Thailand.
- **Hand Foot and Mouth Disease outbreak.** Trainees detected a new epidemiological pattern of morbidity and mortality associated with clusters and small outbreaks of the disease. They established a new national surveillance system for cardio-respiratory failure among infants and children and identified a strain of EV 71 (C4) which had not previously been found in Thailand.

Other accomplishments

- Finalized the 2006–2009 annual workplan in January 2007, which was approved by the MOPH
- Conducted the 2007 Field Epidemiology course, which also serves as the FETP Introductory course; there were 37 participants, including 11 new FETP trainees
- Graduated 10 FETP trainees (6 domestic and 4 international)

Conferences

- Annual SRRT Meeting, Phitsanulok Province. Co-presented (with IEIP Director) on the Katrina Experiences
- Third EMRO Regional TEPHINET Scientific Conference, Amman, Jordan: three oral presentations
- 2007 European Scientific Conference on Applied Infectious Disease Epidemiology, Stockholm, Sweden: five oral and six poster presentations
- 56th Annual Meeting of the American Society of Tropical Medicine and Hygiene, Philadelphia: one oral presentation
- Fourth TEPHINET Bi-Regional Scientific Conference for South East Asia and Western Pacific, Taiwan: eight oral and eight poster presentations✦

FETP trainee (middle) investigating a cluster of liver cancer to identify risk factors

Zimbabwe Public Health Schools Without Walls

Program description

The Zimbabwe Masters of Public Health (MPH) started in 1994 with a CDC-trained Resident Advisor and has been directed by a program graduate since 1996. It is a collaboration between the Ministry of Child Health and Welfare and the Department of Community Medicine at the University of Zimbabwe.

CDC became more actively involved in 2001 to help expand the public health training and to develop the HIV/AIDS module for the program using GAP and USAID funding. CDC has continued to support strengthening of the epidemiology and biostatistics training and to support the HIV/AIDS course that is now taught yearly.

To date, an HIV/AIDS interventions course has been developed and has become a standard part of the curriculum, the number of student HIV-related projects has increased, the number of students has increased, and the quality of students' work has improved.

CDC has been providing technical support to the Zimbabwe MPH using the model of a long-distance or "virtual technical advisor." This has allowed CDC to assist the program in strengthening their outputs (i.e., well-trained students, excellent student projects and reports/manuscripts) without the need for an in-country Resident Advisor. This model has allowed for both ongoing technical collaboration and increased oversight and transparency in the work to increase program quality.

FETPs and FELTPs in the planning stages have looked to Zimbabwe for leadership in how to establish an effective working relationship between MOHs and universities. Additionally, the program in Zimbabwe and its director serve a key role in the success of AFENET.

Team members

Atlanta: Peter Nsubuga, Donna Jones

Partners

- University of Zimbabwe Faculty of Medicine, Department of Community Medicine
- CDC GAP Zimbabwe
- Ministry of Health and Child Welfare, Zimbabwe

Division role

- Provide technical and financial assistance to the University of Zimbabwe Department of Community Medicine MPH (UZ/DCM/MPHP) to develop and implement strategies to increase enrollment
- Provide technical support to UZ/DCM/MPHP to enhance the quantity and quality of applied epidemiology training and HIV/AIDS epidemiology training

Program accomplishments

- Hired a full time laboratory epidemiologist, an administrative secretary, and a field coordinator
- Piloted a laboratory training course for 18 mid-level laboratory technicians in September 2007

Conferences

Trainees presented the following abstracts at the Fourth TEPHINET African Regional and Second AFENET Scientific Conference, Uganda:

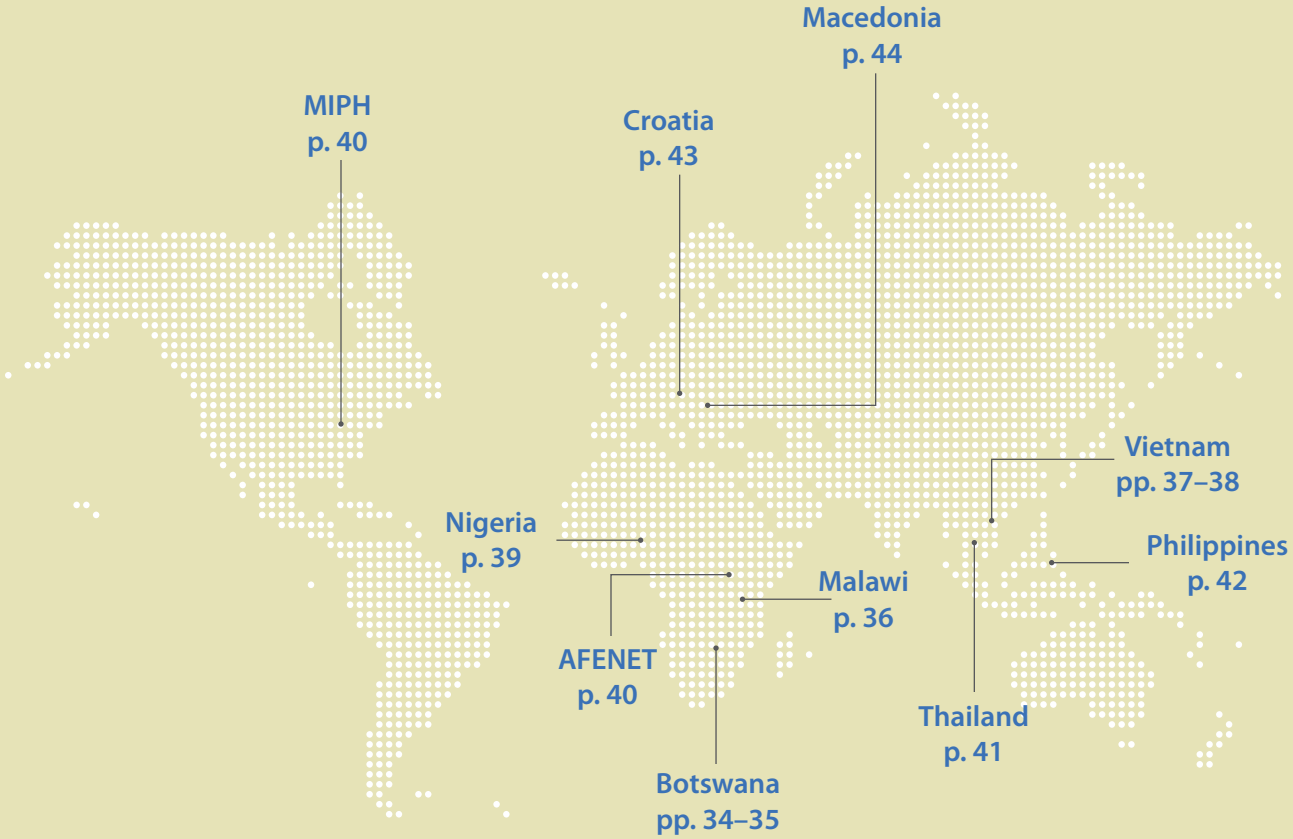
- Risk factors for contracting nosocomial salmonella group C at the Harare Pediatric Hospital, 2005
- Risk factors for contracting anthrax in Kuwirirana Ward, Gokwe North, Midlands Province, 2007
- Situational analysis of factors that affect immunization coverage in Gokwe South, Phase I
- Factors associated with non-institutional deliveries in Chiweshe, Mazowe District, Mashonaland Central Province, 2007
- Risk and psychosocial factors that influence sexual behavior among patients in Zvishavane District, 2006
- Obstructive respiratory conditions among textile workers in Zimbabwe, 2006
- Assessment of the health effects of agrochemicals in farm workers in the commercial farms of Kwekwe District, 2006
- Determinants of first sexual encounter of senior secondary school girls and boys in Tsholotsho District, 2006

Next steps or future plans

- Strengthen national surveillance of emerging and re-emerging infections through guidelines and laboratory support
- Disseminate surveillance data through production and emailing of weekly surveillance bulletins
- Support trainee projects on surveillance and outbreak investigations
- Provide support to trainees so they can hold monthly meetings
- Fund a short course on excellence in reporting science and the production of an epidemiological bulletin
- Conduct short courses in laboratory management and surveillance for laboratory scientists
- Develop laboratory management and surveillance course materials
- Help health workers deal with disease outbreaks by equipping trainees and district staff with appropriate skills to competently investigate and document an outbreak investigation and response
- Conduct field supervision visits by academic and program staff to support MPH and laboratory trainees✦

Section 4

Sustainable Management Development Program



Botswana Management Capacity Building Program

The HIV/AIDS epidemic in Botswana is one of the most severe in the world. The national HIV prevalence rate among adults ages 15 to 49 is 24.1%, which is among the highest in sub-Saharan Africa. Botswana is one of the 15 focus countries of the President's Emergency Plan for AIDS Relief (Emergency Plan/PEPFAR).

The goal of the Botswana program is to improve the quality of HIV/AIDS services provided in Botswana by strengthening the management and leadership skills and abilities of middle managers in non-governmental organizations (NGOs) and public health settings.

Background information

The Institute of Development Management (IDM), a regional organization that conducts training, consulting, and research in Botswana, Lesotho, and Swaziland, serves as partner and institutional home for the program. To date, the program has focused largely on helping HIV/AIDS program managers learn and apply process improvement tools to the programs they manage to improve the effectiveness and efficiency of operations. After the managers are introduced to course concepts they conduct process improvement projects and present the results of these projects to their class prior to graduation.

Team members

Brian Robie, Janna Brooks

Partners

- MOH, Botswana
- Ministry of Local Government, Botswana
- Ministry of Science, Communications and Technology, Botswana
- IDM, Botswana
- BOTUSA: a collaborative effort between CDC GAP Botswana and the Government of Botswana to combat HIV/AIDS

Funding source

BOTUSA has funded management capacity building activities to date. The plan is to move to government funding before BOTUSA funding ends in 2009.

Program data	
Start date	September 2001
Institutional counterpart	IDM, BOTUSA
Date in-country training started	June 2003
Target audience	Local HIV/AIDS program managers

SMDP activities	2007	Cumulative
MIPH graduates*	5	16
Technical assistance visits	2	11
Completed cycles in-country training	1	6
In-country managers trained	20	100
Number of completed applied management learning projects	10	64

*MIPH: Management for International Public Health

Major accomplishments and outputs

- Sixty-four applied management improvement projects have been completed. A number of them led to improved processes and services. For example, in one VCT clinic the average number of clients turned away without service each month dropped from 43 to 25. In another, the percentage of ARVT defaulters declined from 24% to 10%. In a third, the percentage of TB patients not submitting six-month follow-up sputum samples dropped from 78% to 50%.
- A 2007 conference brought together 60 alumni of 5 in-country management training cohorts and stakeholders from the MOH, Ministry of Local Government, NGOs, and CDC.

Sustainability efforts

The program partners are placing major emphasis on obtaining accreditation from the Botswana Training Authority (BOTA) for IDM's Management Capacity Building Course for Public Health Managers in order to increase the likelihood that the program will be sustained. Efforts are also underway to incorporate SMDP program planning processes into the policies of the MOH and the Ministry of Local Government.

Monitoring and evaluation activities

There have been two program evaluations to date. A University of Botswana study in 2005 cited the relevance and positive results from the program. A CDC study also in 2005 noted the high level of satisfaction from participants, stakeholders, and facilitators; the relevance of program contact to stakeholder needs; and approval for the team-building approach used for problem-solving. Recommendations relate to follow-up after the program and funding/sustainability/political commitment from MOH and Ministry of Local Government officials.

Priorities for the coming year

- Institutionalize SMDP within the structures of the MOH and Ministry of Local Government
- Assess needs and develop management training curriculum for new target audiences in the MOH, Ministry of Local Government, and Ministry of Communications, Science & Technology
- Obtain BOTA accreditation for IDM training course
- Form an advisory committee for the Botswana SMDP and establish a project team
- Train108 managers of HIV/AIDS programs in Botswana during 2008✦

Participants attend the Botswana SMDP first National Alumni Conference to share lessons learned in May 2007

Malawi Management Capacity Building Program

Background information

In 2005, approximately 14% of the adult population ages 15 to 49 in Malawi was living with HIV/AIDS. HIV prevalence in Malawi is significantly higher in urban areas (20.4%) than in semi-urban (17%) and rural areas (13%). However, there is evidence that while infection rates are slowing in urban areas, HIV prevalence continues to increase in rural areas.

The goal of the Malawi program is to improve the management skills of public health program managers in the MOH and in the Malawi AIDS Counseling and Resource Organization (MACRO) as most managers have no formal training.

To accomplish this, the program has focused on (1) helping TB program managers and HIV/AIDS counselors to improve work processes to achieve increased organizational effectiveness and efficiency, and (2) improving the public health program and management skills of District Health Management Teams (DHMTs) to assist them in preparing their annual District Implementation Plans (DIPs).

Through 2006, 137 public health program managers had completed quality improvement training and, working with teams they recruited at their worksites, had completed 39 applied management improvement projects to improve organizational effectiveness.

Since a May 2006 stakeholder meeting at the MOH, staff from the MOH, Management Sciences for Health (MSH), the Malawi Institute of Management (MIM), CDC GAP Malawi, and SMDP have collaborated on a program planning and management workshop to assist Malawi's DHMTs with completing Malawi's DIPs. The MOH, CDC GAP Malawi, and SMDP are currently collaborating to incorporate SMDP's program planning and management materials into the DIP guidelines and materials, which will result in a major, sustained improvement in public health program planning and management in Malawi.

Team members

Brian Robie

Partners

- MOH, Malawi
- MACRO
- CDC GAP Malawi

Funding source

CDC GAP Malawi has funded most of the management capacity building activities to date and the NTP has also contributed significant staff time and resources.

Program data		
Start date	September 2002	
Institutional counterpart	NTP, MOH, MACRO, MIM	
Date in-country training started	February 2003	
Target audience	TB and HIV/AIDS program managers, District Health Teams	
SMDP activities	**2007**	**Cumulative**
MIPH graduates	2	14
Technical assistance visits	3	14
Completed cycles in-country training	2	6
In-country managers trained	42	179
Number of completed applied management learning projects	17	56

Major accomplishments and outputs

- Two program planning and management workshops have been conducted in 2007, the first for 30 DHMT members from 15 district hospitals in February and the second for 27 DHMT members from 7 districts and 3 zone staff members in November.
- The teams from the February cohort are scheduled to complete applied management improvement projects in January 2008 and those from the November workshop are scheduled to complete theirs in May 2008. Teams from both cohorts will be able to use their project results as a basis for completing their 2008 DIPs.
- DHMTs from 22 districts have completed program plans and budgets for applied management improvement projects. The projects will provide them with an evidence-based approach to making informed decisions for their annual DIPS.

Priorities for the coming year

- Establish an institutional home for the Malawi management capacity-building program
- Form an advocacy committee for the Malawi SMDP to promote long-term support within the MOH
- Assist seven DHMTs with completing program planning and applied management improvement projects
- Train 30 hospital program managers in Process Improvement
- Convene a meeting of DHMTs to consider how SMDP program planning and management tools will be incorporated into the annual DIP process on an ongoing basis✦

Vietnam Management Capacity Building Program

Background information

Vietnam became PEPFAR's 15th focus country in June 2004. Vietnam faces a concentrated HIV epidemic. HIV prevalence in the general population is estimated to be approximately 0.5%; HIV prevalence among drug users was estimated to be 32% in 2003.

The objective of the Vietnam Public Health Management Capacity for HIV/AIDS Prevention and Care program is to develop the institutional capacity of three regional training centers in Vietnam to deliver quality public health management training to provincial and district HIV/AIDS program personnel that results in specific and measurable improvements in the efficiency and effectiveness of HIV/AIDS programs.

In 2004, CDC GAP Vietnam developed a Cooperative Agreement with the Hanoi School of Public Health (HSPH) entitled "Partnering with Schools of Public Health to Enhance Public Health Capacity for HIV/AIDS Prevention and Care Activities in Vietnam." This five-year agreement has three goals: (1) develop a decentralized self-sustaining HIV/AIDS Management Training Program, (2) develop a data-management system for U.S. Government HIV/AIDS programs in Vietnam, and (3) develop an overarching HIV/AIDS strategy for the HSPH. At the request of HSPH and CDC GAP Vietnam, SMDP is providing technical assistance to the activities under the first goal of this cooperative agreement project.

To develop the institutional capacity in Vietnam to train HIV/AIDS public health managers at the provincial and district levels, regional training centers were established in Ho Chi Minh City (HCMC) at the Institute of Hygiene and Public Health and at the Preventive Medicine Center in Danang, coordinated by the lead center at HSPH. A core group of 24 trainers from the three regional centers have participated in several intensive training-of-trainers courses developed and delivered by HSPH and SMDP during 2005–2007. Core modules taught through the training-of-trainers program include Total Quality Management (TQM), Project Management, Supervision, Team Building, Effective Communications, Leadership, Organizational Excellence, and Training Design and Facilitation.

Devolution of management training by the regional training centers to province-level HIV personnel began in late 2005, with an initial focus on TQM for HIV/AIDS Program Managers. The training cycle requires participating province teams to complete applied management improvement projects over a 4–6 month period at their work sites, thereby ensuring that the team members apply in their work settings the evidence-based management skills they learn in the training. Each province team participating in the training receives two on-site supervisory visits from its respective training center faculty to assist teams in carrying out applied management improvement projects. Participants reconvene and share lessons learned from their experience and project results each year.

Team members

Janna Brooks, Josef Amann, John Marsh, Denise Traicoff

Partners

- HSPH
- Danang Center for Preventive Medicine
- Ho Chi Minh Institute for Hygiene and Public Health
- Vietnam Administration of HIV/AIDS Control, MOH
- CDC GAP Vietnam
- PEPFAR Vietnam

Funding source

- CDC GAP
- PEPFAR Vietnam

Program data		
Start date	2004	
Institutional counterpart	HSPH	
Date in-country training started	July 2005	
Target audience	HIV/AIDS program managers	
SMDP activities	**2007**	**Cumulative**
MIPH graduates	2	10
Technical assistance visits	4	12
Completed cycles in-country training	2	3
In-country managers trained	144	308
Number of completed applied management learning projects	48	100

Major accomplishments and outputs

- Six MIPH graduates in Vietnam lead and manage the program: 3- Hanoi School of Public Health, 1-Danang Center for Preventive Medicine, 1-HCMC Institute for Hygiene and Public Health, 1-Vietnam Administration of HIV/AIDS Control, MOH.
- Since 2005, a core group of 24 trainers from the three regional centers have participated in intensive training-of-trainers management courses including TQM, Project Management, Supervision, Team Building, Effective Communications, Leadership, Organizational Excellence, and Training Design and Facilitation.
- All training is conducted and supervised by Vietnamese

institutions with technical support from SMDP.

- Twelve regional trainings have been completed or are underway with 308 HIV/AIDS managers participating.
- A national conference on lessons learned was held in Hanoi with stakeholders and partners.
- Teams of training participants have completed 48 applied management improvement projects in their provincial organizations in Vietnam. Teams have used evidence-based methods to improve specific work processes in HIV/AIDS services including the following:
  - Improving the processing time of laboratory specimens
  - Increasing the effectiveness of community outreach to high-risk populations
  - Increasing adherence to prophylactic treatment of opportunistic infections among HIV patients
  - Increasing the number of HIV/AIDS patients accessing outpatient services for treatment
  - Increasing adherence to ARV treatment among outpatients
  - Improving the quality of HIV/AIDS counseling services
  - Increasing the percentage of clients returning for confirmatory test results

Sustainability efforts

The program has successfully built sustainable institutional capacity at the HSPH, Danang Center for Preventive Medicine, and HCMC Institute of Hygiene and Public Health to deliver quality public health management training to the public health workforce at the provincial and district levels throughout Vietnam.

A Leaders Workshop for the Vietnam Administration of HIV/AIDS Control, MOH, was held to strengthen MOH support for continued capacity-building.

Priorities for the coming year

- Roll-out and implement a new curriculum in Project Management
- Implement a Leaders Overview workshop at VAAC (funded by VAAC)
- Continue to strengthen the capacity at the regional centers in Danang and HCMC
- Plan for external program evaluation✦

A provincial HIV/AIDS clinic serves as the first point of services for HIV/AIDS prevention and testing services

Nigeria: Integration of Disease Control Programs for Neglected Tropical Diseases

Background information

Most control and treatment programs for neglected tropical diseases (NTDs) focus on a single disease, but people in tropical regions usually face more than one serious disease threat at a time. Current intervention strategies for the different diseases are often similar, however, as with mass drug administration. The overall goal of this project is to demonstrate the effectiveness, cost benefit, and feasibility of integrating disease control programs for onchocerciasis, lymphatic filariasis, schistosomiasis, trachoma, malaria, and Vitamin A deficiency on a large scale in Nigeria. This project has a management capacity-building component designed to develop evidence that providing training to increase management capacity of personnel involved in the integration project supports more effective delivery of integrated interventions.

The Carter Center received a $5 million grant over four years from the Bill and Melinda Gates Foundation to help develop a model for integrated health interventions and to demonstrate in Nigeria that the model is feasible, replicable, and effective at controlling multiple priority diseases. The integration of disease control programs can increase effectiveness and reduce cost, easing the strain on public health systems in African countries. The program is designed to improve the health of as many people as possible at a cost that can be sustained for as long as necessary. This project builds on existing, large-scale integration efforts in central Nigeria that use mass drug administration (MDA), health education, and community mobilization as well as the village-based approach of the successful Nigerian Guinea Worm Eradication Program and the Nigerian Onchocerciasis Control Program.

Team members

Josef Amann, Janna Brooks

Partners

- Carter Center, Atlanta
- Carter Center, Jos, Nigeria
- Rollins School of Public Health at Emory University, Atlanta

Funding source

Bill and Melinda Gates Foundation grant to the Carter Center

Major accomplishments and outputs

SMDP conducted a management training needs assessment workshop with 20 State and Local Government Area (LGAs) members of integrated health teams in July 2007 where the outcomes were as follows:

- Achieved consensus on what should be the core activity categories for integrated interventions
- Produced a working draft document of detailed operational definitions of what integration means at national, state, local, and village levels of health system by each of the core activity categories
- Documented management issues associated with integrated intervention
- Developed a change strategy and model for integrated intervention
- Developed a draft curriculum for personnel involved in implementing integrated interventions, addressing identified managerial competency gaps
- Developed a management capacity-building plan and timeline for 2008

Priorities for the coming year

SMDP will support the in-country counterpart at the SMTC in Jos to

- Finalize the curriculum for the different target audiences
- Conduct a one-day "Leading change" workshop for 20 senior stakeholders at the State MOH and LGAs
- Conduct two management capacity-building workshops for senior members of State and LGA Integrated Health Teams (25 participants in each workshop); carry out applied integration improvement projects✦

Community-based health workers supported by the Carter Center deliver integrated interventions for neglected tropical diseases

AFENET

Background information and need

A 2004 needs assessment in the four African Field Epidemiology Network (AFENET) countries identified (1) the shortage of competent public health leaders and managers, (2) the lack of use of data for decision-making, and (3) a shortage of skills in monitoring and evaluation as the key challenges in the effective operation of member countries' health systems.

Based on these identified gaps, AFENET and SMDP designed a collaboration with the following objectives which will be deployed in 2008:

- Enhance management capacity of MOH staff from the Planning and Surveillance Units
- Enhance management capacity of AFENET National Focal Points
- Enhance management capacity of selected leaders and managers from the MOH, NGOs, and FETPs
- Develop a Center of Excellence for Management✦

MIPH

SMDP offers an annual management and leadership development course for public health leaders in low-resource countries called the Management for International Public Health (MIPH) course. The train-the-trainer curriculum covers program planning, implementation, and evaluation; team building; budgeting; conflict management; decision-making; performance management; project management, and process improvement best practices.

Once MIPH participants complete the course, SMDP staff provide in-person and remote mentoring to the participants as they apply their newly-learned skills and knowledge to develop management and leadership capacity in their respective countries.

In 2007, MIPH

- Hosted 24 fellows from 12 countries for six weeks of faculty development; they learned key management competencies with emphasis on program and project management, process improvement, leadership and communication
- Partnerships include CDC GAP, PEPFAR, TEPHINET, the BOTUSA project, the Vietnam TB control fund and the CDC Foundation
- All participants developed a work plan for developing or improving their country's public health management capacity

The 2007 MIPH course graduates and SMDP staff

Priorities for the future

- Discontinue the six-week MIPH course in Atlanta and put in its place regional, E-learning, and other programs to strengthen management skills and systems and to have a substantially larger public health impact
- Expand the content to incorporate additional relevant topics associated with management strengthening
- Develop indicators of shorter and longer term programmatic impacts and systems for evaluating those impacts
- Work more closely with the division's Program Development Branch and the Program Services Branch to strengthen management capacity within FETPs and FELTPs✦

Thailand: Technical Assistance to Mature Programs

Background

In 2004, officials from the Thai National Institute of Health (NIH) and the Ministry of Public Health (MOPH) expressed interest in establishing a management training program modeled on the Philippines Field Management Training Program. Since then, with SMDP assistance, an MIPH graduate from Mahidol University (MU) has coordinated efforts to establish a new Thai Sustainable Management Training Center (SMTC). Institutional partners include the MOPH, MU, NIH, and the Thai-MOPH-CDC Collaborative (TUC).

MIPH graduates facilitated two cycles of SMTC Total Quality Management (TQM) process improvement training in 2005 and 2006. The first was for 24 medical technologists representing eight hospital laboratories, one regional medical center, and NIH. The second workshop was for 37 public health managers from four provinces.

SMDP Atlanta staff supported activities

- SMDP staff provided technical assistance to Thai MIPH graduates for the third training cycle of the Thai SMTC focusing on members of the provincial SRRTs from Konkaen, Pisanulok, and Lopburi. The participating SRRT members conducted applied management improvement projects addressing problems like long specimen turn around time in a provincial laboratory and delay in reporting of dengue hemorrhagic fever cases.
- SMDP staff updated Thai MIPH course graduates on the new Process Improvement module and met with stakeholders from MU, the Thai MOPH, and TUC to plan for additional management training activities and secure funding in FY 2008.

Priorities for the coming year

- No additional funding was secured and no additional training and technical assistance is planned.
- Two fellows will attend MIPH in 2008.✦

Thai Sustainable Management Training Center participants collaborate on a Process Improvement exercise

Philippines: Technical Assistance to Mature Programs

Background

Under the auspices of the Department of Health (DOH), MIPH graduates established the Field Management Training Program (FMTP) in 1999. In 2002, graduates from the Research Institute for Tropical Medicine (RITM) launched the Lab Management Training Program (LMTP).

In 2003, MIPH graduates in Central Luzon launched the first Regional Management Training Program (RMTP) for local government personnel. Bicol and Metro Manila area followed as the second and third RMTP in the same year. Also in 2003, the first FMTP Annual Alumni Conference was held in Manila.

To date, 20 Philippine nationals have attended the MIPH course in Atlanta and nearly half remain actively involved in conducting management training at the national or regional level. As of December 2004, the national FMTP had graduated five cohorts of trainees from local government units, bringing the total number of graduates from the national FMTP to 99. These graduates completed 93 applied learning projects: 60 aimed at improving the effectiveness and efficiency of processes in existing public health programs and 33 focused on plans or interventions to address new health priorities.

Since 2005, all training for sub-national staff has been carried out by the RMTPs with guidance and technical support from the national FMTP staff and other MIPH alumni. Region III (Central Luzon) began training local managers in 2003 and to date has graduated three cohorts totaling 57 alumni who have completed 21 projects. Region V (Bicol) began training in 2005 and has graduated one cohort of 19 managers. Six projects were completed. Metro Manila RMTP began training in March 2006 and has graduated 32 trained public health managers. Eight projects were completed.

SMDP Atlanta staff supported activities

SMDP staff co-facilitated the initial workshop of the second cycle of management training carried out by the Metro Manila Regional Training Center of the Philippines FMTP in May 2007. Sixteen public health professionals from the Metro Manila area attended the five-day workshop.

Topics covered included an overview of public health practice in the Philippines, behavior style analysis, team building, leadership, effective communication, communication with the media, and process improvement. Applied management improvement projects themes relate to strengthening the surveillance for notifiable diseases, and the reduction of waiting times in outpatient clinics and emergency rooms of hospitals.

Status of sustainability efforts

FMTP is institutionalized at the national level and the RMTPs are institutionalized at sub-national levels. The program is self-sustaining. FMTP is financially supported through direct budget lines in the Philippines DOH budget. Each of the regions with a regional management training program has a direct budget line in its regional budget.

Priorities for the coming year

No additional SMDP training or technical assistance is planned for 2008.✦

Staff from the Science City Health Office who worked to increase immunization coverage among children using SMDP management tools

Croatia: Technical Assistance to Mature Programs

Background

The Andrija Stampar School of Public Health, SMDP's partner in Croatia, has been building public health management capacity in Croatia through its "Healthy Counties" program since 2002. The program uses material from SMDP's Healthy Plan-it™ and is designed to help decentralize health plan decision-making to the county level. Currently, teams from 18 counties plus the city of Zagreb have completed strategic health plan frameworks and eight of the teams are implementing detailed plans. Funding for this program, which was initially provided by the Soros Foundation's Open Society Institute, now comes from Croatia's MOH.

SMDP Atlanta staff supported activities

SMDP staff provided technical assistance to MIPH graduates training the sixth cohort of "Healthy Counties" in Saint Martin, Croatia. "Healthy Counties" teams' project plans address such diverse problems as late detection of breast cancer, cardiovascular disease, insufficient care for the elderly, and undetonated landmines.

Status of sustainability efforts

Faculty at the Andrija Stampar School are in the process of integrating management capacity-building into the school's curriculum. The Healthy Counties program is integrated into MOH program planning and management activities.

Priorities for the coming year

No additional SMDP training or technical assistance is planned for 2008.✦

Participants from Istarska Country, Croatia, participate in a Process Improvement workshop

Macedonia: Technical Assistance to Mature Programs

Background

The Faculty of Medicine at the University of St. Cyril and Methodius, SMDP's partner in Macedonia, has been building public health management capacity through its "Healthy Communities" program since 2003. The program, which is modeled after Croatia's Healthy Counties program, uses material from SMDP's Healthy Plan-it™ and is designed to help decentralize health plan decisions to the community level.

The Faculty of Medicine has five MIPH graduates who have facilitated the program for representatives responsible for community health plans in three communities. Those communities are currently implementing the Healthy county plans in their communities. At present, funding for the program is provided through an arrangement with the Soros Foundation's Open Society Institute and SMDP.

SMDP Atlanta staff supported activities

- SMDP staff provided technical assistance to the MIPH graduates training the second cohort of "Healthy Communities" in Skopje. Attending were teams from the communities of Kumanovo, Veles, and the Skopje Municipality Center.
- SMDP staff met with the Project Officer of the HIV/AIDS and Young People Project, UNICEF Macedonia, to discuss future funding for the program. In addition, meetings were held with the Acting Director, Republic Institute for Public Health Protection, to discuss the establishment of a formal collaboration with the Medical Faculty, the Republic Institute, and SMDP.

Status of sustainability efforts

Faculty at the university are in the process of integrating management capacity-building into the school's curriculum.

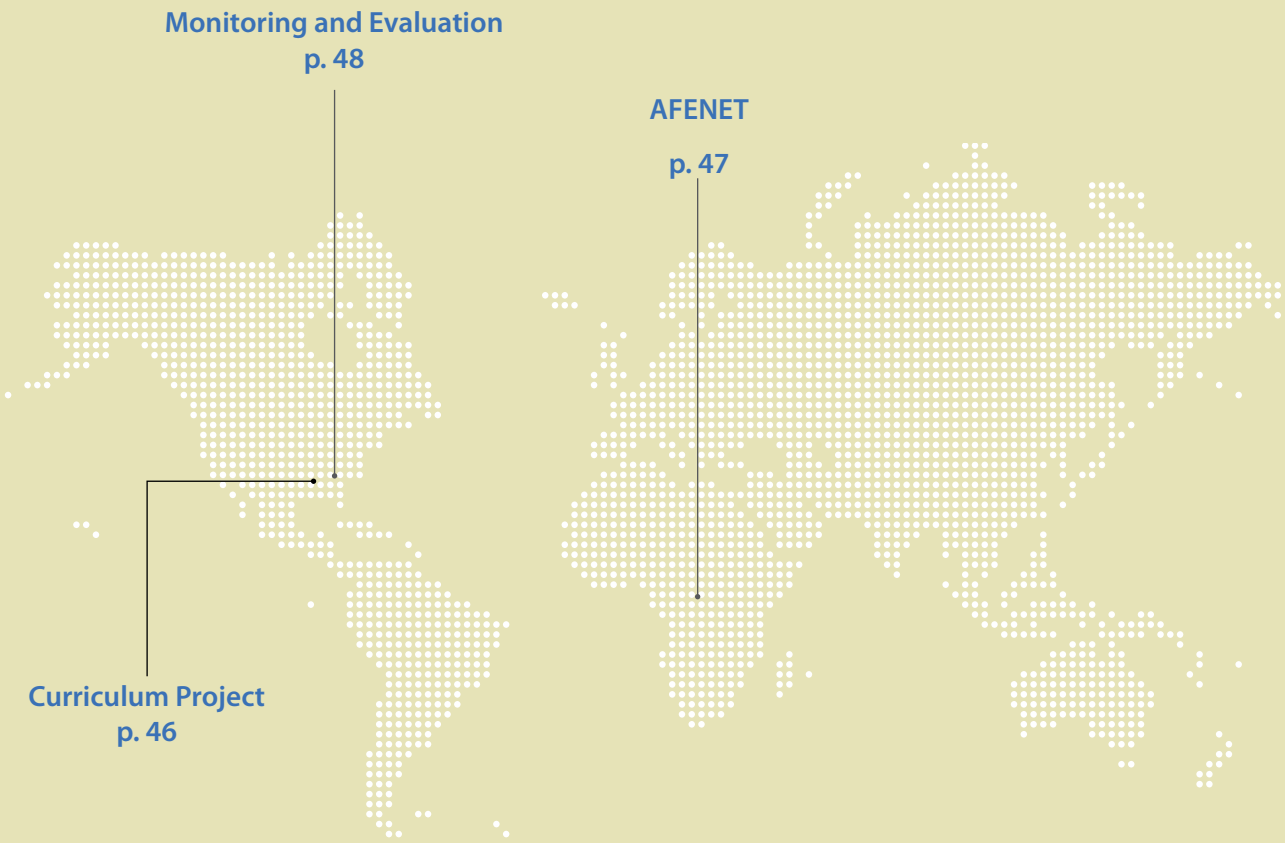
Priorities for 2008

SMDP will provide assistance to advocate for the establishment of a long-term funding source within the MOH.✦

Participants of the Kumanovo Healthy Communities team engage in discussions during a Healthy Plan-it™ workshop in Skopje, Macedonia

Section 5

Other Division Projects



Curriculum Project

Program description

As part of an ongoing effort to standardize training across FETPs and FELTPs and to ensure that all graduates have mastered the core competencies of the program, division staff were asked to participate in the development of classroom-based instructional materials, including course content, exercises, and evaluation tools.

The goal has been to develop a curriculum that can be customized to each country's needs, while also improving the consistency and quality of training across programs as well as minimize duplication of effort.

Team members

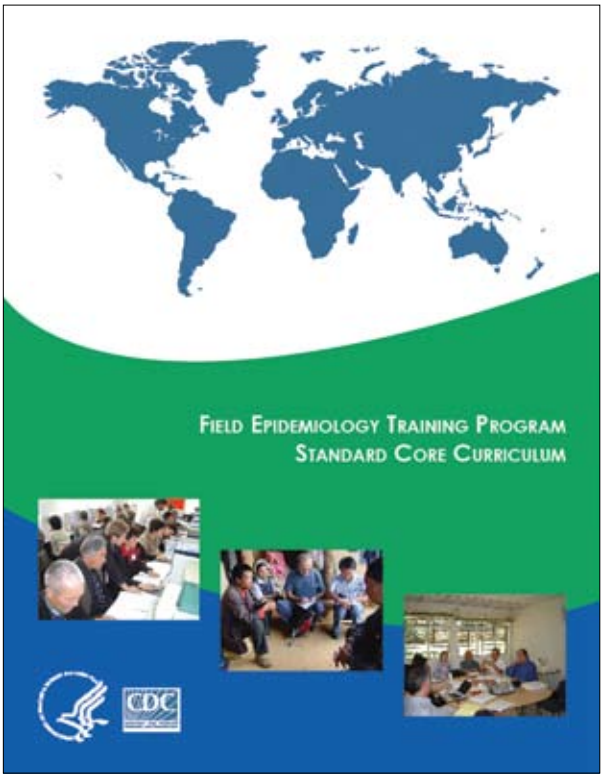
Henry Walke, Eric Gogstad, Dana Schneider, Tippavan Nagachinta, and Denise Traicoff were the core curriculum project team in 2007, but all division staff, Atlanta- and field-based, participated in material development and review.

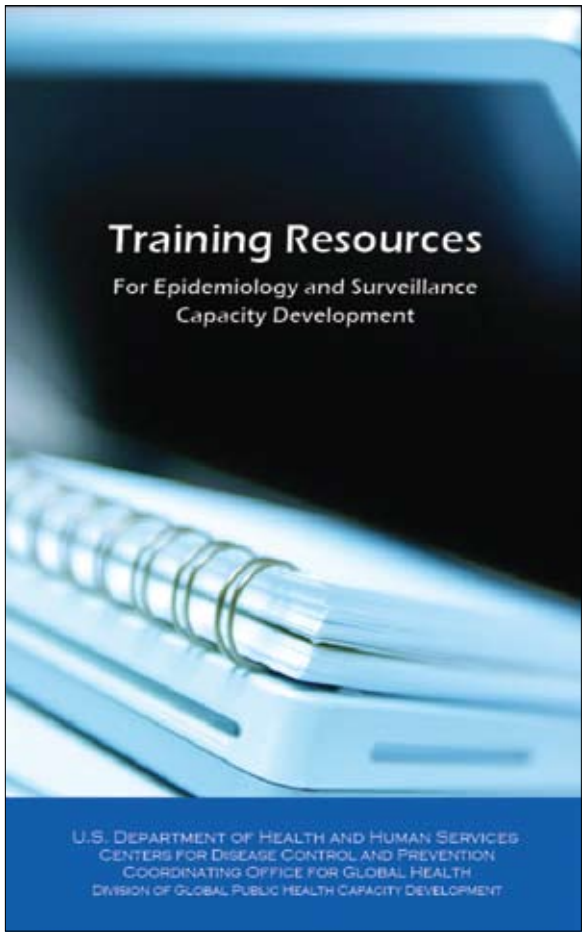
Accomplishment

Staff developed and reviewed materials to address the learning objectives defined in the *FETP Standard Core Curriculum* for the Epidemiologic Methods, Biostatistics and Public Health Surveillance competencies.

Next steps or future plans

Once all materials have been reviewed and cleared, they will be made available for immediate use. It is hoped that enough topics will have reached the clearance stage by the TEPHINET Conference in November 2008 for a CD containing a draft version of the curriculum to be distributed. Other activities may include the development of materials for the remaining competencies and standardized field-based learning activities.✦





Training products developed by DGPHCD

African Field Epidemiology Network

Program description

The African Field Epidemiology Network (AFENET), a non-profit organization headquartered in Kampala, Uganda, was established in 2005. Its goal is to strengthen field epidemiology and public health laboratory capacity development in African countries through sustainable programs and to develop appropriate facilitating networks.

The need and role for AFENET was conceptualized in 2004 in a meeting of representative of the four countries (Ghana, Zimbabwe, Uganda and Kenya) having an FETP at that time, USAID (that had been providing funding support to this and related public health programs), and CDC (that had been providing technical support and leadership).

This group also implemented the Integrated Disease Surveillance and Response strategy in these four countries, with DGPHCD's input being conducted through its Global Surveillance Project (GSP), created for that purpose. In this meeting the accepted objective of the strategy of AFENET was to strengthen disease surveillance and outbreak response in Africa.

Key goals were integrating multiple existing surveillance and response systems in each country, and linking surveillance, laboratory, and other data with timely effective public health action. The FETP graduates would provide the technical manpower and the leadership to these and other public health programs in these countries.

The relationship between AFENET and member countries is through a Memorandum of Understanding with a prominent university and the MOH of each participating country.

With the advent of AFENET as a major partner, the goal and membership was expanded to include other country and regional programs. Since the inception of AFENET the original scope has also expanded to address avian influenza, zoonotic infections, and WHO's new International Health Regulations.

Team members

- **Atlanta:** Peter Nsubuga, Wayne Brown, Juliette Mannie, Andrew Weathers
- **AFENET:** David Mukanga, Executive Director; other staff members and the Board of Directors, originally representing the founding country members.

Partners

- MOHs and leading universities for Ghana, Kenya, Tanzania, Uganda, and Zimbabwe
- USAID
- WHO AFRO

Division role

- Participate with other partners in developing and implementing processes by which an MOH can design and conduct a self-assessment of epidemiologic capacity and interpret the results; set priorities and goals for the strengthening of health systems and manpower related to epidemiologic surveillance and response; and develop, implement, and monitor action plans to achieve the prioritized improvements
- Coordinate involvement with partners to support the MOHs in carrying out these activities
- Provide funding support (first with bilateral agreements, then, in FY 2006, via AFENET) for activities that support the MOH's achievement of its larger goals
- Provide direct technical assistance to the MOHs and affiliated universities in the long-term training of epidemiologists, including their field training, through FELTPs and selected sub-national training
- Support the parallel strengthening of health information and public health laboratory systems

Accomplishments

- Establishment of a Cooperative Agreement with AFENET to support the strengthening of capacity for disease surveillance and outbreak investigation systems and manpower of member countries. Now most of the assistance described above is provided to the original and new member countries through AFENET.
- Supervisory visits by CDC/GSP staff to review the activities and accomplishments of CDC-supported staff
- Continuity of MOH and CDC-supported staff to help with
  - Field epidemiology training (including design and conduct of epidemiologic investigations)
  - Surveillance system strengthening (including the preparation and distribution of surveillance feedback reports)
  - Integration of laboratory services into surveillance at all levels
- Ongoing provision by MOHs of field training sites and mentors for FELTP/MPH trainees
- Continued support for the Uganda laboratorian enrolled in the Kenya FELTP for additional training. Since he graduated, the laboratorian played a lead role in further developing the national laboratory, including its role in surveillance and outbreak investigation and in the development of other laboratorians at the regional and district levels
- Support of the development of FELTPs in Ethiopia, Kenya, South Africa, and Tanzania that then provide the manpower needed by their respective MOH/IDSR programs✦

Monitoring and Evaluation

Program description

CDC recognizes that monitoring and evaluation of FETPs and FELTPs are essential practices. To ensure programs are effective in developing needed capacities and become sustained by their host countries, a system for periodic monitoring and evaluation of outputs and outcomes is critical.

The division began by articulating what it considered the critical outcomes of the programs. These are what the division is working toward helping countries achieve as they work to improve their public health systems. The programs serve as a major tool in helping countries reach these outcomes, but all the division programs are intended to contribute to these outcomes. The monitoring and evaluation system is meant to support achievement of these outcomes.

The goal of this activity is to develop an effective system for monitoring and evaluation of programs that ultimately leads to strengthened public health systems. The evaluation workgroup, with input from Atlanta- and field-based staff, has developed guidelines and a supporting database (EpiTrack) for monitoring and evaluation of programs.

EpiTrack-G (the generic version of EpiTrack) functionality includes data entry screens for the program, trainee information, projects and coursework, and an alumni directory. Report templates are also available for each of the monitoring and evaluation indicators and for commonly used summary reports. EpiTrack-G is customized for individual programs that reflect their respective organization and curriculum. Additional report templates are added as requested to reflect reporting requirements for each program.

Team members

Donna Jones, Peter Nsubuga, Hoang Dang, Suzanne Elbon, Robert Fontaine, Eric Gogstad, Edmond Maes, Henry Walke, Andrew Weathers

Partners

Partners include division members and partner training programs.

Accomplishments

- Developed and gained acceptance for use of critical outcomes to indicate program impact
- Developed, pilot-tested, and revised programmatic indicators
- Began process evaluation to document program structures and develop best practices
- Transitioned EpiTrack from an Epi Info based application to a MS access application
- Revised and improved database so that data to support all monitoring and evaluation indicators can be collected
- Presented to and shared database with TEPHINET and several countries
- Implemented database in Jordan, Kenya, and Zimbabwe
- EpiTrack is currently being developed for Central America and South Africa

Next steps or future plans

- Complete program descriptions and indicator data collection for all programs for the past year
- Continue to refine the monitoring and evaluation indicators based upon feedback provided from program staff and other stakeholders
- Initiate an assessment of FETP and FELTP structure and its relationship to programmatic outputs and outcomes
- Develop best practices document
- Assist programs to use monitoring data for program improvement
- Complete outstanding requests for EpiTrack (Central America FETP and South Africa FELTP)
- Establish Intranet/Extranet access to EpiTrack with password-protected access
- Collect data for annual report from EpiTrack-enabled countries using EpiTrack✦

A trainee from Zimbabwe using EpiTrack

Acronyms

AFENET	African Field Epidemiology Network
AI	Avian influenza
CAFETP	Central America FETP
CDC	Centers for Disease Control and Prevention
C-FETP	China FETP
DTRA	U.S. Defense Threat Reduction Agency
DDM	Data for Decision Making
DGPHCD	Division of Global Public Health Capacity Development
EIS	Epidemic Intelligence Service
EPISUS	Programa de Treinamento em Epidemiologia Aplicada aos Servicos do Sistema Unico de Saude
FETP	Field Epidemiology Training Program
FELTP	Field Epidemiology and Laboratory Training Program
GAP	Global AIDS Program
GDD	Global Disease Detection
GSP	Global Surveillance Project
IDSR	Integrated Disease Surveillance and Response
LSI	Leadership in Strategic Information
MIPH	Management for International Public Health
MOH	Ministry of Health
MOU	Memorandum of Understanding
MPH	Masters of Public Health
PAHO	Pan American Health Organization
SCFELTP	South Caucasus Regional FELTP
TB	Tuberculosis
SMDP	Sustainable Management Development Program
TEPHINET	Training Programs in Epidemiology and Public Health Interventions Network
USAID	U.S. Agency of International Development
WHO	World Health Organization

Additional copies of this annual report are available. To download a copy, go to www.cdc.gov/cogh/dgphcd.

To get a hard copy, send an e-mail to DGPHCDInfo@cdc.gov. Note that quantities are limited.

For more information about our programs, contact:
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For more information, consult the following websites:

- Division of Global Public Health Capacity Development: www.cdc.gov/cogh/dgphcd
- Coordinating Office for Global Health: www.cdc.gov/cogh
- Centers for Disease Control and Prevention: www.cdc.gov
- U.S. Department of Health and Human Services: www.hhs.gov

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Notes

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