Division of Epidemiology and Surveillance Capacity Development

Annual Report

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

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Division of Epidemiology and Surveillance Capacity Development

2005 Annual Report

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Foreword

I am pleased to present the *Division of Epidemiology and Surveillance Capacity Development (DESCD) 2005 Annual Report*. This is the division's first annual report, one that reflects the many changes that DESCD and the Centers for Disease Control and Prevention's (CDC) global health programs have undertaken in recent years.

The year 2005 marks in many ways a new beginning for DESCD, as we have undergone several key transformations. First, we changed our name from the Division of International Health to the Division of Epidemiology and Surveillance Capacity Development, to more accurately describe our various activities. We also moved organizationally out of the Epidemiology Program Office into CDC's Coordinating Office for Global Health (COGH). This move allows us to work more closely and efficiently with COGH's many key constituents and partners, and to align ourselves more with CDC's global health goals. Finally, DESCD saw a transfer of leadership when I became Director of the division in October 2005.

We are excited about these changes as they will allow us to become even better at what we do, namely strengthen the capacity of countries around the world to improve their public health by helping them build long-term applied public health training programs uniquely tailored to their needs. Through our Field Epidemiology Training Programs (FETPs), which are modeled after CDC's famous Epidemic Intelligence Service (CDC's "disease detectives"), we help Ministries of Health (MOHs) around the world build strong, effective, sustainable programs and capacity to improve public health systems locally, regionally, and nationally, with the ultimate goal of improving global health.

But FETPs constitute only part of our many activities. We are also involved in broad-scope projects, such as the Central Asia Regional Program, a large collaborative effort in partnership with the Department of State and the Department of Defense. In addition, we are involved in specific targeted research and surveillance activities in Egypt, Ethiopia, Jordan, South Sudan, and Zimbabwe, as well as cross-cutting projects with other CDC programs and offices, centering on activities ranging from Avian Influenza to the Global Surveillance Project and the Micronutrients Project.

Through these various projects, DESCD has been actively engaged in over 20 programs in countries such as Brazil, China, Egypt, Guatemala, India, Jordan, Kazakhstan, Kenya, and South Sudan, to name a few.

However, although we have encountered many changes in 2005, some factors have remained—and will remain constant: namely, our commitment to help MOHs around the world build strong epidemiology programs, our goal to improve the health, safety, and well-being of people around the world, and our strategy to build strong, effective, and trustworthy partnerships both inside and outside CDC to strengthen our programs' impact.

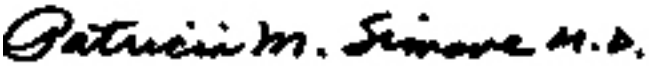
As you look through this report, you will learn about the many programs we support around the world and find out more about the specific activities we conduct. The public health work described here represents the cumulative effort of MOHs trainees and staff in these programs, the DESCD resident advisors and the Atlanta-based country teams, as well as our many national and international partners. This report represents our first attempt to capture and briefly describe this ongoing work and the many achievements of these programs.

In this report, you also will find two sections describing our monitoring and evaluation activities, including programmatic indicators and critical outcomes. Collecting this type of information about the programs we support is a crucial component of our effort to demonstrate their public health outcomes. In addition, monitoring and evaluation activities provide more clear and consistent information to policy makers and donors about the impact of these programs and their contributions to strengthening public health, which have been recognized and widely praised by many experts and leaders in public health. However, we believe that these important contributions need to be better documented and measured to provide the policy and decision makers, as well as the donors, with reliable data so that our effort to improve public health continues and gains more support.

It is essential, however, that the information collected be helpful for the programs themselves, to document program activities, monitor and evaluate the program, implement improvements, adjust to changing priorities, and ensure the program is meeting its long-term strategic goals.

We welcome your feedback on this report. We will begin work on the 2006 report shortly, and we will incorporate your suggestions to make the next report a more useful tool. We will continue to work closely with the programs we support to strengthen and refine the monitoring and evaluation activities over the coming year. We will also continue to look for ways to increase our collaboration with the rest of the applied epidemiology programs to meet our common goal of strengthening public health.

I hope you will enjoy reading about DESCD and the many projects we support.



Patricia M. Simone, M.D.
CAPT, USPHS
Director
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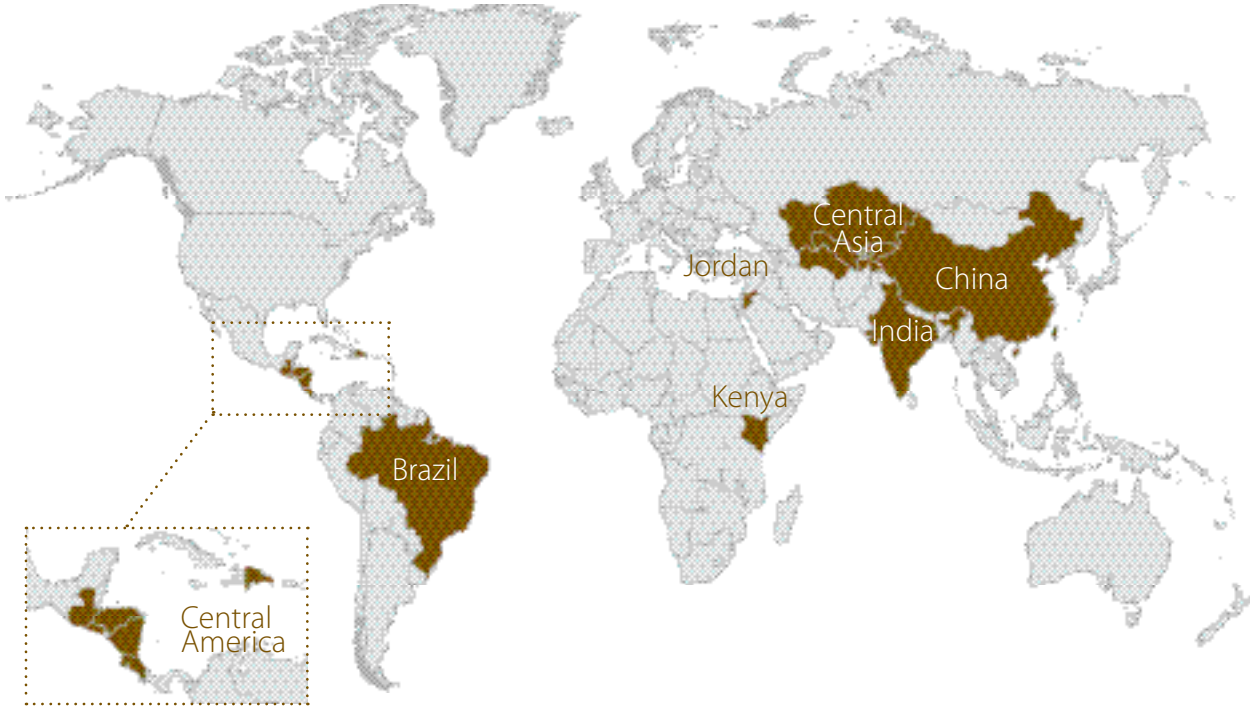

Section 1

Field Epidemiology Training Programs

Brazil

PROGRAM OVERVIEW	
Start date	2000
Location	Brasilia, Brazil
Program director	Elizabeth David dos Santos (since 2004)
Resident advisor	Douglas Hatch (since 2000)
Atlanta-based staff	• Jim Mendlein, senior epidemiologist • Andrew Weathers, public health advisor
Brazil-based staff	Tatiana Lanzieri, senior trainer, epidemiologist – FETP

Trainees/graduates

The current cohort includes 25 trainees. To date, the program has 32 graduates: 26 (81%) are at the national Ministry of Health (MOH) level, 3 are in State Health Secretariat, and 2 are in a PhD Program, working on HIV/AIDS project in Rio de Janeiro. Four FETP graduates are currently working as FETP staff. These graduates include Elizabeth David dos Santos (director, FETP), Tatiana Lanzieri (senior training supervisor, FETP), Wildo Araujo (senior training supervisor, FETP), and Carmen Muricy (assistant director, FETP).

Outbreak investigations

The trainees participated in 18 outbreak investigations in 2005. These included investigations of malaria, acute conjunctivitis and anterior uveitis, Brazilian spotted fever, rotavirus, toxoplasmosis, human rabies, post-transfusion adverse events, dengue, and Chagas' disease, among others.

Exemplary project

Outbreak of acute encephalomyelitis, Rondonia State, Western Amazon region

In 2005, an outbreak of acute encephalomyelitis (AEM) occurred in Rondonia State, Western Amazon region. A total of 41 suspected cases were identified; higher risk of AEM was associated with older age-groups and female gender ($p < 0.05$).

The outbreak occurred during a community-wide outbreak of dengue virus type 3 (DEN3), and increased risk of disease was not associated with rural or forest-related exposures or any history of immunodeficiency. Serum was reactive for dengue fever virus-specific IgM antibody in 36 (88%) of 40 AEM case-patients; cerebrospinal fluid (CSF) was reactive in one. Hemagglutination-inhibition testing of CSF was positive for flavivirus in five cases (12%) tested. DEN3 virus was isolated from the blood and identified by RT-PCR in the CSF of a single AEM case-patient.

Mosquito vectors were captured and tested for virus isolation, and community-wide spraying of insecticide in affected areas and health education campaigns limited the extent of the DEN3 transmission. This is the first known outbreak of AEM cases associated with a DEN3 virus epidemic.

Surveillance evaluations

The trainees participated in 10 surveillance evaluations; the disease surveillance systems evaluated included vaccine-related adverse events, dengue fever, malaria, influenza, yellow fever, leptospirosis, and tuberculosis, among others.

Exemplary project

Evaluation of dengue surveillance system

An evaluation of the dengue surveillance system identified it to be a complex system with low levels of data quality and acceptability. Important recommendations were made to improve data quality and local level analysis capacity.

Planned investigations

Trainees completed seven planned, long-term projects. These included study of hepatitis C mortality, evaluation of the leptospirosis-related laboratory information system, evaluation of national blood supply surveillance, evaluation of typhoid fever surveillance, evaluation of acute Chagas' disease surveillance, and AIDS-related mortality and trends, among others.

Other important projects

- Co-sponsored regional Avian Influenza scientific meeting
- Conducted national applied epidemiology training course
- Conducted state-level epidemiology and surveillance training
- Supervised implementation of state-level FETP program (Minas Gerais state)
- Staffed the new SVS Emergency Operations Center in the MOH, which is responsible for response to all epidemics, disease outbreaks and disasters of national importance

Central America

PROGRAM OVERVIEW	
Start date	2000
Location	Guatemala City, Guatemala
Program directors	• Costa Rica: Xiomara Badilla national tutor of CCSS and Teresita Solano national tutor for MOH • El Salvador: Orbelina de Palma • Guatemala: Moises Mayen • Honduras: Ricardo Fernandez
Resident advisors	• Luis Callejas covers Nicaragua and Costa Rica (since 2004) • Augusto Lopez covers Guatemala (since 2000) and the Dominican Republic (since 2004) • Gloria Suarez covers El Salvador (since 2000) and Honduras (since 2004)
Atlanta-based staff	• Victor Caceres, medical epidemiologist and team lead • Hoang Dang, public health advisor • Denise Traicoff, instructional designer

Trainees/graduates

The current cohort includes 30 trainees. Since 2000, 31 MOH epidemiologists from Costa Rica (5), the Dominican Republic (5), El Salvador (6), Guatemala (6), Honduras (4), and Nicaragua (5) have completed the program. Of these, 27 (87%) are still working in the MOHs, 25 are working at the national level, and 2 at the sub-national level. One graduate is working for the CDC Global AIDS Program for Central America and Panama and one, Roberto Flores from the first cohort, was recently elected as Chair of TEPHINET.

Outbreak investigations

Program trainees participated in 24 outbreak investigations in the 6 countries. These covered problems ranging from rotavirus, dengue fever, malaria, leptospirosis, Chagas' disease, meningitis, West Nile virus, and many others.

Exemplary projects

Paralytic shellfish poisoning outbreak, Corinto, Nicaragua, November 2005

A case-control study of persons who developed neurological symptoms after eating seafood was conducted. The investigation revealed an association with eating black shell clams. A bioassay implicated saxitoxin, the toxin responsible for paralytic shellfish poisoning. This is the first investigation of paralytic shellfish poisoning in Nicaragua. As a result of this investigation, the MOH issued a ban on the harvesting and sale of black shell clams and increased surveillance for this disease along the Pacific Coast.

Outbreak of leptospirosis in Támara, Francisco Morazán, Honduras, April 2005

Following a suspected death from leptosprirosis in an area where this disease had not been documented, an investigation was conducted. Seven suspected cases were identified. Leptospira in water samples indicated that this probably was the mode of transmission. Confirmation of leptospira serotype in one dog indicated that bacteria are circulating in domesticated animals living near the affected village. All of

the serotypes identified among infected patients were typically from domesticated animals. The study team recommended ongoing educational efforts, surveillance of animals in the affected area, and installation of a public water treatment system.

Surveillance activities

Program trainees participated in over 25 surveillance activities and outbreak investigations in the 6 countries. These covered surveillance systems for HIV/AIDS, sexually transmitted diseases, dengue fever, neonatal sepsis, malaria, leptospirosis, Chagas' disease, and meningitis, among many others.

Exemplary project

Establishment of a national injury surveillance system, El Salvador

Wilfrido Clara (3rd cohort FETP trainee, El Salvador) and Gloria Suarez (CDC consultant, El Salvador) received plaques from the Supreme Court of El Salvador recognizing their excellent contribution in establishing a national injury surveillance system in El Salvador. The impetus for this new national surveillance system came from the results of an injury surveillance evaluation conducted by Clara who coordinated the input and participation of representatives from the Institute of Legal Medicine, the Supreme Court of Justice, and the Pan American Health Organization in designing and implementing this new national surveillance system. This initiative is a great example of the use of partnerships (e.g., the judicial system, national police, El Salvador MOH) by the national FETP to improve public health.

Planned investigations

Program trainees participated in 17 planned field studies in the 6 countries, covering problems ranging from rotavirus, dengue fever, malaria, leptospirosis, and hand washing, among many others.

Exemplary projects

Characterization of HIV/AIDS epidemic in Guatemala, January 1984–December 2004

An investigation was done to characterize the epidemic of HIV/AIDS in Guatemala and to identify appropriate epidemiological interventions. Retrospective review of the national HIV/AIDS data base from January 1984 to December 2004 was conducted, as well as an analysis of National Information System and seroprevalence or risk behavior studies was carried out during 2000–2004. In Guatemala, the HIV/AIDS epidemic is still concentrated, although generalized in specific areas. Economically active populations are affected, as well as high-risk groups such as men who have sex with men. The investigation team recommended periodic studies for monitoring risk behaviors and seroprevalence for HIV infections at the national level. Also recommended were educational and preventive strategies appropriately targeted to risk groups and other population sectors.

Overweight and obesity prevalence in children and adolescents, El Salvador, 2005

A cross sectional study was conducted to estimate the prevalence of overweight and obesity of school-age children in El Salvador. The study found the prevalence of overweight to be 23% and obesity 11%. Overweight and obesity were associated with

attending a private versus public school and with hours of television watched. This is the first such study carried out in El Salvador. Both conditions are highly prevalent and represent an emergent public health problem among school age children.

Other important projects

Guatemala

- Oversight of 35 shelters as part of the response to a natural disaster, Chiquimulilla
- Epidemiologic evaluation of the population affected by Hurricane Stan, San Marcos and Solala
- Especializacion en Epidemiologia Aplicada group project: Prevalence of malnutrition in children under 5 years old in the Municipality of Cuilapa, Santa Rosa
- Preparation of the national contingency plan for avian influenza

El Salvador

- Planning and implementation of a National Ethical Review Board for Scientific Investigation
- Collaboration in the design of the surveillance system for mortality due to injuries
- Participation in the Central American Initiative to eliminate Chagas disease
- Participation in the national anti-rabies vaccination campaign
- Coordination of the Situation Room for a natural disaster
- Participation in the national commission for the prevention and control of intoxication due to saxitoxins
- Collaboration with CDC's National Institute of Occupational Safety and Health in the investigation of lead exposure at a battery recycling and manufacturing plant
- Preparation of the national contingency plan for avian influenza

Honduras

- Participation in a CDC/USAID 4-year project to revitalize disease surveillance in Honduras
- Development of a standard operating procedures manual for the diagnosis of malaria
- Preparation of the national contingency plan for avian influenza

Nicaragua

- Assessment of HIV prevalence in pregnant woman attending public health facilities in Nicaragua

Costa Rica

- Development of a national contingency plan for avian influenza
- Participation in response to a large Dengue epidemic
- Response to heavy flooding in the Huetar Atlantica Region
- Inauguration of the *Costa Rican Journal of Epidemiology,* editor being the director of the FETP in the Social Security System

Central Asia

PROGRAM OVERVIEW	
Start date	2003
Location	Almaty, Kazakhstan and Tashkent, Uzbekistan
Program director and resident advisor	Simon Ajeilat
Atlanta-based staff	• Ed Maes, epidemiologist • Eric Gogstad, instructional designer
CAR-based staff	Dilyara Nabirova, manager

Trainees/graduates

The current cohort includes 19 trainees (10 in the third cohort and 9 in the fourth cohort). To date, the program has 15 graduates (7 in the first cohort and 8 in the second cohort). Twelve graduates (80%) are still working for the MOH in their countries.

Outbreak investigations

The trainees completed 24 outbreak investigations. The problems studied included anthrax, botulism, cholera, hepatitis A, pertussis, and viral meningitis.

Exemplary projects

Investigation of measles outbreak in Almaty City, October 2004–March 2005

As of March 2005, Almaty had registered 5,092 measles cases. At the same time, between October 2004 and January 2005, there was a shortage of measles vaccine.

Study Goal: Describe outbreak by age, time and place and provide recommendations to the MOH. *Conclusions:* The highest number of cases and the highest rates were registered among 15–35 year olds and in infants. The program received a request from the WHO offices in Copenhagen and Almaty to provide results of the analysis and recommendations on vaccination against measles. *Recommendations provided to WHO and the MOH and implemented by the MOH:* revise schedules for vaccination and revaccination, including for 25-35 year olds, strengthen measles surveillance, and provide mass vaccination.

Case-control study on HIV infection among young children in Tashkent, 2004–2005

In 2004, nine cases of HIV infection were identified among children under 3 years of age in Tashkent, Uzbekistan. Eight of them were tested in the Research Pediatric Hospital (reference hospital) in Tashkent. CDC/CAR received a request from the MOH to stop the outbreak and to identify whether that was a nosocomial infection and if the Research Pediatric Hospital was responsible. *Objectives of the analysis:* identify factors contributing to disease transmission. *Conclusion:* administration of blood products is the only common exposure for all infected children; other possible modes of transmission (e. g., mother to child transmission) cannot be excluded; no one hospital can be blamed as the place where all children were infected. The fact that eight out of nine children were diagnosed in the Research Pediatric Hospital reflects

alertness among the treating physicians there. *Recommendations provided to the MOH:* prevent HIV/AIDS transmissions through blood; reorganize blood collection stations; strengthen the response against blood selling and collection; implement monitoring and management measures regarding blood collection, periodic inspection and evaluations. *Outcome:* no new cases of HIV infection were identified among children in Tashkent.

Surveillance evaluations

The trainees conducted 10 surveillance evaluations in 2005. The systems studied included TB, HIV, hepatitis and diarrhea among others.

Planned investigations

The trainees conducted four planned investigations. The topics covered included meningitis, brucellosis, malaria, and HIV.

Exemplary project

Risk factors for pulmonary tuberculosis among residents 20–50 years old, Shimkent City, Kazakhstan, 2004

Notification rate for newly diagnosed pulmonary Tuberculosis (PTB) in Shimkent reached 130/100,000 population in 2002. From 2000 to 2002, 972 persons died of tuberculosis, 1893 new cases of PTB were reported in the city, and 1304 (69%) of them were aged 20-50 years.

Study goal: to identify risk factors associated with developing PTB in this age group in order to guide control strategies. *Conclusion:* among residents of Shimkent, high risk groups for developing PTB are persons having contact with TB patients, those with chronic illnesses, single individuals, and persons from low income families. *Recommendations provided to oblast TB Dispensary and oblast Health Department:* although some factors are not easily amenable to intervention, those at higher risk, especially contacts of TB patients, should be provided with health education and screened for active disease. Early identification and proper management of TB in these potential reservoir groups should reduce TB transmission in Shimkent.

China

PROGRAM OVERVIEW	
Start date	2001
Location	Beijing, China
Program director	Zeng Guang (since 2001)
Resident advisor	Robert Fontaine (since 2004)
Atlanta-based staff	• James Mendlein, epidemiologist • Hoang Dang, public health advisor • Nadine Sunderland, instructional designer
China-based staff	• Matt Brown, public health advisor • Zong Yiyang, administrative assistant

Trainees/graduates

The current cohort includes 24 trainees. The program had 30 graduates through 2004. All have remained with the MOH; 27 (77%) are at the provincial and 3 at the national level. Two graduates (Ma Huilai and Shi Guoqing) are advisors with the China FETP.

Outbreak investigations

The residents participated in 41 outbreak investigations, covering problems such as brucellosis, cholera, hepatitis A, influenza, measles, and mumps.

Exemplary projects

Outbreak of acute febrile respiratory disease, May 2004

In May 2004, an outbreak of acute febrile respiratory disease (AFRD) was discovered in students and C-FETP investigated to identify the agent and mode of transmission, and recommend control measures. Fifteen percent (832) of students from all 24 township schools studied developed AFRD. No viral or bacterial pathogens were detected until June 12 when adenovirus was isolated from 71% of 65 AFRD case-students.

Mean attack rates of primary-schools, kindergartens, and middle-schools was 17%, 14% and 10%; the highest rate was 60% in a kindergarten. Twenty-eight percent of case-students reported close contact with other case-students versus 1.7% of control-students (OR=22; 95%CI=3.6~481). Fifty-six percent of case-students shared a towel versus 29% of control-students (OR=3.1; 95%CI=1.4~6.8). Fifty-eight percent of case-students often washed their hands versus 79% of control-students (OR=0.36; 95%CD=0.15~0.84).

C-FETP concluded that contact and droplet transmission sustained this outbreak and that differentiation of adenovirus from other respiratory infections early in outbreaks is important to avoid unnecessary control measures and rule out potentially emerging infections.

Surveillance evaluations

The residents participated in 25 surveillance activities, including surveillance evaluations and surveillance analysis. They covered topics including hepatitis A, influenza, measles, and sudden unexplained deaths.

Exemplary project

On December 3, 2004, the Chinese emergency surveillance system revealed 142 suspected paratyphoid fever (PTF) cases from a rural junior high school in Guangxi

province. To identify the mode of transmission and develop control measures, China FETP conducted a descriptive epidemiology and a case-control study. From November 23 to December 12, 404 of 1005 students and 1 of 72 teachers developed PTF and 41 of 173 blood cultures yielded Salmonella enterica serovar paratyphi A.

Unlike students and workers, teachers always boiled their drinking water. Forty percent of case-students drank water directly from the school taps compared with 19% of control-students, OR=9.8 (95%CI:2.0-66); the OR increased 6-fold (95%CI:1.9-21) with increasing frequency of drinking tap water. Although the school water system used a presumably dry well to store water, this well was less than 1 meter from open sewage drains from the schools' lavatories, and when emptied it filled spontaneously with subsurface water.

C-FETP identified one student who had PTF during a previous outbreak in his village and who possibly was the source of the organism. Because this PTF outbreak resulted from contamination of the school water system by subsurface seepage into a storage well, the school disconnected the storage well from the water system and began regular chlorination of tap water.

Planned investigations

The residents participated in 18 planned investigations, including hantavirus, influenza, Japanese encephalitis, and sudden unexplained deaths.

Exemplary project

In August 2004, a major typhoon caused widespread death and destruction in a coastal city and surrounding areas in east China, and China FETP conducted a descriptive epidemiology and a case-control study to ascertain rates and types of, and risk factors for, related injuries.

They defined an injury case as a person treated at one of 10 hospitals for any of 10 types of typhoon-related injury from August 12 to 14, 2004, or a death as a person dying from such injuries, and compared the activities of cases and controls before/during the typhoon, using a standardized questionnaire. They found 392 cases and 50 deaths (attack rate = 27 per 100,000; death rate = 3 per 100,000). Men had a higher attack rate than women (42 vs 28 per 100,000) and rates increased from 20 to 75 per 100,000 for persons <20, to >70 years. Sixty-five percent of cases studied were injured 1-6 hours (peak, 4 hours) before, typhoon landfall.

People were injured while walking outside (18%), working (16%) and shutting doors or windows (14%). Flying debris and building collapse caused 23%, collision 23%, and falls 21%, of injuries, and 64%, 20%, and 10% of deaths. Most deceased had serious head or neck injuries. Forty two percent of cases and 15% of controls were outside their homes before or during typhoon landfall (OR= 3.9, 95%CI=1.9~7.7). Twenty-eight percent of cases and 18% of controls reported not receiving a typhoon alert before landfall (OR=3.3, 95%CI=1.3~8.6). Based on their findings, C-FETP advised the public to avoid being outside before or during a typhoon, and to listen for and respond to typhoon alerts. They also recommended that the government enhance emergency preparedness and educate people about risks for, and prevention of, typhoon-related injuries, including checking dwellings to tie down potentially falling or flying objects (e.g., tiles, gutters), and securing doors and shutters before typhoons.

India

PROGRAM OVERVIEW	
Start date	2001
Location	Chennai (formerly Madras), India
Program director	M. D. Gupte (since 2001)
Program coordinator	M.V. Murhekar (since 2005)
Resident advisor	Yvan Hutin (since 2004)
Atlanta-based staff	• Rubina Imtiaz, medical epidemiologist • Judy Berry, program analyst

Trainees/graduates

The current cohort includes 24 trainees (9 from 2005 and 15 from 2006). To date, the program has 21 graduates. All are working in public health in India, mostly at the state and district level. Graduates from the state of West Bengal are working as local mentors for the scholars. Two graduates are working as state surveillance officers in India.

Outbreak investigations

FETP scholars investigated 12 outbreaks in their respective districts. The topics included malaria, post-tsunami measles, food poisoning, gastroenteritis, chickenpox, and poliomyelitis, among others.

Exemplary project

Establishment of an emergency surveillance system, January 2005

In January 2005, the FETP dispatched teams within 48 hours of the Asian tsunami to conduct rapid assessments and establish an emergency surveillance system. This system quickly detected an outbreak of measles which led to local recommendations regarding the use of measles vaccine in emergencies and the possibility of a second opportunity for measles immunization.

Surveillance evaluations

There were nine surveillance evaluations, including evaluations of diarrhea, malaria, typhoid fever, measles, acute flaccid paralysis, and HIV surveillance among others.

Exemplary project

A scholar analyzed 5 years of malaria surveillance data, determined outbreak thresholds, identified a trend in rising incidence and documented a correlation between the rise in incidence and climatic factors. His work led to practical recommendations for the malaria control program.

Planned investigations

The scholars undertook five research studies. These included a study of factors associated with carcinoma of the gall bladder, factors associated with Leishmania infection, feasibility of iron-folic acid supplementation among tribal adolescent girls, and factors associated with ownership and use of bednets to prevent malaria.

Exemplary projects

An investigation was conducted to understand the factors associated with ownership and use of bednets to assist in the malaria control strategy. An analytical cross-sectional cluster survey was conducted of 540 household heads. Overall, 46% of households owned bednets and 81% of persons living in households owning bednets used them. Household income was identified as the strongest predictor of bednet ownership but selected knowledge elements were associated with use. Prevention efforts are needed to improve financial accessibility and to communicate key information to the public.

Jordan

PROGRAM OVERVIEW	
Start date	1998
Location	Amman, Jordan
Program director	Sami Sheikh Ali (since 2004)
Atlanta-based staff	• Bassam Jarrar, senior public health advisor • Denise Traicoff, instructional designer • Henry Walke, medical epidemiologist

Trainees/graduates

The current cohort includes 11 trainees (4 from the first year and 7 from the second year). To date, the program has 23 graduates, 18 work for the MOH, 10 at the national level and 8 at the provincial level. The two Palestinian graduates are working with the Palestinian Authority. One graduate, Simon Ajeilat (2000 cohort), is resident advisor for the FETP in Kazakhstan. The current program director, Sami Sheikh Ali, graduated from the program in 2002.

Outbreak investigations

The Jordan FETP lost both its resident advisor and MOH counterpart in 2005, impacting the operation of the FETP severely. Most outbreaks were investigated by MOH personnel and FETP graduates in the health directorates and were not documented by the program. Recruitment for the counterpart and RA was started in 2005.

Other important projects

Electronic Data Reporting

In collaboration with the Directorate of Disease Control at the MOH, the project developed the Jordan Infectious Disease Information System which allows the health directorates to store and report data on the 40 notifiable diseases on weekly and monthly bases. Data is analyzed weekly at the directorate and at some governorates to determine any unusual health events and respond to them. Installation of the system and training of local personnel began in 2004. By the end of 2005, all governorates in Jordan were using the system for weekly and monthly reporting.

Data for Decision Making

The Data for Decision Making (DDM) program graduated its third cohort of 20 participants. Participants' intervention proposals addressed a number of local health problems. Topics included lack of reporting among private sectors, fluoride treatment effectiveness, and water quality at home storage units. DDM is a 1-year, on-the-job training program that targets public health officers and mid-level managers at the MOH. Over the course of a year, participants attend didactic sessions, identify and study a local health problem, and prepare an intervention proposal. DDM has 53 graduates in Jordan, including this cohort.

Kenya

PROGRAM OVERVIEW	
Start date	2004
Location	Nairobi, Kenya
Program director and resident advisor	Christopher Tetteh (since 2003)
Laboratory resident advisor	Kariuki Njenga (since 2004)
Deputy laboratory management resident advisor	Joseph Oundo
Atlanta-based staff	• Peter Nsubuga , medical epidemiologist • Denise Traicoff, instructional designer • Andrew Weathers, public health advisor
Kenya-based staff	• Eric Muchiri, MOH national counterpart to the resident advisor • Lindsay Mwoga, administrative assistant

Trainees/graduates

The current cohorts include 20 trainees.

Outbreak investigations

The trainees investigated nine outbreaks. These included studies of aflatoxicosis, chikungunya virus, cholera, methanol poisoning and brucellosis, among others.

Exemplary projects

Methanol poisoning in Machakos, Kenya, June 2005

Methanol is a common adulterant of many illicit brews in Kenya and is associated with a high morbidity and mortality if not recognized and managed early. Though methanol poisoning is common, this was the first time that an epidemiological investigation was conducted to characterize a suspected outbreak. A total of 192 cases were identified with 56 deaths, with a Case Fatality Rate (CFR) of 29%. The high CFR was due to the high methanol concentrations in the illicit brew (over 90mg/100ml), delay in seeking medical care, and less than optimum intensive care. There is need to enact and implement legislation on control of illicit brews and production, sale and distribution of methanol. The hospitals' capacity to manage poisoning need to be improved.

Rapid spread of an outbreak-causing clone of Vibrio cholerae O1 in Kenya

In the first 6 months of 2005, five cholera outbreaks occurred in geographically distinct parts of Kenya. The epidemiology, risk factors, and laboratory characteristics of these outbreaks were described. Overall, 449 probable cholera cases and 138 confirmed cases were reported. The overall case-fatality rate was 2.4% (range 0–5%). The case-control studies found that significant risk factors for disease were storing drinking water in an open container, not treating drinking water at point of use, attending a funeral, and eating outside the home. All cholera isolates were V. cholerae O1, serotype

Inaba and were identical using PFGE methods. The clonality of the isolates suggests that cholera can spread rapidly within a developing country like Kenya.

Planned investigations

The trainees participated in seven planned investigations in 2005. They studied topics including road traffic injuries, sexually transmitted infections, tuberculosis, nosocomial infection and childhood pneumonia, among others.

Exemplary project

Risk factors for tuberculosis (TB) among staff of a large public hospital in Kenya

Acquired TB among healthcare workers is a public health concern in Kenya. A case-control study to identify risk factors for such TB was undertaken in Kenyatta National Hospital. The annual incidence rate was 645–1,115/100,000. The risk factors for occupationally acquired TB were HIV infection, working in areas where TB patients received care, and living in a slum. Healthcare facilities were recommended to improve infection control by detecting and treating TB cases quickly, increasing ventilation in patient-care areas, encouraging staff testing for HIV infection, and reassigning HIV-infected staff away from areas of high TB exposure.

Surveillance evaluations

The trainees conducted eight surveillance system evaluations. These included tuberculosis, leprosy, diarrhea, HIV, and the weekly notifiable disease systems, among others.

Exemplary project

Evaluation of the acute flaccid paralysis (AFP) surveillance in Kenya

Poliomyelitis is one of the preventable causes of AFP in children under 15 years of age. In Kenya, the last case of poliomyelitis was reported in 1984. AFP surveillance is a passive surveillance system whose main purpose is detection of poliomyelitis outbreak for timely control. The system is useful because it has detected most cases of AFP and ruled out poliomyelitis as the cause of such AFP. The system is timely, flexible, simple, acceptable, and produces quality data. It can attain its objective of detecting any occurrence outbreak of AFP/Polio. However data back up needs to be improved. There is need to continue training health workers on the importance of completely and accurately filing the reporting forms.

Section 2

Country Projects

Central Asia Regional Program (CAR): HIV/AIDS Laboratory Capacity Building and Second Generation Sentinel Surveillance Implementation

PROGRAM OVERVIEW	
Start date	2002
Central Asia staff	• Michael Favorov, CDC CAR director • Maureen Sinclair, CDC CAR deputy director • Ulugbek Burnev, epidemiologist • Aliya Jumagulova, epidemiologist and blood safety project lead • Tatyana Kalashnikova, associate director for laboratory science • Gulzhan Muratbayeva, epidemiologist • Whitney Warren, management coordinator • Baurzhan Zhussupov, sentinel surveillance project lead
Atlanta-based staff	• Ed Maes, epidemiologist • Keith Sabin, epidemiologist
Partners	• MOH, Kazakhstan, Kyrgystan, Tajikistan, Turkmenistan, Uzbekistan • Asian Bank of Development • The Global Fund • USAID • World Bank

Program description

- Increase the availability and use of high quality, reliable, and scientifically proven data for HIV case identification and surveillance by improving laboratory diagnostic data and implementing behavioral surveillance
- Improve HIV surveillance and use of surveillance data for public health decision-making by implementing second-generation HIV surveillance, establishing integrated surveillance of parenterally transmitted diseases among five high-risk groups (intravenous drug users, sex workers, men having sex with men, prisoners, and sexually transmitted infection patients) and pregnant women
- Reduce the risk of parenterally-transmitted infections from transfused blood and blood components by improving the process of blood donation and collection, laboratory testing, and blood product use

DESCD role

DESCD staff team members provide assistance with coordination, review, planning, training material development, and administrative support.

Key achievements

Second generation HIV surveillance implemented

- Implemented HIV sentinel surveillance (SS) in 13 pilot sites for five at-risk groups, (i.e., intravenous drug users, sex workers, men who have sex with men, prisoner, patients with sexually transmitted infections) and for pregnant women in four Central Asian Republics. CDC, with assistance from USAID, has conducted HIV SS for the entire country of Kazakhstan

- Trained epidemiologists in the principle of SS and epidemiological methods (i.e., study design, sampling techniques, and sample size calculations)
- Developed HIV/AIDS National and Oblast indicators for Kazakhstan
- Introduced new sampling technique as a Respondent Driven Sampling for epidemiologists from Kazakhstan on men who have sex with men in Almaty and on intravenous drug users in Dushanbe and Khudjand

Improving laboratory diagnostic data

- Implemented quality assurance (QA) and quality control (QC) principles into HIV laboratory service networks in Kazakhstan, Kyrgyzstan, and Uzbekistan
- Re-equipped HIV/AIDS and Blood Bank laboratories and provided on-site training to laboratories with new Enzyme-Linked ImmunoSorbent Assay (ELISA) equipment, also provided by CDC/USAID (41 sets; KZ-6 labs, KG-6 labs, UZ-19 labs, TJ-5 labs, TM-5 labs)
- National Proficiency Testing: Provided technical support to HIV/ AIDS centers of CAR countries to create multi-reference national panels with serological markers of HIV, HBV, and HCV in compliance with WHO recommendations. Established national PT on a regular basis (one time a year) to evaluate the accuracy routine ELISA serological tests in HIV/AIDS and Blood Bank laboratory service network
- Enrolled 20 labs of HIV/AIDS centers and blood banks on the republican and oblast level of CAR (KZ-6 labs, UZ-10 labs, KG-3 lab, TM-1 lab) in Model Performance Evaluation Program for anti-HIV-1 testing. Testing conducted by DLS, CDC Atlanta twice a year. Nineteen labs awarded by certificate for participating in 2005
- Eight labs of HIV/AIDS centers involved in ISS in CAR enrolled in proficiency testing program for anti-HIV-1 dried blood spots testing. All awarded certificates in 2005 for their participation

Risk of infection through blood transfusion reduced

- Trainings on main principles of blood safety held for blood center specialists (6 courses, 180 participants), epidemiologists (3 courses, 48 specialists), and transfusiologists (5 courses, 215 specialists)
- Two conferences held: "Actual Problems of Parenteral Infections" (Kyrgyzstan, 120 participants) and "Blood Safety" (Kyrgyzstan, 125 participants)

Next steps or future plans

Implement HIV sentinel surveillance

- Implement sentinel surveillance in new sites chosen based on epidemiologic and demographic data
- Train workers at sentinel sites to reach target populations and to collect behavioral data
- Train workers on pre-analytic phase of second-generation surveillance (specimen collection and transfer)
- Provide technical assistance for analysis of surveillance data
- Develop reporting system on the basis of HIV sentinel surveillance on national and oblast level

Develop and implement electronic surveillance system

- Develop new report forms which will satisfy all doctors, clinicians, epidemiologists and laboratory specialists
- Develop data procedure collection (where data will be collected, when it will be collected, and who will collect it)
- Develop prikazi to establish electronic HIV surveillance systems in each country, including guidelines to ensure confidentiality

Calculate size of at-risk populations

- Collect necessary data that are not currently available
- Use recommended methodologies (i.e., capture-recapture, multiplier, and census and enumeration) to calculate the size of the injecting drug-user and sex-worker populations

Improve laboratory diagnostic data

- Provide HIV QA/QC laboratory training for QA training to HIV laboratory staff (advanced for Kazakhstan, Kyrgyzstan, Uzbekistan; basic for Tajikistan and Turkmenistan)
- Provide technical assistance to HIV laboratories to extend the implementation of QA/QC principles mainly focusing on district levels instead of the Republican and Oblast level which happened previously
- Continue to provide technical assistance to conduct national proficiency testing on HIV and viral hepatitis on a regular basis to make it sustainable
- Provide technical assistance to extend the number of laboratories enrolled in the International Proficiency program (anti-HIV Model Performance Evaluation Program, anti-HIV DBS, and others)
- Give technical assistance to provide HIV reference laboratories along with local Pharmacopeia Committee with test kits control process for further quality improvement
- Continue to provide technical assistance to MOH officials to affect policy changes regarding laboratory management and operations

CAR: Live Birth Definition Program

PROGRAM OVERVIEW	
Start date	2002
Central Asia staff	Ivan Ivassiv, epidemiologist
Atlanta-based staff	• Ed Maes, epidemiologist • Brian McCarthy, medical epidemiologist • Mark White, medical epidemiologist
Partners	• MOH, Kazakhstan • UNICEF • USAID • WHO

Program description

- Develop legal documents and government policies on infant mortality using WHO live birth criteria
- Help implement WHO live birth criteria by training staff of medical facilities, state statistics, and vital registration agency to register babies with low and extremely low birth weight during delivery and by monitoring the use of these criteria
- Help analyze infant mortality data to guide implementation of interventions
- Introduce, standardize, and institutionalize the use of CDC's Birth weight, Age at Death, Boxes, Interventions, Evaluation, System (BABIES) Matrix as a tool to promote related interventions

DESCD role

DESCD staff team members provide assistance with coordination, review, planning, training material development, and administrative support.

Key achievements

- Trained medical and state statistics staff on WHO live-birth criteria in pilot sites
- Implemented new live birth criteria
- Provided pilot-site implementation and recommendations to the MOH on further implementation of WHO live birth criteria
- Revised and adopted registration and reporting forms used by maternity hospitals and primary healthcare facilities for birth and child death registration in accordance with WHO recommendations
- Conducted training of trainers for health workers on new approach in birth and death registration. Process of birth and death registration evaluated and recommendations provided to the government for further implementation

Next steps or future plans

- Provide help to the MOHs of Kazakhstan, Tajikistan, and Uzbekistan to introduce live birth criteria on the national level (i.e., prepare new statistical registering and reporting forms for medical institutions; and develop training programs for medical universities, academies, and colleges)
- Create personified database of infant births and deaths cases in cooperation with the centers of medical information of CAR countries
- Conduct training courses for medical specialists of CAR institutions on definition of problems in the maternity health sector associated with infant mortality, and develop effective interventions directed to infant mortality reduction applying "BABIES" Matrix

CAR: Tuberculosis Surveillance and Laboratory Quality Improvement

PROGRAM OVERVIEW	
Start date	1997
Central Asia staff	• Michael Favorov, CDC CAR director • Maureen Sinclair, CDC CAR deputy director • Evgeny Belilovskiy, epidemiologist/database management specialist • Natasha Kim, TB laboratory specialist • Marina Pak, TB laboratory specialist • Whitney Warren, management coordinator
Atlanta-based staff	• Peter Cegielski, medical epidemiologist • Julia Ershova, computer-based trainer • Ed Maes, epidemiologist • John Ridderhoff, chief laboratory system development branch
Partners	• MOH, Kazakhstan, Kyrgystan, Tajikistan, Turkmenistan, Uzbekistan • The Global Fund • Project HOPE • USAID • WHO

Program description

- Strengthen surveillance for tuberculosis (TB) through the improvement of national TB statistical systems and implement a computer-based software system to collect and analyze the information necessary to monitor and evaluate key program activities (TB Electronic Surveillance and Case Management, ESCM)
- Improve the diagnostic capacity of TB laboratories by training laboratory personnel in smear microscopy techniques and implementing quality assurance programs
- Help evaluate implementation of DOTS

DESCD role

DESCD staff team members provide assistance with coordination, review, planning, training material development, and administrative support.

Key achievements

Technical assistance is being provided to national TB control programs by

- Analyzing data for national aggregated and case-based TB statistics,
- Developing the MOHs' TB Control and Surveillance Orders, Forms, and Guidelines, and
- Adapting TB control and surveillance software in accordance with local regulations and WHO requirements.

TB ESCM has been successfully implemented country-wide in Kyrgystan and Uzbekistan. It has been piloted in Tajikistan and Turkmenistan.

Country-wide technical support is being provided to improve the Kazakhstan National TB Surveillance System by including new analytical functions based on standard statistical analysis software (EPI-INFO).

CDC/CAR developed the following multilevel training process to continually improve the professional knowledge and skills of local specialists:

- TB ESCM basic and advanced courses
- TB ESCM data analysis training conferences
- Acid Fast Bacilli Smear Microscopy for TB Laboratory Diagnosis (basic course)
- TB Laboratory Quality Assurance and Quality Control (advanced course)

CDC/CAR provides technical support in the development and implementation of national programs for TB laboratory quality assurance allowing laboratory staff to become familiar with the scientific principles of external quality assessment for smear microscopy.

- Pilot projects on TB smear microscopy quality assurance/quality control are being implemented in Samarqand oblast, Uzbekistan and Chui oblast, Kyrgyzstan.
- The Uzbekistan MOH has approved the National Methodical Recommendations on Smear Microscopy Quality Assurance/Quality Control developed under CDC/CAR technical support.

Next steps or future plans

- Expand electronic surveillance activities throughout the Central Asia region, and continue strengthening TB control specialists competence in data analysis and decision-making
- Continue laboratory smear microscopy training throughout the region with a focus on quality control/quality assurance aspects
- Develop strategies and begin to implement regional programs on culture and drug susceptibility testing in sites that are ready to implement these programs

CAR: Defense Threat Reduction Agency: Threat Agency Detection and Response Project

PROJECT OVERVIEW	
Start date	2005
Central Asia staff	• Michael Favorov, CDC CAR director • Maureen Sinclair, CDC CAR deputy director • Cori Bickel, program manager • Dilafkor Mirdjalilov, IT specialist • Ludmila Mosina, epidemiologist • Victoria Zeman, laboratory specialist • Yenlik Zhheteyeva, epidemiologist
Atlanta-based staff	• Ed Maes, coordination, review, and planning • Kafayat Adeniyi, informatics • Judy Berry, administrative support • Joy Chang, microbiologist • Robert Fagan, computer systems analyst • Howard Fields, laboratory team leader • Eric Gogstad, instructional designer • Eric Gunther, epidemiologist • Andrew Hopkins, public health analyst • Kristy Kubota, laboratory specialist • Joshua Moh, epidemiologist • John Ridderhoff, chief laboratory system development branch • Ying Su, public health advisor
Partners	• MOH, Kazakhstan and Uzbekistan • Ministry of Defense, Kazakhstan and Uzbekistan • Ministry of Agriculture, Kazakhstan and Uzbekistan • US Department of Defense • Bechtel

Project description

- Advise Defense Threat Reduction Agency (DTRA) and host country MOHs on the design of public health surveillance systems
- Help MOHs identify human capacity development needs
- Work with host countries to develop documents that support implementation of the program
- Design appropriate training curricula and materials, in collaboration with the MOHs
- Enhance public health surveillance through training of host nation clinicians, laboratory scientists, and epidemiologists in disease reporting, outbreak response, epidemiologic capacity, laboratory management and diagnostics, and use of electronic data systems for collecting, analyzing, and disseminating public health data for decision-making

DESCD role

DESCD staff team members provide assistance with coordination, review, planning, training material development, and administrative support.

Key achievements

- Conducted Threat Agent Detection Response (TADR) Laboratory training for Uzbekistan laboratory specialists (7-17 November, 2005. Phase 1: General principles of laboratory diagnostics. Quality assurance and quality control)
- Conducted scientific test to detect antibodies to hantavirus in samples (n=221) collected from citizens from Uralsk, Kazakhstan, using Enzyme-Linked Immunosorbent Assay (ELISA) kits (Focus, USA)
- Conducted collaborative research to detect Influenza A (H5) virus by using PCR

Next steps or future plans

- Finish TADR Laboratory training for Cohort 1 in Uzbekistan
- Start TADR Laboratory training for Cohort 1 in Kazakhstan
- Conduct laboratory training for AETP students
- Conduct laboratory training on QA/QC for HIV and hepatitis B and C in Kyrgyzstan and Turkmenistan
- Provide technical assistance in the investigation of laboratory diagnostics of infections

Egypt: Country Support

PROGRAM OVERVIEW	
Start date	1993
Atlanta-based staff	• Bassam Jarrar, public health advisor-team leader • Tippavan Nagachinta, medical epidemiologist • Denise Traicoff, instructional designer
Partners	• MOH and Population, Egypt • USAID • U.S. Naval Medical Research Unit No.3

Program description

The FETP started in 1993 to strengthen the MOH and Population's capacity to investigate disease outbreak and improve the surveillance system. To date, it graduated 57 medical epidemiologists and 24 are now in training program. Most of the graduates (51) remain in Egypt helping meet the country's public health needs. In May 2000, the program's successes led to the formation of the Epidemiology and Surveillance Unit (ESU) which is responsible for disease surveillance, outbreak investigation and response, training, non-communicable disease surveillance, the Nile Cruse Boat Inspection, and the development of the National Egyptian Disease Surveillance System.

DESCD role

- Provide technical assistance to ESU
- Provide technical support to enhance the quality of epidemiology training for the Egyptian Board of Applied Epidemiology and FETP
- Provide technical support for the national survey of non-communicable diseases and its future surveillance system
- Provide technical assistance to conduct epidemiologic and surveillance studies
- Provide assistance in ongoing program institutionalization

Key achievements

- DESCD participated in the introductory course and provided epidemiologic training sessions to the first-year FETP and Egyptian Board of Applied Epidemiology trainees.
- DESCD assisted in two training workshops to the FETP 1st and 2nd year trainees.
- DESCD assisted the 2nd year trainees with the following six long-term epidemiology studies:
  - Prevalence of tetanus wound infections in patients admitted to Fever hospitals, 2002–2005
  - Epidemiological profile of diabetic foot among patients admitted to general hospitals in Cairo and Behera governorates, 2002–2005
  - Risk factors for primary hepato-cellular carcinoma (HCC), 2000–2005
  - Prevalence of TB cases admitted to fever and chest hospitals, Cairo governorate, 2000–2005

  * Comparative study risk factors of hypothyroidism, Cairo, 2005
- DESCD provided technical assistance to ESU in conducting the Behavioral Risk Factor Surveillance Systems and Stepwise Surveillance System of Non-communicable Diseases. A systematic random sampling survey was conducted in the summer of 2005 to determine the risk behaviors and prevalence of non-communicable diseases (i.e., diabetes, cardiovascular diseases, hypertension, obesity, and cancer) among the Egyptian population.

Next steps or future plans

- Transition to Global Disease Detection funding and activities
- Build on the strength of Egypt and other regional FETPs to meet applied epidemiology training needs in the region

Ethiopia: Leadership in Strategic Information Training Program

PROGRAM OVERVIEW	
Start date	2004
Atlanta-based staff	• Peter Nsubuga, medical epidemiologist-team lead • Jennifer Scharff, program analyst • Nadine Sunderland, instructional designer • Andrew Weathers, public health advisor
Ethiopia-based staff	• Shabbir Ismael, Global AIDS program, branch chief for strategic information • Tadesse Wuhib, Global AIDS program country director
Partners	• Global AIDS Program – Ethiopia (GAP-Ethiopia) • Ethiopia MOH • Ethiopian Public Health Association

Program description

The program was created to develop and implement an Innovative Human Capacity Development proposal (the President's Emergency Plan for AIDS or PEPFAR) for the funding of the Leadership in Strategic Information Training Program. The target audience of this program is regional-level public health workers, including regional health officers, HIV/AIDS surveillance officers, HIV/AIDS Planning and Control officers, and laboratory managers. The program is also working toward the development of an FELTP for Ethiopia.

DESCD role

- Design the Leadership in Strategic Information Training Program
- Provide technical assistance and management support to implement the program and its field-based activities
- Provide instructional design expertise in creating the individual didactic training modules
- Provide technical assistance to develop a proposal for an Ethiopian FELTP

Key achievements

- Completed proposal and received approval for the Leadership in Strategic Information Training Program for PEPFAR funding. Proposal included a detailed plan of the modules and field activities
- Agreed upon a management plan detailing the role of DESCD and the role of GAP and its program coordination partner, EPHA
- Presented a draft proposal for an FELTP to the CDC Foundation

Next steps or future plans

- Complete the implementation of the Leadership in Strategic Information Training Program in collaboration with GAP-Ethiopia and EPHA
- Collaborate with GAP-Ethiopia, the MOH, and other stakeholders to complete a proposal and plan for an Ethiopian FELTP and identify potential funding partners

Jordan: Behavioral Risk Factor Surveillance System

PROJECT OVERVIEW	
Start date	2002
Jordan-based staff	Moyasser Al-Zendah, non-communicable disease coordinator
Atlanta-based staff	• Bassam Jarrar, public health advisor-team lead • Henry Walke, medical epidemiologist
Partners	• MOH • CDC, Behavioral Surveillance Branch, NCCDPHP • USAID

Project description

In 2002 and 2004, the MOH conducted behavioral risk factor surveys in order to obtain information on risk factors for non-communicable diseases.

Jordan is the first Middle Eastern country to begin a Behavioral Risk Factor Surveillance System (BRFSS). A line item has been created in the MOH budget to conduct the BRFSS survey on a biannual basis.

Using the results of these surveys in combination with mortality statistics, hospital discharge surveys, and other periodic surveys, the MOH intends to develop effective control and promotion strategies for chronic diseases.

The 2002 BRFSS national survey covered topics on hypertension, diabetes, cholesterol, obesity, smoking, physical activity, and diet. The 2004 survey was expanded to include 140 questions and covered the core questions on the 2002 survey as well as additional questions on healthy behaviors, oral health, injuries, nutrition, women's health, and use of medical services.

DESCD role

- Provide technical advisors
- Coordinate technical support from other CDC subject matter experts

Key achievements

- Undertook the analysis of the 2000 and 2004 data
- Following presentations to the MOH and the Cabinet, the government allotted $2 million for prevention programs

Next steps or future plans

- Publication of survey results
- Dissemination of results in Jordan
- Use of results to design and implement prevention programs

Jordan: Mortality Surveillance System

PROGRAM OVERVIEW	
Start date	2001
Jordan-based staff	• Majd Aassa, medical epidemiologist, MOH • Faris Dababneh, director of information and research, MOH
Atlanta-based staff	• Bassam Jarrar, public health advisor-team lead • Henry Walke, medical epidemiologist
Partners	• MOH • CDC's National Center for Health Statistics • USAID

Program description

The program aims to improve both the timeliness and accuracy of mortality reporting in Jordan. The MOH with the Jordan Applied Epidemiology Project (JAEP) and other partners designed a new death notification form to comply with international standards. Through country-wide MOH focal points, the new form was disseminated, along with appropriate instructional aids, to clinicians who were trained in a formal cause of death training course.

An intensive ICD-10 coder training was also conducted for selected members of the MOH along with representatives from the Civil Registration Office. Within the MOH information center a database was created and ICD-10 coding of mortality was implemented in 2003.

DESCD role

- Provide technical advisors
- Coordinate technical support from other CDC subject matter experts

Key achievements

- Began coding of cause of death in 2003
- On March 24, 2005, held conference to disseminate and discuss mortality surveillance in Jordan. During the last 6 months of 2003, heart disease was the leading cause of death, followed by cancer and injuries. The conference was attended by the Minister of Health, the WHO representative in Jordan, delegations from the Civil Registry Office, MOH, universities, Royal Medical Services, private sector entities, a delegation from the Iraqi MOH, and the WHO office in Iraq.
- Invited the chief of CDC's Mortality Statistics Branch to evaluate progress in implementing the mortality surveillance systems. The evaluation report indicated that progress in implementing the system and improving timeliness and accuracy was impressive and recommended a move toward automation.

Next steps or future plans

- Train local points of contact and physicians in Jordan on completing cause of death notification
- Establish a system for data dissemination

South Sudan: Sudan Health Transformation Project

PROJECT OVERVIEW	
Start date	2004
Resident advisor	Mugo Muita (since 2005)
Atlanta-based staff	• Peter Nsubuga, medical epidemiologist • Juliette Mannie, program analyst • Denise Traicoff, instructional designer • Andrew Weathers, public health advisor
Partners	• South Sudan MOH • USAID

Project description

In 2004, USAID provided funding to CDC to assist the Government of South Sudan in building public health infrastructure in HIV/AIDS, epidemiologic capacity, and disease surveillance.

In early 2005, a medical epidemiologist was recruited to lead the epidemiology and surveillance activities in South Sudan (located initially in Nairobi). The resident advisor assumed his post in May and began work on negotiating the format of the training components with the Secretariat of Health (SOH) for South Sudan. An agreement was reached in August to train the 20 County Medical Officers of Health (CMOs) through Jomo Kenyatta University of Agriculture and Technology in a Master's Degree granting program similar to the existing FELTP in Kenya, with a concentration on public health management.

It was agreed that the recruits from South Sudan would participate directly with the Kenya FELTP residents through the didactic portion of their 2-year in-service training. The field components would occur in South Sudan and be supervised by the resident advisor with mentorship from SOH, WHO, the Carter Center, and other partners.

DESCD role

DESCD was asked to provide long-term epidemiology training for 20 CMOs, and to help develop a national surveillance system.

Key achievements

- In September 2005, the resident advisor traveled with SOH, WHO, and USAID to conduct an on-site assessment of public health infrastructure in garrisoned towns formerly controlled by the Government of Sudan. The report will be used to develop plans for both human and physical infrastructure improvements.
- Assistance to SOH continued in October when the resident advisor responded with a laboratory resident from the FELTP, the SOH, and WHO on a suspected outbreak of Dengue fever in Wadega, South Sudan.

Next steps or future plans

- Admit the first cohort of Sudanese residents to the Kenya FELTP
- Revise and conduct short-term surveillance and outbreak detection training for local public health workers
- Identify a national counterpart in the MOH

Zimbabwe: Technical Assistance to Public Health Schools Without Walls

PROGRAM OVERVIEW	
Start date	2001
Atlanta-based staff	• Peter Nsubuga, medical epidemiologist and project officer • Donna Jones, medical epidemiologist • Nadine Sunderland, instructional designer
Partners	• MOH and Child Welfare, Zimbabwe • University of Zimbabwe Faculty of Medicine, Department of Community Medicine • Global AIDS Program, Zimbabwe

Program description

The MPH Program in Zimbabwe started in 1994 with a CDC-trained resident advisor. The program is a collaboration between the MOH and Child Welfare and the Department of Community Medicine at the University of Zimbabwe. DESCD became more actively involved in 2001 to support expansion of the public health training and to develop the HIV/AIDS module for the program using Global AIDS Program and USAID funding. DESCD has continued to support strengthening of the epidemiology and biostatistics training and to support the HIV/AIDS course that is taught yearly.

DESCD role

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

Key achievements

- Provided ongoing mentoring and support of Zimbabwe student field activities
- Participated in Zimbabwe MPH field supervisors meeting
- Provided guidelines from other programs to improve field supervision. Guidelines were adapted and adopted for use in the program and made available to all field supervisors. Guidelines should improve student guidance for all core learning activities.
- Taught in epidemiology module-protocol development, questionnaire development, use of Epi Info, implementation, analysis and reporting of field study
- Developed an epidemiology course resource CD
- Developed and implemented EpiTrack for monitoring program/student progress
- Finalized Advanced Data Management and Analysis Training using Zimbabwe study pilot-tested and revised in Zimbabwe
- Provided support for an HIV/AIDS course and the development of a resource CD
- Provided support for student presentations at the EIS Conference

Next steps or future plans

- Continue the same level of support as long as financial resources allow
- Support involvement of Zimbabwe Public Health Schools Without Walls in the African Field Epidemiology Network cooperative agreement, which should assist with ongoing involvement and support

Avian Influenza FETP Curriculum Project *FETP Development Handbook* Global Surveillance Project Micronutrients Project Monitoring and Evaluation Monitoring Success in Achieving Critical Outcomes of Health System Strengthening Avian Influenza FETP Curriculum Project *FETP Development Handbook* Global Surveillance Project Micronutrients Project Monitoring and Evaluation Monitoring Success in Achieving Critical Outcomes of Health System Strengthening Avian Influenza FETP Curriculum Project *FETP Development Handbook* Global Surveillance Project Micronutrients Project Monitoring and Evaluation Monitoring Success in Achieving Critical Outcomes of Health System Strengthening Avian Influenza FETP Curriculum Project *FETP Development Handbook* Global Surveillance Project Micronutrients Project Monitoring and Evaluation Monitoring Success in Achieving Critical Outcomes of Health System Strengthening Avian Influenza FETP Curriculum Project *FETP Development Handbook* Global Surveillance Project Micronutrients Project Monitoring and Evaluation Monitoring Success in Achieving Critical Outcomes of Health System Strengthening Avian Influenza FETP Project *FETP Development Handbook* Global Surveillance

Section 3

Cross-Cutting Projects

Avian Influenza

PROGRAM OVERVIEW	
Start date	2005
Atlanta-based staff	• Rubina Imtiaz, medical epidemiologist-team lead • Hoang Dang, public health advisor • Nadine Sunderland, instructional designer
Additional staff providing partial support	• Valerie Kokor, deputy director DESCD • Michael O' Reilly, medical epidemiologist and resident advisor • Eric Gogstad, instructional designer • Jean Jones, writer-editor
Partners	• MOHs of Thailand (BOE and FETP) • MOHs of Vietnam (VAPM, HSPH, NIHE) • MOHs of Cambodia (Cam-CDC, NIH) • MOHs of Malaysia (EIP) • MOHs of China (China CDC and CFETP) • MOHs of India (ICMR/NIE, FETP-MAE, NICD) • MOHs of Laos • CDC GAP (Vietnam and Cambodia) • TUC, Thailand (SRRT training development) • CDC-GDD/COGH • CDC-Influenza Branch and Influenza work group • WHO (WPRO, Vietnam, Cambodia, Thailand, India) • AusAid • Health Canada

Program description

Avian Influenza (AI) supplemental funding provides epidemiologic and training capacities to strengthen AI surveillance and response in South-East Asia through the International Thai FETP.

DESCD role

DESCD obtained funding, negotiated, and identified priority needs with target countries and multiple U.S. government and multilateral/bilateral partners (i.e., HHS, CDC/Atlanta, and CDC offices overseas).

Key achievements

- Training of trainers module and learning tools were drafted and tested at workshop. These will need to be finalized and then shared with other FETPs across the world.
- Workshop graduates were given outlines of an AI module to take back to their countries and complete, using the training experience. DESCD team members followed graduates' work on subsequent visits.
- Discussions and meetings with multiple partners (US, donor, and target countries) were held to clarify several implementation issues, communications, and program priorities. This facilitated ongoing re-structuring of CDC COGH field offices.
- Funds helped Thai International FETP staff to conduct cross-country investigations of several outbreaks between Thailand and Southern China, Cambodia, and Laos.

- DESCD technical advisor to Thai FETP helped in the field investigation of AI outbreak in northern Thailand, Phichit province.
- DESCD provided travel support for AI-related capacity building training to Cambodia, China, Guatemala, India, Malaysia, Thailand, and Vietnam.

Next steps or future plans

- Identify funding to continue and build on the activities initiated in 2005 and to evaluate impact of these activities on actual surveillance and containment of AI

FETP Curriculum Project

PROJECT OVERVIEW	
Start date	2003
Staff	• Denise Traicoff, instructional designer-team lead • Suzanne Elbon, instructional designer • Eric Gogstad, instructional designer • Rubina Imtiaz, medical epidemiologist • Donna Jones, medical epidemiologist • Doug Klaucke, medical epidemiologist • Peter Nsubuga, medical epidemiologist • Nadine Sunderland, instructional designer • Henry Walke, medical epidemiologist • Mark White, medical epidemiologist
Additional staff providing partial support	• Bassam Jarrar, senior public health advisor • Luis Callejas, CDC consultant • Elliott Churchill, health communications specialist • Hoang Dang, public health advisor • Robert Fontaine, medical epidemiologist • Yvan Hutin, medical epidemiologist • Augusto Lopez, medical epidemiologist • Ed Maes, epidemiologist • Jim Mendlein, senior epidemiologist • Tippivan Nagachinta, medical epidemiologist • Jim Vaughan, health education specialist
Partners	• FETPs • USAID

Project description

Using best practices of both science and adult education, the project is documenting and working to finalize a standard core curriculum for the FETPs. This includes the following activities:

- Identify core competencies and define detailed learning objectives based on those competencies
- Define a materials development process
- Develop and deliver training materials and supplemental products based on the curriculum
- Translate the curriculum into Spanish and other languages as needed
- Define a standard look and feel for division training materials

DESCD role

- Lead the project and engage partners
- Serve as contact point for field staff and other subject matter experts to collect technical input
- Provide technical guidance and consultation based on adult learning and instructional design best practices
- Develop materials and training support products

Key achievements

- Released detailed curriculum with instructional goals and learning objectives tied to defined competencies
- Released Spanish language version of curriculum
- Developed templates for training materials
- Developed specific training materials based on curriculum, using standardized templates

Next steps or future plans

- Identify the best strategy for packaging and developing training materials
- Follow up with country programs to determine product satisfaction and inform future direction
- Review current materials development methodology, templates, and outputs, and adjust processes and products as necessary
- Identify and obtain tools, such as authoring tools, required to create products

FETP Development Handbook

PROJECT OVERVIEW	
Start date	2004
Staff	• Nadine Sunderland, instructional designer-team lead • Hoang Dang, public health advisor • Suzanne Elbon, instructional designer • Eric Gogstad, instructional designer • Rubina Imtiaz, medical epidemiologist • Bassam Jarrar, senior public health advisor • Donna Jones, medical epidemiologist • Ed Maes, epidemiologist • James Mendlein, senior epidemiologist • Peter Nsubuga, medical epidemiologist • Jennifer Scharff, program analyst • Denise Traicoff, instructional designer • Henry Walke, medical epidemiologist
Partners	TEPHINET partners

Project description

The 150-page *FETP Development Handbook* provides content on the assessment, planning, implementation, and monitoring and evaluation stages of an FETP and on curriculum and training, administration, and service components of the program. The handbook includes a CD-ROM with appendices of reference documents, sample tools, and templates for users of the handbook.

DESCD role

DESCD is the primary developer of this handbook. Input was received from TEPHINET members primarily through submission of a draft of the document to members at the 2004 International TEPHINET conference held in Beijing, China.

Key achievements

DESCD revised the development handbook based on comments received from TEPHINET members. Several gaps in content were identified and new content was developed, primarily in the form of appendices. This includes an FETP planning assessment tool which was used for the initial FETP assessment conducted in South Africa. The draft of the document was entered into the DESCD clearance process in the fall of 2005.

Next steps or future plans

The handbook will go through clearance and be distributed in print in 2006.

Global Surveillance Project

PROJECT OVERVIEW	
Start date	2002
Staff	• Peter Nsubuga, medical epidemiologist-team lead • Wayne Brown, public health advisor • Juliette Mannie, management and program analyst • Andrew Weathers, public health advisor
Partners	• MOH and each country's leading university in Uganda, Ghana, Tanzania, and Zimbabwe • USAID • WHO

Project description

Integrated Disease Surveillance and Response (IDSR) is a strategy, supported by WHO, USAID and CDC, to strengthen MOH surveillance and outbreak response. The Global Surveillance Project is an action team within DESCD, begun in 2002, to be the focal point to support the implementation of IDSR in Ghana, Uganda, Tanzania and Zimbabwe, the four African countries targeted by an AID-CDC Inter Agency Agreement. Key goals were the integration of multiple existing surveillance and response systems and linking surveillance, laboratory, and other data with public health action.

An important long-term activity of DESCD in supporting IDSR implementation is establishing close relationships with the MOHs and PHSWOWs to provide the needed field epidemiology training. A component of the training, which can take 2 years for each cohort, is the service provided during this time to the MOH. This service can take many forms, but typically involves participating in outbreak investigations and studying and evaluating related surveillance and response systems.

Each country implemented the IDSR strategy in a similar way by

- Engaging local and international partners in designing and conducting a baseline assessment of the country's resources, practices, and results regarding national disease surveillance and control systems,
- Identifying gaps and opportunities for strengthening and integrating surveillance and related practices,
- Developing a multi-year plan to address the gaps, and
- Implementing and monitoring their plan.

DESCD role

- Coordinate involvement with partners in supporting the MOHs in carrying out the IDSR activities, including strengthening of health information and public health laboratory systems
- Provide funding support for key activities that support MOH achievement of its surveillance and outbreak response goals
- Provide direct assistance to the MOHs and affiliated universities in the long-term training of epidemiologists, including their field training, primarily through FETPs and selected sub-national training

Key achievements

- Made supervisory visits to review the activities and accomplishments of CDC-supported staff in the countries
- Ensured continuity of MOH and CDC-supported staff to help with field epidemiology training (including design and carrying out of epidemiologic investigations), surveillance system strengthening (including the preparation and distribution of surveillance feedback reports), and integration of laboratory services into surveillance at all levels
- The MOH continued to provide field training sites and mentors for MPH trainees
- Planned the TEPHINET conference held in Accra, Ghana, in December 2005
- Planned the TEPHINET submission of a proposal to the Global Fund for support of malaria training to be centered in the University of Ghana School of Public Health to serve all the IDSR countries
- Planned and conducted additional training for selected MOH staff in epidemiology (in Atlanta) and in scientific writing (in the Regional FELTP, Kenya)
- Made arrangements in Uganda for a laboratorian working in support of IDSR to be accepted into the Kenya regional FELTP for additional training. This person will subsequently have a stronger role in further developing the national laboratory, including its role in surveillance and outbreak investigation
- Conducted an end-of-three year evaluation of each of the four countries' programs (July–August 2005), as provided for in the IAA

Next steps or future plans

Plan for continuing support through the African Field Epidemiology Network

Micronutrients Project

PROJECT OVERVIEW	
Start date	2001
Atlanta-based staff	• Peter Nsubuga, medical epidemiologist-team lead • Suzanne Elbon, instructional designer
Partners	• CDC's Division of Nutrition and Physical Activity • UNICEF • USAID • WHO

Project description

In 2001, DESCD entered into a Memorandum of Understanding (MOU) with the International Micronutrient Malnutrition Prevention and Control (IMMPaCt) program to develop training about micronutrient prevention and control. This has been referred to as the Micronutrients Project. The MOU has been renewed each year since. The program is implemented by different centers within CDC, and the Division of Nutrition and Physical Activity is responsible for managing and coordinating this program.

DESCD role

DESCD serves as consultant to IMMPaCt for the creation of training programs, materials, and tools that develop capacity in public health nutrition surveillance, monitoring, and evaluation.

Key achievements

- Produced *Mapit: A Training Tool to Support Public Health Professionals' Efforts to Eliminate Micronutrient Malnutrition* (accepted for publication 2005)
- Awarded five small research grants (awarded annually)
- Started work on the Nutrition Survey Toolkit (in process)

Next steps or future plans

DESCD plans to complete the Nutrition Survey Toolkit which will build the capacity of public health professionals to intervene appropriately to MNM.

Monitoring and Evaluation

PROJECT OVERVIEW	
Start date	2004
Atlanta-based staff	• Donna Jones, medical epidemiologist-team lead • Suzanne Elbon, instructional designer, lead : database developer • Wayne Brown, public health advisor • Hoang Dang, public health advisor • Robert Fontaine, medical epidemiologist • Eric Gogstad, instructional designer • Ed Maes, associate director for science • Henry Walke, medical epidemiologist • Andrew Weathers, public health advisor
Partners	Division members and partner training programs

Project description

DESCD recognizes that monitoring and evaluation of FETPs are essential practices. In order to ensure that FETPs 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 goal of this activity is to develop an effective system for monitoring and evaluation of FETPs 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 for monitoring and evaluation of FETPs.

DESCD role

DESCD is the lead on this project.

Key achievements

- Developed critical outcomes
- Developed programmatic indicators
- Developed database for program tracking–piloted in Kenya and elsewhere

Next steps or future plans

- Continue developing programmatic and critical outcome indicators
- Assist programs as needed in collecting and using information
- Support implementation of monitoring database
- Finalize the framework from pre-program assessment to interim evaluation measures

Monitoring Success in Achieving Critical Outcomes of Health System Strengthening

DESCD's vision of effective health systems that support the well-being of communities around the world is supported through the mission to work with partners to strengthen capacity of countries around the world to improve public health.

The division's mission is being implemented through various programs as outlined in this report—primarily the Field Epidemiology Training Programs (FETPs) and Field Epidemiology and Laboratory Training Programs (FELTPs). Within this broad vision and mission, the FETPs and FELTPs are being designed and supported with the expectation of impacting public health through improved health systems by creating a sustained capacity to train public health professionals in applied field epidemiology and to provide epidemiological services to the public health system.

These programs help MOHs and other partners to both build stronger health systems and the capacity to continue to evaluate and improve the system. Specifically, the programs aim to assist individual countries' health systems to achieve critical strengths. DESCD has identified four key outcomes that indicate important aspects for a strengthened public health system and overlap significantly with defined essential public health services.

These key outcomes are meant to describe the specific targeted improvements DESCD is working toward helping countries achieve as they aim to improve their public health systems. The FETPs and FELTPs serve as major tools in assisting countries to reach these outcomes, but all the division programs are intended to contribute to these outcomes.

For the FETPs, DESCD has developed a set of programmatic indicators for program monitoring and evaluation that also contribute to the achievement of the critical outcomes. DESCD is in the process of developing broadly applicable indicators for these critical outcomes. This report provides examples of activities in 2005 that indicate progress in achieving the critical outcomes as well as examples of the FETP programmatic indicators that support these outcomes.

Following are some examples of activities indicating progress toward achievement of critical outcomes and FETP programmatic indicators that support these outcomes. The next report will discuss more extensively these successes from the programs.

CRITICAL OUTCOMES

1. **Robust surveillance system is established and used effectively.**
   The surveillance system shows a clear pattern of effective utilization including early detection of outbreaks and unusual clusters, other public health problems, deficiencies and successes of control and prevention programs, serving as a basis for public health research, among others.
2. **Public health events are detected, investigated and responded to quickly and effectively.**
   MOH will investigate and respond to events of public health importance in a competent, appropriate and timely manner.
3. **Human capacity is developed in applied epidemiology and public health laboratory management**
   Graduates of identified programs work for the MOH or other National Public Health Programs in positions that allow them to use these skills to support improvement in public health.
4. **Public health program decisions are based on scientific data**
   Scientific, data-supported information is used in health planning, policy development, and other public health program improvements.

1. Robust surveillance system is established and used effectively

Jordan provides an example of an established surveillance system with a clear pattern of effective use. The 22 Health Directorates in Jordan now report weekly to the Jordan Infectious Disease Information System (JIDIS) (electronic reporting system). The Directorate of Disease Control, MOH has weekly meetings to review surveillance data to identify outbreaks and unusual clusters in need of investigation. A Directorate of Disease Control website has been established to disseminate weekly surveillance data.

FETP Programmatic indicators that support this outcome

Indicator 12: Surveillance system data analyzed and used by trainees

Indicator 17: Surveillance system improved/expanded by program/ trainees

2. Public health events are detected, investigated and responded to quickly and effectively

Brazil and China provide examples of the capacity to investigate and respond to events of public health importance. A National Emergency Operations Center (CIEVS) has been inaugurated in the Brazilian MOH. The FETP graduates serve as the staff of CIEVS, and the FETP and technical directorates are responsible for all outbreak investigations of national importance. CIEVS established a toll-free number for the public and physicians to report possible outbreaks or epidemics. The video conferencing at CIEVS has been established, enabling real-time outbreak discussion with states.

In China, several trainees and graduates are regularly using the new real-time surveillance system to detect outbreaks that would not otherwise be reported or acted on. Investigations of diffuse outbreaks of measles and paratyphoid fever were initiated on this basis, and the head of the emergency department has requested collaboration in the establishment of epidemic threshold levels. Laboratory support, critical to the solution of outbreak investigations, was mobilized for outbreaks of hepatitis A, acute glomerulonephritis, and pneumonia of unknown etiology.

FETP Programmatic indicators that support this outcome

Indicator 10: Investigations of acute health events by trainees

Indicator 18: Evidence-based public health action for acute health events improved/expanded by program/trainees

3. Human capacity is developed in applied epidemiology and public health laboratory management

Zimbabwe and Central Asia have reported examples of FETP graduates working in positions in the MOH to support improvements in public health. In Zimbabwe, the program has supported the placement of many graduates with HIV training to important positions in the MOH. As of end 2005, HIV/AIDS positions in the MOH

filled by MPH graduates include Director, National Department of Disease Prevention and Control; Director, PMTCT Programme; Director, ARV Treatment Programme; TB Manager, AIDS and TB Unit; Workplace Officer, AIDS and TB Unit; Training Officer, AIDS and TB Unit; and ANC Surveillance Officer.

In Central Asia, the CDC/CAR has placed 100% of the FETP graduates in various national public health programs. Students who have graduated from FETP are currently working as leading epidemiologists and heads of departments within the MOH, Republican AIDS Centers in Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan. This shows how successful this program is and how much it is valued by the governments of Central Asia. These graduates are working to identify, investigate, document, and disseminate information about existing and emerging health problems to improve the situation within the region.

FETP Programmatic indicators that support this outcome

Indicator 16: Strengthened public health workforce indicated by graduates retained in national public health system

4. Public health program decisions are based on scientific data

Scientific data is being used in Brazil and Central America for public health program improvements. In Brazil, studies done by the FETP have resulted in national rotavirus vaccination being added to childhood immunization schedule, and surveillance of rotavirus vaccine-associated adverse events has been established.

In Central America, as a result of Wilfrido Clara's (3rd FETP cohort) evaluation of the homicide surveillance system maintained by the Institute of Legal Medicine, she was asked to lead the design and development of a national injury surveillance system which is now fully functioning. In addition to the participation of the MOH, Clara coordinated the input and participation of representatives from the Institute of Legal Medicine, the Supreme Court of Justice, and the Pan American Health Organization.

FETP Programmatic indicators that support this outcome

Indicator 19: Evidence-based public health programs/projects started and/or due to graduates/ program/trainees

Indicator 20: Evidence-based policies/regulations created or improved due to program/trainees

Conclusion

These are just a few examples of the types of activities conducted by the FETPs that contribute to the critical outcomes. As Dr. Simone has indicated in the foreword, collecting this type of information about the programs DESCD supports is crucial so that we can identify the public health outcomes of these programs, begin to document the public health impact, and provide more clear and consistent information to policy makers and donors about the impact of these programs.

DESCD plans to work with programs toward more systematic collection of programmatic indicators. This information should be helpful for the programs themselves, to document program activities, monitor and evaluate the program, implement program improvements, adjust the program to changing priorities, and ensure the program is meeting the long-term priorities. DESCD looks forward to input from all the programs as this moves forward.

Planned FETP Programmatic Indicators

1	MOH has ownership of the FELTP ("program").
2	Plan for program sustainability exists.
3	Accreditations received are documented and recognized.
4	Laboratory and epidemiology are integral partners in surveillance and outbreak/emergency investigations. Laboratory resources available for surveillance and outbreak investigations.
5	Sufficient number of qualified applicants for a full training class of qualified personnel exist.
6	Competencies required by the program for trainees are explicit and achievement is measured.
7	Supervisory support is assessed.
8	Training program is progressing towards sustainability.
9	Program graduates trainees.
10	Investigations of acute health events by trainees are conducted.
11	Planned studies are conducted by trainees.
12	Surveillance system data are analyzed and used by trainees.
13	Local/regional dissemination of trainee and program work occurs.
14	Presentations to international scientific conferences by trainees occurs.
15	Publications in peer reviewed journals by trainees or graduates occurs.
16	Strengthened public health workforce is indicated by graduates retained in national public health system.
17	Surveillance system is improved/expanded by program/trainees.
18	Evidence-based public health action for acute health events is improved/ expanded by program/trainees.
19	Evidence-based public health programs/projects is started and/or due to graduates/ program/trainees.
20	Evidence-based policies/regulations is created or improved due to program/ trainees.
21	National and/or regional public health professional network of graduates exists.

Appendices

Publications and Conferences

FETP Publications

Brazil FETP

Siqueira JB Jr, Martelli CMT, Coelho GE, da Rocha Simplício AC, Hatch DL. Dengue and Dengue Hemorrhagic Fever, Brazil, 1981–2002. *Emerg Infect Dis* 2005;11(1). Available at www.cdc.gov/ncidod/EID/vol11no01/03-1091.htm.

Central America FETP

Azalea Espinoza Rosses. Brote de diarrea por Shigella en Coto Brus. Costa Rica, de octubre a diciembre del 2001. *Costa Rican Journal of Public Health*, July 2005.

Xiomara Badilla. Brote de diarrea por Shigella en la zona de Los Santos. Costa Rica, de octubre a diciembre del 2001. *Costa Rican Journal of Epidemiology,* July 2005.

China FETP

Gong Zhenyu. Surveillance Analysis on Kidney Syndrome Hemorrhagic Fever, 2001–2003, Zhejiang. *Disease Surveillance;* 2005; 20(2):82–84.

Gong Zhenyu. Case-control Study of Type A Paratyphoid Outbreak in X Coast City, Zhejiang, 2004. *Chinese Journal of Epidemiology;* 2005; 26(9):730–731.

Gong Zhenyu. Initial Serology of Epidemic Investigation of Lyme Disease, Zhejiang. *Disease Surveillance;* 2005; 20(10):510–512.

Gong Zhenyu. Epidemiologic Study of Injury Caused by Typhoon Yunna. *Chinese Journal of Medicine;* 2005; 85(42):3007–3009.

Gong Zhenyu. Exploration and Thoughts on Building Rapid Response System for Suddenly Emerging Public Health Affairs. Chinese Rural Health Management; 2005; 25(12):26-28.

FETP Conference Presentations

Brazil FETP

XLI Congress of Brazilian Society of Tropical Medicine. Belém, Pará State, Brazil, March 2005

- Outbreak of Human Rabies transmitted by Vampire Bats, Pará, Brazil, 2004
- Outbreak of Hantavirus Cardiopulmonary Syndrome, DF & Goiás, Brazil, 2004
- Chromobacterium violaceum Sepsis: Case Report, Natal, Brazil, 2004
- Hypersensitivity-Type Adverse Events following Measles-Mumps-Rubella Vaccination of Young Children during a National Campaign, Brazil, 2004
- Outbreak of Hantavirus Pulmonary Syndrome – Santa Catarina State, Brazil, 2004
- Outbreak of Febrile Respiratory Illness of Unknown Etiology in Adolescent Spelunkers in Tamboril Cavern – Distrito Federal, Brazil, 2004
- Outbreak of Malaria due to Plasmodium vivax in a Non-Endemic Area, Piauí State, Northeastern Brazil, 2004

- Outbreak of Acute Respiratory Infection of Unknown Etiology in the Indigenous Macuxi Population, Roraima State, Brazil, 2004
- Deaths of Unknown Cause in the Neonatal Intensive Care Unit of Referral Hospital A, Aracaju City, Sergipe State, Brazil, 2004
- Outbreak of Acute Hepatitis A Virus Infection – Santa Bárbara do Tugúrio City, Minas Gerais State, Brazil, 2004
- Outbreak of Acute Pneumonia with Eosinophilia of Unknown Cause – Manaus City, Amazonas State, Brazil, 2004

World Congress on Leishmaniasis, Rome, Italy, April 2005

Epidemiological Profile of Visceral Leishmaniasis and HIV Co-Infection in Brazil's National Notifiable Disease Surveillance System, 2001–2004

54th Annual EIS Conference, Atlanta, USA, April 2005

Outbreak of Hantavirus Pulmonary Syndrome-Distrito Federal and Goias State – Brazil, 2004

International Epidemiology Association. 17th World Epidemiology Congress. Bangkok, Thailand, August 2005

- Factors Associated with Increased Risk of Death among Meningococcal Disease Cases, Brazil, 2003–2004
- Outbreak of Febrile Respiratory Illness of Unknown Etiology in Adolescent Spelunkers in Tamboril Cavern -- Distrito Federal, Brazil, 2004
- Hypersensitivity-Type Reactions following Measles-Mumps-Rubella Vaccination of Young Children during a National Campaign, Brazil, 2004
- Epidemiology of Reported Botulism in Brazil, 1999–2004
- Outbreak of Acute Hepatitis A Virus Infection – Santa Bárbara do Tugúrio City, Minas Gerais State, Brazil, 2004
- Outbreak of Acute Pneumonitis with Eosinophilia of Unknown Cause, Manaus City, Amazonas State, Brazil, 2004
- Outbreak of Malaria due to Plasmodium vivax in a Non-Endemic Area, Piauí State, Northeastern Brazil, 2004
- Outbreak of Parvovirus B19 Infection in School A, Pedralva, Minas Gerais, Brazil, 2004
- Deaths of Unknown Cause in the Neonatal Intensive Care Unit of Referral Hospital A, Aracaju City, Sergipe State, Brazil, 2004
- Outbreak of Acute Respiratory Infection of Unknown Etiology in the Indigenous Macuxi Population, Roraima State, Brazil, 2004
- Outbreak of Post-Infectious Transverse Myelitis during a Dengue Type 3 Epidemic – Rondônia State, Brazil, 2004–2005
- Risk Factors for Hantavirus Pulmonary Syndrome-related Death -- Santa Catarina State, Brazil, 2004
- Non-Typhi Salmonella: An Important Cause of Foodborne Disease Outbreaks in Brazil, 1999–2004
- Foodborne Botulism Associated with Home-canned Pork Meat, Mato Grosso State, Brazil, 2002

- Evaluation of the Malaria Surveillance System in Manaus Municipality, Amazonas State, Brazil, 2003

TEPHINET/International Epidemiology Association Conference. Regional Meeting, Latin America. Buenos Aires, Argentina, November 2005

- Outbreak of Probable Post-Infectious Transverse Myelitis during a Dengue Type 3 Epidemic – Rondônia State, Brazil, 2004–2005
- Outbreak of Parvovirus B19 Infection in School A – Pedralva, Minas Gerais, Brazil, 2004
- Foodborne Botulism due to Consumption of Homemade Pork Pate, Brazil
- Outbreak of Febrile Illness of Unknown Etiology – Espirito Santo State, Brazil, 2004-2005 (Spotted Fever-Group Rickettsia)
- Evaluation of Malaria Surveillance System, Manaus, Amazonas State, Brazil, 2003
- Evaluation of the Notifiable Disease Reporting System for Human Rabies – Brazil

Central America FETP

CONCASIDA, November 2005

Evaluation of the Surveillance system for HIV/AIDS/STDs in Nicaragua

Central American Network for the Prevention and Control of Emerging and Reemerging Diseases Scientific Meeting, April 2005

- Results of an HIV/AIDS Surveillance Evaluation, Guatemala
- Outbreak Study of Dengue and Hemorrhagic Fever in Aldea Oreganol, Zacapa, Guatemala
- Outbreak of Dengue in Jocoro, Morazan, El Salvador, 2004
- Collateral Effects in Patients with Leishmaniasis in Treatment with Meglumine Antimoniate in Communities of the Valle and Choluteca Departments, Honduras, September 2004
- Outbreak of Acute Diarrhea in Tourists Visiting a Tourist Complex in Puerto Plata, Dominican Republic, December 2004–January 2005
- Outbreak of Diarrheal Disease in Children under 5 Years of Age, Nicaragua, 2005
- Epidemiologic Surveillance of Myocardial Infarction, Costa Rica

4th Regional TEPHINET Meeting, November 2005

- Maternal Mortality in the Department de San Marcos, 2004
- Intoxication by Pesticide Poisoning in a Rural Community, Zacapa Guatemala, 2003
- Human Rabies in Intipuca, La Union, El Salvador
- Evaluation of Surveillance for Perinatal Mortality
- Study of the Seroprevalence of Dengue, Jocoro, Morazan, El Salvador
- Evaluation of the Surveillance System of Deaths due to Injury, Institute for Legal Medicine, La Libertad, 2005
- Outbreak of Foodborne Diseases in Olancho, Honduras, 2004
- Food Poisoning due to Clostridium Perfringes in a Day Center for the Elderly: ASCATE, Cartago, 2004
- Trends in Mortality due to Malignant Prostate Tumors in Costa Rica, 1990–2004

National Medical Congress of Nicaragua, Guatemala. March 2005
Risk Factors for Death due to Acute Diarrhea in Children under 24 Months of Age

Congress of Veterinary Epidemiology, November 2005
Outbreak of Diarrhea due to Shigella in Coto Brus, Costa Rica, 2001

APHA Annual Meeting, December 2005
Knowledge and Attitudes of Citizens on Tuberculosis Disease Transmission in Five International Sites

3rd Scientific Conference of Epidemiology, January 2005
Post-Disaster Epidemiological Evaluation, Jimani, 2004

36th Congress of the International Union against Respiratory Diseases, October 2005
- Evaluation I Study Cohort New Cases of Radioscopy Positive Pulmonary Tuberculosis, Dominican Republic 2000–2004
- Use of Social Mobilization to Fight TB in the Dominican Republic
- Expansion of the DOTS Strategy for Tuberculosis Control in the Dominican Republic
- Smoking Prevalence among Health Professionals at Dr. Luis Eduardo Aybar Hospital, Dominican Republic

54th Epidemic Intelligence Service Conference, International Night, April 2005
Extrinsic Contamination of Parenteral Infusions as the Source of a Large Outbreak of Klebsiella Sespis in a Neonatal Intensive Care Unit, Dominican Republic, 2002

Central Asia Regional Program FETP

Almaty City Pediatric Society Workshop, January 2005
Investigation of Measles Outbreak in Almaty, Kazakhstan, October 2004–March 2005

Roundtable between CDC and Almaty City Department of Health, February 2005
Investigation of Measles Outbreak in Almaty, Kazakhstan, October 2004–March 2005

Regional Conference on Measles Issues, Almaty, Kazakhstan, February 2005
- Investigation of Measles Outbreak in Almaty, Kazakhstan, October 2004–March 2005
- Measles Outbreak among Local Company Personnel, Atyrau, Kazakhstan, March–April 2003

CDC Tashkent Conference, May 2005
- Progress towards Tuberculosis Control and Determinants of Treatment Outcomes, Kazakhstan, 2000–2002: Analysis of Surveillance Data
- Outbreak of Botulism Associated with Home-canned Tomatoes and Cucumbers, Kasansai, Uzbekistan, 2004
- Leptospirosis Outbreak, Munbulak Village, Kazakhstan, 2005

Conference on Especially Dangerous Diseases, RSES, Almaty, Kazakhstan, June 2005
Leptospirosis Outbreak, Munbulak Village, Kazakhstan, 2005

Roundtable between CDC and MOH, Astana, Kazakhstan, July 2005
Foodborne Outbreak in a Kindergarten, Uralsk, Kazakhstan, May 2005

Roundtable between CDC and MOH, Karaganda, Kazakhstan, October 2005
- Investigation of Antibody Prevalence to Avian Influenza among Residents of Golubovka Village, Pavlodar Oblast, Kazakhstan, 2005
- Crimean-Congo Hemorrhagic Fever Outbreak Investigation, Southern Kazakhstan, 2005

China FETP
54th Annual EIS Conference, Atlanta, USA, April 2005
- Outbreak of Acute Febrile Respiratory Disease from Adenovirus in Schools of a Township, Eastern China, 2004
- Large Outbreak of Waterborne Paratyphoid Fever Associated with a Contaminated Well in a Rural Junior High School – Guangxi Province, China

India FETP
54th EIS Conference, Atlanta, USA, April 2005
- Outbreak of Hepatitis E Caused by a Contaminated Water Supply in Baripada, Orissa, India 2004
- Persistence of Gaps in Case Detection in tuberculosis Control Program – North 24 Parganas District, West Bengal, India, 2004
- Outbreak of Measles in Nai, a Remote Village of Uttaranchal, India, 2004

Kenya FELTP
54th Annual EIS Conference, Atlanta, USA, April 2005
Seroprevalence of Chikungunya Virus Disease in Lamu Island, Kenya, 2004

Myco-Global conference Accra, Ghana, September 2005
Response to an Outbreak of Aflatoxicosis in Eastern Kenya, 2004

American Society of Tropical Medicine and Hygiene's 54th annual meeting, Washington DC, USA, April 2005
Epidemiologic Findings of Major Outbreaks of Chikungunya Virus Infection in East Africa

African Regional TEPHINET conference in Accra, Ghana, December 2005
- Methanol Poisoning Outbreak in Machakos, Kenya, 2005
- Aflatoxin Contamination of Commercial Maize Products during an Outbreak of Acute Aflatoxicosis in Eastern and Central Province, Kenya, 2004
- Cholera Outbreak in Malindi, Kenya, 2005
- Health Workers Knowledge, Attitude and Perception in Relation to infectious Disease Surveillance Reporting in Dar es Salaam, Tanzania, 2005
- Aflatoxicosis Outbreak Investigation, Kenya, 2005
- Measles Outbreak in Eastleigh, Nairobi, Kenya, 2005

Country Programs Conference Presentations and Publications

CAR: HIV/AIDS Laboratory Capacity Building and Second Generation Sentinel Surveillance Implementation

Conferences

Annual CDC/CAR Conference Devoted to the Results of implementing SS in Kazakhstan, January 2005

Laboratory Component of HIV Sentinel Surveillance in Different CAR Countries

Anniversary Conference CDC/CAR , Uzbekistan, May 2005

Establishment and Implementation of Comprehensive Training for Laboratory Capacity Building in Central Asia

Annual CDC/CAR conference Devoted to the Results of implementing SS in KG, March 2005

Establishment and Implementation of Comprehensive Training for Laboratory Capacity Building in Central Asia

Institute for Quality in Laboratory Medicine Conference, Atlanta ,USA, April 2005

Poster Presentation: "output of quality assurance program developing and implementation in the Central Asia Region."

Regional Conference of Viral Hepatitis, Bishkek, 2005

- Vasilieva S, Kovtunenko N, Krukova V, Erasilova I, Kalashnikova TV, Favorov MO. "The algorithm of sample testing for serological component of sentinel surveillance in Kazakhstan."
- Vasilieva S, Kovtunenko N, Krukova V, Erasilova I, Kalashnikova TV, Favorov MO. "Working out the methodology for detection of Treponema Pallidum antibodies in DBS samples."
- Kuchuk T, Golovchenko N, Kalashnikova TV, Dubrovina N. "Data of external quality assessment and proficiency testing program implementation into laboratory service network of Kyrgyzstan."

Publications

- Kalashnikova TV, Musabaev EI, Usmanov RK, Kovtunenko NG, Suleimenova SZh, Drobeniuk Zh, Ongarbaev AB, Kuchuk TE, Mustafaeva EM, Avazova DE, Dzhumagulova A, Bobkova MR, Favorov MO. "Results of development and introduction of programs for quality control of laboratory diagnostics of infection diseases in Central Asia." *Klin Lab Diagn.* 2005 May; (5):47-51. Russian. PMID: 15986801 [PubMed - indexed for MEDLINE]
- Kalashnikova TV, Musabaev EI, Usmanov RK, Kuchuk TE, Ongarbaev AB, Mustafaeva EM, Suleimenova SZh, Dzhumagulova A, Favorov MO. "An educational module for organization of a system for controlling quality of laboratory diagnosis of infections for the Central Asia regions." *Klin Lab Diagn.* 2005 Aug; (8):50-3. Russian. PMID: 12362645 [PubMed - indexed for MEDLINE]

CAR: Live Birth Definition Program

Conferences

1st Pediatrics Congress, Bishkek, October 2005

BABIES Matrix as an Instrument of Definition and Choosing of Interventions Needed for Maternal Problem Solving

Conference Organized by UNICEF/USAID/CDC Devoted to Presentation of this Study and to Unfavorable Clinical Outcomes in Mary Region, Ashgabat, November 2005

Definitions of Interventions Needed for Infant Mortality Prophylactic Programs Development Based on BABIES Matrix

National Conference on Discussion of Results of New WHO Criteria Implementation in Kazakhstan, Astana, March 2005

On Realization of WHO Live and Still Birth Program Implementation into the Practice of Public Health in CAR Countries

Publications

- Chuvakova T, Ivassiv I. "Analysis of major factors influencing achievements of the fourth goal of the current millennium in Kazakhstan: infant mortality reduction." Tashkent, *Pediatrics Journal* # 2, p. 5–10.
- Chuvakova T, Ivassiv I. "Arrangements conducted in Kazakhstan to achieve the fourth goal of the current millennium toward the year 2015." Tashkent, *Pediatrics Journal* # 3–4, 2005, p. 30–34.
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- Problems of Recording and Reporting System Development for Electronic MDR TB Surveillance Implementation

Conference "Building Public Health Capacity and Integration of Disease Control Programs in Central Asia," Tashkent, Uzbekistan, May 2005

- Tuberculosis Laboratory Diagnosis under the DOTS Strategy Implementation: CDC Activities in Central Asia
- Implementation of Electronic TB Case-based Surveillance in Central Asia Region

TB Specialists of Kyrgyzstan Devote 15 Years to the National Center of Phthisiology, September 2005

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- Effectiveness of DOTS Implementation Based on the Number of Potential Lives Saved in the Republic of Kazakhstan, 1998–2004
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- Efficacy of Nevirapine in Reducing Mother to Child Transmission of HIV in Murewha District
- Schistosomiasis Infection among School Children in Zhaugwe Resettlement Area, Zimbabwe
- Factors Associated with Household Burn Injuries among Children Six Years and Below in Hospitals, Mashonaland Central Province, Zimbabwe
- Cholera Outbreak in a Rural District in Zimbabwe: The Role of Cultural Practices
- Lead Exposure among Street Cleaners in the City of Harare, Zimbabwe

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- Factors Influencing Uptake of VCT and PEP among Health Workers in Two Urban Hospitals, Midlands Province, Zimbabwe, 2004
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