Division of Epidemiology and Surveillance Capacity Development

2006 ANNUAL REPORT

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CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Division of Epidemiology and Surveillance Capacity Development 2006 Annual Report

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Foreword

I am pleased to present the *Division of Epidemiology and Surveillance Capacity Development (DESCD) 2006 Annual Report.* This is the division's second annual report. Most of the programs and projects from the 2005 report are featured again in this report, and several new ones have been added.

A substantial amount of our work is devoted to helping countries set up Field Epidemiology Training Programs (FETPs). Our division has been involved with these applied epidemiology programs, which are modeled after the Centers for Disease Control and Prevention's (CDC) Epidemic Intelligence Service, since 1980. Implementing an FETP is a carefully detailed process that requires extensive preparation and collaborative work before residents are able to start their training. Each program is uniquely tailored to meet the specific health needs of the country. Some programs consist of only one country, and others combine several countries in one region.

The first section of the report describes DESCD-supported FETPs, including the two Field Epidemiology and Laboratory Training Programs (FELTPs) that were started in 2006 in Pakistan and South Africa. Because these programs are relatively recent, our involvement is quite extensive.

The second section of the report includes FETPs that we support on a more limited basis such as the programs in Egypt, South Sudan, Thailand, and Zimbabwe. Besides our involvement with FETPs, we work on various country projects in Africa, Central Asia, and the Middle East, as well as cross-cutting projects. These projects involve surveillance and research activities and are done in collaboration with various partners such as other CDC offices, the U.S. Agency of International Development (USAID), the World Health Organization (WHO), and Ministries of Health (MOHs).

Our goal is to work with our partners to enhance the health and safety of people around the world. To help us achieve this goal, we have continued to focus on monitoring and evaluation, including programmatic indicators and critical outcomes of success. These important activities are described in the third section of the report.

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

I hope you will enjoy reading this report.

Patricia M. Simone M.D.

Patricia M. Simone, M.D.
CAPT, USPHS
Director
Division of Epidemiology and Surveillance Capacity Development
Coordinating Office for Global Health
Centers for Disease Control and Prevention

Overview

The Division of Epidemiology and Surveillance Capacity Development (DESCD) is part of the Coordinating Office for Global Health at the Centers for Disease Control and Prevention.

Our vision is to create effective public health systems that support the well-being of communities around the world. Our mission is to work with partners to strengthen capacities of countries around the world to improve public health.

Using training programs such as the Field Epidemiology Training Program (FETP), Data for Decision Making, and other courses and projects, we help Ministries of Health (MOHs) around the world build strong, effective, sustainable programs and capacity to improve public health systems on a local, regional, and national level. These programs allow MOHs to strengthen their disease surveillance, outbreak response, and program evaluation capacity.

Our teams of physicians, epidemiologists, public health advisors, instructional designers, health communication specialists, and support staff provide scientific expertise, training consultations, and other programmatic support and advice to enable MOHs to enhance their own health protection and health promotion programs. For example, we develop customized classroom curricula for epidemiology, biostatistics, management, and public health communication skills. We also provide additional training and technical assistance to sustain FETPs and related programs around the globe.

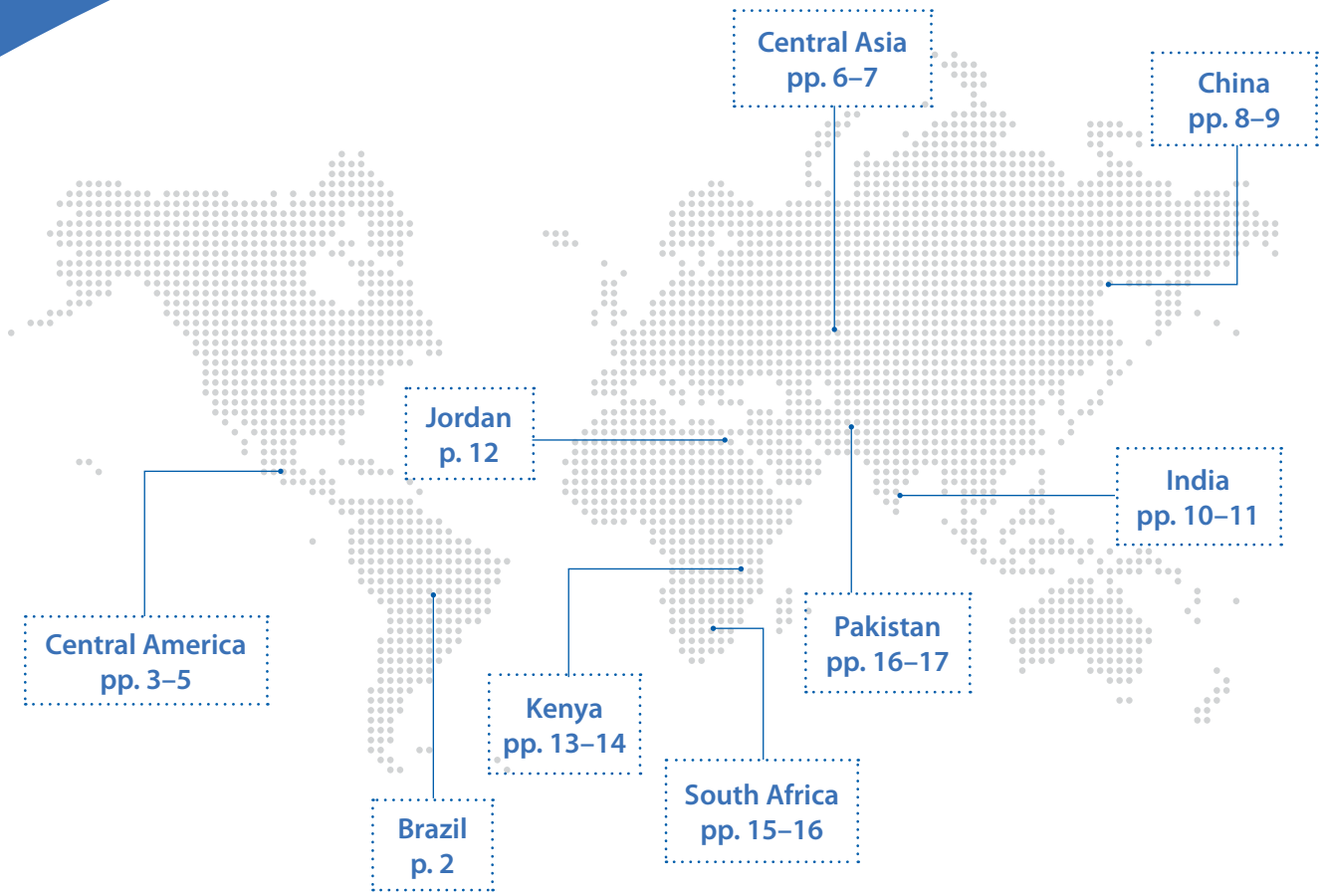
Three components guide our strategy:

- **Service:** We provide epidemiological services to the public health system at national and sub-national levels (e.g., outbreak investigations and response).
- **Training:** We develop self-sustaining institutionalized capacity to train public health leaders in applied field epidemiology.
- **Systems:** We strengthen public health surveillance and information systems.

In addition, developing partnerships is an important element of establishing, supporting, and sustaining our programs. Therefore, we regularly collaborate with national and international organizations such as the U.S. Agency of International Development (USAID), the World Health Organization (WHO), the Ellison Medical Foundation, and the World Bank.✦

Section 1

Current Field Epidemiology Training Programs



Brazil Field Epidemiology Training Program

Program overview

Location (start date)
Brasilia (2000)

Program director
Elizabeth David dos Santos (since 2004)

Resident advisor
Douglas Hatch (2000–2006)

Atlanta-based staff
- Jim Mendlein, senior epidemiologist
- Andrew Weathers, public health advisor

Brazil-based staff
- Tatiana Lanzieri, senior trainer, epidemiologist
- Wildo Araujo, senior training advisor, epidemiologist
- Carmen Muricy, assistant FETP director

Trainees/graduates

- Number of trainees in 2006: 26
- Number of graduates in 2006: 11
- Total number of graduates as of 2006: 32

Twenty-three graduates (72%) work at the national MOH level, 9 (28%) work as epidemiologists in states, of whom 4 serve as FETP staff.

Outbreak investigations

The program conducted 22 investigations, including these outbreaks:
- Measles, Filadélfia, Bahia State
- Acute Chagas disease, Pará State
- Dengue, Palmas, Tocantins State
- Toxoplasmosis, Anápolis, Goiás State

Planned investigations

The program conducted 13 planned studies, including these:
- Comparison of national hepatitis B and C notifiable disease databases with treatment databases, 2005
- Analysis of morbidity and mortality related to pertussis, 2000–2006
- Evaluation of surveillance case definition for influenza
- Epidemiological profile of typhoid fever, 2002–2005

Surveillance activities

The program conducted 12 surveillance activities, including these:
- Evaluation of the pertussis surveillance system in Brazil, 2001–2004
- Evaluation of national surveillance of acute flaccid paralysis, 2002–2004
- Evaluation of the tuberculosis surveillance system, Rio de Janeiro
- Evaluation of malaria surveillance, Amazon Region

Other important projects

- Provided staff to support Brazil's Emergency Operations Center
- FETP graduates worked as monitors and supervisors of field investigations of all disease outbreaks of national importance
- Sponsored 4th Global TEPHINET Scientific Conference in Brasilia
- Conducted national training course in basic epidemiology and surveillance for 24 participants
- Conducted 4-week intensive epidemiology training course for 12 students in new FETP class entering training in 2006
- Provided technical assistance (including hiring one FETP graduate) in support of state-level applied epidemiology training program
- Provided technical assistance to Master's Program in epidemiology at the University of Sao Paulo✦

Central America Field Epidemiology Training Program

Program overview

Location (start date)

Guatemala City, Guatemala (2000)

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
- Dominican Republic: Tomiris Estepan

Resident advisors

- Luis Callejas covered Nicaragua and Costa Rica (through September 2006)
- Carlos Alonso covers Nicaragua and Costa Rica (since October 2006)
- 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
- Lisa Manley, public health advisor
- Denise Traicoff, instructional designer

Trainees/graduates

- Number of trainees in 2006: 30
- Total number of graduates as of 2006: 32

Eighty-one percent of the graduates still work in the health sector at the national and sub-national level. Roberto Flores, an FETP graduate of El Salvador, is the current Chair of TEPHINET.

Outbreak investigations

The program conducted 23 investigations, including these outbreaks:

- Malaria, Alta Verapaz (Guatemala)
- Hepatitis A in school-aged children, Torola, Morazán (El Salvador)
- Malaria caused by Plasmodium Falciparum (Honduras)
- Methanol outbreak, León (Nicaragua)
- Dengue outbreak, Huetar Atlantic Region (Costa Rica)
- Meningitis outbreak, San Isidro (Dominican Republic)
- Varicella outbreak (Panama)

Exemplary project

Outbreak of diethylene glycol intoxication, Panama

On September 15, the Social Security Hospital of Panama was notified of an increase of hospital admissions due to acute renal insufficiency and neurological symptoms.

Most patients were elderly, had hypertension, diabetes, or chronic renal disease and lived in the city of Panama.

On October 4, the MOH of Panama requested technical assistance from the CDC which sent a team to assist in the investigation along with the Pan American Health Organization and trainees from the Central American FETP.

Human and pharmacological samples were taken and examined in the United States where diethylene glycol was identified in a bottle of cough syrup as the likely source of the outbreak. As of October 16, 58 cases had been identified with a case fatality rate of 38% (22/58).

The MOH confiscated the cough syrup from its health service units and also from persons and institutions who bought this product.

Planned investigations

The program conducted 25 planned studies, including these:

- Cross-sectional cohort study of TB and HIV co-infection (Guatemala)
- Prevalence and risk factors for Hepatitis A, Torola, Morazán (El Salvador)
- Mortality of women of childbearing age (Honduras)
- Knowledge, attitudes, and practices associated with sexually transmitted infections and HIV/AIDS in pregnant women in a rural area in León (Nicaragua)

- Evaluation of vaccination coverage through a national household survey (Costa Rica)
- Principal causes of mortality in infants 2000–2005 (Dominican Republic)
- Anthropological study of the Comarca Kuna population (Panama)

Exemplary project

Hepatitis A in school-aged children, Torola, Morazán (El Salvador)

On March 23, the Health Area of Perquín, El Salvador, reported eight cases of suspected Hepatitis A in residents of the village of La Ceiba, Agua Zarca Canton, municipality of Torola. Four of the people attended the village school.

A cross-sectional study and a case-control study were initiated. As a result of this investigation, a new laboratory technique was introduced to confirm Hepatitis A. National level laboratory technicians were trained by personnel from the laboratories of the U.S. Army.

There was follow-up in the next 6 months to verify agreements made by the community water administrators and other municipality officials regarding the chlorination of water for human consumption. The community was educated and measures were implemented to improve hygiene and environmental sanitation. The outbreak was controlled in the village and not propagated to neighboring communities.

Surveillance activities

The program conducted 24 surveillance activities, including these:

- Implementation of a surveillance system for the prevention of vertical transmission of HIV (Guatemala)
- Baseline analysis of mortality in women 10–54 years of age, Morazán (El Salvador)
- Surveillance for resistance to antivirals, HIV/AIDS/STD program (Honduras)
- Surveillance for diarrheal disease caused by rotavirus (Nicaragua)
- Description of the epidemiology of burns, 2000–2005 (Costa Rica)
- Analysis of neonatal mortality in the Cabral and Baez Hospital, 2000–2005 (Dominican Republic)

Exemplary project

Surveillance system for Avian Influenza

As part of the preparatory activities for responding to a potential Avian Influenza pandemic, a surveillance system for Avian Influenza was designed in each country in the region.

Sentinel surveillance sites were placed in various hospitals and health units to look out for potential cases. Techniques for analysis of biological samples were implemented as well as a process for sending samples to regional reference laboratories (at CDC and the U.S. Army). Among preparatory activities implemented were the training of health personnel and the conducting of simulation exercises.

Other important projects

Guatemala

- Workshop to define the organization of the epidemiological units and functions of epidemiologists based in competencies to strengthen the national epidemiological network
- Workshop for the alert/response system established for surveillance and control of diseases in the areas and communities affected by Hurricane Stan, Quetzaltenango and Rethaluleo
- Development of a national contingency plan for seasonal influenza and Avian Influenza

El Salvador

- Design of an outbreak notification system
- Planning and implementation of the National Committee on Ethics and Scientific Investigation
- Development of a national contingency plan for seasonal influenza and Avian Influenza
- Participation in the initiative to eliminate Chagas disease in Central America
- Participation in the national anti-rabies vaccination campaign
- Recommendations for the control of potential outbreak caused by influenza viruses infecting persons with diseases associated with immunosuppression

Honduras

- Participation of the FETP in a CDC/USAID 4-year project to revitalize disease surveillance in Honduras
- Development of a national contingency plan for seasonal influenza and Avian Influenza

Nicaragua

- Development of the national rapid response plan for Avian Influenza
- Training in Basic Epi-Info, at the Universidad Nacional Autónoma de Nicaragua, Managua
- Development of the protocol of treating co-infection with HIV and tuberculosis

Costa Rica

Development of the national contingency plan for responding to Avian Influenza

Dominican Republic

Development of the national contingency plan for Avian Influenza✦

Dr. Gloria Suarez (left) and Dr. Augusto Lopez, resident advisors for the Central America FETP

Central Asia Field Epidemiology Training Program

Program overview

Location (start date)

Almaty, Kazakhstan and Tashkent, Uzbekistan (2003)

Program director and resident advisor

Simon Ajeilat

Atlanta-based staff

- Ed Maes, epidemiologist
- Eric Gogstad, instructional designer
- Hiari Imara, public health analyst

CAR-based staff

Dilyara Nabirova, manager

Trainees/graduates

- Number of trainees in 2006: 19
- Number of graduates in 2006: 8
- Total number of graduates as of 2006: 15

Twelve graduates (80%) still work for the MOH in their countries.

Outbreak investigations

The program conducted 13 investigations, including these:

- Hantavirus hemorrhagic fever outbreak, Western-Kazakhstan
- Intensified surveillance to investigate possible human infection with Avian Influenza virus in Aktau and Mangistau oblasts, Kazakhstan
- Leptospirosis outbreak, Dushanbe oblast, Tajikistan
- HIV outbreak among children under 2 in Shymkent, Southern Kazakhstan

Exemplary project

HIV Outbreak Investigation among children under 2 in Shymkent, Southern Kazakhstan,

Between January and October 2006, 72 children were identified as HIV infected in Shymkent city, Southern Kazakhstan. Upon request of the MOH, Kazakhstan, CDC Field Epidemiology Training Officers carried out an investigation on May 10–August 31, to identify common exposures that could be a source of infection in children.

Findings from the ongoing study revealed that multiple factors contributed to the occurrence of this outbreak. There was no evidence for transmission from mother to child. No one single hospital was responsible for infection of all affected children. No specific medical procedures could be the single source of HIV infection among all children at the hospitals.

Lack of adequate training and improper medical practices, including the re-use of medical instruments, could be responsible for the spread of HIV infection. Several violations of safe blood transfusion practices were identified, including "direct" transfusion of untested blood and multiple fractions of the same blood unit transfused to different children hospitalized in Shymkent between January and August.

As of today, 116 HIV infected children were reported. Case number: 114 reported in April, 115 and 116 in June. Children were identified by implemented HIV surveillance system. Surveillance was based on routine anti-HIV testing for all hospitalized children in the oblast (any age, any reason for hospitalization, any clinic). Identified HIV infected children presumably were infected during 2005–2006. Monitoring of laboratory quality and surveillance accuracy is conducting by National HIV service in close collaboration with CDC/CAR office.

The following recommendations were implemented:

- Testing of all children below 5 years of age who were admitted simultaneously with HIV cases to the same hospitals
- Testing of medical staff in the hospitals where the cases were hospitalized
- Genetic sequencing to identify one or more common sources of infection (in process)
- Reorganization of blood collection stations, standardized blood-collecting behaviors, and strengthened response against blood selling and collection

Planned investigations

The program conducted 6 investigations, including these:

- Protection afforded by plague vaccination to the

residents in plague-endemic areas in Karakalpakia, Uzbekistan
- Risk factors for salmonellosis, Ust-Kamenogorsk
- Prevalence of jaundice among infants under 1 year associated with Hepatitis B vaccine, Almaty and Astana cities, Kazakhstan
- Effect of hospitalization on tuberculosis (TB) secondary attack rate among family members

Exemplary project

Prevalence and determinants of patient delay among newly diagnosed pulmonary TB patients in Samarkand and Tashkent cities, Uzbekistan

Early diagnosis and treatment of TB are critical to minimize morbidity and mortality from TB as well as the risk of transmission in the population.

The objectives of this study were to describe patient delay by person, time and place, and to estimate its prevalence and determinants in Tashkent and Samarkand. It was identified that clinical presentation of TB and prior knowledge of TB are the main risk factors for patient delay. Final report with the results and recommendations were provided to the MOH.

Surveillance activities

The program conducted 10 surveillance activities, including these:
- Brucellosis surveillance, Pavlodar
- Kazakhstan vaccine-preventable diseases, Almaty Oblast, Kazakhstan
- Sentinel surveillance of acute hepatitis, Kyrgyzstan
- Meningitis surveillance in Bishkek, Kyrgyzstan
- Rabies surveillance, Uzbekistan

Exemplary project

Evaluation of surveillance system for HIV, Kazakhstan

HIV case surveillance is the basis of national efforts to monitor the spread of HIV infection in the country, to better characterize populations in which HIV infection has been newly diagnosed, and to target HIV-prevention programs and healthcare services.

According to the current evaluation, the surveillance system data are complete and representative. A combination of passive and active data collection methods are used in the country. The reporting is timely but the routine collection of data requires a large number of staff.

Other important projects

- Introductory course in epidemiology, biostatistics, Epi Info, and lab training
- Communication workshop
- Surveillance workshop
- Eight data analysis workshops✦

China Field Epidemiology Training Program

Program overview

Location (start date)
Beijing (2001)

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
Zong Yiyang, office manager

Trainees/graduates

- Number of trainees in 2006: 24
- Number of graduates in 2006: 11
- Total number of graduates as of 2006: 42

All the graduates have remained with the MOH; 34 (81%) are at the provincial and 8 at the national level. Two graduates are advisors with the China FETP (C-FETP).

Outbreak investigations

The program conducted 91 emergency investigations, including 61 outbreak investigations such as these:
- Influenza-like case in an primary school, Chongqing City
- Para-typhoid in Taizhou, city of Zhejiang
- Measles among primary and junior high schools in Lingdi County Zhangping, city of Fujian
- Viral encephalitis and meningitis outbreaks in Lianyungang, Jiangsu Province

Exemplary project
Epidemic of measles, Jilin Province
In the spring of 2006, trainees, through examination of incoming surveillance data, identified an outbreak of measles in a province. High incidence rates were noted in children under 3 years of age and several doctors and nurses were among the cases.

A field investigation revealed that vaccine coverage was above 97% and effectiveness for a single dose was 85%. Nearly 70% of measles exposure was occurring in hospitals, suggesting that nosocomial transmission was sustaining measles transmission in this highly vaccinated population.

On the basis of this investigation the province immediately instituted control measures in the implicated hospitals.

Planned investigations

The program conducted 14 planned investigations, including these:
- Antibody of polio in 0–3 year-old children in Yunnan Province, fast evaluation of SIA of polio
- High morbidity in Yongjia county, Wenzhou city of Zhejiang
- Hepatitis C infection in Shandong Tai'an hospital
- Investigation on the environment to test the element which could cause unexpected sudden death in Xiangyun county, Tengchong County, Heqing county, Yunnan

Exemplary project
Abscesses in a clinic, Guangong Province
In December 2006, C-FETP investigated why abscesses had developed after infections at a rural clinic in Guangong Province. Acid fast bacilli (AFB) were identified from four of five abscesses.

To develop control measures, C-FETP investigated to identify the method of acquiring and causes of these abscesses. They defined a case as a person having an abscess or persistent induration at the site of an injection given since June 2006, and identified all intramuscular (IM) and intravenous injections given at the clinic August-October and compared case rates by route, medication, and diluents.

They reviewed procedures in the injection room and took environmental cultures for mycobacteria.

Of 602 persons who received injections, 5.1% developed an abscess. C-FETP identified the four AFB as *Mycobacterium abscessus*. All 31 cases (rate=17%) occurred in 182 patients who had IM injections with four different medications dissolved in normal saline (infinite risk ratio). An open

16-gauge needle was routinely left through the septum of a multidose medicine bottle.

C-FETP identified rapidly growing AFB in the water supplying the tap in the injection room. They found no cases from three clinics using normal saline diluent from the same manufacturer. C-FETP concluded that *M. abscessus*, an organism that multiplies in water, caused these abscesses through extrinsic contamination of multi-dose bottles of normal saline diluent. They trained and required staff to follow correct technique from official guidelines.

Surveillance activities

The program conducted 36 surveillance activities, including these:

- Analysis of anthrax surveillance, January–August 2006
- Hepatitis analysis for the first 6 months of 2006
- Analysis of typhus fever outbreak, Hebei Province
- Surveillance analysis of epidemic hemorrhagic fever, Shandong

Exemplary project

Paratyphoid fever outbreak in southern China

By applying thresholds to data received through the Internet-based surveillance system in China, trainees identified a dispersed outbreak of paratyphoid fever in a large city in southern China.

The local health department had not noticed this outbreak because affected persons did not know each other, work together, or have other obvious linkages. The investigation identified undercooked shellfish sold through restaurants.

These shellfish had been routinely harvested from a polluted beach. City health authorities closed this and other potentially polluted beaches around the city to harvesting shellfish.

Other important projects

- A staff instructor and graduate underwent training for Global Alert And Outbreak Response Network rapid response teams in Geneva
- The C-FETP held its first annual scientific conference; 160 epidemiologists from 26 provinces attended, including 26 C-FETP officers and 35 graduates. Topics included investigations of Avian Influenza, plague, pneumonia, cholera, and shellfish-associated paratyphoid fever
- Three graduates were detailed to the MOH Avian Influenza Surveillance team for 6 months
- The C-FETP produced a 4-day training course in surveillance and epidemiology for about 100 city-level public health physicians from different provinces in Zhangjiajie, Hunan Province
- A C-FETP officer of the 4th cohort received the prize for the third best poster presentation (out of 79 posters presented) during the Bi-Regional TEPHINET Conference in Chennai, India✦

An FETP resident during field work in China

India Field Epidemiology Training Program

Program overview

Location (start date)
Chennai (formerly Madras) (2001)

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
- Hoang Dang, public health advisor

Trainees/graduates

- Number of trainees in 2006: 25
- Number of graduates in 2006: 6
- Total number of graduates as of 2006: 21

Eighteen of the 21 graduates are working as public health professionals at district/state/national level and 3 are working in medical research. Of the 18 graduates working in public health, 4 are involved in the integrated disease surveillance project and 1 is working as Surveillance Medical Officer in the WHO-Government of India National Polio Surveillance project. Two graduates are state epidemiologists in the National AIDS Control Program.

Outbreak investigations

The program conducted 16 investigations, including these outbreaks:
- Cholera in brickfield, Pujali, West Bengal
- Malaria in Naxalbari, Darjeeling District, West Bengal
- Avian Influenza in poultry, Nandurbar, Maharashtra
- Hepatitis A in Bhalumunda, Bolangir District, Orissa

Exemplary project
Malaria outbreak in Naxalbari, Darjeeling District, West Bengal 2005–2006
Trainees investigated an outbreak of malaria in Naxalbari block, Darjeeling. An abandoned well was the probable source of the outbreak. Weak case detection, poor vector control, and low frequency of personal protection aggravated the situation.

Closure of the abandoned wells controlled the outbreak in November. Evaluation of the malaria control program identified solutions for the weaknesses identified in the program.

Planned investigations

The program conducted 7 planned investigations, including these:
- Factors associated with persistence of diphtheria at Hyderabad, Andhra Pradesh
- Risk factors for scrub typhus and typhoid in the Kurseong subdivision of Darjeeling District, West Bengal
- Descriptive epidemiology of chikungunya, Maharashtra
- Prevalence of cardiovascular risk factors in Tusra, Bolangir District, Orissa

Exemplary project
Persistence of diphtheria in Hyderabad, Andhra Pradesh
Andhra Pradesh accounted for half of global diphtheria cases in 2005 and Hyderabad accounted for 16% of state cases. A study was conducted to understand whether diphtheria persisted because of vaccine failure or failure to vaccinate.

The findings revealed that receiving booster doses was key for protection against diphtheria. However, coverage dropped after primary vaccination, especially among a local ethnic minority with a higher attack rate. We recommended increasing the booster doses coverage with an emphasis on minorities.

Surveillance activities

The program conducted 7 surveillance activities, including these:

- Evaluation of measles surveillance, Howrah District, West Bengal
- Description and evaluation of surveillance system for jaundice at Hyderabad, Andhra Pradesh
- Description and evaluation of the surveillance system for acute diarrheal diseases, South Parganas, West Bengal
- Description and evaluation of the typhoid surveillance system, Darjeeling District, West Bengal

Exemplary project

Evaluation of measles surveillance in Howrah District, West Bengal

Measles is often under-reported. Trainees from West Bengal evaluated the sensitivity of the measles surveillance in the Howrah District in 2005. The findings revealed that measles surveillance in the public sector captured only a small portion of measles cases, but those cases captured were reported well to the district. Surveillance must engage the private sector. Health education focusing on the availability of vitamin A treatment for measles might provide an incentive to seek care, which could increase the sensitivity of surveillance.

Other important projects

- Conducted the Third Southeast Asia and Western Pacific Bi-Regional TEPHINET Scientific Conference, January 9–12, 2006
- Conducted training of the state and district surveillance officer in IDSP
- Conducted one-week workshops on surveillance, epidemic preparedness and response for the medical officers from two states in Northeastern states of India✦

Field supervision visit in Shimla, Himachal Pradesh. Those are nicknamed "Dry cleaning operations" as the result in many revisions on the field reports

Jordan Field Epidemiology Training Program

Program overview

Location (start date)
Amman (1998)

Program director
Sami Sheikh Ali (since 2004)

Resident advisor
Russell Gerber (since 2006)

Atlanta-based staff
- Bassam Jarrar, senior public health advisor, team lead
- Denise Traicoff, instructional designer
- Henry Walke, medical epidemiologist

Trainees/graduates

- Number of trainees in 2006: 18
- Number of graduates in 2006: 0
- Total number of graduates as of 2006: 23

Eighteen of the graduates 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 program conducted 11 investigations, including these:
- Avian Influenza in birds, Ajloon
- Hepatitis A outbreak, North Agwar
- Cluster of meningitis cases, Banekennana
- Nosocomial infection case, Al Basheer Hospital

Exemplary project
The FETP investigated a large foodborne outbreak of salmonellosis in a restaurant in Ruseifa.
It was associated with mayonnaise prepared in the restaurant kitchen. Raw eggs used in the mayonnaise were the probable source of salmonella. Inadequate food preparation techniques likely contributed to the outbreak. The restaurant was closed pending remedial actions.

As a result of the investigation, discussions began among public health authorities and the Jordan Food and Drug Administration about control options.
It was determined that commercially-prepared mayonnaise would be required for use in restaurants, as no procedure could completely remove salmonella from raw eggs. Also, guidelines for safe food preparation and handling were reinforced with other restaurants in the area.

Planned investigations

The program conducted 3 planned investigations:
- Assessment of immunization coverage in children, Dieralla
- Survey of community risk factors for Hepatitis A, North Agwar
- Analysis of smoking risk factors

Surveillance activities

The program conducted 14 surveillance activities, including these:
- Mumps surveillance and information on immunization status
- Evaluation of foodborne disease surveillance system
- Evaluation of surveillance for bacterial meningitis
- Evaluation of cholera monitoring system

Other important projects

- Participated in several local Avian Influenza workshops
- Participated in regional measles elimination workshop
- Directorate for Disease Control held an annual Scientific Conference Day
- Conducted one-week training in Epi-Info
- Conducted one-week training on use of the public health laboratory
- Trained 22 local health directorates on use of JIDIS electronic reporting through site visits✦

Kenya Field Epidemiology and Laboratory Training Program

Program overview

Location (start date)
Nairobi (2004)

Program director and resident advisor
Christopher Tetteh (2003–2006)

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

- Number of trainees in 2006: 20
- Number of graduates in 2006: 7
- Total number of graduates as of 2006: 7

Outbreak investigations

The program conducted 18 investigations, including these outbreaks:
- Anthrax, Maragwa District
- Cholera, Moyo District, Uganda
- Afflatoxin, Makueni District
- Malaria, Muleba, Tanzania
- Polio, Dadaab
- Rift Valley Fever, North Eastern Province, Kenya

Exemplary project
Bacterial meningitis outbreak, West Pokot District, Kenya
An FELTP resident participated in an outbreak investigation of bacterial meningitis in the West Pokot District of Kenya, near the Ugandan border. The investigation described the nature and magnitude of the outbreak. This defined the area impacted and affected population resulting in a recommendation for vaccination in a portion of the district. WHO provided vaccines for the recommended population.

Planned investigations

The program conducted seven investigations, including these:
- Descriptive epidemiology of diabetes mellitus in Nairobi, 2000–2005
- Risk factors for non-vaccination against measles among children under 7 years in Eastleigh, Nairobi
- Risk factors for Plasmodium Falciparum malaria in pregnant women of Dar-es-Salaam, Tanzania

Exemplary project
Measles outbreak, Eastleigh, Nairobi, Kenya
An outbreak of measles occurred in Eastleigh, Nairobi, in September 2005, which then spread to other districts. Most cases were among unvaccinated children below 5 years of age.

This study identifies the risk factors which are associated with non-vaccination against measles in Eastleigh in Nairobi. A case-control study was carried out at the community level with 65 cases and 65 controls interviewed.

Being born outside Kenya, having more than two siblings, lack of maternal awareness of the significance of measles vaccination and the correct age for routine measles were significantly associated with non-vaccination against measles.

There is need to screen and vaccinate all incoming refugee families and enhance public health education regarding vaccine preventable childhood illnesses.

Surveillance activities

The program conducted 13 surveillance activities, including these:
- Evaluation of measles surveillance, Ghana
- Evaluation of HIV/AIDS surveillance system
- Malaria surveillance system evaluation, Kenya
- Southern Sudan AFP surveillance system evaluation

Exemplary project

Integrated Disease Surveillance and Response (IDSR) Progress in Kenya 2006–2007

The IDSR strategy was adopted by WHO-AFRO region to strengthen communicable disease surveillance in an integrated approach.

Kenya adopted the strategy in the year 2000 but its implementation lagged behind its planned schedule. In 2006, with support from CDC/FELTP and WHO, a National and Provincial Trainers of Trainers (ToT) workshop was held. Among the ToT were 11 FELTP residents.

Consequently the residents and MOH staff embarked on district health manager and health care worker training and support in the production of a weekly epidemiological bulletin. A total of 43 (55%) of the districts have been inducted to IDSR at the district health managers and health care workers levels.

Training approaches have varied from residential to on-the-job training. As a result of the trainings and prompt data analysis and feedback to the districts the district, reporting rates have improved from below 10% to an average of 70% over the last 12 months.

FELTP residents and graduates have been in the forefront in supporting IDSR reporting from districts as well as analysis and dissemination of a weekly epidemiological bulletin detailing weekly trends of priority communicable diseases.

As a result, over 80% of outbreaks are detected and reported within 48 hours of occurrence. Prompt response to various outbreaks due to the IDSR implementation has averted many of the adverse effects that the outbreaks would have ordinarily had in the various districts.

Through IDSR, various outbreaks (such as cholera, Rift Valley fever, measles, polio, visceral leishmaniasis, and anthrax) have been detected, reported and responded to promptly.✦

An FELTP resident conducting a field investigation in rural Kenya

South Africa Field Epidemiology and Laboratory Training Program

Program overview

Location (start date)
Johannesburg (2006)

Program director
Bernice Harris

Atlanta-based staff
- Peter Nsubuga, medical epidemiologist
- Carolyn Collins, clinical microbiologist
- Eric Gogstad, instructional designer
- Stacy Howard, microbiologist
- John Ridderhoff, clinical microbiologist

South Africa-based staff
- Elizabeth Prentice, laboratory training specialist
- Benn Sartorius, epidemiology training specialist
- Barbara Temane, administrative assistant

Partners
- South African National Department of Health
- National Institute of Communicable Disease (NICD)
- National Health Laboratory Service (NHLS)
- CDC South Africa Country Office
- University of Pretoria (UP)

Program Description

The South African Department of Health, NICD, NHLS, CDC, and UP established this program to provide graduates with a Masters in Public Health (MPH) and certificate in applied epidemiology and public health laboratory practice and 2 years of supervised work experience and training aimed at strengthening their skills and knowledge.

The program will officially start in January 2007, but activities have begun in preparation for the start of the first cohort. Ten residents for the first cohort were selected in September 2006.

DESCD role

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

Key achievements

- April 3–5: Epidemiology Curriculum Development Workshop, which involved stakeholders from CDC, NHLS, NICD, and UP. The meeting resulted in a curriculum that was accepted by UP as a new sub track of the MPH. Fellows will also receive an MPH from UP upon completion of the program and a fellowship certificate from NICD/NHLS.
- May 15–24: Outbreak Investigation and Control Short Course. This course combined teams consisting of provincial communicable disease coordinators and a representative from the national DOH Communicable Disease Control Directorate as well as an NHLS representative from each province to facilitate the development of effective field laboratory-epidemiology teams during outbreaks.
- Aug. 28–30: Quality Management Systems (QMS) Course. This course was provided for business managers at all levels within NHLS. Each business manager was responsible for developing a plan to implement QMS within their respective branches. This course will serve as the foundation as NHLS takes steps towards accreditation of all laboratories within the network.
- Oct. 3–5: Surveillance Short Course. This course was a follow-up to the outbreak investigation and control course that concentrated on surveillance design, implementation, and evaluation. Participants presented the results of their project from the first course, which concentrated on either descriptive data analysis or documentation of an outbreak investigation.

- Dec. 4–6: Laboratory Program Development Workshop. The goal of this workshop was to identify the expected outcome competencies of the candidate in the form of a job description to facilitate placement at NHLS after completing the program and integrate the coursework to bridge the gap between epidemiologists and laboratorians. The meeting resulted in a curriculum accepted by UP and drafts of plans for recruitment, field placement, and career path that are in the process of being implemented by NHLS.
- Dec. 7: TB: QMS Short Course Planning Meeting. South African TB experts and representatives from CDC gathered to plan a short course to be run in 2008. A one-week course covering laboratory, epidemiology, and data management issues was proposed and the course content outlined. This course will be aimed at laboratorians from NHLS and TB control personnel from the Department of Health. It will follow the model of the outbreak course of combined sessions and field work. The course will be presented multiple times to optimize learning in smaller groups.

Next steps or future plans

- Conduct Quality Management Systems for HIV Testing for participants within NHLS from each of the provinces
- Provide technical assistance in the development of Avian Influenza Rapid Response Training for communicable disease control coordinators
- Support NDOH in the development of a strategy for public health surveillance in South Africa
- Conduct a Tuberculosis Data Management and Quality Management Systems course for TB control coordinators and laboratory counterparts at the provincial and national levels
- Select the second cohort of residents in September 2007
- Continue instruction for the first cohort of participants in the areas of analytic epidemiology, scientific communications, management, and prevention effectiveness

Pakistan Field Epidemiology and Laboratory Training Program

Program overview

Location (start date)

Islamabad (2006)

Resident advisor

Jawad Ashgar

Atlanta-based staff

- Rubina Imtiaz, medical epidemiologist
- Julia Ershova, informatics specialist
- Eric Gogstad, instructional designer
- Lisa Manley, public health advisor
- Henry Walke, medical epidemiologist

Pakistan-based staff

- Birjees Mazher Kazi, Chief, Public Health Laboratories, NIH and FELTP National Coordinator
- Mohammad Salman, technical officer FELTP

Partners

- Pakistan MOH
- Pakistan National Institute of Health (NIH)
- Health Services Academy (HSA), Islamabad
- Institute for Public Health, Lahore
- USAID Pakistan

Program description

In April 2005, the USAID Mission in Pakistan agreed to fund a 3-year proposal to establish an FELTP, a comprehensive approach to improve capacity in epidemiology, public health surveillance and response, public health laboratories, and information systems for surveillance.

The FELTP is implemented by CDC in collaboration with MOH/NIH, and other institutional partners. The FELTP works within the context of the National Plan of Action for Surveillance, focusing on identified priority diseases

and supports the MOH's National Strategic Framework on Disease Surveillance, 2005–2015.

The key activities for the FELTP are

- Training field epidemiologists to strengthen surveillance and response in Pakistan
- Developing a national laboratory network and improving laboratory quality and standards
- Helping the MOH to develop and adopt a legal framework on disease surveillance
- Defining the viral hepatitis burden of illness for Pakistan and developing a viral hepatitis control plan
- Piloting an electronic information system to support the public health surveillance needs of the MOH

DESCD role

DESCD provides support for the CDC resident advisor, program coordination across CDC partners, and development of the structure to support the program for the initial years. DESCD has been involved in the program planning, solicitation of funds, implementation of instruction, and evaluation of the activities.

Key achievements

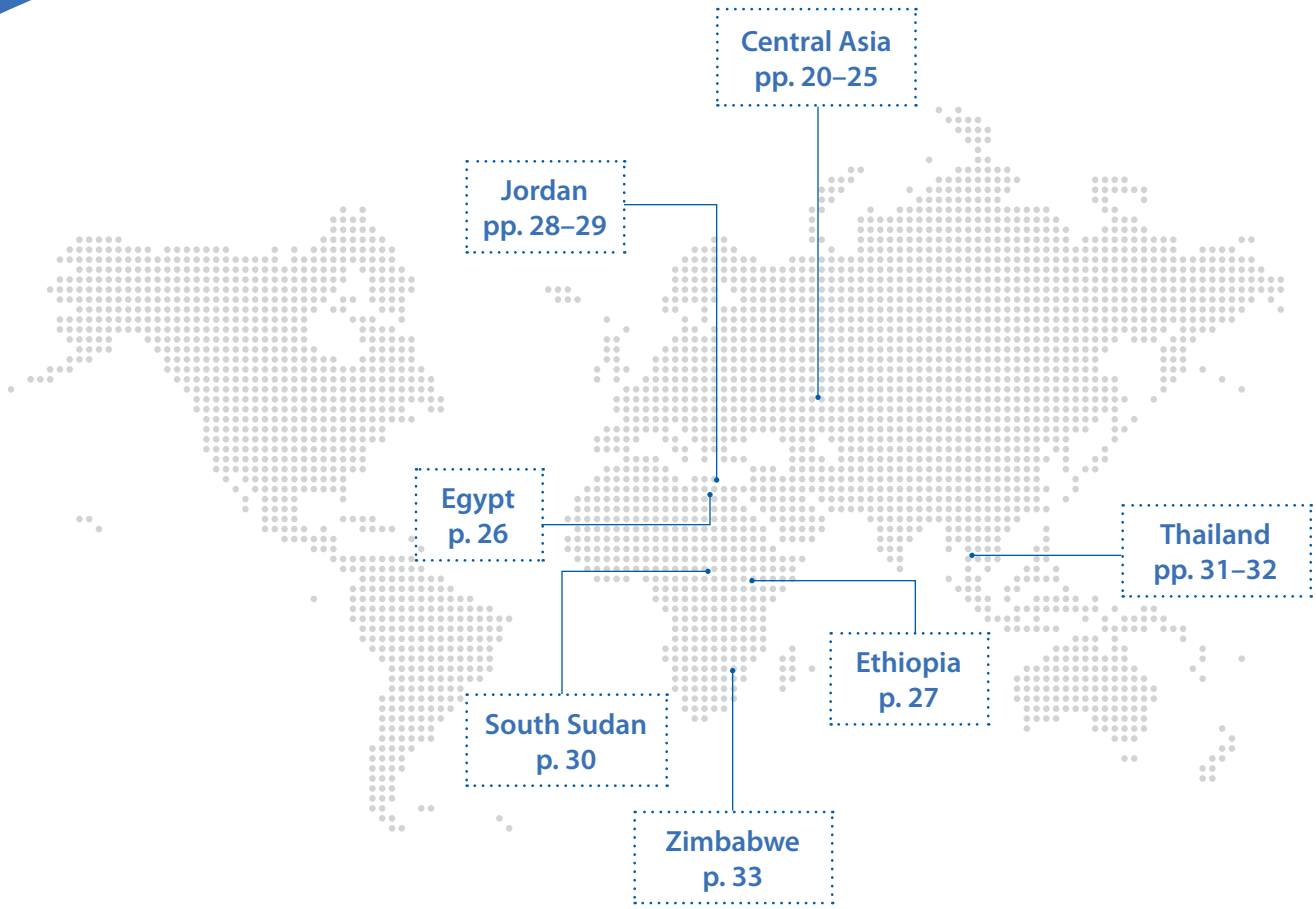
- Conducted official visits and negotiations with officials from NIH/MOH, USAID, and WHO on the establishment of the Pakistan FELTP
- Selected NIH as the host institute for the FELTP; an FELTP office was established at NIH
- Selected a resident advisor
- Identified a contractor for the informatics component of the FELTP
- Met with senior MOH staff to identify large districts and provincial health directorates as FELTP field sites
- Conducted meetings with staff from the Mayo and KEMC laboratory, Shaukat Khanum Memorial Cancer Center hospital, PIMS, and the Institute of Public Health to strengthen laboratory networks and enhance private sector disease reporting
- Initiated discussion with MOH on program accreditation and short courses for the FELTP
- Initiated assessment of the Viral Hepatitis Disease Burden in Pakistan with CDC and MOH
- Held an FELTP program development workshop in Islamabad to identify epidemiological workforce needs, tailor the standard curriculum, establish an accreditation process, and discuss career paths for graduates of the FELTP. There were participants from the national, provincial, and district levels of the MOHs, as well as representatives from academic institutions, non-governmental and multinational organizations.

Next steps or future plans

- Establish an FELTP steering committee led by the FELTP national coordinator
- Conduct a month-long course on disease surveillance and outbreak response with participants from the four provinces, capital territory, and federally administered tribal areas; eight participants will be selected for the 2-year FELTP
- Begin the introductory course for the FELTP in July 2007
- Support a WHO mission to review and assess Pakistan's existing legal codes for health
- Establish acute hepatitis surveillance with laboratory support at selected sentinel sites
- Train laboratorians at surveillance sentinel sites on laboratory quality systems✦

Dr. Jawad Ashgar, the Pakistan resident advisor

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
- Adelya Albertkova, laboratory specialist
- 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
- Victoria Zeman, laboratory specialist
- Baurzhan Zhussupov, sentinel surveillance project lead

Atlanta-based staff

- Ed Maes, epidemiologist
- Julia Ershova, software application specialist
- Keith Sabin, epidemiologist

Partners

- MOHs of Kazakhstan, Kyrgystan, Tajikistan, Turkmenistan, Uzbekistan
- Asian Development Bank
- 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

- HIV QA/QC laboratory training was provided to HIV laboratory staff (advanced for Kyrgyzstan and Uzbekistan); basic on-site training was provided for Tajikistan
- Basic QA/QC general laboratory training was provided to students
- Laboratory component of 2-day sentinel site (SS) general training for specialists of new SS sites was created and provided to Uzbekistan, Kyrgyzstan, and Tajikistan
- Technical assistance for maintenance and/or repair of ELISA equipment donated by CDC/USAID was provided to different HIV laboratories on oblast and district level on a regular basis (Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan, Turkmenistan)
- National proficiency testing: continued to provide technical support to HIV/AIDS centers of CAR countries to conduct external quality assessment/ proficiency testing on HIV and viral hepatitis annually (Kazakhstan, Kyrgyzstan, and Uzbekistan)
- Technical assistance was provided to laboratories of HIV and blood bank service to participate in an anti-HIV Model Performance Evaluation Program twice a year (19 laboratories) and anti-HIV dried blood sport proficiency program (8 laboratories) four times a year. All participated on a regular basis. The number of laboratories enrolled in anti-HIV DBS proficiency program was extended from 8 in 2005 to 24 in 2006.
- Technical assistance was provided to HIV reference laboratories and local Pharmacopeia received test

kits control (Uzbekistan, and Kyrgyzstan)

- Continued to provide technical assistance to MOH to affect policy changes regarding laboratory management and operations; roundtable meeting with leading laboratory managers and specialists was organized by CAR and CDC
- 12 laboratory specialists received certificates of achievement for completing training in applied laboratory offered by CAR in collaboration with the MOHs to implement quality assurance and quality control (QA/QC) principles into laboratory service network. All of them met these criteria of selection:
  - Completing QA/QC trainings (basic and advanced)
  - Implementing QA/QC principles into their laboratories
  - Disseminating acquired knowledge and skill among other specialists, making presentations on QA/QC issues on the regional or international conferences and/or publications
  - Succeeding in final written test (no less than 75% correct answers on 83 questions)

Next steps or future plans

- Create the curriculum of a 5-day laboratory training for students to introduce them to general methods of infection diseases laboratory diagnostics and QA/QC principles; conduct this training for cohorts 2 and 3
- Develop the plan of laboratory training for specialists of new HIV SS sites in Kazakhstan Uzbekistan, Kyrgyzstan, and Tajikistan according to the MOU with the World Bank for 2006–2007
- Conduct 2-day general training including laboratory component for specialists of new SS sites to introduce them to HIV SS in CAR countries
- Develop the criteria and make the selection of candidates who receive certificates of achievement from laboratory specialists of CAR for successful completing a course of trainings in applied laboratory. This course, which is offered by CAR in collaboration with the MOHs, is meant to implement QA/QC principles into laboratory service network✦

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

Partners

- MOHs of Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan, Turkmenistan
- UNICEF
- USAID
- WHO
- Project HOPE
- Pharmaciens Sans Frontières Comité International
- ADB

Program description

- Help the MOH of Kyrgyzstan to implement electronic database on infants' birth and death cases
- Prepare national programs for improvement in perinatal care for newborns (in cooperation with UNICEF and WHO)

DESCD role

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

Key achievements

- In March 2006, the Prime Minister of Kazakhstan issued a decree to transition to the WHO standard of live birth definition starting in 2008 effective throughout the country. The MOH was aided by USAID/CDC which provided technical support in preparation of the bill and transition plan to the WHO live birth standard.
- In August 2006, the Minister of Health of Uzbekistan signed a decree for implementing the WHO live birth and stillbirth standard within Uzbekistan. The MOH was aided by USAID/CDC which provided technical support in preparation of the bill and transition plan to the WHO live birth standard.
- In November 2006, the Minister of Health and Medical Industry of Turkmenistan signed a decree for implementing the WHO live birth and stillbirth standard starting in 2007 effective throughout the country. USAID/CDC and UNICEF aided the MOH and Medical Industry in preparation of the bill and transition to the new WHO standard.
- CDC and the Medical Information Center, MOH of Kyrgyzstan, established and approved an electronic personified database on infants' birth and death cases in the city of Bishkek.
- CDC and UNICEF conducted training for medical staff on the WHO live-birth standard in five regions of Uzbekistan, in the city of Ashgabat, five regions of Turkmenistan, and in one region of Kazakhstan. The BABIES matrix was used to train medical staff in Uzbekistan and the city of Bishkek.
- CAR, in cooperation with WHO experts, conducted the evaluation of implementation of the WHO live birth and still birth standard in Kyrgyzstan.

Next steps or future plans

- Help 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 a 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: 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
- Adelya Albetkova, laboratory specialist
- Cori Bickel, program manager
- Dilafkor Mirdjalilov, IT specialist
- Ludmila Mosina, epidemiologist
- Victoria Zeman, laboratory specialist
- Yenlik Zhheteyeva, epidemiologist

Atlanta-based staff

- Ed Maes, epidemiologist
- Kafayat Adeniyi, informatics
- Judy Berry, administrative support
- Joy Chang, microbiologist
- Julia Ershova, software application specialist
- Robert Fagan, computer systems analyst
- Howard Fields, laboratory team lead
- Eric Gogstad, instructional designer
- Eric Guenther, epidemiologist
- Andrew Hopkins, public health analyst
- Hiari Imara, public health advisor
- Kristy Kubota, laboratory specialist
- Joshua Mott, epidemiologist
- John Ridderhoff, chief laboratory system development branch
- Ying Su, public health advisor

Partners

- MOHs, Kazakhstan and Uzbekistan
- Ministries of Defense, Kazakhstan and Uzbekistan
- Ministries of Agriculture, Kazakhstan and Uzbekistan
- U.S. Department of Defense
- Bechtel

Project description

- Advise the 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

- System function evaluation training exercise of the TADR program was conducted in February in Tashkent, Uzbekistan
- Agreement accrediting epidemiology, clinical and laboratory training was signed in January between CDC/CAR and the Post Graduate Medical Institute in Uzbekistan making TADR training certificates equivalent to Post Graduate Education Certificates
- Agreement accrediting epidemiology, clinical, and laboratory training was signed in March between CDC/CAR and the Kazakh National Medical University in Kazakhstan making TADR training certificates equivalent to Post Graduate Education Certificates
- Completed epidemiology training for cohorts 1 and 2 and conducted first two modules for cohort 3 in Uzbekistan
- Conducted 10 clinical trainings in Kazakhstan for 230 clinicians
- Conducted 11 clinical trainings in Uzbekistan for 225 clinicians
- Completed laboratory training for cohort 1 in Uzbekistan
- Conducted research to detect hantavirus in samples

collected in Western Kazakhstan using PCR and anti-hantavirus antibodies using ELISA
- Conducted research to detect influenza A (H5) on samples taken from birds in Mangystau region, Kazakhstan
- Conducted research to detect B. Anthracis in sample collected in Western Kazakhstan by using PCR
- CDC/CAR's 2-year Applied Epidemiology Training Program (AETP) has been enhanced to include ED epidemiologists and EDP work-ups, as well as enrolled epidemiologists from the MOHs and the Ministries of Defense in Uzbekistan and Kazakhstan
- TADR was introduced to republican and regional level public health leaders during a roundtable held in Astana in June 2006. The concept of an Extremely Dangerous Pathogen (EDP) surveillance system operations (CONOPS) was discussed. A working group, including representatives from the MOH, Republican SES, Anti-plague Institute, two regional level SES and anti-plague stations, was established with the goal of revising the CONOPS. Working group members defined the locations of eight Epidemiology Monitoring Stations (EMS) and SS locations. A CONOPS document was signed by all working group members and a final document was submitted to the MOH for consideration and approval.
- CDC/CAR epidemiologists and clinicians worked with the MOHs in Kazakhstan and Uzbekistan to develop consensus on case definitions and institutionalized these via an official MOH decree, or prikazi.
- Nurses are being trained in proper sample collection using new specimen collection kits. The 5-day training is based on standard case definitions for EDPs and includes materials on clinical presentation, as well as diagnosis and treatment of eight EDPs under TADR. The first 4 days are dedicated to classroom lectures, case studies and exercises, and the 5th day is practical work at a nearby infectious disease hospital where trainees can observe patients. Trainees have an opportunity to discuss clinical features and possible diagnoses, and prescribe necessary diagnostic procedures and treatment.
- TADR specialists reviewed existing prikazi, concentrating on rules and regulations pertaining to case definitions, flow of information/specimens, legal authority, laboratory standard operating procedures, acceptable diagnostic techniques, management and supervisory protocols
- Specialists are working with an MOH working group to establish a prikaz for information flow, data management, reporting, and supervision for the first TADR Epidemiological Monitoring Module in Tashkent.

Next steps or future plans

- Finish TADR epidemiology training for cohort 3 in Uzbekistan
- Start TADR laboratory and epidemiology trainings for cohort 1 in Kazakhstan
- Continue trainings for laboratory specialists and clinicians in Uzbekistan✦

CAR: Tuberculosis Surveillance and Laboratory Quality Improvement Program overview

Program overview

Start date

1997

Central Asia staff

- Michael Favorov, CDC CAR director
- Maureen Sinclair, CDC CAR deputy director
- Evgeny Belilovskiy, epidemiologist and database management specialist
- Natasha Kim, tuberculosis (TB) laboratory specialist
- Marina Pak, TB laboratory specialist
- Whitney Warren, management coordinator

Atlanta-based staff

- Peter Cegielski, medical epidemiologist
- Julia Ershova, software application specialist
- Ed Maes, epidemiologist
- John Ridderhoff, chief laboratory system development branch

Partners

- MOHs, Kazakhstan, Kyrgystan, Tajikistan, Turkmenistan, and Uzbekistan
- The Global Fund to Fight AIDS, TB and Malaria
- Damien Foundation, Belgium (DFB)
- Regional Delegation of the International Committee of the Red Cross for Central Asia
- Project HOPE
- USAID
- WHO

Program description

- Strengthen surveillance for 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 the implementation of DOTS

DESCD role

DESCD helps coordinate, review, plan, and develop training material, and administrative support.

Key achievements

The 2006 achievements were based on successes built in the previous years by expanding activities and deepening cooperation with local and international partners. CDC/CAR has facilitated

- TB Data Analysis Conferences, Uzbekistan (73 participants), Kyrgyzstan (52 participants)
- TB ESCM and TB Recording and Reporting Forms training courses, Uzbekistan
- TB Laboratory QA/QC advanced training courses, Kyrgyzstan

CDC/CAR has established collaboration with the ICRC and DFB and provided advisory support to

- Train laboratory staff and implement the TB smear microscopy quality assurance program in the ICRC-supported TVB control pilot project in penitentiary institutions of Kyrgyzstan
- Train laboratory staff and implement TB smear microscopy quality assurance program in the DFB supported pilot sites, Bukhara, Surkhandarya, and Kashkadarya oblasts of Uzbekistan

Next steps or future plans

- Expand electronic surveillance activities throughout the Central Asia region, 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, including strengthening surveillance of bacteriological confirmed TB cases, especially drug resistant forms of TB, by improving information management in TB bacteriological laboratories.✦

Egypt: Country Support

Program overview

Start date

1993

Atlanta-based staff

- Bassam Jarrar, public health advisor and team lead
- Tippavan Nagachinta, medical epidemiologist
- Denise Traicoff, instructional designer

Egypt-based staff

- Abdel-Nasser Ahmed Mohammad, executive director, ESU
- Eman Abdelkreem Hassan, FETP coordinator

Partners

- MOH and Population, Egypt
- 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 a training program. Most of the graduates (51) remain in Egypt helping meet the country's public health needs.

In May 2000, the program's success led to the formation of the Epidemiology and Surveillance Unit (ESU), responsible for disease surveillance, outbreak investigation and response, training, non-communicable disease surveillance, the Nile Cruise Boat Inspection, and the development of the National Egyptian Disease Surveillance System (NEDSS). In 2004, the Egyptian Board of Applied Epidemiology was established to provide training to physicians interested in a public health career.

DESCD role

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

Key achievements

DESCD assisted the Egypt FETP with

- Training workshop to the FETP 2nd year trainees
- Screening enrollment of the FETP 1st year trainees

- Two manuscripts for the ESU:
  - Lead toxicity associated with the consumption of flour contaminated during the milling process, Aswan Governorate, 1996
  - Risk factors for acute Rift Valley fever virus infection during an outbreak in a rural village in Aswan, 1993
- The following long-term epidemiologic studies for the 2nd year trainees:
  - In-patient satisfaction in hospital services in selected governorates
  - Assessment of the knowledge of breast-feeding among nurses in primary healthcare units
  - Measles vaccination coverage in selected governorates
  - Prevalence of high blood lead level in preparatory school children in three governorates
- 13 scientific abstracts and 2 presentations at the International TEPHINET Conference in Brazil for the FETP trainees and trainers

Next steps or future plans

- Build on the strength of Egypt and other regional FETPs to meet applied epidemiology training needs in the region
- DESCD will provide a resident advisor to assist the FETP in Egypt and in the region✦

Ethiopia: Leadership in Strategic Information Training Program

Program overview

Start date

2004

Atlanta-based staff

- Peter Nsubuga, medical epidemiologist and team lead
- Jennifer Scharff, program analyst
- Nadine Sunderland, instructional designer
- Andrew Weathers, public health advisor

Ethiopia-based staff

- Aynalem Haile-Michael, Ethiopia Public Health Association (EPHA), Leadership in Strategic Information (LSI) Program Coordinator
- Shabbir Ismael, Global AIDS Program (GAP) country director
- Ashenafi Negash, EPHA executive director

Partners

- Addis Ababa University, Department of Community Health
- Ethiopia MOH
- Ethiopia EPHA
- GAP Ethiopia

Program description

The program was created to develop and implement an Innovative Human Capacity Development proposal (the President's Emergency Plan for AIDS Relief, 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. Four participants each from seven regions were chosen for the first cohort of the LSI training program, which was designed as an in-service training for regional health workers. It emphasizes using data to design appropriate interventions in the field of HIV/AIDS.

Participants came from Addis Ababa, Amhara, Dire Dawa, Harar, Oromiya, SNNPR, and Tigray and consisted of the regional HIV/AIDS coordinator, the HIV/AIDS planning and control officer, the regional disease prevention and control head, and the regional laboratory coordinator.

Module 1, HIV/AIDS Interventions occurred in November 2006. Trainees returned to their posts following the week-long session to conduct a situation analysis in their region.

DESCD role

- 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 Ethiopia FETP

Key achievements

- Hired an LSI program coordinator
- Developed timeline for LSI training
- Developed LSI training curriculum
- Developed Module 1 sessions
- Received approval of LSI program by MOH
- Sensitized AAU for inclusion of program in DCH
- Selected regions and participants
- Sensitized RHB for identification of need for participation
- Selected mentors for aid in field work
- Completed Module 1

Next steps or future plans

- Complete first cohort of LSI training program, followed by formative and summative evaluation
- Plan for the second LSI cohort
- Achieve accreditation of LSI program
- Move forward with FELTP planning and implementation✦

Jordan: Behavioral Risk Factor Surveillance System

Program overview

Start date

2002

Resident advisor

Russell Gerber, medical epidemiologist

Atlanta-based staff

- Bassam Jarrar, public health advisor and team lead
- Henry Walke, medical epidemiologist

Jordan-based staff

Moyasser Al-Zendah, non-communicable disease coordinator

Partners

- MOH
- CDC's National Center for Chronic Disease Prevention and Health Promotion, Behavioral Surveillance Branch
- USAID

A field investigator conducting a survey in rural Jordan

Program description

In 2002 and 2004, the MOH conducted behavioral risk factor surveys 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

- BRFSS is a line item in the MOH budget
- The 2007 BRFSS is planned for the summer of 2007

Next steps or future plans

Finalize plans for the 2007 BRFSS✦

Jordan: Mortality Surveillance System

Program overview

Start date

2001

Resident advisor

Russell Gerber, medical epidemiologist

Atlanta-based staff

- Bassam Jarrar, public health advisor and team lead
- Henry Walke, medical epidemiologist

Jordan-based staff

- Majed Asad, head of mortality and morbidity, MOH
- Faris Dababneh, director of information and research, MOH

Partners

- MOH
- CDC's National Center for Health Statistics
- USAID

Jordan FETP residents examining survey results

Program description

The program aims to improve 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 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 achievement

Finalized analysis of 2004 mortality data. Ischaemic heart disease, malignant neoplasms, and cerebrovascular diseases were the three leading causes of death in the total population.

For infant deaths, congenital malformations, newborn respiratory distress, and bacterial sepsis were the leading causes of death.

Next steps or future plans

Expand the mortality coding and analysis unit at the MOH✦

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

South Sudan-based staff

Okello Charles Ignatius, program/administrative assistant

Partners

- South Sudan MOH
- USAID

Project description

The FELTP training for Southern Sudanese residents is now implemented under two directorates: the Directorate of Preventive (the technical arm) and the Directorate of Human Resources and Capacity Development (the personnel arm). Residents are trained through the Kenya FELTP.

The residents now undergoing the training have boosted the capacity of the MOH. The MOH, which is understaffed, has been able to respond to many issues relating to outbreaks and disease surveillance. With the residents, the FELTP is working closely with other partners including the WHO, the Carter Center, and others.

DESCD role

DESCD contributed through direct participation in training and by providing a consultant for IDSR in October.

Key achievements

- The resident advisor assisted the MOH in the meningitis outbreak in Akon and Gongrial in Warrap State
- The residents evaluated three communicable diseases surveillance systems (guinea worm, EWARN, polio) and the UNICEF morbidity reporting system. The findings were used in discussions in adapting the IDSR system for disease surveillance in South Sudan.
- One resident, who is the MOH director general for external relations and coordination, helped prepare the MOH's 200-day budget
- Residents participated in the response to a cholera outbreak in Bor, Jonglei State
- A resident led efforts to develop the MOH website
- A workshop took place in Juba on outbreak investigation and response for the Rapid Response team, State MOH, Central Equatorial State
- Residents, accompanied by a graduate of the Kenya FELTP, conducted a hepatitis E outbreak investigation in Wau, Western Bahr El Gazal State
- Residents were fully involved and participated in the Avian Influenza outbreak survey and planning meetings in Juba
- Residents, the MOH, and WHO set up an Avian Influenza Rapid Response team at the Juba Teaching Hospital. The resident were involved as facilitators in training. They also helped assess and implement an Avian Influenza preparedness plan for the MOH
- Residents were part of the IDSR review and plan of action workshop
- Residents conducted the Helmet Use by Cyclists in Juba Town Study

Next steps or future plans

- Revise and conduct short-term surveillance and outbreak detection training for state and county disease surveillance officers
- Identify a national counterpart in the MOH
- Provide technical assistance to the MOH in adapting the IDSR approach for disease surveillance in South Sudan✦

Thailand: Technical Support

Program overview

Start date

1980

Atlanta-based staff

- Tippavan Nagachinta, medical epidemiologist and team lead
- Hoang Dang, public health advisor

Thailand-based staff

Michael O'Reilly, technical advisor (2006)

Program description

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

The FETP is a fully-functional program within the MOPH and has accreditation from the Thai Medical Council, making graduates eligible for Board Certification in Preventive Medicine.

In 1998, the program was designated a WHO Collaborating Center for Field Epidemiology Training and Research and expanded its mission to the region by accepting trainees from Vietnam, Laos, Cambodia, Malaysia, Myanmar, and Southern China.

The FETP is an important regional partner in disease surveillance and investigation. As such, it plays a major role in contributing to the vision, mission, and strategic objectives of the Global Disease Detection (GDD) Program set by CDC as it works to strengthen the capacity of Thailand as well as Southeast Asia in the areas of epidemiology, laboratory management, outbreak response, disease monitoring, and communications.

The FETP has performed numerous outbreak investigations and dealt with a multitude of high-priority public health issues. For example, the program was a key player in the MOPH response to the 2003 SARS outbreak. Graduates have also played key roles in Thailand's response to AIDS, which has led to the prevention of an estimated 4.7 million deaths. The FETP has led the initiation of new surveillance strategies to rapidly detect emerging diseases and other health threats by setting up and training Surveillance and Rapid Response Teams (SRRT) throughout the country.

At present, 1,030 teams have been established nationwide. More recently, FETP trainees and graduates have detected several new Avian Influenza cases nationwide through the review of clinical signs and symptoms, which were subsequently confirmed by the Thai NIH and other reference laboratories. Both the director and one of the senior scientists of the Thai NIH are graduates of the FETP.

In response to the MOPH request for CDC's technical assistance to enhance the quality of the program's field training and strengthen its international mentoring component, DESCD posted a technical advisor to Thailand in March 2006.

To date, the FETP has graduated 137 field epidemiologists (118 domestic and 19 international). The majority have returned to the MOH to serve in key public health positions.

DESCD role

- Provide a full-time technical advisor to the MOPH
- Provide technical assistance to the FETP to enhance the quality of the epidemiology training
- Provide guidance in the expansion of the training program to meet the field epidemiology mentoring and supervision needs in Thailand and neighboring countries
- Provide assistance to the FETP in developing scientific publications
- Provide assistance to the FETP with cross-border outbreak investigations

Key achievements

- Six FETP graduates participated in the Training-of-Trainer that was held in conjunction with the Regional TEPHINET Conference in Chennai, India in January. The purpose of this training was to provide MOH personnel with training responsibilities, the skills necessary to conduct or modify infectious disease training, including Avian Influenza, for their country-specific needs and situation
- FETP staff, trainees, and graduates, participated in the International Avian Influenza training workshop in July to train over 100 rapid response trainers for neighboring countries (including

Laos, Cambodia, Vietnam, and Indonesia) as well as participants from South America and Africa, with the purpose of establishing national cadres of global trainers for Avian Influenza rapid response teams

- DESCD and the FETP developed and hosted the FETP Avian Influenza course in epidemiologic investigation and response to Avian Influenza for more than 54 regional MOPH and FETP staff in Bangkok in August
- FETP provided technical support to the implementation of training for more than 1,000 Provincial and District level Rapid Response Teams (SRRT). The teams have been in operation since 2005. Response training at the provincial and national level includes ongoing tabletop exercises developed in conjunction with CDC. Trainings were conducted in March, July, October, and December.
- DESCD technical advisor assisted FETP trainees with developing abstracts and presentations for scientific conferences: 16 at the 3rd Southeast Asia and Western Pacific Bi-Regional TEPHINET Scientific Conference held in India; 4 at the 11th EPIET Scientific Seminar held in Spain; 14 at the 4th TEPHINET Global Scientific Conference held in Brazil; and 5 at National Seminar on Disease Prevention and Control held in Thailand
- DESCD technical advisor provided technical assistance to the MOPH in the investigation of one of the largest reported outbreaks of botulism in Thailand
- DESCD staff and technical advisor assisted the 2nd year FETP trainees during their CDC visit in April to work with mentors to complete the final research project. Eleven trainees participated in the EIS conference. Two DESCD staff served as mentor for the trainees.
- DESCD technical advisor assisted FETP with more than 20 diseases outbreak investigations

Next-steps or future plans

- Continue providing technical assistance to outbreak investigations and applied public health projects
- Continue enhancing the quality of the epidemiology training
- Provide technical support to the Bureau of Epidemiology (BOE) and CDC/Thailand International Emerging Infectious Program in developing the curriculum for Surveillance and Rapid Response Team training courses
- Provide technical assistance to the BOE with the development of field epidemiology spatiotemporal analysis
- Provide technical support to enhance epidemiologic communication network in the region in support of GDD activities✦

Residents conducting an Avian Influenza outbreak investigation in Thailand

Zimbabwe: Technical Assistance to Public Health Schools Without Walls

Program overview

Start date

2001

Atlanta-based staff

- Peter Nsubuga, medical epidemiologist and team lead
- Donna Jones, medical epidemiologist
- Nadine Sunderland, instructional designer

Zimbabwe-based staff

Mufuta Tshimanga, resident advisor (since 1996)

Partners

- University of Zimbabwe Faculty of Medicine, Department of Community Medicine
- Global AIDS Program, Zimbabwe
- Ministry of Health and Child Welfare (MOHCW), Zimbabwe

Program description

The MPH Program started in 1994 with a CDC-trained resident advisor and has been directed by a program graduate since 1996, Dr. Mufuta Tshimanga.

It is a collaboration between the MOHCW 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 now 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 mentoring and support of Zimbabwe student field activities
- Assisted in epidemiology teaching
- Created and provided epidemiology course resource CD
- Continued support of EpiTrack for monitoring program/student progress
- Provided final version of Advanced Data Management and Analysis Training using Zimbabwe study
- Supported HIV/AIDS course and development of resource CD

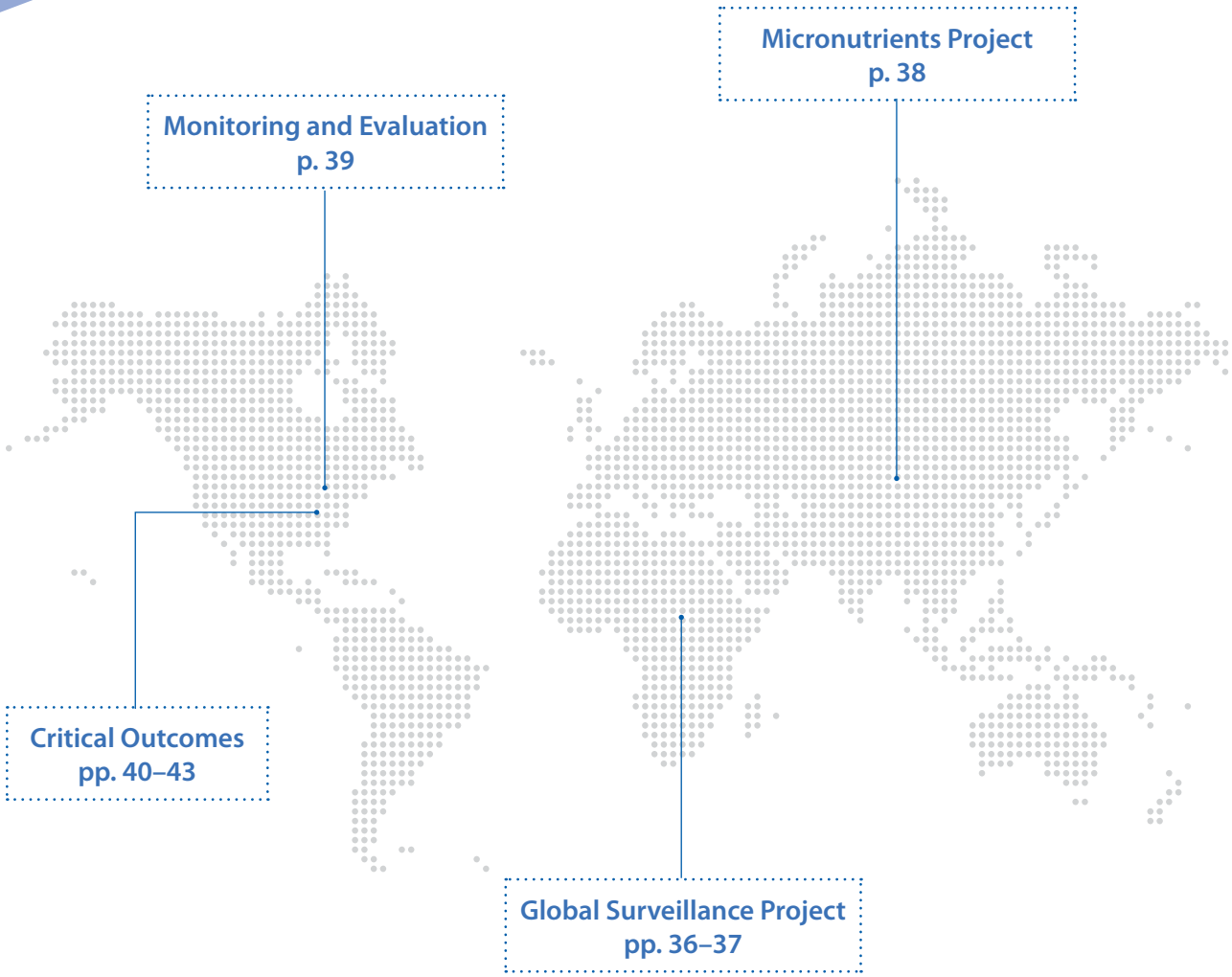
Next steps or future plans

- Continue same level of support as long as financial resources allow
- Support involvement of Zimbabwe PHSWOW in the AFENET cooperative agreement✦

Zimbabwe FETP residents in the classroom

Section 3

Cross-Cutting Projects



Global Surveillance Project

Project overview

Start date

2002

Atlanta-based staff

- Peter Nsubuga, medical epidemiologist
- Wayne Brown, public health advisor
- Juliette Mannie, program analyst
- Andrew Weathers, public health advisor

Partners

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

Project description

The Global Surveillance Project (GSP) is DESCD's mechanism for implementing the Integrated Disease Surveillance and Response (IDSR) strategy, adopted by AFRO in 1998.

The objective of this strategy, supported by CDC, USAID, and WHO is to strengthen disease surveillance and outbreak response in Africa.

The GSP is an action team begun in 2002 to be the focal point in DESCD for supporting the implementation of IDSR in the four African countries (Ghana, Tanzania, Uganda, and Zimbabwe) targeted by an USAID-CDC Inter Agency Agreement.

Key goals were 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 Public Health Schools Without Walls 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 the MOH's 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 and prioritizing 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

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

Key achievements

- Establishment of a Cooperative Agreement with the Africa Field Epidemiology Network (AFENET) to support the ongoing strengthening of capacity for disease surveillance and outbreak investigation systems and manpower of member countries. Now the majority of assistance as described above is provided to member countries through AFENET

- Supervisory visits by CDC/GSP staff to review the activities and accomplishments of CDC-supported staff
- Continuity of MOH and CDC-supported staff in assisting in
  - Field epidemiology training (including design and conduct of epidemiologic investigations)
  - Surveillance system strengthening (including the preparation and distribution of surveillance feedback reports)
  - Integration of laboratory services into surveillance at all levels
- Ongoing provision by MOHs of field training sites and mentors for FETP/MPH trainees
- Planning of the TEPHINET conference held in Brasilia, Brazil in November 2006
- Continued support for the Uganda laboratorian enrolled in the Kenya regional FELTP for additional training. Since the laboratorian graduated, he has had a lead role in further developing the national laboratory, including its role in surveillance and outbreak investigation and in the development of other laboratorians at the regional and district levels
- Supporting the development of FELTPs in more African countries (Ethiopia, Kenya, South Africa, and Tanzania) that then provide the manpower needed by their MOH/IDSR programs

Next steps or future plans

- Support the AFENET secretariat to carry out its mission
- Strengthen and maintain surveillance and response capacity among AFENET member countries via the AFENET secretariat
- Develop FELTPs in additional countries and support their joining AFENET
- Support the CDC IDSR team strategy.
- Implement other activities to strengthen surveillance and response✦

Micronutrients Project

Project overview

Start date
2001

Atlanta-based staff
- Peter Nsubuga, medical epidemiologist
- Suzanne Elbon, instructional designer

Partners
- National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition and Physical Activity (NCCDPHP/DNPA) IMMPaCt Program (International Micronutrient Malnutrition Prevention and Control Program)
- TEPHINET

Project description

DESCD partnered with NCCDPHP/DNPA from 2000 to 2006 to reduce the prevalence of micronutrient malnutrition (MM) in developing countries. Projects have focused on training and capacity building of health professionals involved in MM programs.

Afghan-American CDC expert discussing salt iodization with salt wholesalers in Kabul, Afghanistan

A primary focus of the collaboration was to enhance the ability of health professionals to report and document research findings related to MM problems according to standardized guidelines through the continued support of research projects. The goal was accomplished through a small research grants program. The grants were applied for competitively after a call for proposals and disbursed in amounts of $3000–$6000.

DESCD role

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

Key achievements

- An MM small grant recipient made a presentation at the 2006 EIS conference.
- The small grants program and the Nutrition Survey Toolkit both serve to
  - Build capacity of public health professionals to respond to the global epidemic of MM deficiencies
  - Build capacity of public health professionals to appropriately monitor existing surveillance systems
  - Build capacity of public health professionals to document scientific, data-supported information that can be used in health planning, policy development, and other public health program improvements

Next steps or future plans

- Complete the Nutrition Survey Toolkit (anticipated for the Fall of 2007)
- Maintain and support student efforts as they complete grant award projects and draft manuscripts
- Draft a manuscript describing the small grants project and submit for publication✦

Monitoring and Evaluation

Program overview

Start date

2004

Atlanta-based staff

- Donna Jones, medical epidemiologist and team lead
- Suzanne Elbon, instructional designer, database developer lead
- Wayne Brown, public health advisor
- Hoang Dang, public health advisor
- Robert Fontaine, medical epidemiologist
- Eric Gogstad, instructional designer
- Ed Maes, associate director for science
- Peter Nsubuga, medical epidemiologist
- Henry Walke, medical epidemiologist
- Andrew Weathers, public health advisor

Partners

Division members and partner training programs

Program description

DESCD recognizes that monitoring and evaluation (M&E) of FELTPs are essential practices. To ensure that FELTPs are effective in developing needed capacities and become sustained by their host countries, a system for periodic M&E of outputs and outcomes is critical.

The goal of this activity is to develop an effective system for M&E of FELTPs 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 M&E of FELTPs.

DESCD role

DESCD has assumed the lead role.

Key achievements

- Expanded use of critical outcomes and developed examples from programs to indicate program impact
- Pilot tested and revised programmatic indicators which are now ready for implementation
- Revised and improved database for program tracking so that all programmatic indicators are included. Presented it to TEPHINET and shared database with several countries. Continued implementation in Brazil, Central America, Kenya, and Zimbabwe.
- Initiated a process of establishing a uniform monitoring system, to be managed by the African Field Epidemiology Network (AFENET), in the African countries having or starting new FELTPs.

Next steps or future plans

- Plan to implement data collection for all programmatic indicators from designated FETPs.
- Implement revised data tracking system for indicator reporting
- Revise program as needed based on implementation feedback
- Develop country-specific plans for tracking critical outcomes✦

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. This report provides examples of activities in 2006 that indicate progress in achieving the critical outcomes as well as examples of the FETP programmatic indicators that support these outcomes.

Robust surveillance system is established and used effectively

In Sudan, through their evaluation of existing surveillance systems, the FELTP residents provided information to support Integrated Disease Surveillance and Response (IDSR) as a suitable surveillance system for Southern Sudan. The residents were also fully involved in developing the first year (2007) IDSR implementation work plan.

The first issue of the Kenya Epidemiological Bulletin was released March 31, 2006. This is a quarterly bulletin produced by Kenya MOH in collaboration with FELTP, International Emerging Infections Program (IEIP), and WHO. It provides timely feedback on surveillance of communicable and non-communicable diseases, reports results of work done by FELTP residents, and showcases innovative public health work. Almost all the articles in the bulletin were written by FELTP residents. MOH has started distributing the 3,000 copies produced and the information is posted on the MOH website.

Trainees in the Chinese FETP posted at both the national and provincial levels routinely identify disease outbreaks through continuous review of the real-time surveillance system for 37 communicable diseases and for outbreaks of any disease or condition. Utilization of this innovative surveillance system is a regular part of their duties.

In Brazil, injuries are the third most important cause of death. Although the official information systems allow monitoring the magnitude of deaths and public hospital admissions due to external causes, data from injuries victims treated at emergency departments (ED) are not available. To address this problem, the Brazilian Ministry of Health established, in 2006, the ED Injury Surveillance System. The ED Injury Surveillance System allows collecting data in a timely way which is essential for planning and implementing preventive measures.

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

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

A **Kenyan FELTP** resident participated in an outbreak investigation of bacterial meningitis in the West Pokot District of Kenya near the Ugandan border. Dispatched in late January, the resident along with a team from the Disease Outbreak Management Unit (DOMU) described the nature and magnitude of the outbreak. This defined the area impacted and affected population resulting in a recommendation for vaccination in a portion of the district. WHO provided vaccine for the recommended population in March and the outbreak ended within a month.

By applying thresholds to data received continuously through the Internet-based surveillance system in China, **Chinese FETP** trainees identified a dispersed outbreak of paratyphoid fever in a large city in southern China. The local health department had not noticed this outbreak because affected persons did not know each other, work together, or have other obvious linkages. Three trainees and one field supervisor carried out an investigation which identified undercooked shellfish

sold through restaurants. These shellfish had been routinely harvested from a polluted beach. With this information of the city health authorities closed this and other potentially polluted beaches around the city to harvesting shellfish.

In September, cases of methanol intoxication were reported in Poneloya, León. A **Central American FETP** trainee from Nicaragua led the case series investigation and traceback activities. The outbreak was caused by the ingestion of liquor adulterated with methanol from a large container that had been imported into the country. The community was alerted and there was a massive confiscation of the implicated liquor which prevented additional cases. There was exchange of bottled alcohol for the adulterated liquor and a law was passed prohibiting the distribution of unbottled alcohol.

The resident advisor for the **India FETP** supervised the investigation of a workplace rubella outbreak in Ayuttyah including 82 known confirmed or probable cases among 7,000 employees. Among the employees were 160 women known to be pregnant. Response included mass vaccination and setting up surveillance for Congenital Rubella Syndrome.

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

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

Another graduate from the **India FETP** was appointed as the "nodal" officer (similar to a state epidemiologist) in the World Bank supported Integrated Disease Surveillance Program (IDSP) in Andhra Pradesh State. (A previous graduate was placed in this position for Madhya Pradesh State). These program linkages will allow these coveted state-level positions to be filled with FETP graduates who are competent to interpret state-wide surveillance data into policy and interventions, and to direct outbreak response.

The **Chinese FETP** has begun borrowing program graduates from their respective provinces on one-month TDYs to teach and mentor new trainees in China CDC. This initiative is one strategy for developing China FETP graduates as mentors. The CFETP has hired two graduates and a 3rd epidemiologist as regular staff. The program will continue to recruit other graduates on temporary details from the provinces.

The **Kenya Ministry of Health**, with input from FELTP, has placed the first graduates of the FELTP program in strategic positions in the MOH set up: two applied epidemiology graduates posted to the Rift Valley province and Eastern province as provincial epidemiologists; two epidemiology graduates support the Disease Outbreak Management Unit and the Malaria control program at the MOH headquarters; and the three laboratory management residents support work at the National Public Health Laboratories.

Two FETP graduates were recently named to leadership positions as part of the **Guatemalan MOH** reorganization: Dr. Moises Mayen (1st FETP cohort) named Chief of the Department of Epidemiology Development (including FETP/EEA programs); and Dr. Carlos Flores (1st FETP cohort) named Chief of the Department of Surveillance. Additionally, Dr. Betty Gordillo (3rd cohort trainee) was assigned to the emergency response staff. These new assignments and the high-level positioning of the FETP within the MOH infrastructure increase the visibility of the program and its long-term sustainability. Dr. Angel Vasquez, currently an FETP trainee from the 4th cohort in **Honduras**, was recently appointed director general of health surveillance by the Honduran Minister of Health.

FETP Programmatic indicators that support this outcome

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

Public health program decisions are based on scientific data

Scientific data is being used in **China, India** and **Central Asia** for public health program improvements. In the spring of 2006 CFETP trainees through examination of incoming surveillance data identified an outbreak of measles in one province. High incidence rates were noted in children under three and several doctors and nurses were among the cases. A field investigation revealed that vaccine coverage was above 97% and effectiveness for a single dose was 85%. Nearly 70% of measles exposure was occurring in hospitals suggesting that nosocomial transmission was sustaining measles transmission in this highly vaccinated population. On the basis of this investigation the province immediately instituted control measures in the implicated hospitals.

In **India**, the work of one FETP scholar on malaria program evaluation in Andhra Pradesh will be used to develop terms of reference for WHO's national malaria program evaluation, with the involvement of the FETP in the review process.

CDC/CAR played an influential part in the **Uzbekistan MOH** approving a decree regarding changes in procedures of birth and death medical registration. All medical institutions in Uzbekistan are applying birth registration according to a combined set of criteria from the Soviet definition of a live birth and the WHO live birth criteria. The adoption of the WHO standard definition should lead to better evidence-based decision making for development and implementation of strategies to achieve real reduction in the overall infant mortality rate.

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.✦

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 and Conferences pp. 46–53

Country Programs Publications and Conferences pp. 53–55

FETPs

Publications

Brazil FETP

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Central Asia Regional Program FETP

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India FETP

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Jordan FETP

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Conferences

Brazil FETP presentations

11th National Congress of Brazilian Public Health Association/ABRASCO and World Federation of Public Health Associations Meeting, Rio de Janeiro, Jan 2006

- Epidemiology of malaria in Manaus Municipality, Amazonas, Brazil, 2003
- Outbreak of toxoplasmosis associated with consumption of uncooked pork, Santa Vitória do Palmar, Rio Grande do Sul State, May–June 2005
- Evaluation of the surveillance system for leptospirosis, Brazil, 2004
- Air pollution and respiratory disease in Rio Branco, Acre State, Brazil, September 2005
- Investigation of an outbreak of plasmodium vivax malaria in a municipality of a non-endemic area of northeastern Brazil
- Evaluation of the malaria surveillance system in Amapa State, 2003
- Evaluation of surveillance system for hemorrhagic dengue fever, Brazil, 2002—2004
- Respiratory disease related to atmospheric pollution due to forest fires, Rio Branco, Acre State, September 2005
- Outbreak of acute diarrhea associated with group A rotavirus in a daycare center, Brasilia, 2005
- Characterization of accidents involving animals responsible for rabies transmission, Piaui State, 2002
- Evaluation of the congenital rubella surveillance system, Brazil, 2000–2004

12th International Congress on Infectious Diseases, Lisbon, Portugal, Jul 2006

- Exposures to vampire bats (desmodus rotundus) in a rural population following an outbreak of rabies-related deaths; Maranhão State, Brazil, 2005
- Evaluation of leprosy surveillance system in Para State, Brazil, 2000–2005
- Group A rotavirus gastroenteritis among children attending a daycare center and asymptomatic astrovirus infection in employees; Brasilia, 2005
- Acute toxoplasmosis associated with consumption of uncooked pork–Rio Grande do Sul State, Brazil, 2005

4th TEPHINET Global Scientific Conference, Brasilia, Brazil, Nov 2006

- Adherence to antimalarial combined therapy during a malaria outbreak; Acre State, Brazil, 2005
- Estimated vaccination coverage in children under 5 years old in urban area of Sobradinho, Federal District, Brazil, 2006
- Timeliness of vaccination in children under 5 years old in urban area of Sobradinho, Distrito Federal, Brazil, 2006
- Outbreak of acute conjunctivitis and ocular granulomas and identification of adiamycospirosis, Araguatins, Tocantins State, Brazil, 2005–2006
- Reported adverse events of rotavirus vaccine following routine childhood rotavirus vaccination, Brazil, 2006

A presenter at the TEPHINET conference in Brasilia, Brazil, November 2006

- Beriberi outbreak–Maranhao State, Brazil, June 2006
- Outbreak of acute diarrhea with rotavirus detection, Paraíso do Tocantins–Brazil, 2006
- Evaluation of the pertussis surveillance system in Brazil, 2001–2004
- Evaluation of national surveillance of acute flaccid paralysis–Brazil, 2002–2004
- Appropriate vaccination scheme in children under 5 years old in urban area of Sobradinho, Distrito Federal–Brazil, 2006
- Insecticide-related toxicity among workers in the MOH Building, Brasilia, Brazil, 2006
- Atmospheric pollution associated with emergency room visits for respiratory illness in Rio Branco Municipality, Acre State–Brazil, 2005
- Outbreak of acute diarrhea with identification of rotavirus, Teresina, Piauí, Brazil, 2006
- Outbreak of acute toxoplasmosis associated with consumption of uncooked pork, Rio Grande do Sul State, Brazil, 2005
- Evaluation of leprosy surveillance system in Pará State, Brazil, 2000–2004
- Rotavirus-associated gastroenteritis among children in a daycare center–Central Brazil, 2005
- Summary of reported foodborne disease outbreaks in Brazil, 1999–2005
- Outbreak of Brazilian spotted fever group rickettsiosis, Rio de Janeiro, 2005
- Rickettsiosis prevalence in a mountainous area in Rio de Janeiro State, Brazil, 2005
- Evaluation of dengue surveillance system in Brazil, January–June 2005
- Outbreak of acute toxoplasmosis, Anápolis, Goiás State, Brazil, 2006
- Exposure to vampire bats (desmodus rotundus) in a rural population following an outbreak of rabies-related deaths–Maranhão State, Brazil, 2005
- Acute diarrhea outbreak with enterotoxigenic escherichia coli detection in an isolated community of Pará-Nut Pickers, Brazil, 2006
- Evaluation of the national tuberculosis surveillance system, Brazil, 2000–2004
- Outbreak of diarrhea in the kulina indigenous population–Ipixuna, Amazonas State, Brazil, September 2005
- Rotavirus epidemic and results of a case-control study of risk factors for death in young children–Rio Branco, Acre State, Brazil, 2005

Central America FETP

8th World Conference on Injury Prevention and Safety Promotion. Durban, South Africa. Apr 2006

Design of an injury surveillance system in institute for legal medicine of El Salvador

International Meeting of the Task Force for Malaria Control. Atlanta, May 2006

Malaria program in El Salvador

4th TEPHINET Global Scientific Conference, Brasilia, Brazil, Nov 2006

- Description of the epidemiology of burns in Costa Rica, 2000–2005
- First human case of West Nile fever, El Salvador, 2003
- Kidney graft survival in patients with end-stage renal disease, El Salvador, 1985–2004
- Overweight and obesity prevalence in children and adolescents, El Salvador, 2005
- Characterization of epidemiological surveillance for Tuberculosis/AIDS in Guatemala, April 2005
- Factors associated with failure, relapse, and abandonment in patients with pulmonary tuberculosis, Olancho, Honduras, 1998–2002
- Evaluation of the malaria epidemiologic surveillance system in an endemic district of Honduras, Central America, 2004
- Analysis of the prevention of HIV mother-to-child transmission, Honduras, 2004–2005
- HIV prevalence in pregnant women attended in public health facilities, Nicaragua, November–December 2004
- Rapid ethnographic assessment exploring HIV/AIDS among Kuna Communities in Panama

55th EIS Conference, Atlanta, Apr 2006

Paralytic shellfish poisoning outbreak, Corinto, Nicaragua, November 2005

Honduran Medical Congress, San Pedro Sula, Honduras. Jul 2006

- Evaluation of the malaria surveillance system in Tocoa
- Patient adherence to antiretroviral therapy in the Alonso Suazo y Carrizal CESAMOs

Central Asia Regional Program FETP

4th TEPHINET Global Scientific Conference, Brasilia, Brazil, Nov 2006

- Outbreak of aseptic meningitis, Semipalatinsk city, Eastern Kazakhstan Region, Aug 11–15, 2004
- Investigation of leptospirosis outbreak, Minbulak Village, Eastern Kazakhstan, Aug 23–27, 2004
- Gastroenteritis outbreak in a cafeteria, Ust-Kamenogorsk City, Eastern Kazakhstan, Aug 4–11, 2005
- Hantavirus hemorrhagic fever with renal syndrome outbreak, West Kazakhstan, Oct 2005–Jan 2006
- Risk factors for pulmonary tuberculosis among residents 20–50 years old, Chimkent City, South Kazakhstan Region, 2004
- Outbreak of gastroenteritis following a public gathering, Tayan village, Kyrgyzstan, Apr 27–30, 2005
- Investigation of community outbreak of shigellosis, Karakul town, Kyrgyzstan, Apr 14–20, 2006
- Risk factors for neural tube defects, Bishkek, Kyrgyzstan, 2006

Conference on Emerging Infectious Diseases in Siberia, Russian Federation, and Neighboring Countries

- Hantavirus hemorrhagic fever outbreak, Western-Kazakhstan, Oct 2005–Jan 2006
- Gastroenteritis outbreak in a cafeteria, Ust-Kamenogorsk City, Eastern Kazakhstan, Aug 4–11, 2005
- Progress towards tuberculosis control and determinants of treatment outcomes, Kazakhstan, 2000–2002: analysis of surveillance data

2006 ASM Biodefense Research Meeting, Washington DC, Feb 2006

- Role of applied epidemiology training in biodefense preparedness in Central Asia
- Crimean-Congo hemorrhagic fever outbreak in Kazakhstan, May–June 2005
- Botulism outbreak investigations, Uzbekistan, 2004–2005

China FETP

3d Southeast Asia and Western Pacific Bi-Regional TEPHINET Scientific Conference, Chennai, India, Jan 2006

- Using a new disease reporting system to describe the epidemiology of varicella, China 2004–2005
- Brucellosis investigation in a village
- Investigation on measles in Wenzhou, Zhejiang
- Brucellosis among villagers who breed ermine and fox
- Typhoon-related injuries in east China, 2004
- Brucellosis from commercial skinning of dead lambs in a village, Shandong Province, 2005
- Changes in hygiene knowledge following a health promotion programs in Chinese primary schools
- Assessment of control measures for group C meningococcal disease in secondary schools in a province of China
- Twenty-seven years of familial clusters of sudden unexpected death in Yunnan Province
- Paratyphoid A fever outbreak in Jiangshan City, Zhejiang Province, Jan–Apr 2005
- Outbreak of upper respiratory infection in a blind and deaf-mute school in Gansu Province
- Epidemic of mumps in Xiangshan County
- Evaluation of HIV/AIDS surveillance system, Guangdong Province
- The protective effect of handwashing during an outbreak of scarlet fever in a village primary school
- Reasons for low measles vaccination coverage among mobile children in a county in Zhejiang Province
- Using the emergency public reporting system to examine the epidemiology of infectious disease outbreaks in schools, 2004
- Outbreak of severe measles in a village of nomads on the Tjibetan Plateau-Baiyu County, Sichuan Province, Febr–Mar 2005
- Hepatitis A outbreak in a middle school of Suining, Sichuan Province

- Investigation of an outbreak of mumps in a primary school: what is the relationship between vaccination and the outbreak
- Cluster of sudden unexplained deaths in Yunnan Province, 2005
- Surveillance for highly pathogenic Avian Influenza, Qinghai Province
- Survey on the use of antibiotics among residents in Beijing
- Injuries in kitchen workers, Beijing, 2004
- The epidemiology report of outbreak of echo 6 meningitis in Jinzhai county, Anhui Province
- Differences in clinical manifestations from one strain of Streptococcus Suis during a large outbreak in Sichuan Province
- Risk factors for streptococcus suis disease in humans, Sichuan, 2005

55th EIS Conference, Atlanta, Apr 2006

Surveillance and risk factors for Yunan sudden unexpected death, China, 2005

4th TEPHINET Global Scientific Conference, Brasilia, Brazil, Nov 2006

- Measles outbreak in a population with high vaccine coverage, northeastern China, 2006
- Foodborne scarlet fever among teachers of a middle school, Ningbo, Zhejiang, 2006
- Hepatitis E from the water supply of a nursing home, Wuyi County, Zhejiang Province, 2006
- Risk Factors for Japanese encephalitis and antibody test among pigs, Chongqing, 2005
- Brucellosis from occupational exposure to mohair from goats imported from northern China, Henan, 2006
- Factors that influence vaccination coverage in a low-income county under the Chinese expanded program for immunization, Guizhou, 2005
- Hepatitis A outbreak from ice snacks sold to students in a township, Sichuan, 2006
- Case of fatal pneumonia from H5N1 Avian Influenza virus in a man from an urban area of south China, Guangdong, 2006
- Cholera outbreak from cold take-away food eaten by migrant workers, Zhejiang
- Shigellosis from a defective water supply serving three schools, Eastern China, 2006
- Outbreak investigation of acute glomerulonephritis, Guizhou, 2005

First CFETP National Conference, Beijing, China, Oct 2006

- Epidemiological study on protection rate of varicella vaccine for children in some areas of Shanghai
- Injury investigation among people age 60 or older in Beijing
- Large outbreak of contact dermatitis in a hospital, Wu Zhou, Guangxi
- Brucellosis among villagers who breed ermine and fox in China
- Cluster of human rabies following badger bites in eastern China
- Study of risk factors for pertussis in epidemic areas in 2005
- Measles outbreak in a population with high vaccine coverage, northeastern China, 2006
- Cholera outbreak from cold take-away food eaten by migrant workers, Zhejiang
- Unknown reason for diarrhea outbreak in a village
- Primary plague pneumonia transmitted in a rural taxi in southwestern China, October 2005
- Typhoid fever outbreak in factory workers
- Factors that influence vaccination coverage in a low-income county under the Chinese expanded program for immunization, Guizhou, 2005
- Hepatitis A outbreak from ice snacks sold to students in a township, Sichuan, 2006
- Outbreak investigation of acute glomerulonephritis, Guizhou, 2005
- Case of fatal pneumonia from H5N1 Avian Influenza virus in a man from an urban area of south China, Guangdong, 2006
- Shigellosis from a defective water supply serving three schools, Eastern China, 2006
- Epidemic of paratyphoid fever A attributed to inadequately cooked bivalve mollusks from multiple restaurants in a city in southeast China
- Outbreak of rash caused by Lymantria larva, Chongqing City, 2006

India FETP

TEPHINET/Third Bi-Regional TEPHINET Scientific Conference, Chennai, India, Jan 2006

- Outbreak of Hepatitis E in Mehragaon village, Uttaranchal, 2005
- Prevalence of risk factors for cardiovascular diseases among industrial workers in Chennai
- Food poisoning outbreak following a religious festival in Mathabhanga-II block, Coochbehar District, West Bengal, 2005
- Gastrointestinal outbreak investigation in Kultikri, West Bengal
- Anemia and its causes among pregnant mothers in the Dhenkarnal district of Orissa, 2004
- Vitamin A supplementation improves sputum conversion among new sputum positive pulmonary tuberculosis patients treated with DOTS in Orissa, 2004–2005
- Outbreak of measles in Jhalda–I, Purulia District, West Bengal, 2005
- Factors associated with the suspected cutaneous anthrax outbreak among humans in a tribal area of Koraput District, Orissa, 2002
- Cholera outbreak at Kachua village of Magrahat-I blick, South 24 Parganas, West Bengal, 2005
- Using epidemiological data to improve the water supply system and curtail a waterborne outbreak of Hepatitis E in Hyderabad, 2005
- Outbreak investigation of malaria in the Naxalbari block of Darjeeling District of West Bengal
- Outbreak of measles in a highly vaccinated population following the tsunami in Tamilnadu, 2004–2005
- Prevalence of post-traumatic stress disorder in a Tamil village following the Asian Tsunami, March 2005
- Effectiveness of liquid iron alone and iron with folic acid on hemoglobin status of children aged 6–35 months, rural area, Tamilnadu, 2003: a double blind, randomized comparative trial
- Persistence of gaps in case detection in the tuberculosis control program in Gangetic West Bengal, 2004
- Situation analysis of acute diarrheal diseases, South 24 Paraganas, West Bengal
- Evaluation of the de facto surveillance system for HIV infection at Shyampur I Block under Kamalpur Block Primary Health Centre, District Haora, West Bengal

4th TEPHINET Global Scientific Conference, Brasilia, Brazil, Nov 2006

- Outbreak of mumps cases in three adjacent villages of Bolangir District, Orissa
- Two sequential outbreaks in two villages illustrate the various modes of transmission of cholera in Eastern India, 2005
- The danger of using dirty pond water for personal hygiene during a cholera outbreak, Kachua, South 24 Parganas District, West Bengal, 2004
- Unsafe water supply leading to an outbreak of gastroenteritis in a nursing students hostel, Indore, Madhya Pradesh, 2006
- Outbreak of hepatitis A in the village Bhalumunda, Bolangir District, Orissa, 2006
- Hepatitis among children, Pada community, Dhenkanal District, Orissa, 2005
- High-use rates of tobacco among adolescents in rural areas of the Indian State of Uttaranchal, 2004-2005: the role of fathers
- Drinking water is the sole factor associated with caries among schoolchildren in Uttaranchal, at the foot of the Indian Himalayas
- Performance gaps in blindness prevention, Haora District, West Bengal, 2006
- Causes and associated determinants of infant mortality in Tiruvannamalai District, Tamilnadu
- Increased prevalence of cardiovascular risk factors among male shift workers in an industrial unit in Chennai
- Chikungunya fever outbreak in Mallea village, Kadapa District, Andhra Pradesh, 2006
- Medicines must be used rationally to manage chikungunya patients, Andhra Pradesh, 2006
- Better homogeneous case detection is needed to control urban malaria in Kolkata metropolis, West Bengal
- Cholera outbreak in Indian brick field, Pujali, Budge Budge-I, West Bengal
- Contaminated pipe water was a probable cause

of cholera outbreak in semi-urban area in West Bengal
- Cholera caused by pirated connections on a rural water supply pipeline system, eastern India, 2003
- Outbreak of chikungunya fever in Avadi, Thiruvallur District, Tamil Nadu, 2006
- Accumulation of visceral leishmaniasis cases in Chatrakhali, Canning, West Bengal: need to develop new case finding strategies
- Leishmaniasis is preventable in a highly endemic village of the South 24 Parganas District, West Bengal
- Vitamin A deficiency worsened despite supplementation among pre-school children in rural Mizoram, North-eastern India, December 2004
- Persistence of consumption of non-iodized salt in rural areas, Solan District, Himachal Pradesh, 2005
- Limited access to iodized salt among the poor and the disadvantaged in the North 24 Parganas District of West Bengal, 2005
- Low prevalence of arsenicosis in Shyampur II Block of West Bengal could be due to successful implementation of mitigation programme

Jordan FETP

International Conference for Cancer and Tobacco Control, Washington, DC, Jul 2006

Epidemiology of cancer in Jordan, 1996–2002

4th TEPHINET Global Scientific Conference, Brasilia, Brazil, Nov 2006

- Incidence and prognostic indicators in children with bacterial meningitis, 2005
- Prevalence of Hepatitis C virus among patients in a hemodialysis unit, Madaba, 2004
- Investigation of typhoid fever cases, Dieralla, 2004
- Epidemiology of fatal injuries, 2004
- Implementation of an electronic infectious disease surveillance system, 2004
- Reasons for poor disease reporting by primary care physicians in private clinics, Irbid, 2003
- Assessment of drinking water from home reservoirs, Jerash, 2005
- Outbreak of tinea capitis among school children, Ajloon Governorate, 2004
- Investigation of an outbreak of salmonella enteridits in a restaurant associated with mayonnaise made from raw eggs, Ruseifa, 2006

2006 Annual Meeting of the WHO Network of Collaborating Centres for the Family of International Classifications, Tunis, Tunisia, Oct 2006

Challenging the information paradox

Kenya FELTP

ICEID Conference, Atlanta, Mar 2006

- The rapid spread of an outbreak-causing clone of Vibrio cholerae O1 in Kenya, 2005
- Outbreak of brucellosis among nomadic pastoralists diagnosed by a newly developed ELISA assay, Northeast Kenya, Mar–July 2005
- Epidemiology of hospitalized pneumonia in an area with high malaria and HIV rates, Bondo District, Western Kenya, 2001–2003
- Outbreak of cholera in a refugee camp in Kenya, May 2005

4th TEPHINET Global Scientific Conference, Brasilia, Brazil, Nov 2006

- Risk factors for serogroup-X meningococcal meningitis, West Pokot District, 2006
- Profile of women having unsafe abortions in rural Ghana, 2004
- Laboratory investigation of epidemic meningococcal disease outbreak in Bole District, Ghana, March 2005
- Measles Outbreak in Dar-es-Salaam
- Maternal mortality in Tanzania

South Africa FELTP

Vaccinology Conference in Hermanus, Cape Town, Oct 2006

- Ethics of routine immunization
- Rubella seroprevalence: its influence on vaccine strategies

Limpopo 2006 EPI Symposium, Aventura Spa Warmbaths, May 2006
An update on the recent measles outbreak in South Africa and lessons learned and vaccine-preventable respiratory and meningeal pathogens

3d Public Health Association of South Africa Conference, Midrand, May 2006
Should rubella immunization be introduced in South Africa? Modelling the impact of rubella vaccination

Country Programs

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

Conferences

AIDS 2006 XVI International AIDS Conference (abstracts available at www.aids2006.org)

- Muratbayeva G, Zhussupov B, Sharapov U, Kalashnikova T, Favorov M, Warren W, Erasilova I, Krukova V, Mirzoev A, Ismailova A, Usmanov S. Linked behavioral and serological second generation HIV surveillance in Central Asia. Abstract no. MOPE0495
- Muratbayeva G, Sharapov U, Kalashnikova T, Favorov M, Warren W, Erasilova I, Krukova V, Ismailova A, Usmanov S, Kolemasova S, Mirzoev A, Zhussupov B. Implementation of HIV sentinel surveillance in four Central Asian Republics. Abstract no. TUPE0316
- Kalashnikova T, Kovtunenko N, Musabaev E, Golovchenko N, Kuchuk T, Vasilieva S, Albetkova A, Jumagulova A, Favorov M. Significance of HIV testing quality assurance/quality control program implementation in Central Asian countries. Abstract no. CDB0092

First Eastern European and Central Asian AIDS Conference, Moscow, Russia, May 2006

- Capacity building for infection disease surveillance in the countries of Central Asia
- A quality management laboratory system: design and implementation in the Central Asia region

NIH Research Conference. Session X: Perspectives In Emerging and Re-Emerging Infections. Research in Central Asia and the Caucuses, Opatija, Croatia Jun 2006
Established and implementation of comprehensive training for laboratory capacity building in the Central Asia region

Annual HIV SS Conferences Almaty, Kazakhstan, Feb 2006
Data of monitoring accuracy results provided by laboratories involved in HIV SS in different CAR countries

Annual HIV SS Conferences, Bishkek, Kyrgyzstan, Sept 2006
Data of monitoring accuracy results provided by laboratories involved in HIV SS in different CAR countries

Annual HIV SS Conferences, Tashkent, Uzbekistan, May 2006
Data of monitoring accuracy results provided by laboratories involved in HIV SS in different CAR countries

CAR: Live Birth Definition Program

Publications

- Ivassiv I, Rakhmatullaeva S, Achilova S, Buzurukova S. Initial experience on the WHO recommended live birth and stillbirth standard implementation in the Sagdinskaya region of Tajikistan. *Collected articles of region conference. Khodzhent.* 2006:27–33
- Ivassiv I, Chuvakova T, Kudaybergenova Z, Favorov M. Experience in applying the WHO live birth and stillbirth standard into the health practice of pilot sites of Kazakhstan. *Pediatrics and Children's Surgery.* Almaty. #3. 2006:16–19
- Ivassiv I, Kudaybergenova Z, Chuvakova T. Experience in applying the WHO live birth and sitllbirth standard into the pilot sites of Kazakhstan. *Sources of IV Convention of Kazakhstani Pediatricians.* Almaty. 2006:76–77

- Kuchkarov S, Umarova Z, Usmanova M, Ivassiv I. The respiratory distress syndrome in highly hypotrophic children. *Sources of the Scientific Practical Conference.* The important problem of the children's respiratory distress syndrome. Tashkent. 2006:154–155
- Kuchkarov S, Umarova Z, Usmanova M, Ivassiv I. Extremely light weight of newborn—woman's health indicator. *Sources of X Congress of Russia Pediatrics.* The important problems of pediatrics. Moscow. 2006:317
- Umarova Z, Kuchkarov S, Altibaeva S, Ivassiv I, Dzhurakhozhaeva G. Introduction criteria of live birth and stillbirth on WHO-indicator of infant mortality. *VI Pediatrics Congress of Turkish Languages Countries.* Baku, Azerbaijan, 2006:61
- Kuchkarov S, Umarova Z, Umarov B, Ivassiv I. The mortality structure of hypotrophic children. The causes of registration. *Palliative medicine.* Moscow, 2006:38

Conferences

The Problems of Perinatal Mortality in Almaty City. Meeting of Obstetrician-Gynecologists, Neonatology Physicians. Almaty, Kazakhstan, Feb 2006

Implementation of BABIES matrix for diagnosing the cause of newborn mortality and development of necessary countersteps

Possibility for Improvement in Registration of Children's Birth and Mortality Cases in Kyrgyzstan. Interdepartmental Meeting. Bishkek, Kyrgyzstan, Feb 2006

Effect of applying the WHO live birth and stillbirth standard in improving registration of children's birth and mortality cases in Kyrgyzstan

Intermediate Analysis of Applying the WHO Live Birth and Stillbirth Standard in the Pilot Sites of Tajikistan. Regional Meeting, Khojand, Tajikistan, Mar 2006

Experience of applying the WHO live birth and stillbirth definition standard in the pilot sites of Tajikistan

IV Convention of Kazakhstan Pediatricians, Almaty, Kazakhstan, Sept 2006

Modern approaches in forming prophylactics programs and decrease of infant mortality in Kazakhstan

Improvement of Medical Field in Kazakhstan: Follow-up Activities Directed at Improvement of pre and post Graduation Training of Medical Workers within the Recommended Framework of WHO, UNICEF, CDC, Almaty, Kazakhstan, Oct 2006

Implementation of the WHO live birth and stillbirth standard in educational programs of medical institutions

CAR/UNICEF Forum, Tashkent, Uzbekistan, Nov 2006

Experience in applying the WHO live birth and stillbirth standard into the practice of CAR countries health

CAR: Tuberculosis Surveillance and Laboratory Quality Improvement Program overview

Conferences

37th Union World Conference on Lung Health. Paris, France, 31 Oct–4 Nov 2006

- Predictors of treatment interruption among tuberculosis patients in Central Asian countries and Russia
- Characteristics of patient delay for new tuberculosis cases in Uzbekistan

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

Conference

ASM Biodefense 2006 Conference, Washington DC, Feb 2006

Case-control study of risk factors for brucellosis in Kazakhstan

Jordan: Behavioral Risk Factor Surveillance System

Publication

Belbeisi A, Zindah M, Walke H, Jarrar B, Mokdad AH. Assessing risk factors for chronic disease, Jordan, 2004. *MMWR* 2006;55:653–5

Jordan: Mortality Surveillance System

Conferences

4th TEPHINET Global Scientific Conference, Brasilia, Brazil, Nov 2006

Epidemiology of fatal injuries, Jordan, 2004

2006 Annual Meeting of the WHO Network of Collaborating Centres for the Family of International Classifications, Tunis, Tunisia, Oct 2006

Challenging the information paradox, Jordan

South Sudan: Sudan Health Transformation Project

Conference

56th EIS Conference, Atlanta, Apr 2007

Open shallow wells suspected as source of Hepatitis E outbreak in Wau County, Southern Sudan, 2006

Zimbabwe: Technical Assistance to Public Health Schools Without Walls

Conferences

4th TEPHINET Global Scientific Conference, Brasilia, Brazil, Nov 2006

The effect of cultural practice of hand shaking in cholera outbreak in rural Zimbabwe, 2005

55th Annual EIS Conference, Atlanta, Apr 2006

- Efficacy of nevirapine in reducing mother to child transmission of HIV in Murewha District, 2005
- Schistosomiasis infection among school children in Zhaugwe Resettlement Area, Zimbabwe, April, 2005

Thailand

Publications

- Areechokchai D, Jiraphongsa C, Laosiritaworn Y, Hanshaoworakul W, O'Reilly M. Investigation of Avian influenza outbreak in humans, Thailand, 2004. *MMWR* 2006; Apr 28;55 Suppl 1:3-6
- Botulism from home-canned bamboo shoot, Nan Province, Thailand, March 2006. *MMWR* 2006 Apr 55;(14):389–392
- Chotivichien S, Tharmaphornpilas P, Sinawat S. Evaluation of growth monitoring and promotion surveillance system, Thailand, 2002. *Asia-Pacific Journal of Public Health;* 2006;18(2): 42–45✦

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- U.S. Department of Health and Human Services: www.hhs.gov

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