



CDC Southeast Asia Regional Office Annual Report FY 2008



CDC Southeast Asia Regional Office

Annual Report FY 2008



The main CDC offices are located in the DDC 7 Building on the Thailand MOPH campus in Nonthaburi, about 30 minutes north of downtown Bangkok.

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**CDC Southeast Asia Regional Office
Annual Report
FY 2008**

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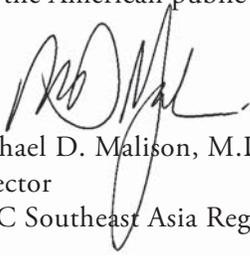
LETTER FROM THE DIRECTOR

The year 2008 will be remembered as a year of global economic and political turmoil. Thailand was not spared—political unrest led to demonstrations and the occupation of several key government buildings by protestors, there were multiple changes in Prime Ministers and Ministers of Health, and ultimately, both of Bangkok's two airports were occupied and closed for more than a week, stranding thousands of tourists and disrupting the economy of the entire region. Throughout this period of uncertainty, the Thai Ministry of Public Health never wavered in its commitment to protect the health of the public. Anxiety over security concerns and stranded travelers notwithstanding, it was *business as usual* for the CDC Office in Thailand.

Here are just a few highlights of this year's many accomplishments:

- ✓ Renovations to several laboratories and offices on the MOPH campus are moving forward, addressing longstanding infrastructure issues that have affected morale and threatened worker safety (see pages 11 and 27).
- ✓ Results from a study of risk factors and causes of death among HIV-infected TB patients demonstrated important findings about the benefits and timing of antiretroviral therapy in these patients (page 14).
- ✓ The Field Epidemiology Training Program helped to inaugurate an electronic journal for publishing reports on regional outbreaks and surveillance systems, and to start TIGER, a collaborative effort to help countries in the Mekong Basin countries detect and control disease outbreaks (page 18).
- ✓ Data collected through the International Emerging Infections Program's enhanced respiratory disease surveillance system contributed to the Thai government's policy decision to provide influenza vaccine for vulnerable populations, such as health care workers, the elderly, and those with chronic diseases (page 25).
- ✓ A new curriculum, developed and launched during a regional training workshop, promoted a comprehensive approach to patients with unknown respiratory illnesses (page 26).
- ✓ More Burmese refugees from Thailand and Malaysia were successfully resettled into the U.S. than in any previous year; their health screening was monitored by CDC's Immigrant, Refugee, and Migrant Health Program (page 32).
- ✓ A large study in Bangkok of men who have sex with men found a high incidence of new HIV infection and a willingness to participate in biomedical studies, leading CDC to consider future activities aimed at preventing AIDS in this high risk cohort (page 36).
- ✓ The Global AIDS Program developed new technical support programs in Laos and Papua New Guinea, working in close partnership with AFRIMS, USAID, and WHO (page 45).

We approach 2009 with a sense of renewed optimism as political parties define new agendas in both Thailand and the U.S., offering hope for peace and improved global economic prosperity. We are extremely grateful for the outstanding support we received this past year from our headquarters in Atlanta, from our Embassy in Bangkok, and especially from our local staff who, through all the turmoil, continued to work so hard and remain so positive and helpful. Thank you on behalf of CDC and the American public who support our work in Southeast Asia.

A handwritten signature in black ink, appearing to read 'MD Malison', is written over a light gray rectangular background.

Michael D. Malison, M.D., MPA
Director
CDC Southeast Asia Regional Office

OFFICE OF THE DIRECTOR



Drs. Michael Malison and Pasakorn Akarasewi oversee the CDC Southeast Asia Regional Office.

Background

In 2006, CDC established Consolidated Country Offices (CCOs) in Guatemala, Kenya, and Thailand. The purpose of this new management structure was to strengthen leadership and improve alignment with CDC's Global Health Goals, enhance cross-program collaboration, and implement a standardized approach to business services aimed at enhancing efficiency. This consolidated model was also intended to provide external partners with a clear and consistent focal point for communication and coordination.

The Thailand CCO currently oversees six programmatic activities that make up the CDC

About OD

Established 2007

In-country Staff

3 CDC direct hires
55 locally employed staff
1 third-country national

Dr. Michael Malison, Director
Dr. Pasakorn Akarasewi, Co-Director

Purpose

To provide leadership, direction, and administrative support for all CDC programs operating in Thailand

FY 2008 Program Budget

\$2.6 Million

Southeast Asia Regional Office: the Global AIDS Program; the HIV/STD Research Program; the International Emerging Infections Program; the Immigrant, Refugee, and Migrant Health Program; the Regional TB Program; and the Regional Field Epidemiology Technical Advisor. All of the programs engage with other countries in the region in addition to their bilateral collaboration with the Royal Thai Government.

The CCO manages projects and staff at three sites in Thailand—Bangkok/Nonthaburi, Nakhon Phanom, and Sa Kaeo. At the headquarters on the Ministry of Public Health (MOPH) campus in Nonthaburi, the CDC Southeast Asia Regional Office occupies 27,000 square feet in three buildings. This includes both office space and BSL-2 lab facilities that support HIV/STD clinical trials and the work of the International Emerging Infections Program (IEIP). With 23 direct-hire staff, 7 contractors, and 180 local employees, the office is among CDC's largest international field sites. Including staff salaries and program funds, the total Southeast Asia Regional Office operating budget is \$26.2 million. Program funds flow through six cooperative agreements and various contracts with implementing partners.

The Office of the Director (OD) manages a 20-vehicle motor pool and the IT/Informatics Unit that provides both internal as well as regional IT support. It also provides platform-wide support for human resources, travel, procurement, facilities management, property management, and financial management.

Major Partners

OD's major partners include the MOPH Office of the Permanent Secretary and the Bureau of Policy and Strategy. OD also works closely with the U.S. Embassy in areas such as travel, human resources, financial management, and procurement.



OD provides the Southeast Asia Regional Office with leadership, direction, and administrative support.

Highlights of FY 2008

Coordination/Communication

- ✓ Hosted two visits from the CDC Director and senior management staff (February and October) to review CCO program and business services operations, and to discuss the evolving and expanding regional role of the Thailand CCO.
- ✓ Initiated a “Comings and Goings” document that is distributed weekly to Southeast Asia Regional Office program directors and the CDC Coordinating Office for Global Health (COGH) to track visitors and staff travel.
- ✓ Organized multiple meetings and discussions with the Armed Forces Research Institute of Medical Sciences to strengthen program-specific as well as cross-cutting collaboration areas such as lab safety training.
- ✓ Produced a FY 2007 annual report with a new format and focus.

Policy Development

- ✓ Developed orientation packets for new staff and visitors that provide a staff facebook and a single source for all policies, operating procedures, and organizational charts.
- ✓ Developed standardized guidelines and operating procedures for office mobile phones and BlackBerry devices, petty cash, Living Quarters Allowance procedures, and procedures for hosting volunteers, fellows, interns, and students.
- ✓ Revised and updated call-tree procedures and carried out an exercise to confirm that all employees and temporary duty personnel could be contacted and accounted for quickly in case of emergency.
- ✓ Implemented a broadcast SMS cell phone messaging service for all employees to improve emergency communications.

Human Resources

- ✓ Worked with CDC/Atlanta-based programs to announce, interview, select, and bring to post three U.S. direct hire staff to fill senior program leadership positions (TB Advisor, Field Epidemiology Training Program Technical Advisor, and Director of Refugee and Migrant Health Program).
- ✓ Worked with Embassy human resources staff to recruit eight locally employed staff (LES) for key program vacancies office-wide, and to remove 13 vacant LES positions that were not needed from the LES staffing list.
- ✓ Implemented an e-delivery system for LES leave and earning statements.
- ✓ Implemented a tracking system to monitor the date, content, and cost of LES training; provided programs with quarterly summaries.

INFORMATICS UNIT

The Informatics Unit is part of the Office of the Director. Established in 1991, the unit is an integral part of the effort to prevent HIV/AIDS, infectious diseases, and emerging health threats in the region. The unit's primary role is to complement research, laboratory, surveillance, administration, and other programmatic activities.

The unit takes a lead role on sampling and database design, applications development, computer-assisted data collection, data management, statistics, geographical information systems, and graphics. Its efforts form the foundation for many scientific publications, posters, and presentations. Other capacity building activities include training on use of software and on data management and analysis, and support for website development.

In FY 2008, the Informatics Unit provided data management support and statistical consultations to Southeast Asia Regional Office activities, including the:

- Safety review for the Tenofovir trial among injecting drug users in Bangkok.
- Start-up of the household influenza transmission (HITS) study.
- Ongoing men who have sex with men (MSM) cohort study.
- Implementation of the new IEIP surveillance system, including the use of hand-held devices for data collection.
- Request from the Lao government for technical assistance in developing a hand-held based survey of drug use among youth.
- Training of Bangladeshi programmers on the use of handhelds for data collection.
- Support to MOPH for an assessment of the tsunami disaster, three years on.
- Ongoing development of HIVQUAL software for use in Uganda.

- ✓ Negotiated with MOPH a second extension for Dr. Pasakorn Akarasewi.

Information Technology Services (Thailand)

- ✓ Enabled the implementation of a new surveillance system for IEIP through installation of IT infrastructure.
- ✓ Upgraded the server and related hardware at the HIV/STD Research Program's Silom Clinic.
- ✓ Connected the IEIP Nakhon Phanom office to the TUC network via a leased-line connection.
- ✓ Set up local area computer networks for temporary laboratory spaces.
- ✓ Implemented a new MS-SQL 2005 database server.

Information Technology Services (Asia)

- ✓ Enabled three-way video conferencing between related programs at CDC/China.
- ✓ Added BlackBerry systems to CDC offices in Cambodia, India, and Vietnam.
- ✓ Replaced two email servers and two file servers at CDC/India.
- ✓ Continued to provide support to CDC offices in Cambodia, China, India, Kazakhstan, Uzbekistan, and Vietnam.

Financial Management

- ✓ Managed over 30 funding cables from CDC/Atlanta-based programs, and assisted

programs in developing budget plans and monitoring and reconciling their expenditures.

- ✓ Reviewed all International Cooperative Administrative Support Services (ICASS) budgets and invoices to ensure accuracy of data.
- ✓ Convened a Contracts Training Workshop for 35 CDC staff from three countries in the region.



The U.S. Embassy to Thailand, led by Ambassador Eric G. John, works closely with OD on human resources and other issues.

- ✓ Led the Asia Regional response to a proposed "IT Tax" from CDC/Atlanta's Information Technology Services Office, resulting in a dialog that improved the tax's equity and transparency for CDC offices in Asia.
- ✓ Worked with programs and COGH to determine a fair-share cost allocation methodology to support the cost of in-country OD services.

Cooperative Agreement Management

- ✓ Provided direction, coordination, and management support for MOPH Umbrella and Bangkok Metropolitan Administration cooperative agreements.
- ✓ Held Program Implementation Reviews for all projects being implemented through MOPH cooperative agreements.
- ✓ Convened a training on grants for all cooperative agreement recipients.

Facilities Management

- ✓ Hired an ergonomic consultant to provide training and one-on-one health consultations at individual employee work stations.
- ✓ Began implementing complex renovations to laboratories and offices, using guidance and input from CDC/Atlanta's Buildings and Facilities Office, to achieve compliance with the bio- and life safety goals of CDC/Atlanta's Office and Health and Safety.
- ✓ Implemented a new USG property inventory system under a single property custodian to enhance accountability.
- ✓ Installed a video camera system in MOPH Department of Disease Control Building 7 (DDC-7) to enhance physical security.

Motor Pool

- ✓ Traded seven older, high-mileage sedans and one van for one new sedan and one new 12-passenger van to reduce fleet maintenance costs and increase passenger carrying capacity per vehicle.

Plans for FY 2009

- Complete lab renovation and develop plans for external lab accreditation.
- Install fire escapes on both ends of DDC-7 to improve emergency egress.
- With State Department and HHS authorization, renegotiate the Memorandum of Agreement with MOPH to reflect recent changes in the scope of work and organizational structure.
- Work with MOPH to recruit a replacement for the TUC Co-Director (currently in his second extension).
- Fill anticipated direct-hire vacancies for Business Services Officer and GAP Program Director.
- Expand CDC-MOPH collaboration in the areas of chronic disease and injury prevention.
- Expand the wide area network to cover two additional provincial offices in Sa Kaeo and Nakhon Phanom, including video conference capability.

TB PROGRAM



The TB Program helps improve diagnosis, treatment, and program management of TB.

Background

The TB program has worked with MOPH since 2003 to develop initiatives and research that lead to effective TB control policies. TB Program staff also provide technical assistance to other countries in the region, including Cambodia, Laos, and Vietnam, and to WHO regional offices in New Delhi and Manila. Among the strategies used to reduce the burden of TB in Thailand and Southeast Asia are developing models, measuring incidence and mortality, and promoting best practices. The program also collaborates with multilateral, national, and NGO partners on human capacity development.

In 2004, the TB Program began working with MOPH, the Bangkok Metropolitan Administration (BMA), the Research Institute of Tuberculosis (Japan), and provincial partners to develop the Thailand TB Active Surveillance Network. The network is a demonstration project being conducted in five provinces and one national referral hospital. It seeks to evaluate strategies for improving diagnosis, treatment, and program management of TB, TB/HIV and multidrug-resistant (MDR)-TB. Core activities include active surveillance; monitoring and evaluation of TB cases in public and private healthcare facilities; electronic recording and reporting; HIV counseling and testing of TB patients and

TB screening of HIV patients; and rapid culture and susceptibility testing at the province level. Many of the activities included in this project are recommended in WHO's Second Global Plan to Stop TB. The Active Surveillance Network has demonstrated that implementing the Second Global Plan to Stop TB in Thailand would increase TB case finding, MDR-TB diagnosis, linkage of HIV patients to HIV care and treatment, and collaboration with private sector TB providers.

Major Partners

In Thailand, TB activities are planned in close collaboration with Royal Thai Government partners, including MOPH, BMA, and provincial public health offices. In some provinces, activities are coordinated with nongovernmental partners, including the Thai Red Cross, Médecins Sans Frontières, World Vision Foundation of Thailand, American Refugee Committee, and the International Organization for Migration.

In the region, TB Program staff work closely with national TB and HIV programs, nongovernmental organizations, and intergovernmental organizations, such as WHO.

Because TB is a priority area for the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), the program's Thailand and regional activities are both coordinated with CDC's Global AIDS Program, USAID, and other U.S. government partners. The program's primary sources of funding are USAID and PEPFAR. Funds from these sources come directly to the TB program (see budget in box); additional funds are also overseen by the TB program, but are not counted in the budget because they are programmed directly through PEPFAR.

Recent Accomplishments

A major component of the Active Surveillance Network is the expansion of TB culture capacity at the provincial level. In many countries, TB culture facilities are only available at national referral laboratories. The Active Surveillance Network demonstrated the feasibility and effectiveness of province-based laboratories using modern TB laboratory techniques such as liquid-based culture. These data were included in a report presented to WHO in 2007 and resulted in WHO recommending, for the first time, that high-burden TB countries invest in liquid-based culture for TB diagnosis. A package of standard operating procedures, quality assurance methods, and performance indicators has been developed and used for training public health laboratory staff in Thailand and Cambodia.

The Active Surveillance Network also demonstrated the feasibility of routine provider-initiated HIV testing and counseling of TB patients (PITC) in Thailand. As a result, MOPH adopted a national plan for routine PITC of TB patients in 2005. Over 250 hospitals in Thailand have now implemented routine PITC. In 2005 and 2006, WHO, MOPH, and CDC held training courses for TB and HIV program managers from 10 Asian countries about TB/HIV

About TB

Established 2003

In-country Staff

1 CDC direct hire
10 locally employed staff

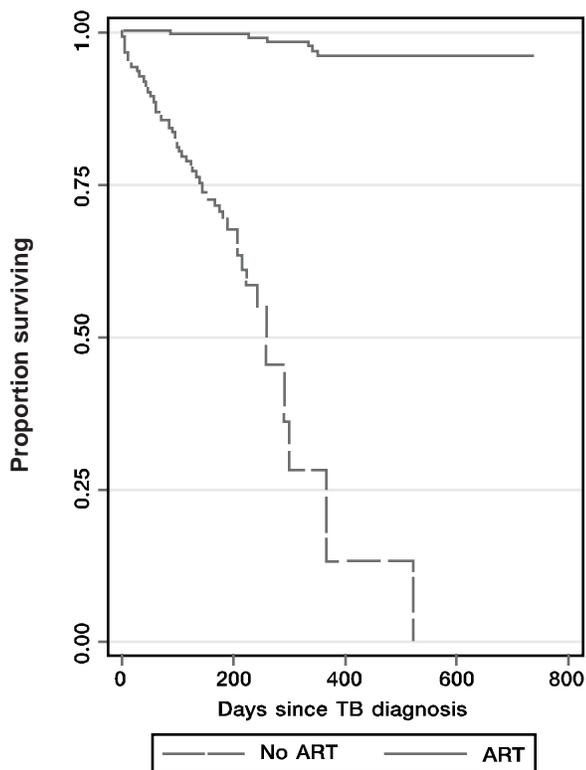
Dr. Sara Whitehead, Director

Purpose

To reduce the burden of TB in Thailand and Southeast Asia through programs and operational research

FY 2008 Program Budget

\$1.1 Million



TB patients with HIV disease live longer when they are on antiretroviral therapy (ART).

policies and practices. The courses included site visits and field exercises at the Active Surveillance Network sites in Chiang Rai and Ubon Ratchathani.

CDC projects in Thailand, Cambodia, and Vietnam have now documented the unique epidemiology of HIV-associated TB in Southeast Asia. Most importantly, these studies have documented effective public health strategies for increasing HIV testing of TB patients and TB screening of HIV patients, and have documented the reduction in mortality associated with providing co-trimoxazole and antiretroviral therapy to HIV-infected TB patients.

Current Activities

CDC continues to support the development of the Thailand TB Active Surveillance Network and the translation of its important components into national policies and programs. The network's electronic recording and reporting system is being integrated with the country's health insurance scheme and is being used to implement Global Fund-supported TB activities. The cost effectiveness of the province-based TB culture network is being assessed to help inform national plans for laboratory capacity expansion. Findings of high rates of drug-resistant TB in provinces bordering Burma have prompted initiatives to strengthen diagnosis and treatment of drug-resistant TB. CDC has supported annual training of MOPH health staff in epidemiologic data analysis. These staff work together with CDC to answer important operational research questions using the surveillance database. Ongoing projects include assessment of barriers to HIV testing among TB patients, evaluation of risk factors for defaulting TB treatment among HIV patients, and evaluation of TB treatment outcomes in public and private facilities.

In collaboration with MOPH, two provinces, and the national infectious diseases hospital, CDC conducted a prospective observational study of risk factors and causes of death in HIV-infected TB patients, with enrollment completed in September 2007. Data analysis demonstrated important findings about the magnitude of benefit and optimal timing of antiretroviral therapy in HIV-infected TB patients, as well as clinical, behavioral, and health systems factors associated with poor outcomes in these patients. As a result of this study, MOPH developed a curriculum, and WHO/WPRO incorporated findings into its new strategic framework, both aimed at increasing the early initiation of antiretroviral therapy in HIV-infected TB patients.

In Cambodia and Vietnam, the TB Program continues to provide technical support for initiatives to increase TB screening of HIV patients and HIV testing of TB patients in multiple provinces, and to expand TB culture capacity. In Vietnam, TB preventive therapy pilot projects have also been initiated.

In Thailand, Cambodia, and Vietnam, CDC conducted a large multi-country study, “Improving Diagnosis of TB in HIV-Infected Patients: The ID-TB/HIV Study.” This multi-center, cross-sectional study enrolled HIV-infected patients from five sites across Thailand, Cambodia, and Vietnam to determine the optimum algorithm to screen for and diagnose TB in HIV-infected patients. Enrollment of 2,149 patients was completed in July 2008 and results are expected in early 2009.

At the regional and global level, CDC continues to provide technical assistance to WHO. CDC TB program staff are working with WHO to conduct a meta-analysis of studies on the diagnosis of TB in HIV-infected patients and will contribute to revising WHO policy guidelines on this issue.

Plans for FY 2009

In 2009, the TB Program will conduct studies to evaluate the public health impact of new diagnostic tests for TB and drug-resistant TB. The program will conduct a cost-effectiveness study of algorithms to screen for and diagnose TB in HIV-infected patients, and will continue initiatives to increase the number of people with TB and HIV who get timely access to antiretroviral medicines.

TB 2008 Publications

1. Anuwatnonthakate A, Limsomboon P, Nateniyom S, Wattanaamornkiat W, Komsakorn S, Moolphete S, Chiengsorn N, Kaewsard S, Sombat P, Siangphoe U, Mock PA, and Varma JK. **Directly observed therapy is associated with improved tuberculosis treatment outcomes in Thailand, 2004 – 2006.** *PLoS ONE* 2008;3:e3089.
 2. Kanara N, Cain KP, Laserson KF, Vannarith C, Sameourn K, Samnang K, Qualls ML, Wells CD, Varma JK. **Using program evaluation to improve the performance of a TB-HIV project in Banteay Meanchey, Cambodia.** *Int J Tuberc Lung Dis* 2008;12(3 Suppl 1):44-50.
 3. Kittikraisak W, Burapat C, Nateniyom S, Akksilp S, Mankatittham W, Sirinak C, Suphanam A, Kanphukiew A and Varma JK. **Improvements in physical and mental health among HIV-infected patients treated for TB in Thailand.** *Southeast Asian J Trop Med Public Health* 2008;39:1061-71.
 4. Lolekha R, Anuwatnonthakate A, Nateniyom S, Sumnapun S, Yamada N, Wattanaamornkiat W, Sattayawuthipong W, Charusuntonsri P, Sanguanwongse N, Wells CD, and Varma JK. **Childhood TB epidemiology and treatment outcomes in Thailand – TB Active Surveillance Network, 2004–2006.** *BMC Infect Dis* 2008;8:94.
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5. McCarthy KD, Metchock B, Kanhukiew A, Monkongdee P, Sinthuwattanawibool C, Tasaneeyapan T, Reinthong S, Ngamlert K, Srisuwanvilai LO, and Varma JK. **Monitoring the performance of mycobacteriology laboratories: a proposal for standardized indicators.** *Int J Tuberc Lung Dis* 2008;12:1015-20.
6. Nateniyom S, Jittimane S, Viriyakitjar D, Jittimane S, Keophaithool S, and Varma JK. **Provider-initiated diagnostic HIV counselling and testing in tuberculosis clinics in Thailand.** *Int J Tuberc Lung Dis* 2008;12:955-961.
7. Oeltmann JE, Varma JK, Ortega L, Liu Y, O'Rourke T, Cano M, Harrington T, Toney S, Jones W, Karuchit S, Diem L, Rienthong D, Tappero JW, Ijaz K, Maloney SA. **Multidrug-resistant tuberculosis outbreak among US-bound Hmong refugees, Thailand, 2005.** *Emerg Infect Dis* 2008;14(11):1715-21.
8. Sanguanwongse N, Cain KP, Suriya P, Nateniyom S, Yamada N, Wattanaamornkiat W, Sumnapan S, Sattayawuthipong W, Kaewsa-ard S, Ingkaseth S, and Varma JK. **Antiretroviral therapy for HIV-infected tuberculosis patients saves lives but needs to be used more frequently in Thailand.** *Acquir Immune Defic Syndr* 2008;48:181-9.
9. Shah NS, Anh MH, Thuy TT, Duong Thom BS, Linh T, Nghia DT, Sy DN, Duong BD, Chau LT, Wells C, Laserson K, and Varma JK. **Population-based chest X-ray screening for pulmonary tuberculosis in people living with HIV/AIDS, An Giang, Vietnam.** *Int J Tuberc Lung Dis* 2008;12:404-10.
10. Sirinak C, Kittikraisak W, Pinjeesekikul D, Charusuntonsri P, Luanloed P, Srisuwanvilai L, Nateniyom S, Akksilp S, Likanonsakul S, Sattayawuthipong W, Burapat C and Varma JK. **Viral hepatitis and HIV-associated tuberculosis: Risk factors and TB treatment outcomes in Thailand.** *BMC Public Health* 2008;8:245.
11. Srisuwanvilai L, Monkongdee P, Podewils LJ, Ngamlert K, Pobkeeree V, Kanjanamongkolsiri P, Chiamwongpaet S, Subhachaturas S, Akarasewi P, Wells CD, and Varma JK. **Performance of the BACTEC MGIT 960 compared to solid media for detection of Mycobacterium in Bangkok, Thailand.** *Diagn Microbiol Infect Dis* 2008;61:402-7.
12. Weber AM, Areerat P, Fischer JE, Thamthitiwat S, Olsen SJ, and Varma JK. **Factors associated with diagnostic evaluation for tuberculosis among adults hospitalized for clinical pneumonia in Thailand.** *Infect Control Hosp Epidemiol* 2008;29:648-57.

REGIONAL CAPACITY BUILDING IN FIELD EPIDEMIOLOGY



Background

In 2006, after a 20-year absence, the U.S. CDC Coordinating Office for Global Health posted a technical advisor in Bangkok to support the Thailand Field Epidemiology Training Program (FETP). The need for an advisor arose from the program's expansion from a class of five Thai physicians in 1980 to 15 physicians and veterinarians from Thailand and neighboring countries in 2008. The expansion reflects a growing need in Thailand and Southeast Asia for highly qualified field epidemiologists to respond to public health emergencies and outbreaks such as avian influenza

About Field Epidemiology

Established 1980

In-country Staff

1 CDC direct hire
1 contractor

Dr. Alden Henderson, Technical Advisor

Purpose

To strengthen the capacity of Southeast Asian Ministries of Health to identify, control, and prevent disease through training and technical assistance in field epidemiology and public health practice

FY 2008 Program Budget

\$810,000

and the 2004 tsunami, as well as a need for mentors of new FETP trainees.

The initial responsibilities of the advisor were to provide technical assistance to Thailand Ministry of Public Health (MOPH) counterparts within the FETP and the Bureau of Epidemiology, and to mentor FETP trainees in epidemiology, outbreak investigation, and disease surveillance. These responsibilities expanded to include strengthening the abilities of Ministries of Health in the region to identify, respond, control, and prevent emerging diseases and occurrences of outbreaks or unusual diseases. In the last year, the advisor has also responded to requests to establish new FETPs by Ministries of Health in Cambodia, Singapore, and Vietnam; helped design curriculum for the newly formed FETP-Veterinary (FETP-V) and FETP-Laboratory (FELTP) programs; and initiated a workgroup for GIS and spatial analysis. All of the initiatives and activities undertaken by the advisor were collaborative efforts of staff from CDC's Division of Global Public Health Capacity Development, the Thailand – U.S. CDC Collaboration (TUC), and the Thailand FETP.

The advisor is seconded to the office of the Thailand FETP, a two-year training program in field epidemiology and public health practice for physicians and veterinarians. Its philosophy is to learn by doing, as demonstrated by a curriculum that combines academics and fieldwork. Trainees study epidemiology and biostatistics, and conduct outbreak investigations, surveillance evaluations, and applied research projects. In a typical year, a trainee conducts about 12 outbreak investigations, one surveillance evaluation, and two field research projects. The program is accredited by the Thai Medical Council and graduates are eligible for Board Certification in Preventive Medicine.

The Thailand FETP began in 1980 as a collaboration of MOPH, WHO, and CDC. In

2001, it became a WHO Collaborative Center for Field Epidemiology Training and Research. After nearly 30 years in existence, the Thailand FETP has graduated 140 trainees, 85% of whom are employed by a Ministry of Health program or a nongovernmental organization with a public health focus.

In addition to TUC and the Thai FETP, the advisor collaborates with the MBDS (Mekong Basin Disease Surveillance) Network, TIGER (The International Group for Epidemiologic Response) and the REDI Centre (Regional Emerging Disease Intervention). Other partners in Thailand include the WHO CSR Sub-Unit in Bangkok, USAID, the Food and Agriculture Organization, and the political and economic communities known as ACMECS and ASEAN. The advisor teams with other field epidemiology programs in Cambodia, Laos, Malaysia, the Philippines, and Vietnam, and with China's Bureau of Health and CDC in Yunnan and Guangxi Provinces.

Recent Accomplishments

- ✓ Assisted with the conception, establishment, and implementation of TIGER, whose mission is to strengthen the capacity of Mekong Basin countries (Cambodia, China, Laos, Myanmar, Thailand, and Vietnam) by initiating an appropriate response to control and prevent disease outbreaks. TIGER is funded from a grant from the Global Health Security Initiative, Nuclear Threat Initiative.
- ✓ Assisted the Vietnam FETP in creating a curriculum for a short course in basic epidemiology and outbreak investigation.
- ✓ Assisted in the establishment of a web-based publication called OSIR (Outbreak and Surveillance Investigation Report) to

encourage and facilitate communication of public health information and disease reporting in Asia. The first issue was published in December 2008 and included articles on a cluster of Enterovirus 71 fatalities, mushroom poisoning, and a foodborne outbreak due to *Streptococcus suis*.

- ✓ Obtained funds from Global Disease Detection to create case studies and table-top exercises for training physicians and veterinarians in outbreak investigation. The studies and exercises are based on disease investigations that occurred in Southeast Asia.
- ✓ Obtained funds from the Nuclear Threat Initiative to develop a training module to triage informal information and to include this information as a reporting source for the national disease surveillance system. The output of this training is to increase the sensitivity and amount of informal information used by the national surveillance system.

- Serving as acting technical director of TIGER to strengthen the capacity to respond and control disease outbreaks.
- Participating in the human resource capacity component of the MBDS Network, a group of six countries in Southeast Asia whose goal is to strengthen the epidemiological capacity of each country in the network.



FETP trainees conduct outbreak investigations, surveillance evaluations, and applied research projects.

Current Activities

- Mentoring FETP trainees on conducting outbreak investigations, evaluating surveillance systems, communicating findings to the scientific community, and preparing manuscripts for publication.
- Providing technical assistance to the Singapore Ministry of Health on the establishment of an FETP in Singapore.
- Assisting other countries in the region to establish new FETPs or strengthen existing ones.
- Developing curriculum, case studies, and table top exercises based upon human and zoonotic diseases, as well as outbreaks due to toxins, poisons, and occupational and environmental conditions in the region.

Regional Capacity Building in Field Epidemiology

- Supporting OSIR by soliciting manuscripts for publication, hiring an editor, and appointing associate editors.
- Collaborating with the Department of Livestock Development (DLD) to create an FETP-V. The joint program is managed in DLD and uses a curriculum based on the Thai FETP to train public health veterinarians. Three Thai Doctors of Veterinary Medicine (DVM) from DLD have been recruited into the Thai FETP. This group will provide the transition for the FETP-V training program.
- Conduct a workshop on rapid surveys and sampling methods.
- Increase staff to accommodate requests for assistance with field epidemiology training and strengthening or initiation of FETPs.
- Create an FETP alumni association.
- Develop a training module for use of informal information in national disease surveillance systems.
- Form a GIS working group to incorporate GIS and spatial analysis in outbreak investigation and field projects. Conduct a training session on analysis of spatial data.
- Encourage the use of rapid tests in outbreaks.
- Expand activities to include occupational, chronic, and injury health investigations.

Plans for FY 2009

- Assist with the expansion of the Thai FETP to include curricula for FELTP and FETP-V.
- Strengthen epidemiology capacity by working with the MBDS Network to develop and implement a regional plan that assesses the epidemiological capacity of the region.
- Help develop field epidemiology training in the region.
- Conduct cross-border activities, such as investigating outbreaks and determining vaccine coverage.
- Initiate joint investigations between FETP and Surveillance and Rapid Response Teams.



FETP staff and hospital physicians summarize information from medical records.

INTERNATIONAL EMERGING INFECTIONS PROGRAM



Background

CDC's first International Emerging Infections Program (IEIP) was established in Thailand in 2001, and is now part of a global network of IEIP programs and Global Disease Detection (GDD) Regional Centers focusing on infectious disease epidemiology, surveillance, response and prevention. IEIP/Thailand's mission is to combat emerging and re-emerging infectious diseases by strengthening national, regional, and global capabilities to detect, describe, control, and prevent infectious diseases of national and international importance. The program has demonstrated productivity and steady growth in activities, budget, and personnel since 2001.

About IEIP

Established 2001

In-country Staff

5 CDC direct hires
30 locally employed staff
4 contractors

Dr. Susan Maloney, Director

Purpose

To combat emerging and re-emerging infectious diseases by strengthening national, regional, and global capabilities to detect, describe, control, and prevent infectious diseases of national and international importance

FY 2008 Program Budget

\$3.4 Million (core)
\$3.8 Million (GDD/flu, other sources)

International Emerging Infections Program

IEIP/Thailand works to achieve its mission through:

- Enhancing early detection and response to emerging infectious disease threats through demonstrating innovative and integrative strategies for disease surveillance, control, and prevention.
- Defining public health and research priorities, assessing disease burden, evaluating impacts of disease control interventions, and sharing these data to guide public policy decisions.
- Supporting preparedness and outbreak response activities in Thailand and the Asia Pacific region.
- Collaborating to develop training opportunities, particularly in epidemiology and laboratory sciences, which can strengthen infectious disease surveillance and response capacity.

IEIP/Thailand engages public health partners and builds networks. Its strong national collaborations complement a network of regional and global partners, all committed to reducing emerging infectious disease threats.

Major Partners

IEIP has a strong history of collaboration with the Royal Thai Government at all levels. The program partners with the MOPH Department of Disease Control, the Bureau of Epidemiology, the Thailand Field Epidemiology Training Program (FETP), the National Institute of Health, the Bureau of Emerging Infectious Diseases, the Bamrasnaradura Institute for Infectious Diseases, the Sa Kaeo and Nakhon Phanom Provincial Health Offices, and the Ministry of Agriculture and Cooperatives and its Department of Livestock Development. Additional local partners include the Queen Sirikit Institute of Child Health, the Influenza Foundation of Thailand, Mahidol

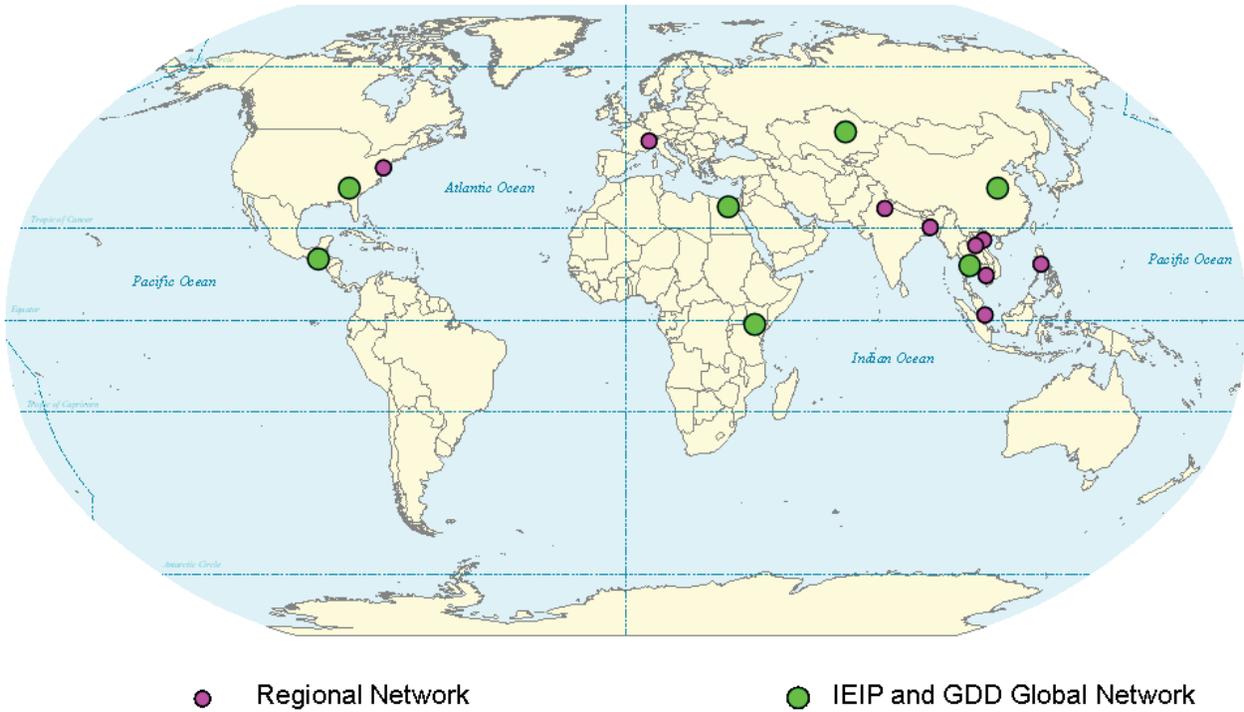
University, and several other universities and academic institutions in Thailand.

IEIP works closely with many programs in the CDC Southeast Asia Regional Office, such as the Immigrant, Refugee, and Migrant Health Program, the regional TB Program, and the regional advisor to the national and international FETPs. Collaborations continue to expand with U.S. government agencies in Thailand and the region, such as the Armed Forces Research Institute of Medical Sciences (AFRIMS) and USAID. Other partners include CDC counterparts in the region involved in avian and pandemic influenza surveillance, preparedness, and response; U.S.-based institutions, such as the National Institutes of Health and the Department of Defense; WHO country and regional offices; and the Mahidol-Oxford Research Unit. IEIP/Thailand also collaborates with IEIP sites in other regions, and as part of the GDD program on projects to detect and respond to global emerging infectious disease threats.



IEIP engages public health partners and builds networks.

Major Partners—IEIP/Thailand



IEIP

National Partners Network	Regional Partners Network	IEIP and GDD Global Network
*Thailand MOPH *Thailand MOPH Provincial IEIP sites: Sakeo and Nakhon Phanom *CDC SE Asia Regional Office AFRIMS Chulalongkorn University Influenza Foundation of Thailand Kasetsart University Khon Kaen University Mahidol University Mahidol-Oxford Research Unit USAID U.S. Embassy WHO CSR Sub-Unit, Bangkok	CDC Cambodia CDC China CDC ICDDR,B (Bangladesh) CDC Laos CDC Vietnam PneumoADIP (Baltimore, USA) REDI Centre (Singapore) WHO Headquarters (Geneva) WHO SEARO (Delhi) WHO WPRO (Manila)	CDC Atlanta CDC Bangladesh CDC China CDC Egypt CDC Guatemala CDC Kazakhstan CDC Kenya CDC Thailand

*Thailand Ministry of Public Health – U.S. CDC Collaboration core partners

Recent Accomplishments

Early Disease Detection, Response, and Control

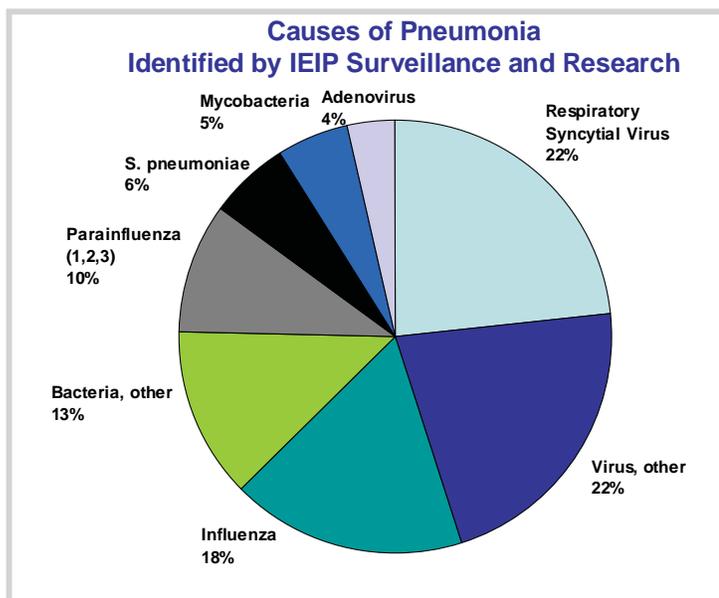
✓ Integrated surveillance for severe pneumonia and other emerging pathogens

IEIP has continued to collect and share integrated epidemiologic and laboratory data on hospitalized pneumonia. These data have increased understanding of the etiology and burden of pneumonia in Thailand and are being used to help guide public health programming and policy. In addition, IEIP has supported implementation of the following innovative surveillance activities in Thailand:

- Surveillance for bloodstream infections to document the burden of pathogens causing severe diseases, including vaccine-preventable diseases.
- Enhanced surveillance and evaluation capacity for TB among patients hospitalized for pneumonia.
- Detection and monitoring of human *Streptococcus suis* infections among hospitalized patients, coupled with monitoring of the swine population in Lampang province for infectious diseases of public health importance to humans, in order to better understand incidence and risk factors for transmission.

✓ International Health Regulations

In partnership with WHO/SEARO, IEIP continued to evaluate and strengthen national and regional capacity to meet the WHO International Health Regulations (2005) mandate, which aims to ensure adequate global infectious disease



surveillance and response capacity. IEIP accomplished the following:

- Assisted botulism emergency response planning through international expert forums and purchasing antitoxin for a regional stockpile.
- Supported lab capacity improvements through technology transfer, proficiency testing protocols, and laboratory training visits to CDC for Nipah virus, West Nile Virus, and unusual bacterial pathogens.
- Helped develop provincial-level avian influenza (AI) response plans.

✓ Evaluation of rapid response training

Together with the WHO/SEARO Thailand office, IEIP developed a monitoring and evaluation tool to assess the impact of rapid response trainings, such as a pandemic influenza curriculum developed by IEIP and partners. This curriculum was taught in multiple countries throughout the region to over 10,000 rapid response team

members. Data on the utility and impact of the training are currently being collected and analyzed.

✓ **Coordinated response to animal-to-human disease outbreaks**

Together with the Thailand Ministry of Agriculture and Cooperatives' Department of Livestock Development, MOPH, and CDC's National Center for Zoonotic, Vector-borne, and Enteric Diseases, IEIP helped build outbreak response capability for zoonotic diseases through a workshop that brought together high-level officials from the animal and human health sectors to plan for coordinated zoonotic disease response plans.

Public Health Research, Evaluation, and Data for Decision Making

✓ **Influence on public policy**

IEIP research—on respiratory diseases such as avian and human influenza, febrile illness, encephalitis, zoonotic and vector-borne diseases, and other emerging pathogens—has had important public health policy implications. For example, a retrospective study of severe and fatal human influenza cases detected through AI surveillance confirmed that seasonal influenza causes substantial morbidity and mortality in Thailand—more than the number of human infections with AI. IEIP provided evidence on disease burden and economic cost of human influenza to Thai policy makers. These data contributed to a policy decision to provide influenza vaccine for vulnerable populations including health care workers, the elderly, and those with chronic diseases.

✓ **Assessment of non-pharmaceutical interventions**

IEIP, in collaboration with AFRIMS, embarked on a multi-year research project to describe the household transmission dynamics of influenza and assess the effectiveness of non-pharmaceutical interventions to limit transmission. The Household Influenza Transmission Study (HITS) identifies children with influenza and prospectively follows all household members to determine secondary infection rates. HITS is designed to assess the acceptability and effectiveness of frequent hand washing and face mask usage to prevent household influenza transmission. Results from this study, in conjunction with results from a similar study in Hong Kong, will help guide evidence-based response protocols for pandemic influenza and other newly emerging respiratory diseases.

✓ **Determination of impact of antibiotic use on disease incidence estimates**

IEIP collected and presented data to MOPH on the prevalence of antibiotic use before blood culture among patients being evaluated for pneumonia and possible sepsis. This work documented the negative impact of pre-culture antibiotics on the recovery of blood-borne bacterial pathogens and on population-level incidence estimates for diseases of public health importance, such as *Streptococcus pneumoniae*. The data highlight the limitations of using culture-based detection methods to estimate the incidence of invasive pneumococcal disease in settings where pre-culture antibiotic use may be common. The findings have important implications for pneumococcal vaccine cost-effectiveness studies and vaccine policy discussions in Thailand and other areas in the region.

Outbreak Response and Preparedness

✓ Consultation on hand, foot, and mouth disease

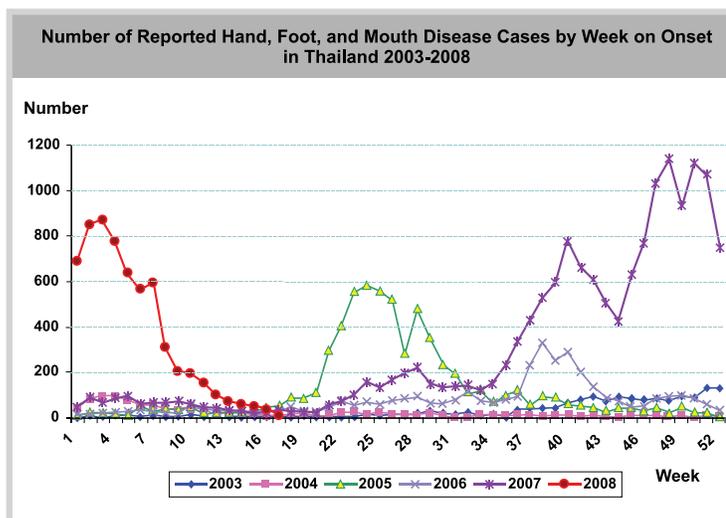
At the invitation of the Taiwan Center for Disease Control, IEIP and Thailand MOPH staff assisted in evaluating surveillance and response activities for a large outbreak of hand, foot, and mouth disease (HFMD), caused by Enterovirus 71. IEIP then took a leadership role in organizing and implementing a regional expert consultation meeting on HFMD, in collaboration with the REDI Centre and the MOH in Singapore. IEIP helped establish the agenda, identify regional participants, and develop and guide work groups and discussions at the meeting. The forum concluded with identification of priority areas for collaborative surveillance, research, and intervention projects aimed at strengthening detection, management, control, and prevention of HFMD in the region.

✓ Facilitation of regional planning initiatives for avian and pandemic influenza

IEIP led and facilitated operational planning initiatives for preparedness and response to avian and pandemic influenza in Thailand and the region (Cambodia, Laos, and Vietnam), in collaboration with CDC/Atlanta. These initiatives used an innovative CDC approach known as the Automated Disaster and Emergency Planning Tool (ADEPT), a software and training module.

✓ Response to public health emergencies

IEIP supported preparedness and response for AI, pandemic influenza, and other



emerging infectious diseases. The program worked with MOPH, WHO, the CDC Southeast Asia Regional Office, USAID, and national and regional partners on designing and facilitating field exercises and drills, implementing epidemiology and laboratory training initiatives, and creating a regional stockpile of emergency response supplies, including personal protective equipment and oseltamivir (Tamiflu).

Training and Capacity Building

✓ Control of respiratory infections in health care facilities

In collaboration with WHO, the REDI Centre, and Jhpeigo (an international non-profit health organization affiliated with Johns Hopkins University), IEIP developed and launched a new training initiative called Respiratory Infection Control in Health Care Facilities. The curriculum for this initiative introduced user-friendly training materials based on adult learning methods and WHO standards. The initial workshop and expert consultation included 62 participants from 11 countries in the Asia Pacific region.

✓ **Enhancement of laboratory, epidemiology, and response capabilities**

IEIP's strong emphasis on training and capacity building led to several other major workshops and trainings for more than 250 participants in FY 2008. These included:

- Training for real-time PCR testing for human and avian influenza by military labs in the Asia Pacific region, carried out in collaboration with the U.S. Department of Defense.
- Operational response planning for pandemic influenza, organized for provincial-level public health officials.
- Mentored training opportunities for Thai and U.S. scientists, including MOPH and FETP trainees and fellows.
- Support for a five-year initiative to integrate epidemiology and management training for Thailand's extensive network of Surveillance and Rapid Response Teams (SRRT).

✓ **Laboratory infrastructure development**

IEIP, collaborating with other programs in the CDC Southeast Asia Regional Office, planned and supported a major ongoing laboratory renovation in shared facilities with MOPH. This renovation will upgrade biosafety infrastructure and ensure a safe work environment for staff and counterparts.

✓ **Regional laboratory network and biosafety training**

A new collaborative project with WHO will provide support for regional laboratory bio-safety training programs and a regional diagnostic laboratory network. IEIP worked on the agreement with the U.S. Department of State, AFRIMS, the REDI Centre, and other regional partners.

Plans for FY 2009 and Beyond

Early Disease Detection, Response, and Control

- Refine pneumonia surveillance activities to improve timeliness of data collection and reporting, outbreak detection capabilities, and integration with laboratory data; export lessons learned and successful surveillance approaches to other surveillance systems and disease syndromes.
- Begin enhanced surveillance for tuberculosis among hospitalized patients with pneumonia.
- Demonstrate innovative and integrated surveillance models to optimize disease detection, investigation, and response. Such models include projects focused on integrated epidemiologic and laboratory sentinel surveillance for influenza, severe and fatal pneumonias, pathogen-specific disease monitoring, and coordinated approaches at the interface of human-animal health.
- Expand IEIP surveillance and response activities to include border regions and vulnerable populations such as migrants, refugees, and health care workers, in collaboration with Thailand FETP and other national and regional partners.

Public Health Research, Evaluation, and Data for Decision Making

- Identify and prioritize practical pneumonia interventions and prevention strategies, and evaluate their effectiveness, implementation, and impact, in collaboration with MOPH and WHO.
- Continue building a shared research agenda with MOPH to identify priorities around infectious diseases in Thailand and the region, including influenza, pneumonia, and zoonotic, vector-borne, and food-borne diseases.

- Develop disease detection capabilities by focusing on new diagnostic approaches and pathogen discovery techniques.

Outbreak Response and Preparedness

- Complete operational avian and pandemic influenza planning initiatives in the region, in collaboration with CDC/Atlanta.
- Continue to support national and regional outbreak response and preparedness efforts, in collaboration with MOPH and FETP.
- Actively collaborate with regional WHO offices to ensure that core surveillance and response capacities in Thailand and the region comply with the International Health Regulations, and partner with WHO to mount effective outbreak response teams through WHO GOARN networks.
- Continue support and contributions to regional outbreak response preparedness; maintain regional stockpile resources, in collaboration with WHO and USAID.

Training and Capacity Building

- Promote and support implementation of “Respiratory Infection Control in Health Care Facilities” training in Asia, Africa, and other regions of the world, to strengthen epidemic and pandemic preparedness.
- Develop and launch a regional laboratory competency and biosafety training program and regional diagnostic laboratory network.

- Evaluate and strengthen the curriculum for the SRRT Field Epidemiology and Management Training course, in collaboration with Mahidol University and MOPH.
- Support continued development of national, regional, and international FETP programs, in collaboration with Thailand MOPH and the regional FETP advisor.

Networking

- Continue building national and regional partnerships to harmonize, innovate, and integrate surveillance and response efforts.
- Develop collaborative projects and protocols with IEIP and GDD networks in other countries and regions.



IEIP continues to maintain regional stockpile resources, in collaboration with WHO and USAID.

IEIP 2008 Publications

1. Baggett HC, Peruski LF, Olsen SJ, Thamthitawat S, Rhodes JC, Dejsirilert S, Wongjindanon W, Dowell SF, Fischer JE, Areerat P, Sornkij D, Jorakate P, Kaewpan A, Prapasiri P, Naorat S, Sangsuk L, Eampolkalap B, Moore MR, da Gloria Carvalho M, Beall BW, Ungchusak K, Maloney SA. **Incidence of pneumococcal bacteremia requiring hospitalization in rural Thailand.** *Clin Infect Dis* (in press).
2. Chamany S, Burapat C, Wannachaiwong Y, Limpakarnjanarat K, Prensri N, Zell ER, Dowell SF, Feikin DR, Olsen SJ. **Assessing the sensitivity of surveillance for pneumonia in rural Thailand.** *Southeast Asian J Trop Med Public Health.* 2008;39:549-56.
3. Dare RK, Chittaganpitch M, Erdman DD. **Screening pneumonia patients for Mimivirus.** *EID* 2008;14:465-7.
4. Dowell, SF, Gimenez Sanchez F. **Cough illness/bronchitis in children—the importance of judicious use of antimicrobial agents.** In: Nasal and Sinus Disorders in Children. New York: Dekker. (in press).
5. Hinjoy S, Puthavathana P, Laosiritaworn Y, Limpakarnjanarat K, Pooruk P, Chuxnum T, Simmerman JM, Ungchusak K. **Low frequency of infection with avian influenza virus (H5N1) among poultry farmers, Thailand, 2004.** *EID* 2008;14:499-501.
6. Jordan HT, Prapasiri P, Areerat P, Anand S, Clague B, Sutthirattana S, Chamany S, Flannery B, Olsen SJ. **A comparison of population-based pneumonia surveillance and health-seeking behavior in two provinces in rural Thailand.** *Int J Infect Dis* (in press).
7. Kosoy M, Morway C, Sheff KW, Bai Y, Colborn J, Chalcraft L, Dowell SF, Peruski LF, Maloney SA, Baggett HC, Sutthirattana S, Sidhirat A, Maruyama S, Kabeya H, Chomel BB, Kasten R, Popov V, Robinson J, Kruglov A, Petersen LR. **Bartonella tamiae sp. nov., a newly recognized pathogen isolated from three human patients from Thailand.** *J. Clin Microbiol* 2008;46:772-5.
8. Simmerman JM, Uyeki TM. **The burden of influenza in East and South-east Asia: a review of the English language literature.** *Influenza and Other Respiratory Viruses* 2008;2:81-92.
9. Weber AM, Areerat P, Fischer JE, Thamthitawat S, Olsen SJ, Varma JK. **Factors associated with diagnostic evaluation for tuberculosis among adults hospitalized for clinical pneumonia in Thailand.** *Infect Control Hospital Epidemiol* 2008;29:648-57.

GLOBAL DISEASE DETECTION PROGRAM

CDC's vision for Global Disease Detection (GDD) is a world made safe from the spread of infectious disease threats through collaborative global networking in support of the International Health Regulations (IHR), rapid detection, accurate diagnosis, and prompt containment. Funded by Congress since 2004, the GDD strategy envisions the establishment of GDD Centers, resources, and assets around the globe focused on strengthening public health infrastructure to rapidly detect and effectively contain infectious diseases that threaten the U.S. and other countries. The foundation of the GDD program includes outbreak response and preparedness, surveillance, evidence-based public health, training, and capacity building. GDD Regional Centers network with each other and with host and regional countries, nongovernmental and academic institutions, and WHO.

The GDD strategy and network unify and integrate existing global CDC program activities and assets that include 1) the Field Epidemiology Training Program (FETP) located in the Division of Epidemiology and Surveillance Capacity Development, Office of Capacity Development and Program Coordination, COGH; 2) the International Emerging Infections Program (IEIP) located in the Division of Emerging Infections and Surveillance Services, National Center for Preparedness, Detection, and Control of Infectious Diseases, CCID; and 3) influenza program activities located in the Influenza Division, National Center for Immunization and Respiratory Diseases, CCID. Efforts are underway to expand GDD partnerships and support to include other important CDC global programs and activities, and to augment and complement the groundwork laid by the initial program components.

The CDC Southeast Asia Regional Office in Thailand, established in 2006, houses one of six GDD Regional Centers. Others are located in China, Egypt, Guatemala, Kazakstan, and Kenya. At its inception, the Thailand GDD Regional Center built upon the infrastructure and work of IEIP/Thailand and its influenza section, as well as FETP – Thailand. Since then, GDD partnerships and support have expanded to include CDC programs and activities in the areas of laboratory capacity and biosafety, zoonotic diseases, public health emergency response (all hazards), health communications, tuberculosis, and refugee and migrant health. The Thailand GDD Regional Center is committed to developing an effective network of national, regional, and global partners and programs that can harmonize strategies and approaches, leverage resources, and forge alliances to meet the challenges of detecting, controlling, and preventing important and emerging infectious diseases.

IMMIGRANT, REFUGEE, AND MIGRANT HEALTH PROGRAM



IRMHP monitors tuberculosis screening and treatment among immigrants and refugees.

Background

The Immigrant, Refugee, and Migrant Health Program (IRMHP) is supported by CDC's Division of Global Migration and Quarantine (DGMQ). The mission of the IRMHP in Southeast Asia is to reduce illness and death due to infectious diseases among immigrants, refugees, and other mobile populations that cross international borders. In addition, the program is committed to promoting border health and preventing the introduction of infectious agents into the United States.

DGMQ establishes standards for the medical examination required of immigrants and refugees before their arrival in the U.S. As part of DGMQ, IRMHP monitors the quality of medical screening practices and reporting methods of the examining

About IRMHP

Established 2006

In-country Staff

1 CDC direct hire
2 locally employed staff

Directors

Dr. Luis Ortega (2008 – present)
Dr. Jacqueline Gindler (2006 – 2008)

Purpose

To improve immigrant, refugee, and migrant health, while supporting U.S. resettlement of refugees in Thailand and the region

FY 2008 Program Budget

\$790,000

Immigrant, Refugee, and Migrant Health Program

physicians, who are appointed by the U.S. Department of State. A major component of this monitoring is ensuring the implementation of the *2007 Technical Instructions for Tuberculosis Screening and Treatment* (TBTIs) among immigrants and refugees.

IRMHP also facilitates disease surveillance activities, coordinates outbreak response, and provides other epidemiological assistance for U.S.-bound refugee populations in the region.

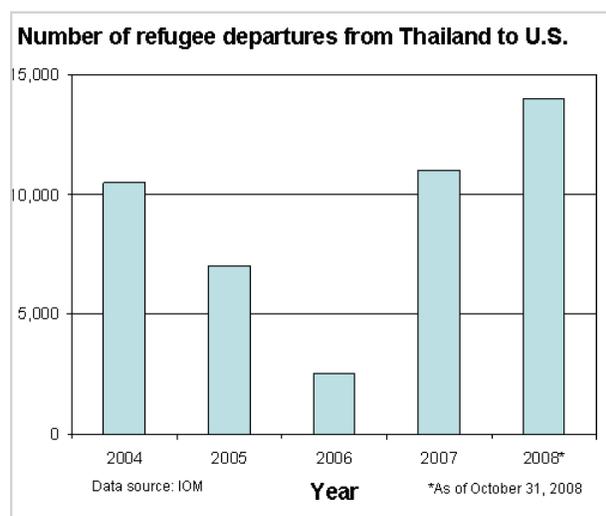
Major Partners

IRMHP collaborates with various agencies to accomplish its mission, including the International Organization for Migration (IOM), Aide Médicale Internationale, the Shoklo Malaria Research Unit (SMRU), and the United Nations High Commissioner for Refugees (UNHCR).

Recent Accomplishments

Technical Assistance

- ✓ Assisted IOM in the successful resettlement of approximately 18,000 Burmese refugees from Thailand and Malaysia into the U.S.



- ✓ Conducted technical visits to medical examination sites in China, Hong Kong, Malaysia, Nepal, the Philippines, Thailand, and Vietnam in FY 2008, in support of the 2007 TBTIs implementation plan.
- ✓ Continued surveillance activities for respiratory pathogens among Burmese refugees and migrants, through a cooperative agreement with SMRU.

Capacity Building and Cross-Program Collaboration

- ✓ Promoted partnerships in support of and consistent with MOPH's publication, *Border Health Development Master Plan 2007 – 2011*.
- ✓ Helped evaluate the UNHCR Health Information System in three refugee camps along the Thai-Burma border, in collaboration with DGMQ and UNHCR.
- ✓ Began a pilot project for diarrheal disease surveillance at a refugee camp and a transit center, after appropriate training sessions were conducted on data collection and reporting methods, including the use of PDA equipment.

Plans for FY 2009

- Support the resettlement and refugee health activities for approximately 40,000 Burmese refugees living in four camps located in northern Thailand's Mae Hong Song province.
- Continue to support the implementation of the 2007 TBIs in other countries of the region, such as Cambodia and India.
- Identify elements and partners to support the regional building of DGMQ's Quarantine System, an integrated and comprehensive partnership of local, national, and global health authorities to prevent, detect, and contain infectious diseases in countries of origin and at U.S. ports of entry.
- Using the Quarantine System, plan responses to public health threats, as mandated by the WHO International Health Regulations.
- In connection with the MOPH *Border Health Development Master Plan 2007 – 2011*, identify areas for TUC collaboration on Master Plan implementation strategies, such as promoting migrants' health through improving access to health services and promoting cooperation with neighboring countries (Burma, Cambodia, and Laos).
- Identify partners within MOPH and possibly other Royal Thai Government agencies in order to establish a steering committee for bilateral consultations on IRMHP activities in Thailand.
- Evaluate performance of pilot sites for diarrheal disease surveillance.

IRMHP 2008 Publications

1. Oeltmann JE, Varma JK, Ortega L, Liu Y, O'Rourke T, Cano M, Harrington T, Toney S, Jones W, Karuchit S, Diem L, Rienthong D, Tappero JW, Ijaz K, Maloney SA. **Multidrug-resistant tuberculosis outbreak among US-bound Hmong refugees, Thailand, 2005.** *Emerg Infect Dis* 2008;14(11):1715-21.

HIV/STD RESEARCH PROGRAM



HSRP conducts research on HIV trends, risk behaviors, and prevention tools.

Background

The partnership between CDC's Division of HIV/AIDS Prevention and Thailand MOPH began in 1990 with the establishment of the HIV/AIDS Collaboration (HAC) in Bangkok. In 1991, HAC opened a field station in Chiang Rai, a high HIV prevalence area, to determine risk factors for transmission of HIV and other STD among female sex workers. HAC also began collaborating with the Bangkok Metropolitan Administration (BMA) to understand the spread of HIV among injecting drug users (IDUs) in Thailand's capital city. In 1992, HAC began a series of studies with Siriraj and Rajavithi Hospitals on the prevention of mother-to-child HIV transmission and improvements in the care of HIV-infected women and their children. In 1998, a behavioral research section was added to the Collaboration to study health behaviors in high-risk groups like adolescents, IDUs, and men who have sex with men (MSM).

HIV research activities have focused on preventing mother-to-child transmission, assessing the safety and acceptability of vaginal microbicides, and evaluating the capability of vaccines and antiretroviral medicines to prevent infection.

Major Partners

The HIV/STD Research Program (HSRP) has a long record of collaboration with MOPH, BMA, and institutions such as Mahidol University, Queen Sirikit National Institute of Child Health, and Siriraj, Rajavithi, and Chiang Rai Regional Hospitals. HSRP also partners with local nongovernmental organizations like the Thai Red Cross Society and Rainbow Sky, and other CDC programs in Thailand such as the Global AIDS Program (GAP). An important part of the mission is capacity building, which it does through close partnerships in Thailand and in neighboring countries in Southeast Asia.

Accomplishments

HSRP's work has impacted the HIV epidemic in Thailand and the world.

The HIV Clinical Research Section of HSRP helped evaluate Asia's first phase III HIV vaccine trial. Although the vaccine did not protect IDUs from infection, this trial helped build capacity, developed an effective HIV risk reduction package, and demonstrated the feasibility of conducting phase III HIV prevention trials among IDUs in Thailand.

The Behavioral Research Section showed that handheld computer-assisted self interviewing could collect high-quality, sensitive data. This tool is now used for risk behavior surveillance by MOPH. This section led Thailand's first systematic assessment of HIV prevalence and risk behaviors in MSM, and uncovered a previously unknown epidemic of HIV infection in this risk group.

In addition to its ongoing support of HSRP's research studies, the HIV/STD Laboratory Sciences Section described human genetic variations associated with HIV resistance in

female sex workers, and was the first in the world to describe HIV re-infection with different strains (also called "super-infection"). It evaluated inexpensive methods to determine CD4 counts using specimens other than blood to determine the presence of HIV and viral load, and developed advanced methods to identify STD infection in the presence of microbicidal and other gel products.

After more than 15 years of ground-breaking HIV prevention research, HSRP closed its field station in Chiang Rai in 2008, along with two other research sites at Bangkok's Siriraj and Rajavithi Hospitals. The closures reflect the changing face of the HIV epidemic in Thailand, where heterosexual and mother-to-child transmission are largely controlled while IDUs and MSM remain at high risk of infection.

Thanks to the commitment of staff and volunteers in Chiang Rai, four microbicide safety and acceptability trials were completed in low risk women, couples, and HIV-infected women. In addition, a trial of acyclovir in HIV and HSV-2 co-infected women was completed and showed that acyclovir suppressive therapy decreased HIV genital shedding. The staff and volunteers at

About HSRP

Established 1990

In-country Staff

3 CDC direct hires
35 locally employed staff
1 contractor

Dr. Robert Linkins, Director

Purpose

To conduct research on HIV trends, risk behaviors, and prevention tools like vaccines and pre-exposure prophylaxis

FY 2008 Program Budget

\$8.3 Million

Siriraj and Rajavithi Hospitals demonstrated a 50% reduction of HIV infection in the children of mothers who received short-course AZT, a finding that has had a major impact on mother-to-child HIV prevention activities worldwide.

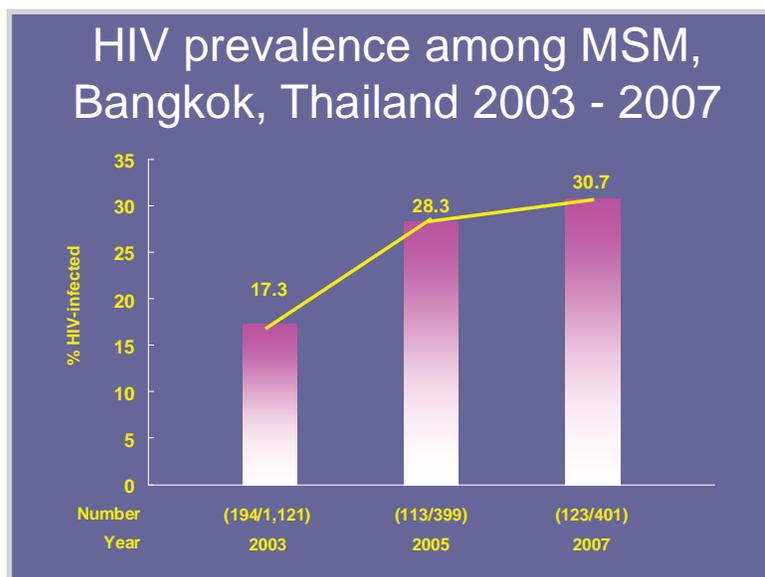
Current Activities

HSRP's current activities focus on oral chemoprophylaxis in IDUs and prevention efforts in MSM, and completing work on topical microbicides and the prevention of mother-to child transmission and HIV treatment.

The Bangkok Tenofovir Study is a phase II/III randomized, placebo-controlled study being conducted in 17 Bangkok drug treatment clinics to determine if a daily dose of oral tenofovir (an antiretroviral drug widely used for treatment of HIV infection) is safe and prevents HIV infection in IDUs. Approximately 2,400 eligible IDUs are being randomized to receive either tenofovir or placebo. Participants choose to follow up with daily directly observed taking of study drug, or monthly without direct observation. Interim safety and efficacy analyses are conducted by an independent data and safety monitoring board (DSMB).

Close collaboration with IDUs and IDU community representatives enabled trial enrollment to begin in June 2005. Adherence to daily tenofovir or placebo is good, and daily observed treatment has been successfully implemented. The DSMB advised that the trial continue following safety reviews in 2006, 2007, and 2008. Final trial results are expected as early as 2010.

In 2003, HSRP began surveillance of HIV prevalence among Bangkok MSM. Surveillance was expanded in 2005 and 2007 to include Chiang Mai and Phuket, as well as male sex workers and transgender persons. In Bangkok, the prevalence of HIV infection among MSM increased from 17% to 31% from 2003 to 2007 (see figure).



The Bangkok MSM Cohort Study, conducted by HSRP in collaboration with community advocacy groups, is following 1,300 MSM in Bangkok for three years. It is studying the prevalence, incidence, and risk factors for HIV and other STDs, as well as follow-up rates and willingness to participate in biomedical trials. After 12 months of follow-up, over 80% remain in the study. High HIV risk has been observed in this population, including a baseline HIV prevalence of 22% and an HIV incidence of over 5% per year. HSRP is now considering future activities in this cohort.

HSRP has completed a safety trial of UC-781, a non-nucleoside reverse transcriptase inhibitor

(NNRTI), in low-risk couples, the fifth such HSRP microbicide study in Chiang Rai. This phase I, randomized, placebo-controlled, double-blind study will continue the clinical development pathway for UC-781 and provide additional safety and acceptability data from a 14-day, twice-daily application using 0.1% and 0.25% concentrations in 45 sexually active, HIV-uninfected women and their HIV-uninfected partners. Final study results are expected in 2009.

The NNRTI Response Study is a prospective, multi-country observational study being conducted jointly by HSRP and GAP. Its purpose is to assess the effectiveness of nevirapine or other NNRTI-based highly active antiretroviral therapy in HIV-infected women who are initiating treatment after previously being given single-dose nevirapine for the prevention of mother-to-child HIV transmission in pregnancy, as compared with women who have not received single-dose

nevirapine. Enrollment of Thailand's 217 HIV-infected women at Siriraj and Rajavithi Hospitals was completed in January 2007, and data analysis is ongoing.

The HIV/STD laboratory performs tests for the studies conducted by HSRP. It is also evaluating the implementation of rapid oral fluid testing for HIV in 18 Bangkok clinics, developing methods to detect STD and occult HIV infection, and determining the prevalence of drug-resistant strains of HIV. Staff also developed safety protocols that were adapted by CDC headquarters for use at other CDC overseas laboratories.

The laboratory recently moved to temporary quarters on the MOPH campus while its permanent home is renovated to provide staff with a safer work environment. Staff are preparing for certification by the College of American Pathologists in their renovated lab in 2009.

HSRP 2008 Publications

1. Aidoo M, Sawadogo S, Bile EC, Yang C, Nkengasong JN, McNicholl JM. **Viral, HLA and T cell elements in cross-reactive immune responses to HIV-1 subtype A, CRF01_AE and CRF02_AG vaccine sequence in Ivorian blood donors.** *Vaccine* 2008;26:4830-9.
2. Bollen LJ, Blanchard K, Kilmarx PH, Chaikummao S, Connolly C, Wasinrapee P, Srivirojana N, Achalapong J, Tappero JW, McNicholl JM. **No increase in cervicovaginal proinflammatory cytokines after Carraguard use in a placebo-controlled randomized clinical trial.** *J Acquir Immune Defic Syndr* 2008;47:253-7.
3. Bollen LJ, Whitehead SJ, Mock PA, Leelawiwat W, Asavapiriyant S, Chalermchockchareonkit A, Vanprapar N, Chotpitayasunondh T, McNicholl JM, Tappero JW, Shaffer N, Chuachoowong R. **Maternal herpes simplex virus type 2 coinfection increases the risk of perinatal HIV transmission: possibility to further decrease transmission?** *AIDS* 2008;22:1169-76.
4. Chemnasiri T, Thienkrua W, Naorat S, Varangrat A, Chaikummao S, Akarasewi P, and van Griensven F. **A qualitative study of methamphetamine use among youth in Chiang Rai, 2003.** *Weekly Epidemiological Surveillance Report [Thai]* 2008;39(4S):86-91.

5. de Lind van Wijngaarden JW, Brown T, Girault P, Sarkar S, van Griensven F. **The epidemiology of HIV/STI infection and associated risk behaviors among men who have sex with men in the Mekong Subregion and China: implications for policy and programming.** *Sex Transm Dis* (in press).
6. Dunne EF, Whitehead S, Sternberg M, Thepamnuay S, Leelawiwat W, McNicholl JM, Sumanapun S, Tappero JW, Siriprapasiri T, Markowitz L **Suppressive acyclovir therapy reduces HIV cervicovaginal shedding in HIV-and HSV-2-infected women, Chiang Rai, Thailand.** *J Acquir Immune Defic Syndr* 2008;49:77-83.
7. Kaslow RA, McNicholl JM, Hill AVS, editors. **Genetic susceptibility to infectious diseases.** New York: Oxford University Press; 2008.
8. Kilmarx PH, Blanchard K, Chaikummao S, Friedland BA, Srivirojana N, Connolly C, Witwatwongwana P, Supawitkul S, Mock PA, Chaowanachan T, Tappero J. **A randomized, placebo-controlled trial to assess the safety and acceptability of use of Carraguard vaginal gel by heterosexual couples in Thailand.** *Sex Transm Dis* 2008;35:226-32.
9. Li A, Varangrat A, Wimonasate W, Chemnasiri T, Sinthuwattanawibool C, Phanuphak P, Jommaroeng R, Vermund S, van Griensven F. **Sexual behavior and risk factors for HIV infection among homosexual and bisexual men in Thailand [published online ahead of print, Aug 30, 2008].** *AIDS Behav* DOI 10/1007/s10461-008-9448-3.
10. McNicholl JM, Jensen PE, Boss JM. **MHC class II and related genes.** In: Kaslow RA, McNicholl JM, Hill AVS, editors. **Genetic susceptibility to infectious diseases.** New York: Oxford University Press; 2008. p. 62-82.
11. Moraes MO, McNicholl JM, Huizinga JW, Ottenhoff THM. **Cytokine genes I (IL10, IL6, IL4 and the IL1 family).** In: Kaslow RA, McNicholl JM, Hill AVS, editors. **Genetic susceptibility to infectious diseases.** Oxford University Press; 2008. p. 208-226.
12. Nguyen HT, Duc NB, Shrivastava R, Tran TH, Nguyen TA, Thang PH, McNicholl JM, Leelawiwat W, Chonwattana W, Sidibe K, Fujita M, Luu CMT, Kakkar R, Bennett DE, Kaplan J, Cosimi L, Wolfe MI. **HIV drug resistance threshold survey using specimens from voluntary counselling and testing sites in Hanoi, Vietnam.** *Antivir Ther* 2008;13(Suppl 2):115-121.
13. Pliplat T, Kladsawas K, van Griensven, Wimonasate W. **Results of the HIV surveillance among men who have sex with men (MSM) in Bangkok, Chiangmai and Phuket.** *Proceedings of the Department of Disease Control Annual Conference, Ministry of Public Health [Thai]* 11-13 February 2008, Bangkok.
14. Promadej-Lanier N, Thielen C, Chaowanachan T, Hu DJ, Gvetadze R, Choopanya K, Vanichseni S, McNicholl JM. **Cross-reactive T-cell responses in HIV CRF01_AE and B'-**

- infected intravenous drug users: implications for superinfection and vaccines.** *AIDS Res Hum Retrovir* (in press).
15. Schroeder HW, McNicholl JM. **Immune deficiency disorders.** In: Kaslow RA, McNicholl JM, Hill AVS, editors. **Genetic susceptibility to infectious diseases.** Oxford University Press; 2008. p. 265-281.
 16. Sheridan S, Phimpachanh C, Chanlivong N, Manivong S, Khamsyvolsvong S, Lattanavong P, Sisouk T, Toledo C, Scherzer M, Toole M, van Griensven F. **HIV prevalence and risk behaviours among men who have sex with men in Vientiane Capital, Lao PDR, 2007.** *AIDS* (in press).
 17. Suntharasamai P, Martin M, Vanichseni S, van Griensven F, Sangkum U, Pitisuttithum P, Tappero JW, Choopanya K. **Incarceration and HIV among drug users in Thailand.** *Addiction* (in press).
 18. Sunthornchart S, Linkins RW, Natephisarnwanish V, Levine W, Maneesinthu K, Lolekha R, Tappero J, Trirat N, Muktier S, Chancharastong P, Fox K, Donchalermprak S, Vitek C, Supawitkul S. **Prevalence of hepatitis B, tetanus, hepatitis A, HIV, and feasibility of vaccine delivery among injecting drug users in Bangkok, Thailand, 2003-2005.** *Addiction* 2008;103:1687-95.
 19. Supapol WB, Remis RS, Raboud J, Millson M, Tappero J, Kaul R, Kulkarni P, McConnell M, Mock PA, Culnane M, McNicholl J, Roongpisuthipong A, Chotpitayasunondh T, Shaffer N, Butera S. **Reduced mother-to-child transmission of HIV associated with infant but not maternal GB virus C infection.** *J Infect Dis* 2008;197:1369-77.
 20. van de Wijgert JHHM, Kilmarx PH, Jones HE, Karon JM, Chaikummao S. **Differentiating normal from abnormal rates of genital epithelial findings in vaginal microbicide trials.** *Contraception* 2008;77:122-9.
 21. van Griensven F, Sanders E. **Understanding HIV risks among men who have sex with men in Africa [Editorial].** *Sex Transm Dis* 2008;35:355-6.
 22. Varangrat A, Chemnasiri T, Wimonasate W. **Development of research study among men who have sex with men (MSM) in Thailand.** *Proceedings of the Department of Disease Control Annual Conference, Ministry of Public Health [Thai]* 11-13 February 2008, Bangkok.
 23. Whitehead SJ, Leelawiwat W, Jeeyapant S, Chaikummao S, Papp J, Kilmarx PH, Markowitz LE, Tappero JW, Chaowanachan T, Uthavivoravit W, Van Griensven F. **Increase in sexual risk behavior and prevalence of Chlamydia trachomatis among adolescents in northern Thailand** *Sex Transm Dis* 2008;35:883-8.

GLOBAL AIDS PROGRAM



The Global AIDS Program's Asia Regional Office provides technical support to countries in the region and beyond.

Background

Global AIDS Program's Asia Regional Office (GAP/ARO) began as GAP/Thailand in 2001. The program signed cooperative agreements with MOPH and the Bangkok Metropolitan Administration (BMA), and established provincial networks in Bangkok, Chiang Rai, Ubon Rathchathani, and Phuket. GAP/Thailand established a strategy of working collaboratively with MOPH and the networks to develop and evaluate model programs for HIV prevention, care, and surveillance; establish quality systems for HIV care and treatment programs, including related laboratory testing; and increase the collection and use of surveillance data and other strategic information.

As the program has expanded to provide technical support to countries in the region and beyond, its name changed to GAP/ARO, reflecting the new mission. Through partnerships with other GAP country offices, notably in Cambodia and Vietnam, GAP/ARO staff and partners provide technical support and training. In addition, programs developed jointly by GAP, MOPH, and BMA have

served as models for PEPFAR programs in other countries. Among these exports are a prevention of mother-to-child HIV transmission (PMTCT) program that resulted in a CDC- and WHO-endorsed curriculum and the HIVQUAL quality improvement approach for HIV care and treatment.

In FY 2008 the program began providing technical assistance to national HIV programs in Laos and Papua New Guinea. As a partner in the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), GAP/ARO plans jointly with USAID and other U.S. government agencies to conduct HIV prevention and care activities in Laos, Papua New Guinea, and Thailand.

Major Partners

GAP/Thailand works with MOPH, BMA, and provincial health offices in many parts of the country. For specific projects, GAP also collaborates with other Royal Thai Government agencies, local NGOs, universities, UN agencies, and other international organizations. University and NGO partners in recent years have included Mahidol University, Khon Kaen University, Thai Red Cross Society, Rainbow Sky Association of Thailand, Life Home Project Foundation, SWING, Issarachon, and Access Foundation.

Within the CDC Southeast Asia Regional Office, GAP collaborates with the TB Program on models for improved TB/HIV services. GAP also teams with the HIV/STD Research Program on surveillance of men who have sex with men (MSM), and on a study of non-nucleoside reverse transcriptase inhibitor (NNRTI)-based treatment for HIV-infected women who previously received nevirapine for prevention of mother-to-child HIV transmission.

Recent Accomplishments

HIV Care and Treatment

- ✓ **HIVQUAL-T initiative for performance measurement and quality improvement in HIV care and treatment**

This model was pilot tested in 12 hospitals in northern Thailand starting in 2003. Through a partnership with the National Health Security Office, 555 hospitals are now participating in HIVQUAL-T. Quality of care indicators in participating hospitals have increased steadily. In 2005-2006, additional modules addressing pediatric care, HIV counseling and testing services, and comprehensive care centers were initiated. GAP staff have developed an international version of HIVQUAL software, and the HIVQUAL model and software have now been adapted for use in Namibia and Uganda.

About GAP

Established 2001

In-country Staff

4 CDC direct hires
37 locally employed staff
1 contractor

Dr. Kimberley Fox, Director

Purpose

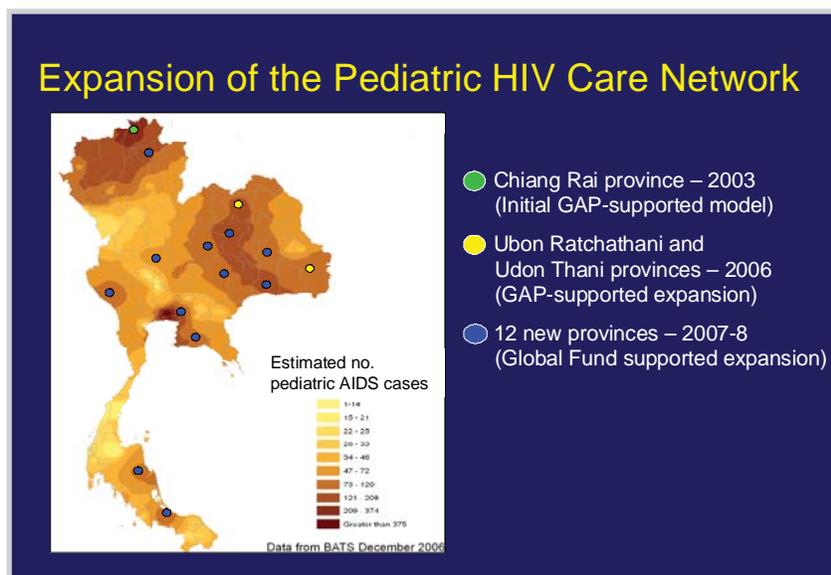
To develop and expand innovative programs for surveillance, prevention, and treatment of HIV and related diseases, as a partner in the U.S. President's Emergency Plan for AIDS Relief

FY 2008 Program Budget

\$5.4 Million

✓ Pediatric treatment networks to expand access to antiretroviral treatment for HIV-infected children

This model was developed and tested in Chiang Rai Province in northern Thailand. Training of community hospital staff and local volunteers allows children to receive care close to home, and clinical outcomes remain very good. Through joint GAP and MOPH support, including the development of “how-to” manuals and training curricula, the model was expanded to Ubon Ratchathani and Udon Thani provinces in 2007 and to 12 additional provinces in 2008 (see figure).



for self-care, peer leadership and economic support to persons living with HIV/AIDS. This model is currently being evaluated for its impact on health status and participation of persons living with HIV/AIDS (PLHA) in care and prevention services.

✓ Disclosure of HIV status to HIV-infected children

Through collaboration with Queen Sirikit National Institute of Child Health and Siriraj Hospital, a standardized approach was developed to assess readiness and inform perinatally infected children of their HIV status once they are at least 7 years old. Through partnership with MOPH and funding from the Global Fund, 700 staff from hospitals in 16 provinces have been trained in this approach. The model is currently being evaluated for its impact on quality of life and adherence to antiretroviral treatment.

✓ Comprehensive care centers

The centers provide psychosocial support and adherence counseling, and teach skills

Laboratory Capacity and Infrastructure Development

✓ External quality assessment (EQA) systems for HIV serology, CD4 testing, and HIV viral load

Expanded initially with GAP support, MOPH's EQA system for HIV serology now reaches nearly 1,000 laboratories across Thailand, and the HIV viral load EQA system initiated in 2006 now has 34 participating laboratories. With early GAP support, Siriraj Hospital's EQA system for CD4 testing expanded to national coverage, and as of 2007, obtained full support from the National Health Security Office. The serology and CD4 EQA systems have expanded to include laboratories in Cambodia and Vietnam through GAP

country office support, and the CD4 EQA system now includes laboratories in Bhutan, Burma, India, Indonesia, and Nepal through WHO support.

✓ **Implementation of laboratory quality systems**

Through regional centers of the Department of Medical Sciences, GAP supports training and technical assistance to help 54 hospital laboratories in three provinces work toward achieving national certification or meeting the International Organization for Standardization standards for accreditation (ISO 15189). To date, 14 labs have achieved accreditation or certification. In 2008, GAP developed a partnership among MOPH departments, the National Health Security Office, and the Medical Technologist Council to promote and support national certification for all hospital laboratories. Through GAP support, Thai experts in laboratory quality systems provide technical assistance and training to laboratory leaders in Cambodia and Vietnam.

✓ **Training on laboratory methods**

Workshops on CD4 testing, viral load, fungal culture and identification, mycobacterial culture and sensitivity, and other topics have been provided for laboratory staff from Thailand and Vietnam.

Prevention of New HIV Infections

✓ **Community outreach for injecting drug users**

Pilot tested in the communities around eight of Bangkok's 18 methadone clinics, community-based outreach is now becoming a routine government service. Monitoring data show that after exposure to the

outreach program, drug users reduce their risk behaviors and use clinic services for methadone treatment and HIV testing. A model to develop peers as outreach workers is being evaluated in two Bangkok sites. In 2008, this GAP/Thailand-supported model for drug user outreach was shared with GAP staff and partners in Tanzania.

✓ **HIV prevention for prisoners**

This model trains prisoner peers to conduct HIV risk reduction outreach and establishes basic STD and HIV testing services and



Training is a core activity in building sustainable HIV programs.

condom distribution in prison. In an evaluation survey, easy access to condoms was identified as the key factor associated with condom use during risky sex in prison. After successful implementation in two prisons in Phuket and Pathum Thani, the Department of Corrections has become a partner for expansion to additional prisons.

✓ **HIV prevention for MSM**

Four provinces are developing prevention services, using peer outreach and accessible HIV testing and STD services. Capacity building forms an integral part of GAP support: sensitivity training for clinic staff, MSM STD clinical training for doctors, MSM risk reduction counseling training for counselors, and behavior change communications training for outreach workers.

✓ **Identifying changing prevention needs for female sex workers (FSW)**

Increasingly, FSW in Thailand solicit clients on the streets, in parks, or in other ways outside of traditional brothels or entertainment venues. A respondent-driven sampling survey—designed to reach hidden populations—was conducted in partnership with local health officials in Bangkok and Chiang Rai to identify risk behavior patterns among these non-venue-based FSW. Using data from the survey, targeted approaches will be designed to bring prevention services to these groups.

✓ **Prevention with positives**

These programs in Bangkok provide prevention services to help PLHA prevent further spread of HIV infection. Specialized models are being developed for adult patients

in general HIV care clinics, for MSM, and for perinatally infected youth.

✓ **Couples HIV testing in antenatal care**

Pilot tested at district health centers in Phuket, this model received strong marks for patient satisfaction and led to higher rates of partner testing than did traditional HIV testing services for pregnant women. Adopted by MOPH, this model is the basis for national guidelines and training materials which will be pilot tested in several provinces in 2009.

✓ **HIV prevention for Thai seafarers**

Counseling and information centers for HIV and STDs were established near the docks, in partnership with MOPH, local health officials, and NGOs. In 2008, model evaluation was completed and services were transitioned to full MOPH funding support.

✓ **Drop-in center for high-risk youth**

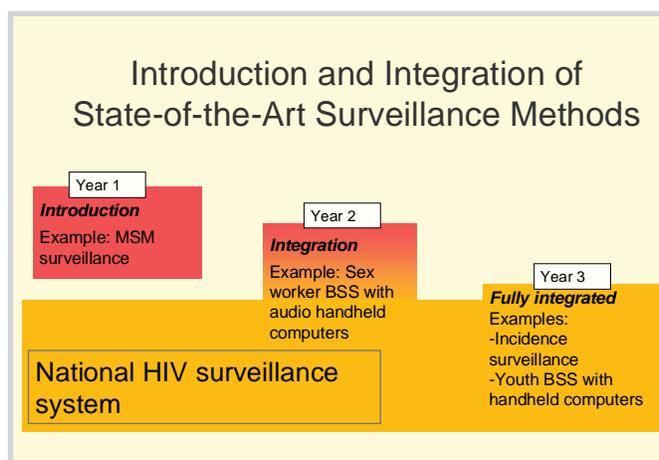
This project provides HIV education, counseling, and linkages to clinical services for youth in Chiang Rai. Evaluation of the model to determine impact on risk behaviors is underway.

Surveillance and Information Systems

✓ **Implementation of new surveillance approaches**

To monitor the epidemic and provide information for program planning, a series of state-of-the-art methods have been integrated into routine annual surveillance in Thailand (see figure):

- HIV incidence surveillance using subtype BED IgG capture-based enzyme immunoassay (BED-CEIA) testing.



- Handheld computer-based behavioral surveys for youth.
- Audio handheld computer surveys for FSW.
- Urine-based STD surveillance paired with sex worker surveys in select provinces.

Progression from pilot testing to full integration into MOPH systems takes an average of three years. Results from these approaches have contributed to the new national HIV prevention strategy. GAP also supports some activities of the MOPH's Antiretroviral Resistance Management Plan. This plan includes surveillance among antiretroviral-naïve persons using the WHO-endorsed threshold survey methodology, and measurement of resistance in cohorts of persons initiating antiretroviral treatment in eight provinces. During 2007, venue-day-time sampling was introduced to survey MSM, building on earlier surveys by the HIV/STD Research Program.

✓ **Monitoring systems for the national PMTCT program**

Improved data collection, with rapid feedback of program information, shows Thailand has achieved very high uptake rates for PMTCT services, and a mother-to-child transmission rate that has declined from 8.4% in 2001 to 2.9% in 2006.

✓ **Information systems development**

Program monitoring databases and other customized software tools support program implementation and evaluation.

Administration and Management Tools

✓ **GAPBudget and CoAgFin**

These software tools simplify the process of budget development and expenditure monitoring for partner activities. These programs were developed by our local IT staff in Microsoft Access, and allow aggregation across budget categories, technical areas, and project locations.

Development of Technical Support Programs in Laos and Papua New Guinea

✓ **Laos**

During 2008, GAP/ARO developed an agreement to provide technical support to the Lao Ministry of Health's Center for HIV/AIDS and STI in order to advance implementation of the Lao National HIV/AIDS Plan. Initial areas of support will focus on HIV care and treatment services, laboratory quality systems, capacity building for surveillance and data use, and HIV prevention for MSM, building upon and complementing existing USAID-supported NGO efforts in Laos. GAP/ARO will work

in close partnership with WHO for technical support related to surveillance and clinical and laboratory services.

✓ Papua New Guinea (PNG)

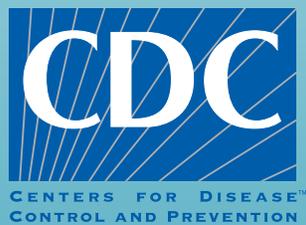
During 2008, GAP/ARO developed collaborative plans with WHO to provide technical support to the PNG National Department of Health's HIV program. As with Laos, areas of support were selected to complement existing USAID-supported NGO efforts in PNG. Initial areas of support will focus on quality systems for HIV care and treatment, laboratory quality systems, HIV counseling and testing guidelines and procedures, and surveillance quality assurance.

Plans for FY 2009

During 2009, GAP/ARO begins development of a formal technical assistance partnership compact between the U.S. government and the Royal Thai Government. This compact will outline goals for the U.S.-Thai collaboration on HIV programs over the next five years, and will establish a plan and benchmarks toward reaching these goals. Also in 2009, GAP/ARO will initiate full implementation of technical support programs for Laos and PNG. These programs continue the successful approach of sharing GAP/Thailand- and MOPH-collaboratively developed models and expertise with other countries, and providing cross-border technical assistance.

GAP 2008 Publications

1. Chasombat S, McConnell MS, Siangphoe U, Yuktanont P, Jirawattanapaisal T, Fox K, Thanprasertsuk S, Mock PA, Ningsanond P, Lertpiriyasuwat C, Pinyopornpanich S. **National expansion of antiretroviral treatment in Thailand, 2000-2007: Program scale-up and patient outcomes.** *J Acquir Immune Defic Syndr* (in press).
2. Jamieson DJ, Natapakwa S, Chaowanachan T, Roongpisuthipong A, Bower WA, Chotpitayasunondh T, Supapol WB, Kuhnert WL, Siriwasin W, Wiener J, Chearskul S, McConnell MS, Shaffer N. **Infection with hepatitis C virus among HIV-infected pregnant women in Thailand.** *Inf Dis Ob and Gyn* (in press).
3. Sunthornchart S, Linkins RW, Natephisarnwanish V, Levine W, Maneesinthu K, Lolekha R, Tappero J, Trirat N, Muktier S, Chancharastong P, Fox K, Donchalermprak S, Vitek C, Supawitkul S. **Prevalence of Hepatitis B, Tetanus, Hepatitis A, HIV, and feasibility of vaccine delivery among injecting drug users in Bangkok, Thailand, 2003-2005.** *Addiction* 2008;103:1687-95.
4. Tunthanathip P, Lolekha R, Bollen LJM, Chaovavanich A, Siangphoe U, Nandavisai C, Suksripanich O, Sirivongrangson P, Wiratchai A, Inthong Y, Eampokalap B, Ausavapipit J, Akarasewi P, Fox KK. **Indicators for sexual HIV transmission risk among Thais attending HIV care: The importance of positive prevention.** *Sex Trans Inf* (in press).



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