



Dear Colleague:

The Advisory Council for the Elimination of Tuberculosis (ACET) met in Atlanta on February 15 to 16, 2006, with a full slate of topics to discuss. After being welcomed by Drs. Masae Kawamura and Ronald Valdiserri, we heard an update from our new Center Director, Dr. Kevin Fenton, who was selected for that position last November. He discussed CDC's ongoing efforts to best organize its components by our common programs, services, and partners. To that end, our Center will retain its current divisions of HIV/AIDS Prevention, STD Prevention, and Tuberculosis Elimination, and is being joined by another division, the Division of Viral Hepatitis. Our Center will be officially renamed the National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP). We are pleased to be welcoming these new colleagues to our center, with whom we share a commitment to serve similar high-risk communities. Dr. Fenton informed us that Dr. Dale Hu, who had served as acting associate director for laboratory sciences, has left the Center and been replaced by Dr. Michele Owen in that position.

Dr. Julie Gerberding, CDC Director, joined us in our meeting to inform us of CDC budget issues, noting that there will be a reduction in funding for infectious disease activities for 2006 and 2007. Dr. Michael Fleenor then presented a follow-up regarding the NCID Board of Scientific Counselors (BSC) meeting that was held November 29–30, 2005. Attendees at that meeting discussed the advantages and disadvantages of consolidating the various advisory committees at CDC so as to reduce the number from 22 to eight. Some advisory committees are mandated by Congress, others are not; ACET is a mandated advisory group. Discussions continue on this matter.

I provided division updates in my DTBE Director's report, beginning by mentioning progress in updating the ACET recommendations for preventing tuberculosis among foreign-born persons. We are working through the normal process of defining the process, reviewing evidence, engaging stakeholders, updating the guidelines, and disseminating and evaluating the findings; Dr. Dolly Katz of DTBE's Surveillance, Epidemiology, and Outbreak Investigations Branch has been designated project lead for this activity. I also reported that DTBE staff members conducted eight epi-aids in 2005. Although cases of TB are going down overall, the outbreaks we now see involve very large numbers of contacts that need to be investigated, with the resultant expenditure of large amounts of TB control resources. I announced that USPHS TBTC Study 28, in which moxifloxacin will be substituted for INH to assess safety and feasibility in a 4-month regimen, had recruited its first two patients. (Note: As of mid-April, it had recruited 50.)

Dr. Drew Posey of the Division of Global Migration and Quarantine (DGMQ) provided an update on the recent efforts of CDC staff to fight TB and multidrug-resistant (MDR) TB in Hmong refugees still in Thailand. After the resettlement of almost 15,000 Hmong refugees in California, Minnesota, and several other states, MDR TB was reported in a number of these refugees and the resettlement was temporarily halted until improvements in screening could be implemented. Investigations ensued in California and Thailand. As a result of CDC's collaborations in Thailand, changes were made in the refugee screening algorithm, with improvements in the laboratory capacity, the DOT procedures, and health communications such that the resettlement was restarted and the number of MDR TB cases in resettled persons subsequently dropped, from 44 cases before the changes to four cases afterwards. Dr. Jennifer Flood gave the perspective of California's Department of Health Services on the Hmong refugee resettlement, describing case management problems that occurred and the impact the resettlement has had on California TB program resources.

We heard from DTBE's Dr. Philip LoBue as well as Dr. Farah Parvez of New York City and Dr. Michael Puisis of Chicago with presentations on preventing TB transmission in correctional facilities. Dr. LoBue gave a report on the guidelines for preventing TB in correctional facilities, which are being revised and will be submitted soon for MMWR publication. Dr. Parvez discussed NYC's proposal to change from universal tuberculin skin testing to giving targeted TSTs upon intake in NYC jails. Dr. Puisis gave an alternative view, proposing that persons in correctional settings are inherently high risk, particularly in NYC, and suggested the increased use of chest radiographs in TB screening programs in correctional facilities. The guidelines will likely encourage programs to implement evidence-based measures to prevent TB in correctional facilities.

We heard a series of presentations on border health issues. Dr. Gary Simpson of New Mexico gave a talk on the complexities of providing TB treatment to binational, interstate, and international patients, particularly those with comorbid medical or psychiatric conditions and those in legal custody. Questions frequently arise regarding responsibility and authority of state and federal entities in these cases. Dr. Ram Koppaka of DGMQ discussed federal public health law and how it applies to patients crossing the border and within states. Dr. Zach Taylor of DTBE provided further data on the burden of TB in binational border areas, and I gave an update on the evaluation of the Binational Card in lieu of Dr. Kayla Laserson. (Kayla has departed DBTE for a position as director of CDC's field station in Kenya.) Ms. Mary Lou Valdez of the HHS Office of the Secretary, and also on the Border Health Commission, spoke to us of efforts of the Commission to improve TB control on the border.

Drs. Nick DeLuca and Zach Taylor gave presentations on our ongoing efforts to address TB among African Americans. Zach gave an update on the three 3-year demonstration projects which were awarded funding by CDC to intensify efforts to reduce TB rates in African-American communities. They were tasked with developing, implementing, and evaluating interventions for these communities; these projects were developed and implemented, and evaluation is now ongoing, with results to be available soon. Nick

discussed progress and next steps on the project to identify and overcome barriers to TB treatment adherence for LTBI and TB disease among African Americans in the Southeast; formative research is in progress. Nick mentioned the 2003 consultation that was convened by DTBE and ACET to raise awareness about and solicit support for efforts to reduce TB in African Americans; DTBE plans to readdress these issues at a follow-up meeting in mid-May 2006. Finally, Dr. David Weissman of NIOSH talked about the National Occupational Research Agenda (NORA), which is an initiative to develop an occupational diseases research agenda for the nation. A discussion of fit testing and respirator issues followed his talk. After discussing some follow-up items, we were adjourned. The council will reconvene July 26–27, 2006.

A limited number of DTBE staff traveled to Chicago March 2–4, 2006, for the 10<sup>th</sup> Annual Conference of the International Union Against Tuberculosis and Lung Disease (IUATLD) North American Region. The theme of this year's special anniversary meeting was "A Past Decade of Accomplishment, A Future Decade of Ambition." The meeting gave special recognition to Dr. George Comstock, considered by many one of the leading experts on TB worldwide, whose significant contributions paved the way for considerable improvement in TB prevention and control activities. Speakers shared their expertise in a variety of educational sessions, including "50 Years of TB: Lessons from the Past, Prospects for the Future," "Beyond TB: Limiting the Risks from Infectious Disease Outbreaks," "Epidemiology: Mapping the Route to Control," "TB/HIV: Intertwining Epidemics," "The Future of Tuberculosis Treatment," "Clinical Issues: Real Problems, Real Solutions," and a Nursing Assembly program.

As you know, World TB Day is observed each year on March 24. Around the world, TB programs, nongovernmental organizations, and others take advantage of the increased interest generated by World TB Day to discuss their own TB-related problems and solutions, and to support worldwide TB control efforts. This year, a large number of U.S. TB control programs planned activities and press conferences for this day to highlight the need to stay focused on TB control efforts. DTBE maintains a World TB Day website with information on the activities that each site planned, as well as tools that are available for future events: <http://www.cdc.gov/nchstp/tb/WorldTBDay/2006/default.htm>. Activities were also planned for CDC staff in Atlanta so that those of us here could join with our field staff and health department colleagues in observing this day.

Kenneth G. Castro, MD

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Note: The use of trade names in this issue is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

# TB Notes

Centers for Disease Control and Prevention  
Atlanta, Georgia 30333

Division of TB Elimination ♦ National Center for HIV, STD, and TB Prevention

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## HIGHLIGHTS FROM STATE AND LOCAL PROGRAMS

### An Outbreak Response in a Rural, Southwest Missouri County Jail

Introduction: The Missouri TB control program has a long-standing history of collaborating with the University of Missouri's Sinclair School of Nursing. One benefit of this collaboration is the opportunity for TB staff to serve as preceptors to senior-level nursing students pursuing a bachelor of science degree in nursing (BSN), thus promoting public health in our next generation of nurses. During this past fall-winter semester, we had the good fortune to work with Ms. Caitlin Tremblay, RN, BSN. She joined us when our limited resources were spread particularly thin owing to an outbreak response. This particular response involved a rural jail in southwest Missouri epidemiologically linked to a previous outbreak in a Kansas prison. The following is Caitlin's summary of the outbreak response and the activities to which she was able to contribute. Since her graduation, Caitlin has joined us at the Missouri Department of Health and Senior Services (MDHSS) as a Project Specialist and continues to assist the TB program. If your state or local TB program has not already entered into a partnership with area BSN or other academic programs, I hope that after reading this you will be encouraged to do so!

—Lynelle Phillips, RN, MPH  
CDC Public Health Advisor

Missouri Department of Health and Senior Services

Caitlin Tremblay and Lynelle Phillips are pictured in the photo above

### Background

Jasper County, population 108,000, is located in southern Missouri.

This county's poverty rate

is approximately 14.5%, compared to the statewide rate of 11.7%. The annual per capita income is approximately \$3000 less than in the rest of the state. Missouri leads the country in methamphetamine lab incidents; in 2004, Jasper County was the second highest county in methamphetamine lab seizures and dumpsites. The county's largest city is Joplin and its county seat is Carthage. Jasper County formerly depended upon the lead and granite mining industry that began in the 1850s. As a result of this booming mining industry, at the turn of the 20<sup>th</sup> century Carthage had the most millionaires per capita in the country. Remnants of this wealth can still be seen on some streets in the town, with large, ornate houses, a stark contradiction to nearby impoverished neighborhoods.

Many of the poorest areas of Carthage are inhabited by immigrants, mostly from Latin American countries, with an unknown percentage having legal status issues. They live in this area for the work, and provide labor to the food processing plants located within the county. Multiple people often live in run-down, substandard housing units.



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### *Jasper County Jail*

Jasper County Jail is located in the center of Carthage, next to the downtown square. It has a circular design consisting of six pods, with cells within the pods where the inmates sleep at night. Its capacity is 167 inmates, although the census was typically 230 inmates during the course of this investigation. Some cells containing four bunks were holding up to eight inmates at a time (cots are added for the additional cell mates). At night, the inmates are locked in their cells, but they are released to common areas each day, where they remain for about 10 hours. The residents of each pod go to the gym area as a group, separate from the other groups, for 1 hour daily. Pod A holds sex offenders and rapists, B holds females, C and D hold petty crime offenders (many drug-related crimes), E holds county offenders, and F holds maximum-security offenders. Among these inmates, those in pod E have the longest average stay in the jail, approximately 108 days, according to jail staff.

One full-time licensed practical nurse serves the entire inmate population. A generalized medical questionnaire is given to all new inmates to fill out. No testing or other medical check is done on inmates unless a medical problem is identified on the questionnaire or the inmate is clearly sick.

According to maintenance staff, two air-filtration systems filter the air within the jail; the first system handles pods A, B, and C, and the other system filters pods D, E, F, and the gym. On the day of the site tour, the jail appeared to have poor lighting, and the air seemed dank, stale, and heavy.

### *Timeline*

Mid-July 2005: An undocumented immigrant from Guatemala, aged 45, who was incarcerated on drug charges and housed in pod C of Jasper County Jail from May 6 to July 16, 2005, was transferred to Western Reception of the Diagnostic and Correctional Center in St. Joseph, Missouri. During his intake exam, he was diagnosed with early pulmonary tuberculosis (TB) disease, subsequently confirmed by tuberculin skin test (TST), chest radiograph (CXR), sputum smear, and culture. He is referred to as Case A.

Early August 2005: A contact investigation was initiated and initial TSTs were placed on all inmates in Jasper County Jail who had been present during Case A's incarceration.

Mid-August 2005: CXRs were taken of all inmates with positive TSTs found at the time of initial testing. A person with highly infectious pulmonary TB disease (Case B) was discovered in pod E of Jasper County Jail. Case B is a 40-year-old African-American male with a history of untreated diabetes. Upon diagnosis with TB, he was immediately transferred to a local hospital and later to the Missouri Department of Corrections. The contact list was then expanded to include all inmates present for the entirety of Case A's and Case B's incarcerations.

Mid-October 2005: Spoligotype results were returned and revealed that Case A and Case B were not infected with the same strain of TB.

Mid-October 2005: A 66-year-old homeless man (Case C), a cellmate of Case B for 10 days in May, was discovered at a halfway house with symptoms consistent with pulmonary TB. Although his TST result was negative, the public health nurse obtained a sputum specimen owing to his symptoms. He was diagnosed later in the month as having culture-confirmed *M. tuberculosis*. Case C was not believed to have been infectious at the time of diagnosis, but to ensure compliance with treatment, was immediately admitted to the Missouri Rehabilitation Center inpatient TB ward for treatment.

Early November 2005: Case C's spoligotype and MIRU were returned and matched Case B's, results consistent with transmission involving Case B and Case C. The findings that Case B was highly infectious, based on a positive sputum smear and cavitary lung disease, and that Case C was not highly infectious, based on a negative sputum smear for acid-fast bacilli and a negative chest x-ray, suggests that Case B was the source of Case C's tuberculosis.

#### *Prioritizing, Locating, and Testing Contacts*

Lists were developed of all inmates present in the jail from late March to mid August 2005, corresponding to the incarceration of Case A and Case B. Case C was not believed to have been infectious at the time of his incarceration, so his contacts were not included. Priorities were then assigned to all contacts to the cases, using 2x2 tables and statistical analysis. Initially, analysis showed increased risk for cellmates of each case and for pod mates of Case B. With a contact database of 455 people, it was necessary to prioritize close contacts and keep the number of high-priority contacts to a manageable number. First priority was assigned to any cellmate of Case A or Case B, or a pod mate of Case B in July and August, when he was believed to be

most infectious (n=92). Second priority was assigned to pod mates of Case B in April, May, or June (n=49), and third priority to any pod mate of Case A, all other jail inmates identified as contacts, and all employees (314). Missouri's TB Program attempted contact with all first- and second-priority discharged inmates multiple times. The logbooks for the jails included some locating data, which were used for contact purposes. Inmates were considered evaluated when they either had a negative TST 8–10 weeks postexposure or if TST positive, had completed a CXR and medical exam. Ten-dollar gift cards were offered as an incentive to inmates who completed evaluation. This generated interest and increased contact response and completion of the testing. Despite the increased results with incentive use, the evaluation rate for priority one and two contacts was 50%. The TST positivity rate was 47% for first-priority contacts and 17% for second-priority contacts. Owing to high recidivism rates, it became obvious that the most effective approach for finding contacts was to wait for them to reenter the jail system. We changed our strategy to checking county jail logbooks several times a week in Jasper County and surrounding areas. This approach was less time intensive and has yielded more contacts than other methods employed, and is consistent with findings in other jail outbreak settings.

#### *Review of Genotyping Data*

National genotype testing began in 2004 and has greatly advanced investigations of TB outbreaks through DNA analysis of a TB strain, which aids in linking cases that did not have any association on previous investigation. In this case we were able to rule out transmission between Case A and Case B or C because Case A's isolate had a different genotype from the other two. When we compared those genotypes with the state records to find matches, we were surprised to find other genotype matches to B's and C's strain across the state and in Kansas. Spoligotype and MIRU numbers match exactly to the cases found in Jasper County Jail.

(Kansas) Match #1: The index case in a jail outbreak 2 years ago in Kansas, described in the CDC publication "Tuberculosis transmission in multiple correctional facilities---Kansas, 2002–2003," (*MMWR* August 20, 2004; 53[32]:734–738).

(Kansas) Match #2: Cell mate and secondary case to Match #1, incarcerated in Jasper County Jail for 3 days with Case B in 2002. He was diagnosed with pulmonary TB disease a few months later, but is not believed to have been infectious at the time of exposure to Case B.

(Missouri) Match #3: Pulmonary TB disease diagnosed in Jackson County, Missouri (Kansas City). This client has extensive prison histories in Kansas and is HIV positive.

(Missouri) Match #4: A stroke patient in a hospital in St. Louis, Missouri. He was unable to communicate at the time of his TB diagnosis, thus little personal information is known, except for medical records showing alcohol and drug abuse. There is no history of incarceration in Jackson County Jail, Jasper County Jail, Missouri Department of Corrections, or Kansas Department of Corrections.

Other states also have records of cases matching the spoligotype and MIRU numbers of Missouri cases. Maryland had multiple matches. However, all case patients in that state were of Hispanic origin, with unknown corrections history and no known epidemiological links to Missouri. Arkansas had three patients with matches, one who is an Arkansas corrections inmate whose father lives in St. Louis. Another patient in Arkansas is believed to be a secondary case to the first Arkansas case, and was infected outside the corrections environment. The third matching case patient is an Arkansas resident who often travels to casinos in northern Oklahoma, close to the Southwest Missouri border. Kentucky had no matches. Texas had one spoligotype and MIRU match in a woman from Puerto Rico with no corrections history.

Several factors distinguish this outbreak from outbreaks in urban jails described in the literature. In this rural Missouri jail, there is no policy for performing routine TSTs on inmates or employees. With only one full-time nurse, the jail would be unable to keep up with the daily influx and release of inmates. No computerized tracking system of inmates was available, requiring manual checking for recidivists. This manual system of recording inmate information also made it difficult to find contacts because of incorrect entries or illegible handwriting. Some contacts were difficult to find for testing because of questionable immigration status. Finally, no negative pressure isolation rooms are available in the jail for suspected TB patients. In this instance, Case A was transferred immediately to the Missouri Department of Corrections (MO-DOC), and Case B was transferred to a hospital, then later to MO-DOC. If these patients had not been legally eligible for transfer to MO-DOC, there would have been no available isolation resources.

Currently there is no state rule requiring county jails to test employees or inmates for TB. Some county jails across the state conduct testing, regardless; others do not. At the time of the outbreak in Jasper County, no testing had been done on either employees or inmates despite recommendations from the MDHSS and CDC guidelines regarding testing. The easy answer in this situation is to change state rules and require all county jails to conduct inmate and employee testing regularly. Considering how crowded the jails are and how few resources they have makes implementing a rule such as this impractical. Unfortunately, given the high-risk populations that mix in this facility, Jasper County Jail remains a prime place for another TB outbreak.

Thankfully, Jasper County Jail personnel are willing and ready to make the changes necessary to prevent another outbreak. They are in the process of implementing tuberculin skin testing every 6 months on all employees, above the yearly testing that MDHSS is recommending.



They have agreed to hire another nurse to assist the one full-time LPN. They will strive to skin test inmates who have been incarcerated for 14–30 days, but with 5000 inmates passing through their doors each month, the practicality of this is questionable. The jail staff members have also requested a visit from an industrial hygienist or NIOSH representative to determine if further environmental changes can be implemented. Three questions specifically relating to TB have been added to the medical questionnaire given to new inmates. Those inmates who report TB symptoms on the questionnaire will be interviewed by the jail nurse, who will conduct a more intensive review and take further actions as needed. Additional recommendations include a computerized system of the medical records and the jail census. Unfortunately, because Missouri is a low-incidence state, with only 108 cases statewide in 2005 (including the cases above), many county jails do not feel aggressive TB prevention is necessary. According to the Jasper County Sheriff’s Officer, Captain Gilbert, “You never think something like a TB outbreak will happen in your jail, but it can, and it is our job to prevent it from happening again.” As TB becomes less visible, it will become more of a challenge to promote TB control in county jails. It is necessary to work with county jails on their terms and adapt to the challenges they face.

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**No Reported TB Cases in Wyoming in 2005**

After more than 12 years of concentrating on providing tuberculin skin tests (TST) and preventive therapy for those considered to be at increased risk for TB disease or latent TB infection (LTBI), or those required by OSHA to be tested for LTBI, Wyoming found and counted no cases of active TB during calendar year 2005. Wyoming is the only state that has achieved this result, and in fact has done it twice. The state reported zero cases in 1989 as well as in 2005, and thus is the only one of the 50 states to report zero cases since nationwide TB morbidity data were collected.

It didn’t happen by accident. Wyoming’s TB control program has been essentially 100% federally funded by annual cooperative agreements from DTBE since 1993. With an average of only four cases of active TB per year for 2000–2004, Wyoming has been able to focus on other important aspects of TB prevention and control: (1) finding and skin testing contacts of infectious TB patients, (2) skin testing members of high-risk populations to find those with LTBI, and (3) offering preventive therapy to those who

Year	No. Tested <sup>1</sup>	No. Positives	No. Started on Prev. Therapy	Prev. Therapy Completion Rate <sup>2</sup>
2004	19,126	272	163	92.0%
2005 <sup>3</sup>	16,566	217	135	91.1%

1. No. tested=high-risk persons skin tested with PPD by the WY TB program.
2. Preventive therapy completion rate was calculated using the formula in the CDC report, “TB Program Management Report - Completion of Preventive Therapy.”
3. Figures for 2005 are 10-month figures for 1/1/2005 to 10/31/2005.

are infected with *M. tuberculosis*. From 2000 to 2004, an average of 19,131 high-risk people were tuberculin skin tested using PPD supplied by the state's TB control program. The table below is representative of the magnitude of our effort and progress.

Wyoming is a large, low-density state with a population of about 510,000, and a number of populations at high risk for infection with *M. tuberculosis*. Given the existence of the many at-risk populations within the state (e.g., the homeless, Native Americans, migrant workers, inmates within a state prison system and 23 county detention centers, and the elderly), it is remarkable that no countable active cases were encountered during 2005. However, during 2005, the Wyoming TB control program provided care for five "suspects" for whom active TB was subsequently ruled out, one elderly individual whom we believe had active TB but which could not be proven, and one Alabama TB case. Wyoming's public health TB program made the effort and absorbed the costs of laboratory testing, medications, and public health nursing personnel associated with initiation of contact investigation, case management, and directly observed therapy, even though none of these "suspects" resulted in having active TB, and the Alabama case appears in that state's reported morbidity. The basic infrastructure costs of Wyoming's TB surveillance, prevention, control, and laboratory work remained, and the costs for the treatment of several suspects and of one case from another state were added, even as Wyoming's case count reached zero in 2005.

Wyoming's success can be attributed to the cooperation of its many partners involved in TB prevention and control. Our intramural partners include public health nurses, county health officers, disease intervention specialists, the public health TB laboratory, the state's substance abuse program, and the HIV/AIDS program. Our external partners include the Wyoming TB Advisory Committee, clinics providing health care for the homeless, hospital-based infection control

staff, nursing homes, Indian Health Service (IHS) public health staff on the Wind River Reservation, Wyoming Department of Corrections and the medical staff of its correctional facilities, those private providers who consult with the TB control program on the testing and care of their patients, DTBE staff, and others.

The lesson appears to be that persistence will be rewarded in the end. The caution is that in an environment with no or few active TB cases, suspicion for TB infection and disease can easily diminish. It will be Wyoming's challenge to maintain the focus on TB prevention and control in an arena demanding resources for other public health priorities.

—N. Alexander Bowler, MPH, CHE  
Wyoming TB Program

### **Suffolk County (New York) Targeted Tuberculosis Testing and Treatment Program Among the Foreign-born, 2000–2004**

Introduction: Suffolk County, New York, occupies the eastern two thirds of Long Island, New York. The county covers an area of 912 square miles consisting of rural, suburban, and small urban areas. The 2000 US Census estimates the population to be 1,468,000 (84.6% white, 6.9% black, 10.5% Hispanic or Latino, and 11.2% foreign-born persons). High concentrations of foreign-born persons exist throughout the county.

In the 3-year period covering 2002 through 2004, approximately 75% of the county's reported tuberculosis (TB) cases occurred in foreign-born persons from high TB prevalence countries. The majority of these cases were in persons who originated from Latin America and South America. The Targeted Testing and Treatment Program (TTP) was developed to address this epidemiologic pattern.

TTP Description: The initial task of the TTP team was to identify community leaders of the social

networks (e.g., churches, adult education centers, English-as-a-second-language [ESL] classes, food and clothing pantries, and health care organizations) that serve our target population of foreign-born persons. These community network leaders were educated about TB and the TTP and how the TTP could benefit the members of their community. If the community leaders thought the TTP would benefit their groups, they invited TTP staff to give a TB education presentation. To improve communication with the TTP's population, Spanish-speaking personnel were used for these education sessions and for all targeted outreach and translation activities.

In consultation with an advertising agency, the TTP team developed an English- and Spanish-language TB education and awareness package consisting of a TB awareness and education poster, two TB awareness and education pamphlets, and a TB awareness and education multilanguage CD. Both the English- and Spanish-language versions of these materials were used at the TB education sessions. Information on TB infection and TB disease was provided by a graphics-intensive, low-literacy poster entitled "Do you need a TB test? Yes, be sure! GET TESTED!!" ("Necesita usted una Prueba de TB?...Si! Asegureses! Hagase la Prueba!"). A pamphlet with the same title as the poster was given to all TTP participants. This pamphlet summarized the material discussed in the education session. A second pamphlet covered the medical evaluation that results from a positive TB test and the adverse drug effects of the medications used to treat latent TB infection (LTBI); the pamphlet is entitled "Your TB test is POSITIVE! You will need a chest x-ray, TB medical exam, and TB medicine to prevent TB infection from becoming TB disease" ("Su Prueba de TB Es Positiva! Usted va a necesitar un(a) radiografia del pecho, examen medico de TB, y medicina para TB para prevenir la infeccion de la TB de desarrollarse en la enfermedad de TB"). This pamphlet was given to those with positive TB test reactions.

A multilanguage CD was also produced. The CD had two tracks that covered the same material as the pamphlets: "Do you need a TB test..?" and "Your TB test was positive..!" Each track on the CD was in English, Spanish, Mandarin, French, Creole, Hindi, Polish, Russian, Turkish, Urdu, Vietnamese, and Cantonese. The multilanguage CD improved communication with persons not speaking English or Spanish and proved especially useful in the setting of ESL classes.

After the TB education presentation, a TB test was performed (either a tuberculin skin test [TST] or a Quanti-FERON®-TB [QFT] assay) on those interested in participating in the TTP. By using the QFT assay, results were obtained in 100% of those tested. This saved the time and effort that would have been expended in locating those who fail to return for a TST reading, and since it was a controlled laboratory test, it was not affected by subjective interpretation, incorrect placement, or reader bias. Adverse reactions associated with the TST such as blistering or necrotic reactions that may occur in hypersensitive persons or positive reactors (post-TST scar) were also avoided. Positive results with QFT occurred at the same rate as with the TST.

The TTP staff returned to the TB testing site within 48 to 72 hours to either interpret the TST reaction or to inform participants of their QFT results. At that time, those with positive reactions received a chest radiograph (CXR) on site using a portable x-ray machine. The use of on-site chest radiography at time of TB test reading on positive reactors resulted in 97% of newly positive reactors receiving a CXR. The TTP team contracted with the same firm that provided portable x-rays at the county jail to perform CXRs for the TTP. The contractor brought the x-ray machine, which ran on standard household AC current, to the site of TB test reading in a small van that also contained a generator-operated automated dry CXR processor. The x-ray machine was set up in a room at the TB test reading site and directed towards an outside wall.

The CXRs were then developed in the van. Thus, CXRs could be taken and developed on-site at the time of the TB test reading and were available for immediate viewing. This allowed the diagnosis of LTBI to be made and therapy initiated within 72 hours of TB test placement.

Large groups of positive reactors were seen on-site at the time of TB test reading by the TTP staff for CXR interpretation, medical evaluation, venipuncture, and initiation of treatment for LTBI in a mobile clinic. All follow-up clinics were held at a conveniently located Suffolk County Health Center in the evening and usually ran until at least 8:30 pm. The TTP staff completed all clinical assessments using a custom designed flow-sheet, performed venipunctures, and directly dispensed LTBI medications. The custom-designed flow-sheet improved the uniformity of TTP participant encounters by standardizing questions about the presence or absence of symptoms of TB disease and adverse drug effects. The symptom screen was written in both English and Spanish in a check-list format. This enabled the clinical assessment to be rapidly and accurately completed by nursing personnel.

At all TTP clinics, targeted outreach was used with Spanish-speaking staff which included telephone contact with TTP participants to remind participants of their clinic appointments; using incentives (e.g., pre-paid telephone calling cards) and enablers (e.g., transportation vouchers) to encourage clinic attendance; and introducing TTP participants and their families to other health department programs and services. These efforts contributed to the high completion of therapy rates by building trust with TTP participants.

Since many TTP participants had seasonal jobs (e.g., landscaping, construction, agriculture) and were thus deemed unlikely to complete the CDC preferred 9-month isoniazid regimen (9-INH) to treat LTBI, a shorter course regimen to treat LTBI was initiated to help improve completion of therapy. The TTP team began using a 4-month

course of rifampin (4-RIF) administered daily to treat LTBI after reports of fatal and severe liver injuries associated with the use of a 2-month course of rifampin and pyrazinamide (2-RZ). TTP participants who were not suitable candidates for rifampin-containing drug regimens (e.g., those using oral contraceptive medication and participants using medications with potential for interaction with RIF) were placed on 9-INH.

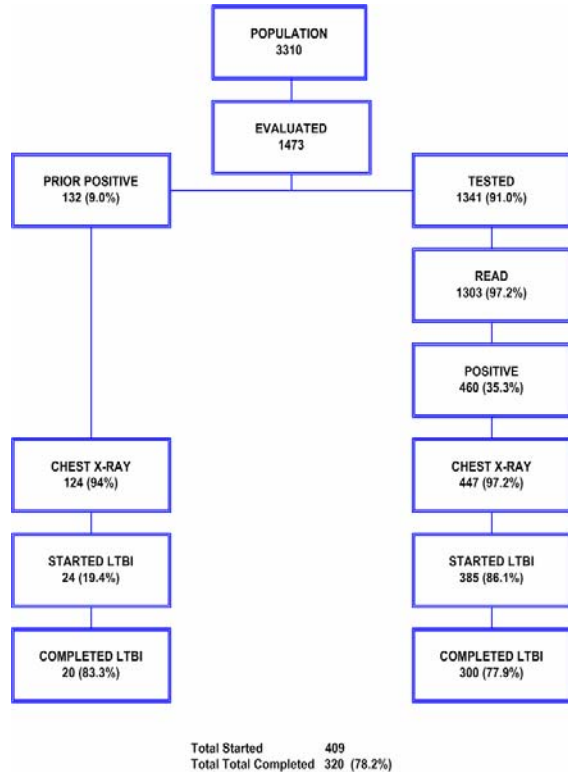
**Conclusion:** The TTP successfully identified social networks serving foreign-born populations from Latin America and South America, a population that accounted for approximately 75% of the TB cases reported by Suffolk County between 2000 and 2004. The TTP offered this population free, comprehensive LTBI diagnostic and treatment services, and achieved a completion of LTBI therapy rate of 78.2%. The TTP successfully reached a large medically underserved population and developed innovations that have broad application to other TB control activities.

**TTP Results:** TTP staff provided educational programs to 3,310 individuals (see figure). Of the target population, 1473 members participated in a TB evaluation. Of those evaluated, 132 (9.0%) had previously TST positive results and 124 (93.9%) were evaluated with a chest x-ray; 24 of those with a previously positive TST were started on treatment for LTBI and 20 completed LTBI therapy (83.3%).

Of those not known to have had a previously positive TST, 1341 received either a TST or QFT assay. TST readings or QFT assays were completed in 1303 (97.2%) of those tested. A total of 460 new positive reactors were found; 447 (97.2%) of new positive reactors received a CXR with 385 (86.1%) starting treatment for LTBI. Of the new positives who started, 300 (77.9%) completed treatment.

Overall, 409 TTP participants started treatment for LTBI and 320 completed treatment, for a rate

of 78.2%. The TTP found five cases of TB disease.



Funding support for the TTP came from the New York State Department of Health, Bureau of Tuberculosis Control, through the NYS TB Cooperative Agreement with CDC.

—Submitted by Lewis Mooney, MD, FCCP  
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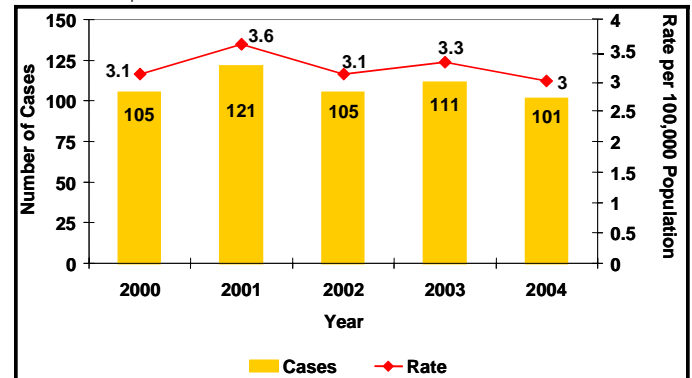
### The Changing Epidemiology of Tuberculosis in Connecticut, 2000–2004

Tuberculosis (TB), which is caused by the organism *Mycobacterium tuberculosis*, remains a serious infectious disease in Connecticut.<sup>1</sup> Transmission of *M. tuberculosis* occurs with inhalation of droplet nuclei produced by a person with contagious pulmonary or laryngeal TB. In the United States, TB is reportable by both physicians and laboratories. This report reviews

the epidemiology of TB in Connecticut and ongoing activities of the Connecticut Department of Public Health's (DPH) Tuberculosis Control Program.

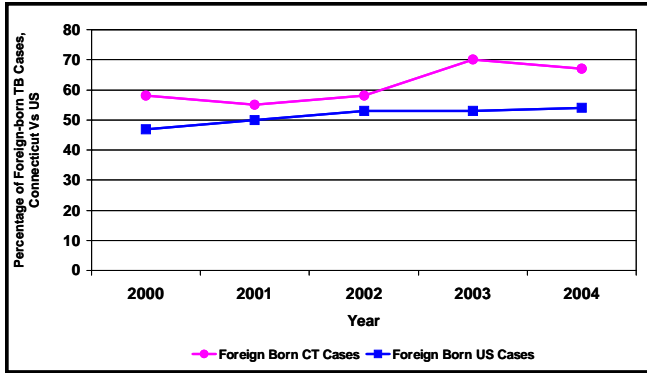
During 2000–2004, 543 TB cases were reported to the DPH for an average of 109 cases per year (Figure 1). The annual rate ranged from a high of 3.6 cases per 100,000 population in 2001 to a low of 3.0 cases in 2004. Overall, the annual TB rate declined 3.2% from 2000 to 2004. This rate meets the interim national goal of 3.5 cases per 100,000 population but is still short of the Healthy People 2010 goal of <1 case per 100,000 population. Tuberculosis was reported in all age groups, with the most cases (n=186) reported in persons aged 25–44 years. Of these persons, 28 (15%) tested positive for infection with human immunodeficiency virus (HIV). Cases were reported in all racial/ethnic groups except Native Americans and Hawaiians/Pacific Islanders.

Figure 1: Tuberculosis Case Rates and Number of Cases, Connecticut, 2000–2004



Of the 543 cases, 62% (334) were in foreign-born persons representing 62 countries. Of these, 46% were reported in foreign-born persons from India (41), Ecuador (35), Haiti (29), Peru (25), and Mexico (22). The percentage of cases in foreign-born persons ranged from a low of 55% in 2001 to a high of 70% in 2003 (Figure 2). The increasing proportion of TB cases among foreign-born individuals is consistent with and precedes a similar national trend.<sup>2</sup> The number of foreign-born TB patients has increased 12% over the previous 5-year period.

Figure 2: Percentage of Foreign-born Patients in the United States and in Connecticut, 2000–2004



Of the 334 foreign-born TB patients reported during 2000–2004, 47% entered the United States within 5 years prior to diagnosis (Table 1). Of these, 23% were diagnosed within 1 year after arrival. This suggests that many of these individuals are not receiving adequate screening for TB or treatment for latent infection before and after entry into the United States.

Years in U.S	Year					Total
	2000	2001	2002	2003	2004	
< 1	18 (30)	15 (23)	10 (16)	21 (27)	13 (19)	77 (23)
1-4	20 (33)	13 (20)	10 (16)	19 (24)	19 (28)	81 (24)
5-9	7 (11)	11 (17)	9 (15)	7 (9)	12 (18)	46 (14)
≥ 10	11 (18)	14 (21)	7 (12)	13 (17)	17 (25)	62 (19)
Unknown	5 (8)	13 (20)	25 (41)	18 (23)	7 (10)	68 (20)
<b>Total</b>	<b>61</b>	<b>66</b>	<b>61</b>	<b>78</b>	<b>68</b>	<b>334</b>

Table 1: Number of years in the United States before TB diagnosis in foreign-born persons

*Programmatic Response of the TB Control Program*

In response to the changing epidemiology of TB in Connecticut, the DPH has revised or initiated the following programmatic activities aimed at

increasing awareness about prevention and treatment guidelines:

- Enhanced surveillance among foreign-born persons with TB or suspected of having TB,
- Pediatric follow-up (for both TB and latent TB infection),
- Revised policy reflecting the need to test and treat persons with a positive tuberculin skin test, regardless of previous bacille Calmette-Guérin (BCG) vaccination,<sup>3</sup>
- Revised screening guidelines for Connecticut schools (in cooperation with the School Health Committee of the Connecticut Chapter of the American Academy of Pediatrics),<sup>4</sup> and
- Development and dissemination of educational and prevention material in various languages (in partnership with the Refugee Health Program).

In Connecticut, emphasis has been placed on enhancing TB surveillance among foreign-born persons because this population accounts for the majority of reported cases. This activity was planned with assistance from a CDC regional consultant. One area of focus in the regional approach to TB prevention is to develop strategies aimed at reducing cases in areas where the incidence is relatively low.

Enhanced surveillance of foreign-born TB patients involves collecting information that may assist the DPH in targeting prevention resources in this high-risk population. The following information is collected:

- Type of health care provider
- Difficulties surrounding health care access, language, and communication
- History of previous testing and treatment for latent TB infection

These data may suggest policies related to TB standards of care that should be modified, such as expanding directly observed therapy (DOT) and strengthening provider education.

*Comment*

From 2000 to 2004, for the United States as well as for Connecticut, the overall incidence of TB declined; however, the percentage of cases in foreign-born persons increased. In Connecticut, the highest percentage of TB cases was in foreign-born persons originating from Asia, South America, and the Caribbean. Nationally, the majority of foreign-born patients were from Mexico.<sup>1</sup>

U.S. immigration and public health regulations require immigrants seeking permanent residence and refugees to be evaluated for TB prior to entry into the United States. Persons found to have infectious TB disease must be rendered noninfectious before entering the United States; in Connecticut, many foreign-born persons with TB do not belong to these immigrant groups and were not tested before entry. After arrival, immigrants who have noninfectious or inactive TB disease are required to report to the local health authority within 30 days for further evaluation and possible treatment. It is necessary for health care providers to integrate TB prevention into the routine care of persons from countries with a high TB prevalence. As more information becomes available on behaviors and barriers related to health care for persons from countries with a high TB prevalence, effective prevention practices can be put into effect.

In Connecticut, the local health department is responsible for ensuring the quality and completeness of TB-related services. Resources available through local health authorities include language-appropriate educational materials, culturally sensitive providers, clinical interpreter services, DOT, and contact investigation to identify and evaluate individuals potentially exposed to infectious TB. Case management is necessary for successful completion of therapy and requires a coordinated effort between the state and local health department, health care provider, and patient. The DPH conducts surveillance, analyzes data, supports and ensures treatment completion including use of

DOT for all patients, oversees contact investigations, promotes prevention activities, and evaluates relevant outcomes of its activities in collaboration with health care providers and municipal health departments. The state laboratory confirms the diagnosis of TB by growing *M. tuberculosis* on culture, and tests the pattern of drug susceptibility for each isolate. The patient is responsible for taking the full course of TB drugs and for providing information on potentially exposed persons and venues of exposure. Health care providers should begin each new patient on a four-drug regimen of isoniazid, rifampin, pyrazinamide, and ethambutol, which may be modified once drug susceptibilities are known.<sup>5</sup>

—Reported by Tom Condren, MPH, George Raiselis, Mukhtar Mohamed, MPH, TB Control Program, Connecticut Department of Public Health; Lloyd Friedman, MD, VPMA, Milford Hospital Clinical Professor, Yale School of Medicine and Chair, Connecticut Advisory Committee for the Elimination of TB; Mark Lobato, MD, Div of TB Elimination, CDC

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### **Molecular Genotyping of *Mycobacterium tuberculosis* in Connecticut**

After more than a decade of use, molecular genotyping of *Mycobacterium tuberculosis* isolates is now a standard public health tool. Genotyping has been used in a variety of settings, including defining strains prevalent in

the population, detecting outbreaks in institutions and the community, evaluating the completeness of contact investigations, and determining laboratory contamination.<sup>1-5</sup>

In 2005, CDC launched the Genotyping TB Program, making laboratory capacity available to state health departments interested in genotyping *M. tuberculosis* isolates. In New England, the six state health laboratories are now routinely forwarding all culture-confirmed isolates from patients with pulmonary TB to one of the program's reference laboratories for genotyping. To accelerate the decline of TB in New England, the state health departments coordinate cross-jurisdictional investigations to prevent the transmission of TB across state lines. In this report, we describe one recent outbreak of TB in Fairfield County, Connecticut. This outbreak would not have been detected without the use of molecular genotyping.

#### *Connecticut TB Outbreak*

Since 2005, universal genotyping of pulmonary TB isolates has detected five clusters in Connecticut. One cluster, with cases diagnosed during February 2004–May 2005, consisted of four Hispanic males from one city in Fairfield County (Table 1). Risk factors included HIV infection (2), unemployment (2), and incarceration (2).

Table 1: Fairfield County, Connecticut, TB Cluster, February 2004–May 2005

Age groups (Yrs)	Occupation	Country of Birth	Date of entry into U.S.	HIV Status	TB risk factors
15-24	Restaurant	Mexico	Unknown	Negative	Foreign born
25-44	Painter	Mexico	Post-2000	Negative	Foreign born
25-44	Unemployed	Mexico	Pre-2000	Positive	Foreign born; History incarceration; Excess alcohol.
25-44	Unemployed	U.S.	Not applicable	Positive	History incarceration

#### *Comment*

In Connecticut, molecular genotyping is radically transforming TB control practices. Two methods based on polymerase chain reaction (PCR) are initially used. The first, spoligotyping, is a method for simultaneous detection and typing of *M. tuberculosis* strains. The second, mycobacterial interspersed repetitive unit–variable number tandem repeat (MIRU-VNTR) analysis, is a typing method that determines the number of repeated mycobacterial interspersed units at 12 independent loci.<sup>6</sup> These methods provide faster turnaround times and produce digital results that make comparisons easier. A non-PCR technique, restriction fragment length polymorphism (RFLP), continues to be used to further define suspected outbreak strains. The population-based application of genotyping has revealed unsuspected transmission patterns that might not have been identified using conventional epidemiological techniques. Originally seven persons were identified in the Fairfield County cluster. Genotyping, using RFLP, showed that three strains were not identical to the dominant strain infecting the other four patients.

In response to this newly recognized cluster of four related TB cases, the DPH attempted a more intensive epidemiologic investigation with limited results, since two of the individuals had returned to Mexico. At this time, genotyping results are pending from another case potentially involved in this outbreak.

As more knowledge is gained about the use of molecular techniques and earlier detection of clusters, further investigations will continue to reveal previously unrecognized epidemiologic links between cases and define new settings where transmission occurred.<sup>7</sup> We believe that the addition of molecular



genotyping as a public health tool will augment TB control and accelerate the reduction of cases in Connecticut and the United States.

—Reported by T Condren, MPH, M Williams, RN,  
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### Third Annual Conference on TB in the U.S. Pacific Islands: Meeting Highlights, Challenges, and Solutions for Addressing the Disparities

Based on available surveillance data, the average tuberculosis (TB) case rate in the U.S.-affiliated Pacific Islands (USAPIs) is 51.1 per 100,000; this is 10 times higher than the overall U.S. rate. The USAPIs include the U.S. territories of Guam and American Samoa, the Commonwealth of the Northern Mariana Islands, and three U.S.-affiliated nations: the Republic of Palau, the Federated States of Micronesia, and the Republic of the Marshall Islands. The U.S.-affiliated nations have Compacts of Free Association with the United States; under these compacts, the countries are fully sovereign in domestic and foreign affairs, but give responsibility for their health, education, defense, and other essential operations to the



United States. As such, the USAPIs are among the recipients of CDC cooperative agreement funding for TB control program activities. These jurisdictions deal with many challenges such as highly mobile populations, limited health care resources, variable economic and social conditions, and locations separated by vast expanses of ocean. The map of the USAPIs shown above has been superimposed on a map of the United States to illustrate the distances between the islands. In addition, through agreements with the United States, USAPI citizens are able to immigrate to the United States without the usual overseas screening for health conditions that is required of those permanently resettling from other foreign countries. Given the disproportionately high TB rates among USAPIs, the DTBE Field Services and Evaluation Branch (FSEB) is working with partners to implement program and laboratory improvements in this region.

From December 6 to 8, 2005, more than 80 nurses, laboratory technicians, clinicians, and other public health officials gathered at what has become an annual meeting to address the growing threat of TB in the USAPI jurisdictions. This conference provides an invaluable opportunity for those on the front lines to come together and formulate strategies that will work in their communities. Meeting attendees from CDC, the TB control programs in the USAPIs and the State of Hawaii, the World Health Organization (WHO) Western Pacific Regional Office, HHS Region 9, HHS Office of the Pacific, the State of California Microbial Disease Laboratory, the University of Hawaii, and the Pacific Island Health Officers Association gathered to review the latest trends; conduct hands-on training in patient management, surveillance, and TB laboratory quality assurance testing; and identify solutions to the challenges of sustaining effective TB control programs in the region. Among proposed solutions, an important factor will be the maintenance of the WHO DOTS strategy and CDC enhancements, such as high-quality

laboratory testing and expert TB medical consultation.

Another major theme of the conference was the need for culturally appropriate TB health education materials. This is especially important in many of the Pacific Islands, where many islanders have their own local language and a considerable proportion of the people do not read. Mr. Terry Sasser, a resident of the Marshall Islands and founder of the organization Mission Pacific, shared information about using multimedia to empower communities. In many of the remote, isolated communities in the Pacific Islands, media tools such as locally produced videos provide a critical means for outreach and empowerment. Mr. Sasser is currently collaborating with DTBE and the Republic of the Marshall Islands National TB Program to develop a video regarding TB for Marshallese communities.

Since TB is one of the most common opportunistic diseases for people infected with HIV, the link between TB and HIV/AIDS was another critical topic. While the numbers of HIV/TB-coinfected persons in the region are low, DTBE will continue to work with USAPI TB programs and HIV/AIDS organizations in the region to strengthen the availability of HIV testing for TB patients. Conference materials are available at [www.pihoa.org/tb](http://www.pihoa.org/tb).

Prior to this year's regional meeting (December 1–2), the San Francisco Regional Training and Medical Consultation Center collaborated with faculty from DTBE, the National Jewish Medical and Research Center, the California Department of Health Services, and the Commonwealth of the Northern Mariana Islands to provide training for approximately 40 clinicians and other medical professionals who treat TB patients in this region. In collaboration with the University of Hawaii School of Medicine and the Pacific Association for Clinical Training (a HRSA-funded project), a training DVD was developed.

Information regarding this DVD can be obtained at <http://pacetraining.org>.

For more information about TB control activities in the USAPIs, please contact Subroto Banerji (404-639-8065 or [zro7@cdc.gov](mailto:zro7@cdc.gov)) or Andy Heetderks (404-639-8130 or [ajh1@cdc.gov](mailto:ajh1@cdc.gov)) in DTBE's Field Services and Evaluation Branch.

—Submitted by Maggie Kelly, Subroto Banerji, Andy Heetderks, Gregory Andrews, and Zach Taylor  
Div of TB Elimination

### **“Update: Tuberculosis Nursing” Workshop**

The Public Health Nursing Branch of the State of Hawaii Department of Health convened a workshop entitled “Update: Tuberculosis Nursing” on November 8, 2005, at the Pagoda Hotel and Restaurant. Partners in convening this workshop were Cathy Wasam, R.N., U.S. Public Health Service, and Jessie Wing, M.D., Chief, Tuberculosis Branch of the State of Hawaii Department of Health.

Dr. Linda Rosen, Deputy Director of the Health Resources Administration, welcomed the 91 public health nurses from throughout the state of Hawaii to a full day of enriching presentations on the prevention and control of TB. This included a lively interactive group dialogue and problem solving on a case study focusing on clinic management, case management, and investigation.

The keynote speaker, Judy Gibson, R.N., M.S.N, Nurse Consultant, Field Services and Evaluation Branch, DTBE, succinctly presented the national prioritized strategies for TB prevention and control and public health function of TB treatment including the clinical, care, and support aspects. The participants were much interested in the introduction of the case management model based on CDC's framework of evaluation to structure the role of the Public Health Nurse in the management and coordination of medical

and social-behavioral activities integrated with standardized nursing interventions. Ms. Gibson emphasized the importance of focusing on behavioral and other concerns of patients and determining appropriate nursing interventions leading to short- and long-term outcomes. Provider competencies and systems responses are critical in addressing patient issues and concerns and in the control of tuberculosis. Finally, self-evaluation to determine program effectiveness and best practice nursing interventions must be tied in to the role of the Public Health Nurse in the care and supportive aspects of case management.

Lastly, Ms. Gibson applied the information presented to testing and treatment of persons with latent TB infection (LTBI) in other high-risk populations. She reiterated the prioritized strategies pertaining to testing and screening including risk identification and health screening steps. The PHN best practice model for case management and the professional standard Goals Matrix tool (draft) for measuring uniform clinical performance were discussed.



Photo: Dr. Jessie Wing, Judy Gibson, Ruth Ota, and CAPT Cathy Wasam served as organizers and speakers at the meeting in Hawaii, “Update: Tuberculosis Nursing” on November 8, 2005.

Dr. Jessie Wing, Chief of the Tuberculosis Branch, Hawaii State Department of Health, spoke informatively about the treatment regimens in the control of TB. She included transmission, probability of transmission, pathogenesis,

conditions that increase risk, disease sites, and the classification system of TB. Dr. Wing spent time sharing data related to TB testing and screening, cases, and completion of therapy. She shared information on state-of-the-art LTBI testing methods such as the whole-blood interferon gamma release assay (IGRA), which may help ensure accurate identification of individuals with TB infection.

In summary, the conference achieved its objectives of providing current information as well as best practices in nursing in the prevention and control of TB.

—Ruth K. Ota, RN, MPH  
Chief Public Health Nursing Branch  
Hawaii State Department of Health

### **Lessons Learned in the Process of Evaluation**

Last year, the Metropolitan Chicago TB Consortium, the State of Illinois, and the City of Chicago TB program agreed to conduct a program evaluation as part of the Tuberculosis Epidemiologic Studies Consortium (TBESC) Task Order 15. During our process of implementing this evaluation, we learned the following lessons we'd like to share with others.

*Lesson 1: Allay fears about the evaluation process.* We found that it was critical for all divisions or parties that will be affected by the evaluation to have a sense of security about what was being done. To allay fears and clear up misunderstandings, a process of education was put in place. Education and training sessions were arranged, and an introduction to the evaluation process was begun. A fair amount of time was directed toward reassuring staff that a program evaluation such as the one we were undertaking was not the same as a personnel review. As the staff members were educated on the concept of evaluation, they became a little more relaxed about it. We went through a step-by-step process of describing what was involved,

and how it would require some time to discuss what the evaluation would accomplish. As we discussed the whole issue of stakeholders, it became clearer that the TB staff themselves were the major stakeholders, especially when it came to who had the most impact and who could effect change.

*Lesson 2: Develop a description that sets the stage for the evaluation.* A significant amount of time was devoted to developing a comprehensive description of the TB program. The description included a discussion of how the TB program operates, number of clinics, staff, models of operation, relations within the department, relations with private providers, who oversees DOT, who manages the case, and how reporting works. We also included a description of the system from the patient's perspective. We described the process that a patient goes through prior to being diagnosed with an active case. This description helped us narrow our ideas and select "completion of therapy" as the objective for evaluation.

*Lesson 3: Take time to determine the program's stakeholders.* Determining stakeholders is a vital part of the entire evaluation and can be improperly used when determined in haste. Discussions about who would be considered a stakeholder needed to be held at several different levels, both for input and buy-in and to ensure that we were not inadvertently missing a critical participant. Determining the stakeholders required extensive discussions, since both community members and health department employees have a stake in patients' completion of treatment. Owing to the nature of the disease, it seems at first glance that stakeholders are almost everyone who may be impacted as well as an assortment of constituencies. Narrowing down the group of people to those who really have a stake in what is being evaluated is a major element in addressing the problem to be evaluated. It is necessary to determine not only who will be affected but, more importantly, who can do something about an identified situation

and who can remedy any identified problems. It is crucial to understand the layers, if they exist, of the persons involved; a supervisor may understand that a problem exists or a physician may know what the specific symptom means, but it may require additional personnel to fix the problem or to set up therapy and manage the care of the patient.

The stakeholders were all a bit apprehensive at being part of the process and were concerned about how it would reflect on them. However, they were guaranteed anonymity.

*Lesson 4: Program context and resources available for program evaluation are important.* The TB program is a division of the City Department of Public Health (CDPH), with major funding coming from both CDC and CDPH corporate funding. The TB control program is currently short-staffed owing to an early retirement in April 2004. At the time the evaluation began, there was no one available for or dedicated to program evaluation and performance standards.

*Lesson 5: Program development can be affected by the evaluation process.* We found that the process for implementing the evaluation—engaging stakeholders and developing a description that encompasses multiple perspectives—provided us with some valuable information about our program. For us, the evaluation questions became part of the evidence. The evaluation questions led to very specific thoughts on where and how to proceed. It told us some of the specific items that were amenable to change and that would make an immediate difference. This information has already led to some changes that are creating improvements. For example,

- Not all of the TB clinics were using the same form for completion of therapy. That inconsistency was immediately addressed, and one citywide clinical summary sheet is now being used.

- Legal action is being processed into policy that can be used by all clinics when there is patient failure in DOT programs.
- The state and city are working together to have consistent reports that meet reporting needs, and the staff are beginning to understand the necessity for focused coordination.
- Written policies and procedures for data surveillance and data assurance are being developed.
- Quarterly cohort reviews are being put in place and will be coordinated with other quarterly reports for CDPH.
- Annual staff evaluations will be developed reflecting duties that lead to achievement of program goals.

*Lesson 6: Program evaluations have the capacity to detect both small and large problems.* Although we are still in the process of analyzing data, our early analysis and interpretation of findings concluded that more education and training in the area of evaluation needed to be in place. Additionally, the findings are still being explored, but areas that needed immediate attention were found.

—Reported by Phyllis J. Handelman, Evaluator,  
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Mike Arbise, Director, State of Illinois TB Program

### **TB Education and Targeted Testing of Garfield County, Colorado, WIC Clients**

#### *Background*

The Garfield County, Colorado, Public Health Nursing Service received a community health grant in 2002 to conduct a two-pronged demonstration project designed to educate a vulnerable population about tuberculosis (TB) and to identify and treat latent TB infection (LTBI) in this same group. Using literature review findings, Colorado TB surveillance data, and input from TB stakeholders, the project team

identified clients of the Garfield County Women, Infants, and Children (WIC) program as its target population. Garfield County's WIC clients are low income and 75 percent are Hispanic; many come from Mexico or Latin America. The project included the prenatal and postpartum women and their 1- to 5-year-old children who participate in the agency's WIC program. In Garfield County, the WIC agency operates as part of the public health department, and its staff work closely with other programs, including prenatal, immunizations, the Health Care Program for Children with Special Needs, and the Early and Periodic Screening, Diagnosis, and Treatment program. WIC clients often know, and are known by, other public health staff. Hence a level of trust and rapport was already established prior to implementation of the project. Based upon our knowledge of WIC clients, we also considered them likely to become TB prevention advocates by sharing with family and friends the information they learned about TB risk factors, symptoms, testing, and treatment options.

WIC clients were invited to participate in the project during a routine WIC appointment. A bilingual WIC health educator presented TB information and testing options to the clients. Those who chose to participate were given a pretest on TB. The following true/false statements were given:

1. TB is caused by a germ.
2. Someone who has TB can pass it on when they cough, sneeze, or speak.
3. A person can have TB and not know it.
4. A skin test is the best way to tell if someone has *M. tuberculosis* infection.
5. There is vaccination that will protect you from ever getting TB.
6. Tuberculosis infection is different from tuberculosis disease.
7. Some people are at greater risk for getting TB than others.
8. A chest x-ray is a way to know if someone has TB in the lungs.
9. A symptom of TB is a cough that lasts longer than a cold.

10. There are other ways to cure TB besides taking medicine.

Participants were then given an illustrated booklet published by the Channing L. Bete Company, "About Tuberculosis," and viewed a 10-minute video, "You Can Prevent TB," produced by the Bureau of Tuberculosis Control, Education, and Training at the New York City Department of Health. Both were in the client's preferred language. Effectiveness of education was measured by giving the same true/false test at least 3 months later.

Participants were screened for TB risk, as were any children enrolled in WIC. Risk was determined by being born in a high TB prevalence country and living in the United States for less than 5 years; a history of living or working in homeless shelters, jails, migrant workers' camps, hospitals, or nursing homes; living in a multifamily home; or a history of possible TB in a household member or close relative. Those identified as being at high risk were offered a tuberculin skin test (TST). Participants who tested positive for TB infection were medically evaluated and offered treatment based upon the recommendations of the Colorado Department of Public Health and Environment (CDPHE).

CDPHE TB program staff provided technical assistance and developed an MS Access database for risk and test information. Data were compiled and analyzed using Excel and SAS.

The project began with 713 participants, 430 women and 283 children. Of the women who agreed to participate, 90 percent were Hispanic and 82 percent reported Mexico as their country of origin. The most common risks were recent immigration from Mexico and living in a multiple-family household. Based upon risk, 224 (52%) of 430 women and 22 (8%) of 283 children were given a TST. Sixty-three (28%) of 224 women and two (9%) of 22 children had new positive TST results (9.1 percent of the total study

population). All were evaluated and diagnosed with LTBI. No cases of active TB were detected.

Treatment was recommended for all but three LTBI cases. Thirty-nine women (62%) and both children (100%) completed the full treatment course. Of the 21 women initiating but not completing treatment, five experienced real or perceived adverse side effects from the medication, and the remaining moved away or were otherwise lost to follow-up.

Of the 430 women taking the pretest, 48 percent chose correct responses (range 13.7 to 79.5). In comparison, 226 women took the posttest, and 74 percent of them gave correct responses (range 46.9 to 95.1). Encouragingly, among the 226 participants completing both a pretest and posttest, 110 (48%) who answered question 6 incorrectly on pretest (Tuberculosis infection is different than tuberculosis disease) answered correctly on posttest. Questions 5 (There is vaccination that will protect you from ever getting tuberculosis) and 10 (There are other ways to cure tuberculosis besides taking medicine) remained problematic, with less than half the participants answering correctly.

### *Conclusions*

The success of this project depended on collaboration. During the course of this project, we were presented with numerous opportunities for educating our partners, not only about TB, but about the role of public health in general; in other words, what we do. This has led to a broader understanding in the community of how we provide prevention education as well as monitor the health of our community. Health care providers seek our public health expertise and are more likely to refer patients to us as a result of these strengthened partnerships. In many cases, a client's participation in this project led to advocacy and educational outreach to friends and family.

One of the objectives of this project was to identify cultural barriers to accepting diagnosis and treatment for TB. The most obvious factor we observed was the belief of many participants that prior vaccination with BCG made tuberculin skin testing unnecessary for them. They felt they were protected for their lifetime. They also believed a positive TST result was due to BCG vaccination, based on what health care providers in Mexico had told them. The prevalence of this perception lends support to recommendations for the use of blood assays for *M. tuberculosis* (e.g., QuantiFERON<sup>®</sup>-TB Gold).

This project can serve as a model for many areas in our state and others. It proved to be a successful means of identifying and treating LTBI, thus preventing future disease. Just as importantly, it allowed many families to become educated about TB, thus empowering them to recognize risk factors and symptoms and to seek care. The demographics of Garfield County's WIC clients provide an ideal population for targeted testing, a scenario common to many counties. We believe this project demonstrates the benefits of targeted testing, supporting the need for funding allocated for this purpose.

—Submitted by Sandra Barnett, RNC

Laurel Little, MS

Brisa Chavez, TB Educator

Garfield County Public Health Nursing Service

Barbara Stone, MSPH

Colorado Department of Public Health and

Environment TB Program

## **LABORATORY UPDATES**

### **APHL TB Steering Committee Meets to Discuss Implementation of TB Task Force Report**

The Association of Public Health Laboratories (APHL) TB Steering Committee, chaired by Dr. Nancy Warren of Pennsylvania, met on November 21–22, 2005, at APHL headquarters in Washington, DC. The main thrust of the

meeting was to discuss the best methods for implementing the recommendations of the TB Task Force report entitled *The Future of TB Laboratory Services*. This was the first formal meeting of the Committee.

The Committee members felt that updating the 1995 manual *Mycobacterium tuberculosis: Assessing Your Laboratory* and providing an online repository of existing assessment tools for public health laboratories were the best ways to address the Task Force report's first benchmark of assessing a TB laboratory's capabilities. In addition, these steps would address issues such as capacity of services and identifying unmet needs, obstacles to obtaining laboratory services, and opportunities for improvement. The revised assessment manual would emphasize a systems approach consisting of active communication between laboratories to improve coordination of specimen and culture referral mechanisms, to reduce delays in testing and reporting. A working group led by Dr. David Warshauer of Wisconsin and Kenneth Jost of Texas and consisting of subject matter experts and partners in TB elimination will be formed. The working group will be tasked with updating the manual, with special attention to describing new technologies and developing guidance and tools for assessment of the laboratory's role in the *system* of TB control. APHL members, with assistance from the Steering Committee, will create on its website a repository of existing assessment tools that can be used by public health laboratories.

The Steering Committee enlisted the assistance of the former chair of the APHL TB Task Force, Dr. Eric Blank of Missouri, to formulate the best plan of action for addressing the report's second benchmark of performing an assessment of the true costs of providing TB laboratory services. Once created, this cost assessment tool will not only help identify costs of TB testing, but also provide laboratories with a means to justify their expenses to policymakers and those who approve funding.

Other topics discussed by the Committee during the meeting included the need for continued advocacy efforts for increased TB funding of both programs and laboratories; the need to continue building on the relationship between APHL, the state TB laboratories, and the National TB Controllers Association, and to support meetings of interest including the Northeastern TB Controllers meeting and other regional controllers' meetings; and interest in a potential TB laboratory conference to be held jointly with NTCA.

—Reported by Anthony Tran, MPH, MT(ASCP)  
Association of Public Health Laboratories  
On behalf of the APHL TB Steering Committee

### **New Member Joins APHL TB Steering Committee**

The APHL TB Task Force report entitled *The Future of TB Laboratory Services* emphasizes a systems approach to TB laboratory services and stresses a paradigm shift, placing the role of the laboratory as the centerpiece between clinician, patient, and TB control program. Anne Weber, director of the Montana public health laboratory, recently joined the APHL TB Steering Committee. As a state public health laboratory director with experience and expertise in budgeting and grant writing and an overall understanding of how the public health laboratory functions as an extension of the health department, Weber's leadership and knowledge will be a great asset to the Steering Committee as it begins to think about this paradigm shift and a systems approach.

—Reported by Anthony Tran, MPH, MT(ASCP)  
Association of Public Health Laboratories  
On behalf of the APHL TB Steering Committee



## TB EDUCATION AND TRAINING NETWORK UPDATES

### TB ETN Member Highlight

Beth Kingdon, BS, is the TB Education Coordinator for the Minnesota Department of Health's TB Prevention and Control Program. She received a bachelor of science degree from the University of Minnesota in 1990, and she is currently a student in the MPH program at the University of Minnesota's School of Health, anticipating completion in August 2006. Her job responsibilities include overseeing and implementing Minnesota's TB-related education and training activities. She is also Minnesota's focal point for training and education.

Beth first heard about TB ETN from the state's TB Program Manager, Deb Sodt. Beth decided to join because she thought it would be a great opportunity to learn about TB-related education and training resources and meet people who have similar job responsibilities. Beth is also a member of the Cultural Competency Subcommittee. "I wanted to learn from others in the TB world about cultural competency issues," she said. Beth hopes that she can increase her involvement in TB ETN in the next 2 years by encouraging those who are not members to join and encouraging those who are members to become more actively involved in TB ETN.

Beth and other members of her team recently completed a statewide TB training needs assessment in 2005. "Although it was a time-consuming project, our TB program learned a lot about the strengths and areas of need among our local public health nurses and other health care providers," Beth explained.

The Minnesota TB program is also very proud of its website ([www.health.state.mn.us/tb](http://www.health.state.mn.us/tb)). Each member of the TB Program was involved with the site development in one way or another, making it a group effort.

In her leisure time, Beth enjoys reading, traveling, home remodeling, and spending time with family and friends.

If you'd like to join Beth as a TB ETN member and take advantage of all TB ETN has to offer, please send an e-mail requesting a TB ETN registration form to [tbetn@cdc.gov](mailto:tbetn@cdc.gov). You can also send a request by fax to (404) 639-8960 or by mail to TB ETN, CEBSB, Division of TB Elimination, CDC, 1600 Clifton Rd., N.E., MS E10, Atlanta, Georgia 30333.

If you would like additional information about the TB ETN, visit the website at <http://www.cdc.gov/nchstp/tb/TBETN/default.htm>.

—Submitted by Regina Bess  
Div of TB Elimination

### Cultural Competency Subcommittee

In the past months, members of the Cultural Competency Subcommittee have reviewed the results of the needs assessment survey conducted during the 2005 annual TB ETN meeting in Atlanta. A summary report compiled by Beth Kingdon and Gabrielle Benenson indicate numerous requests among the general TB ETN membership for sharing of information and resources. According to survey respondents, the greatest needs are patient education materials that explain basic TB concepts at a low reading level, tools related to cultural competency training, and TB-specific examples of cross-cultural communication of health issues.

The recently released patient education material series produced by DTBE and the Northeastern National Tuberculosis Center helps to address

#### **SAVE THE DATE!**

The sixth annual TB ETN Conference, "TB Training and Education Magic: Tricks of the Trade," will be held August 15-17, 2006, in Atlanta, Georgia. See you there!

the need for materials for low-literacy groups. The series consists of five booklets and one fact sheet that provide information on the following topics: [TB disease](#), [TB medicine](#), [contact investigations](#), [TB infection](#), [the TB skin test](#), and [TB and HIV](#). To download a copy of these materials, visit: [www.cdc.gov/nchstp/tb/pubs/pamphlets.htm](http://www.cdc.gov/nchstp/tb/pubs/pamphlets.htm).

Currently, subcommittee members are reviewing ethnographic guides for TB programs serving Mexican and Vietnamese communities, developed by the Health Systems Research Team at DTBE. These guides are intended for health care providers, community-based workers, program planners, and health educators, and aim to increased knowledge and understanding about TB program clients born in Mexico and Vietnam. The materials address the U.S. immigration history of each group; socio-cultural issues; health status, including TB epidemiology; and common perceptions, attitudes, and beliefs about TB derived from the DTBE ethnographic study and other TB-related behavioral research. The subcommittee will also provide feedback on forthcoming guides focusing on Hmong, Somali, and Chinese persons. Other TB control staff interested in reviewing one of more of the guides can contact Heather Joseph at [hbj7@cdc.gov](mailto:hbj7@cdc.gov).

The Lung Health Center at the University of Alabama and the Alabama Department of Public Health Division of TB Control, in conjunction with the Southeastern National Tuberculosis Center, are working to create a quick-reference cultural competency guidebook, containing country-specific summaries for those birth countries most commonly reported by foreign-born patients treated in the southeastern United States. Each summary contains data on TB epidemiology (estimated burden of TB, HIV, TB-HIV coinfection, multidrug-resistant TB, and BCG vaccine use); common misperceptions, attitudes, beliefs, and stigmatizing practices related to TB; and general cultural courtesies to observe. In the future, summaries for all high-burden countries will be incorporated into the guidebook. The team

also plans to develop and evaluate a complementary training curriculum related to the guidebook. Members of the Cultural Competency Subcommittee have directed members of this group to resources as they work to create the country-specific templates. Suggestions related to these activities are welcome. Please contact Dr. Joan Mangan at [jmangan@uab.edu](mailto:jmangan@uab.edu) or Kristina Watkins at [kristina.watkins@medicine.ufl.edu](mailto:kristina.watkins@medicine.ufl.edu).

The information contained in these forthcoming materials may be incorporated into cultural competency training and provide information related to cross-cultural communication. If you or your colleagues have other materials to share or are aware of other resources related to cultural competency training and TB-specific cross cultural communication, please contact the Subcommittee Chairs: Margaret Rohter at [mrohter@suburbantb.org](mailto:mrohter@suburbantb.org) or Bill Bower at [blb3@columbia.edu](mailto:blb3@columbia.edu).

*Cultural Competency Quote*  
*A Primer for Cultural Proficiency: Towards Quality Health Services for Hispanics*  
*By the National Alliance for Hispanic Health*

Progress along the cultural competency continuum requires continually assessing the ability to address diversity, celebrating successes, learning from mistakes, and identifying opportunities for rediscovery. Actions taken at one time might not be sufficient to address diversity issues at another point in time.

—Submitted by Joan Mangan, PhD, MST  
 University of Alabama at Birmingham  
 Lung Health Center / Division of Pulmonary, Allergy  
 and Critical Care Medicine

### **2006–2007 Steering Committee Members**

TB ETN is proud to announce the 2006–2007 steering committee members:

Jo-Ann Arnold, RN, MS  
RN Consultant  
Florida Department of Health  
Bureau of TB and Refugee Health  
Tallahassee, FL

Kim Field, RN, MSN  
TB Control Manager  
Washington State Department of Health  
Olympia, WA

Beth Kingdon, BS  
TB Education Coordinator  
Minnesota Department of Health  
TB Prevention and Control Program  
St. Paul, MN

B. Sue Lane, RN, CCHP  
Director of Correctional Healthcare Services  
Cobb Douglas Public Health  
Woodstock, GA

Anil Kalia, MBBS, MBA  
President  
Child Survival India  
Delhi, India

*Subcommittee Co-Chairs*  
Communications and Membership  
Linette McElroy  
Vancouver Island Health Authority

David Oeser  
Missouri Department of Health & Senior Services

Cultural Competency  
Margaret Rohter, MPH  
Suburban Cook County TB District

Bill Bower  
Charles P. Felton National TB Center

Conference Planning  
Ashley Ewing, BS  
North Carolina TB Control Program

Sheanne Davis, BS, CHES  
Washington State Department of Health

*U.S. Regional Training and Medical Consultation  
Centers Representative:*

Rajita Bhavaraju, MPH, CHES  
Northeastern National Tuberculosis Center

*CDC Representatives:*

Maria Fraire, MPH, CHES  
Amera Khan, MPH  
Scott McCoy, MEd  
DTBE

—Reported by Maria Fraire, MPH, CHES  
Div of TB Elimination

## **COMMUNICATIONS, EDUCATION, AND BEHAVIORAL STUDIES BRANCH UPDATE**

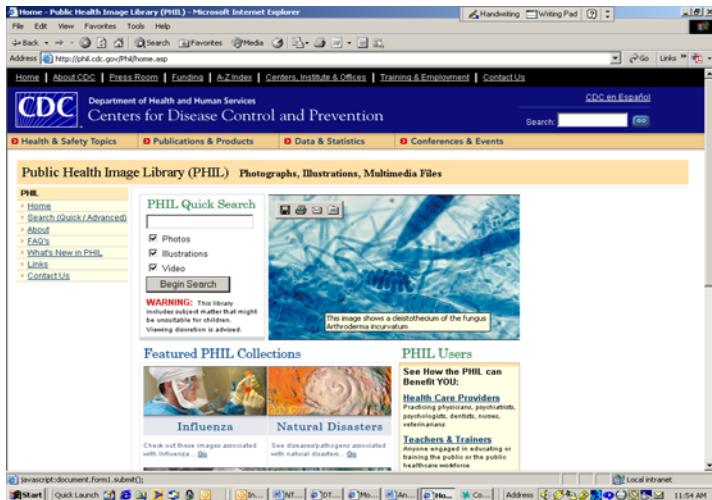
### **Announcing the DTBE Image Library!**

DTBE is pleased to announce the availability of the DTBE Image Library. The Image Library is the result of the combined efforts of DTBE's Communications, Education, and Behavioral Studies Branch (CEBSB) and CDC's Public Health Image Library (PHIL). These collaborative efforts of CEBSB and PHIL were undertaken to promote the collection, sharing, and availability of images specific to TB-related subjects and to allow a wider variety of TB-related images to be available.

The DTBE Image Library has a variety of TB-related images that can be used to enhance presentations and publications. This resource can be used to search, store, organize, retrieve, and submit images that are specific to TB activities. The DTBE Image Library is composed of two parts: an *Internet-based* system that is available through PHIL to anyone with Internet access and houses most of the images available on the DTBE Image Library, and an *Intranet-*

based system available only to DTBE staff. To access the Internet-based site and search for TB images or get additional information about PHIL, go to <http://phil.cdc.gov/Phil/home.asp>.

### Quick Tour of the Image Library



Most of the images submitted to the DTBE Image Library will be available to all users through the PHIL site. The features of the Public Health Image Library can be found in the left navigation menu on the Internet. The menu choices are as follows:

- Home page** - Includes a brief introduction to PHIL.
- Search (Quick, Advanced)** - Allows users to search using keywords, image type, categories, or the image identification number.
- About** - Lists the sponsors, and gives a brief overview and acknowledgments.
- FAQs** - This section provides answers to questions users might have about the Image Library.
- What's New** - Shows images recently added to the site.
- Links** - Provides urls for other online systems that may be useful.
- Contact Us** - This section allows users to provide comments or questions on technical issues to the PHIL team.

There is a "My Pictures" tab that will take users to the "My Pictures" page from the Homepage. The "My Pictures" page can hold images that users

are considering or that are part of a collection of images to be included in a document or presentation. Items remain in "My Pictures" until the browser is closed. There is also a "Search Tips" tab that will go to the "Search Tips" page. This page gives detailed information on how to use the search features and get the best results.

If you are searching for a particular TB-related image and cannot find it in PHIL, please contact DTBE by e-mail at [tbimage@cdc.gov](mailto:tbimage@cdc.gov). We may be able to help you locate an image that meets your needs. Also, please help us expand our Image Library collection by submitting your TB-related images to DTBE. Please send an e-mail message to [tbimage@cdc.gov](mailto:tbimage@cdc.gov) and someone will contact you.

DTBE staff can access the site by clicking on the Image Library link in the right navigation menu on the DTBE Intranet Homepage.

—Submitted by Regina Bess  
Div of TB Elimination

## INFORMATION TECHNOLOGY AND STATISTICS BRANCH UPDATE

### Technical Challenges Delay TB NPP Deployment

CDC is developing the National Electronic Disease Surveillance System (NEDSS) to improve its disease surveillance data reporting. As part of this effort, DTBE is collaborating with a contractor, Science Applications International Corporation (SAIC), to develop the Tuberculosis NEDSS Program Area Module Platform (TB NPP); this will replace the surveillance module in TIMS.

Efforts to meet the initially projected deployment of the TB NPP by November 11, 2005, and to deliver an online demonstrate site by the end of 2005 were unsuccessful. However, through the successful completion of a certification and

accreditation process, an operational NPP website with demonstration files is available for public viewing at <http://216.27.172.78/training>.

The current project timeline for development and deployment of the TB NPP includes three phases of final functionality (beta) testing that started in spring 2006 and will end with the start of TB NPP production by summer 2006.

Internal usability testing was also performed prior to the Ohio beta release, and included select staff from CDC/DTBE. External beta and user acceptance testing based on site considerations such as the information systems environment and resource availability have been initiated with the Ohio Department of Public Health. Other ongoing activities include development of the Health Level Seven (HL7) messaging implementation guide, finalization of the TB NPP Data Migration Plan version 1.2, and selection of the most appropriate media to deliver end-user training.

—Reported by Philip Baptiste, M.Ed.  
Div of TB Elimination

## **SURVEILLANCE, EPIDEMIOLOGY, AND OUTBREAK INVESTIGATIONS BRANCH UPDATES**

### **Enhanced Surveillance to Identify Missed Opportunities for TB Prevention in the Foreign-born: Closing the Gap**

A CDC-funded study in the United States and Canada that is aimed at closing the gap in TB incidence between native-born and foreign-born persons began in April. Its purposes are to (1) describe the epidemiology of TB in foreign-born persons in the United States and Canada, (2) identify missed opportunities to prevent development and transmission of TB in foreign-born persons, and (3) make recommendations

for program improvements at the national, state or provincial, and local levels. To date, study researchers have conducted almost 1,300 of a planned 1,500 interviews with foreign-born persons newly diagnosed with TB.

The study involves all 21 sites of the Tuberculosis Epidemiologic Studies Consortium (TBESC) in 17 states and two Canadian provinces. The TBESC was established in September 2001 to conduct TB research and to strengthen TB public health infrastructure in the United States and Canada. The sites include academic institutions, medical centers, and TB control programs. TBESC has 16 research projects underway.

TBESC selected the epidemiology of TB in foreign-born persons as a top research priority because of its critical importance to TB elimination in the United States and Canada. In the past decade, TB case numbers and rates in North America have dropped faster among native-born persons compared to foreign-born persons. The result has been a growing gap in TB incidence between the two groups. In 2003, the TB rate among foreign-born persons in the United States (23.6 per 100,000) was almost nine times higher than the rate among native-born persons (2.7 per 100,000); foreign-born persons accounted for 53% of the 14,874 TB cases reported in the United States.

This is the first large population-based epidemiologic study of TB in foreign-born persons in the United States and Canada. To prepare for the study, TBESC researchers developed and pilot-tested an hour-long questionnaire that asks participants about their socioeconomic status, immigration and travel history, history of TB symptoms and care sought for those symptoms, previous treatment and testing for TB, and knowledge and attitudes about TB. The questionnaire has been translated into 10 languages. It will be supplemented with clinical data on each participant that is routinely

collected and reported to the CDC and Health Canada.

Researchers will enter the data into a Web-based data entry system developed for the study that can also be adapted to other TBESC studies.

Data collection will be completed in 2006. These data will be used to identify interventions that can improve basic TB control activities and inform public health efforts to eliminate TB in the United States and Canada.

—Reported by Dolly Katz, PhD  
Div of TB Elimination

### Surveillance Team Update

The primary goal of the Surveillance Team is to maintain a high-quality National Tuberculosis Surveillance System and to enhance the dissemination and use of surveillance data in collaboration with health departments. Following is an update on some of the surveillance team's current activities:

- OTIS, the Online Tuberculosis Information System, is now online and available to the public. Users can request tabular counts and percentages for 22 selected RVCT variables and rates for national demographic data. The system can be accessed by going to <http://wonder.cdc.gov/tb.html> or at <http://wonder.cdc.gov/>, then selecting *Online Tuberculosis Information System*.
- The National Surveillance System for Severe Adverse Events Associated with Treatment of Latent TB Infection is underway. DTBE urges health care providers and health departments to report *all* severe adverse events (e.g., liver injury, metabolic acidosis, anaphylaxis, seizure, severe dermatitis) leading to hospitalization or death of a person receiving any treatment for LTBI that occurred after January 1, 2004. Please report by telephone: 404-639-8401 or e-mail: [LManangan@cdc.gov](mailto:LManangan@cdc.gov).

- In conjunction with World TB Day on March 24, 2006, DTBE released an *MMWR* article on 2005 provisional surveillance data. The annual report, *Reported Tuberculosis in the United States, 2005*, with final 2005 data, will be ready for distribution in December 2006. DTBE is soliciting input on ways to enhance the dissemination and use of the surveillance report. Please send your suggestions to [GNewell@cdc.gov](mailto:GNewell@cdc.gov).



Back row (left to right): Lori Armstrong, Bob Pratt, and Elvin Magee. Front row (left to right): Glenda Newell, Lilia Manangan, and Valerie Robison, Surveillance Team, Surveillance, Epidemiology, and Outbreak Investigations Branch, DTBE

—Reported by Lilia Manangan and Glenda Newell  
Div of TB Elimination

### NEW CDC PUBLICATIONS

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Sackoff JE, Pfeiffer MR, Driver CR, Streett LS, Munsiff SS, and DeHovitz JA. Tuberculosis prevention for non-US-born pregnant women. *American Journal of Obstetrics and Gynecology* 2006 Feb; 194(2): 451-6.

Shah NS, Harrington T, Huber M, Wellnitz C, Fridrych S, Laserson K, Gonzalez IM, and Ijaz K. Increased reported cases of tuberculosis among children younger than 5 years of age, Maricopa County, Arizona, 2002-2003. *The Pediatric Infectious Disease Journal* 2006 Feb; 25 (2): 151-5.

## PERSONNEL NOTES

Sandy Althomsons, MA, MHS, has joined DTBE in the Surveillance, Epidemiology, and Outbreak Investigations Branch. Sandy joined the branch as of April 11 as its new Data Manager (the position previously held by Lynn Latimer). Sandy has been with Northrop Grumman Corporation since 2002, working in the National Center for Chronic Disease Prevention and Health Promotion and in the National Center for Injury Prevention and Control, and serving as Task Lead for a Northrop Grumman Corporation Research and Development effort addressing pandemic influenza surveillance detection and response. Previously Sandy worked as a short-term professional for the Stop TB Unit at the World Health Organization (WHO) in Manila, the Philippines, where she helped monitor tuberculosis programs for the region. Sandy received a masters degree in biology from Washington University in St. Louis, Missouri, and a masters degree in international health from the Johns Hopkins University School of Public Health. In her spare time she reads, studies German, and tries to improve her cooking skills.

Eileen Bell, an Office Automation (OA) Clerk, recently began working in the DTBE Office of the Director, and is available to provide a wide array of administrative services to DTBE staff. Eileen, who is organizationally a part of CDC's Management Analysis and Services Office (MASO), has been assigned to support all of NCHSTP but is located in DTBE for direct support. She brings with her a great amount of experience and enthusiasm, and her OA support will be beneficial to all. She is new to the Atlanta area, having come here from Northern California after serving in the Air Force in the 1990s on active duty. She left after serving 4 years at Vandenberg Air Force Base, California, as an Administrative Assistant. She also spent a number of years at Kaiser Permanente Hospital working in different support capacities. In addition, Eileen has had experience working in retail sales in private industry. We welcome Eileen and are happy to have her here.

Deborah Carr was selected for a TB public health advisor (PHA) position with the Austin/Travis County Health Department in Austin, Texas, and has moved from Los Angeles, California, where had worked for CDC's Division of STD Prevention. Deborah has a BA degree in sociology from California State University. She began her public health career with the STD program of the County of Los Angeles, working as a Disease Intervention Specialist from 1991 to 1996. Her additional assignments with the County STD program included serving as a Research Analyst from 1996 to 1999 and as Syphilis Elimination Coordinator from 1999 to 2001. In 2001, Deborah was hired by CDC's Division of STD Prevention and was assigned to Los Angeles as Lead PHA/Special Projects Coordinator. This position involved the planning, coordination, implementation, evaluation, and oversight of daily operations of special STD/HIV screening projects in the Los Angeles County Jail. Deborah began her assignment in Austin effective March 19, 2006.

Kim Field, RN, MN, the TB Program Manager for the Washington State Department of Health, has been selected as President of the Board of the American Lung Association of Washington (ALAW). In 2006, during Kim's 2-year tenure as President, the ALAW will celebrate its 100th anniversary. Kim has been a board member for the ALAW for 5 years and a volunteer for 10 years. She has served on multiple committees within the ALAW organization over the last decade. In addition to the ALAW, she is also affiliated with other public health organizations such as the Washington State Public Health Association and the Washington State TB Advisory Committee. "It is clear to everyone who knows her that Kim is a dedicated professional for those living with lung disease," said Marina Cofer-Wildsmith, CEO of the ALAW. "I look forward to working with Kim over the coming 2 years to continue our strong work in promoting lung health issues in Washington State." Kim has served as the TB Program Manager of the Washington State Department of Health since 1996 and has been employed with the Department since 1989. She has also been a member of National Tuberculosis Controller's Association since 1994 and has served on the Executive Board as President (2004) and Secretary (2000). Kim is currently serving as adjunct faculty at the University of Washington's School of Nursing. Since 1997, Kim has concurrently been employed as a community-based home health nurse. She provides skilled nursing services to patients recently discharged from acute care and rehabilitation facilities. She applies nursing assessment skills with the Oasis Assessment tool. Kim received a masters degree in nursing from Seattle University in 1997 and a bachelor of science degree in nursing from San Diego State University in 1971. She has lifetime certification in Public Health Nursing and School Nurse Standard Services Credentials from the State of California.

Kathryn Ruck Guillen has been selected for the public health advisor (PHA) position in New Orleans with the Louisiana Department of Health



and Hospitals, Office of Public Health. From June 2004 through January 2006, she functioned as technical and programmatic advisor to the TB Program Manager with the New Jersey Department of Health and Senior Services. Her primary responsibilities included serving as team leader for program evaluations of New Jersey TB clinics and serving as the TB education focal point for the state. From March 2002 to June 2004, Kate served as an advisor to the South Carolina TB Controller, with a specific focus on contact investigations. While in the position, she conducted statewide trainings on contact investigations, developed state contact investigation policies and procedures, participated in audits and quality assurance reviews, and developed the content and reports for the Tuberculosis Contact Investigation System (TBCIS). Prior to that assignment, Kate served as a PHA for the New Jersey Department of Health and Senior Services assigned to the Hudson County TB Program as a public health field representative. Before coming to DTBE, she was a member of the TB Control Program for the Louisiana Office of Public Health. Kate began her new assignment on February 5, 2006.

Sandra Kong, MPH, has left DTBE after accepting a new position as a Program Officer at the Academy for Educational Development (AED), Center for Global Health Communication and Marketing in Washington, DC. The Center works to bring about positive changes in the actions of individuals, communities, and institutions that will improve the health and well-being of vulnerable populations around the world. Sandra will be working on various global health projects through advocacy strategies, behavior change communications, and community-based initiatives to provide technical support to many health-related fields such as treatment of common childhood diseases, pregnancy prevention, HIV/AIDS prevention, containment of avian influenza, and communication in humanitarian emergencies. Sandra joined the Communications, Education, and Behavioral Studies Branch (CEBSB) as an ASPH Health

Education and Instructional Design Fellow in 2005, and has been a member of the Education, Training, and Behavioral Studies Team. Sandra came to DTBE from the Global AIDS Program (GAP), where she had served as an ASPH Global HIV Behavior Change Fellow for 2 years. Sandra's last day in DTBE was April 11. We miss Sandra and wish her the best of luck.

Lynn Latimer, MS, MIS, has left her position in DTBE as data manager with the surveillance team in the Surveillance, Epidemiology, and Outbreak Investigations Branch for a position at the University of Georgia, Athens, as Data Analysis and Statistics Manager. She will be leading efforts to establish an accountability program within the Information Technology Division there. She was employed at CDC through the Northrop Grumman contract, and worked with the surveillance team for over one year. Lynn was the recipient of the DTBE Director's Award for the first quarter of 2006; she was also the recipient of the NCHSTP Director's Recognition Award for March 2006. She received these awards for innovations she made that improved quality, effectiveness, and efficiency; for her initiative in developing new approaches or procedures; and for her efforts beyond the call of duty and beyond the scope of her position. Her leadership and efforts in the development and production of the Annual Report (*Reported Tuberculosis in the United States, 2004*) were exceptional. She introduced efficiencies and automated certain processes which will save both time and money next year. Furthermore, she documented all processes in such detail that it will simplify the development of future reports. Lynn began making significant contributions to the surveillance team shortly after her arrival. She worked beyond the scope of her position by taking a leadership role in "process improvements." She brought to every task the same level of dedication, professionalism, and expertise that she demonstrated on the Annual Report. She became instrumental in the development of procedures for developing and sharing the completeness reports with our state

partners. She set up a system to take basic Excel information regarding GPRA variable completion rates by state and evaluate these against a predetermined completion goal which changed for each variable. She was also able to automate the process to generate e-mails which could be provided to the state TB controllers and FSEB consultants responsible for each area, reducing this process from an estimated several days to about an hour. Lynn made wonderful contributions to our team, to our spirit, and to the processes we follow to get our work done, and she will be missed.

Elvin Magee, MPH, joined the Surveillance Team of the Surveillance, Epidemiology, and Outbreak Investigations Branch as a health scientist on March 20, 2006. Besides being very personable, Elvin brings with him a wide array of education and experience in the fields of engineering, management, and public health surveillance. He joins us from the Statistics and Data Management Branch, Division of Sexually Transmitted Diseases (STD), where he served for almost 7 years as a Health Scientist and Information Technology Specialist. He has a bachelor of science degree in electrical engineering, a masters degree in human relations and business, and a masters degree in public health. He transitioned from private industry to public health in 1990 by serving as an evaluation supervisor for the Dallas County AIDS Community Demonstration Project. In this capacity, he supervised data collectors, and managed the information system for this community-based project. In January 1996, he moved to Atlanta to work with the HIV/AIDS Reporting Systems (HARS) in the Division of HIV/AIDS Prevention (DHAP). Elvin trained personnel to use the Health Information Retrieval System, which supported local surveillance teams in extracting epidemiologic data from HARS. Elvin also worked as data manager for the Young Men's Survey Project in DHAP. His efforts included data management for quality and survey development. In August 1999, he joined the STD division and worked with the Syphilis

Elimination and Corrections Projects. He primarily supported the Office of the Director and branch staff with data requests and routine surveillance activities. In addition, he participated in the CDC mentoring program, Equal Employment Opportunity Advisory Council, and emergency response efforts for Hurricane Katrina. In his leisure, Elvin enjoys poetry, chess, basketball, football, and a variety of music. He comes from a family rich in music as many of his relatives are music teachers or performers.

Brandii Mayes, MPH, has joined DTBE from the Office of the Chief Science Officer (OCSO) as part of her second CIO fellowship assignment in the Public Health Prevention Service (PHPS) program. While at the OCSO, she worked with the Science Vision and Alliances Team to help with CDC's internal public health ethics capacity building efforts. During her 6 months assignment at DTBE, Brandii will be working with Field Services and Evaluation Branch and Surveillance, Epidemiology, and Outbreak Investigations Branch staff to develop a systematic process for evaluating the effectiveness of outbreak response activities. Brandii received an undergraduate degree in biology from Clark Atlanta University. As a student there, she became a member of Beta Kappa Chi National Scientific Honor Society and Alpha Kappa Alpha Sorority, Inc. During her undergraduate summers, she conducted laboratory research at various institutions including Harvard University School of Public Health/Dana Farber Cancer Institute, The University of Texas Health Science Center-Houston, University of Texas Medical Branch, Clark Atlanta University, and Morehouse College in areas such as HIV, ophthalmology and visual science, diabetes, and environmental toxicology. During her final undergraduate summer of 2002, she conducted research abroad in Kingston, Jamaica, with the assistance of the University of Maryland School of Medicine's Fogarty MIRT program. There she co-authored her first journal article, entitled *Sociodemographic and clinical characteristics of Jamaican adolescents with*

*HIV/AIDS*. She obtained her masters degree in public health from the University of Texas - Houston School of Public Health with a concentration in community health practice. While a student there, she spent 3 years conducting behavioral research on several studies targeting high-risk, drug-using populations aimed at encouraging condom use, testing, and education about HIV and hepatitis B. A native of Houston, Texas, Brandii enjoys organized sports, and is currently on a CDC Share softball team. While in Houston, she coached an all-girl, award-winning high school step team and was a member of the NBA's Houston Rockets G-Force Step Squad. In her spare time, she enjoys working with youth in the community.

Paul Moffat has been selected for a TB public health advisor (PHA) position with the Los Angeles County Health Department in Los Angeles, California. Paul departed for Los Angeles from Atlanta, Georgia, where he had been working for CDC's Coordinating Office for Global Health, Division of Epidemiology and Surveillance Capacity Development (DESCD). Paul began his CDC public health career with the Sexually Transmitted Diseases (STD) program, working as a Disease Intervention Specialist. His additional assignments have included serving as a TB PHA in New Orleans, Louisiana, and later as a PHA in the Immunization Program. Paul began his assignment in Los Angeles effective May 1, 2006.

Sarah O'Leary, MPH, MA, finished her assignment with DTBE on April 5, 2006; this was her first assignment as a Public Health Prevention Specialist Fellow. While in DTBE's Field Services and Evaluation Branch, she worked on several projects, focusing primarily on evaluation with the Program Evaluation Team. She provided technical assistance to state TB programs in the development of their evaluation plans. She also worked on selecting indicators from the indicator library, and preparing a draft guidance document that will be

further developed into a guide to using indicators in TB program evaluation. Sarah also worked on analyzing the 2005 TB data for the US-affiliated Pacific Islands, and also prepared the executive summary on that region which was released on World TB Day. Her next assignment is with the Healthy Aging Program in the Division of Adult and Community Health in the National Center for Chronic Disease Prevention and Health Promotion. Sarah really enjoyed her time in DTBE, commenting that "It was a wonderful opportunity to learn about TB and program evaluation and a great group of dedicated people to work with."

Maureen O'Rourke was selected for the senior public health advisor (PHA) position in Raleigh, North Carolina. She is transferring from the Pennsylvania TB Program in Harrisburg, Pennsylvania, where her responsibilities have included developing goals and objectives consistent with national standards and incorporating them into the cooperative agreement application. She independently wrote the Human Resources Training Plan and assisted with the development of a TB program evaluation plan for Pennsylvania. In addition, she provided TB technical assistance and consultation throughout Pennsylvania, provided presentations, and served as the surveillance coordinator as well as the lead TB program representative for Pennsylvania's National Electronic Disease Surveillance System (PA-NEDSS). From 2002 to 2004, Maureen was assigned to the Tennessee TB Elimination Program in Nashville, where her responsibilities included writing Tennessee's yearly progress reports and cooperative agreement applications. Maureen completely redesigned the state's yearly statistical report, and also coordinated World TB Day activities for the state. She also assisted in conducting quality assurance activities for the regions and metropolitan areas in Tennessee. During her last 6 months in Tennessee, she independently revised the state's guidelines for conducting effective contact investigations and also redesigned the contact

interview sheet. Maureen began her career with CDC in Columbia, South Carolina, as a PHA in the Sexually Transmitted Diseases (STD) program. Before that, she was a state Disease Intervention Specialist (DIS) for a year and a half in Hillsborough and Manatee counties of Florida. Her job experiences also included clerical and administrative positions at the Veterans Administration and with a National Guard MASH unit. As a state and federal DIS, Maureen was trained and educated in the fundamentals of public health delivery and epidemiology. In 1995 she was reassigned to Dallas, Texas, where she planned, coordinated, and implemented special screening activities at homeless shelters, detention centers, and other sites serving high-risk populations. Maureen also presented educational and training programs. Maureen reported to Raleigh, NC, on March 5, 2006.

Shameer Poonja, MPH, was selected for a public health advisor (PHA) position with the Indiana State Health Department. He is transferring from his current post at the New York City Department of Health and Mental Hygiene, Bureau of TB Control, where he has been assigned since 2002. In his most recent position as the Homeless Services Coordinator, Shameer has been involved in overseeing the Bureau's funded activities with the Department of Homeless Services and HIV Care Services Administration (Ryan White Funding). His activities with the Department of Homeless Services have focused on providing directly observed therapy (DOT) at several DHS shelter sites, as well as at the Bureau's DOT unit at the 30<sup>th</sup> Street Men's Shelter; educating and offering skin testing to all 1500 DHS employees and new hires; and providing education and support to contracted DHS shelter medical providers. Funding from the HIV Care Services Administration has been used to assign Bureau staff to several single-room occupancy (SRO) locations in order to target education, screening, and on-site DOT services to coinfecting HIV/TB patients. Shameer began his career with CDC when he was selected to fill the PHA position in New York City in 2002. Prior

to his CDC assignment, he had spent 4 years with the Massachusetts Department of Public Health, 3 of which were with the Division of TB Prevention and Control, coordinating the Division's prevention activities. While with that Division, he was directly responsible for its four community-based targeted testing projects, and also served as the liaison between the Division and various community-based organizations and coalitions. Prior to working in TB, Shameer spent a year with the Refugee and Immigrant Health Program at the Massachusetts Department of Public Health on a CDC-funded research project, evaluating the TB screening practices of the INS-appointed civil surgeons. In 1998, he received his MPH from Boston University School of Public Health. Shameer began his new assignment with Indiana on March 5.

## CALENDAR OF EVENTS

May 16–17, 2006

"Stop TB in the African-American Community"  
Meeting

Atlanta, GA

CDC, Global Communications Center

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May 19–20, 2006

TBTC Semiannual Meeting

San Diego, CA

TB Trials Consortium

CDC, Division of TB Elimination

May 19–24, 2006

ATS International Conference 2006

San Diego, CA

American Thoracic Society

[www.thoracic.org](http://www.thoracic.org)

May 25, 2006

Regional TB Conference

Southeast Massachusetts

Northeastern Regional Training & Medical  
Consultation Consortium  
<http://www.umdnj.edu/globaltb/courses.htm>

June 6–7, 2006  
TB Field Investigation  
New York City, NY  
Northeastern Regional Training & Medical  
Consultation Consortium  
<http://www.umdnj.edu/globaltb/courses.htm>

June 12–15, 2006  
2006 National TB Controllers Association  
Workshop: *"Eliminating TB: Fighting the Enemy"*  
Atlanta, GA  
Sheraton Buckhead  
CDC, Division of Tuberculosis Elimination

June 27–28, 2006  
TB Clinical Intensive  
Newark, NJ  
Northeastern Regional Training & Medical  
Consultation Consortium  
<http://www.umdnj.edu/globaltb/courses.htm>

July 25–28, 2006  
TB Program Management Intensive  
San Francisco, CA  
Francis J. Curry National TB Center  
<http://www.nationaltbcenter.edu/training/index.cfm>

July 26-27, 2006  
Meeting of the Advisory Council for the  
Elimination of TB  
Atlanta, GA  
CDC, Division of TB Elimination

August 11, 2006  
TB Fundamentals  
Columbus, OH  
Northeastern Regional Training & Medical  
Consultation Consortium  
<http://www.umdnj.edu/globaltb/courses.htm>

August 15–17, 2006  
Sixth Annual TB ETN Conference, "TB Training  
and Education Magic: Tricks of the Trade"

Atlanta, Georgia  
TB Education and Training Network

September 27–30, 2006  
Interscience Conference on Antimicrobial Agents  
and Chemotherapy  
San Francisco, CA  
American Society for Microbiology  
[www.icaac.org](http://www.icaac.org)

October 21–26, 2006  
Chest 2006 Conference  
Salt Lake City, UT  
American College of Chest Physicians  
[www.chestnet.org/CHEST/program/index.php](http://www.chestnet.org/CHEST/program/index.php)

October 23–27, 2006  
2006 Program Managers Course  
Atlanta, GA  
CDC, Division of TB Elimination

October 31–November 4, 2006  
37<sup>th</sup> IUATLD World Conference on Lung Health  
Paris, France  
International Union Against TB and Lung Disease  
[www.worldlunghealth.org/Conf2006/](http://www.worldlunghealth.org/Conf2006/)