



Dear Colleague:

We have kept up our usual busy pace in the Division of Tuberculosis Elimination (DTBE) despite the relentless heat of summer; a few items of note are provided here. From April 19 to 23, 2010, CDC held its 59<sup>th</sup> annual Epidemic Intelligence Service (EIS) Conference. EIS is a postgraduate program of service and training for health professionals interested in applied epidemiology. DTBE has successfully recruited three new EIS officers, who recently started their 2-year assignments. Please see the related article in this issue.

The 2010 ATS International Conference was held in New Orleans from May 14 to 19, 2010. There were several TB-related sessions, with a number of our DTBE staff attending as invited speakers and presenters—a tribute to their expertise. We include in this issue a report on a joint TBTC/TBESC session that was held during the conference.

The 2010 National TB Conference was held June 21–24 in Atlanta, with the theme of “Innovate to Accelerate: On the Move to Eliminate TB.” As usual, the conference offered multiple sessions and activities, many occurring simultaneously to take full advantage of the time and space. The meeting provided inspiring presentations, informative case studies and posters, and ample opportunities to meet with colleagues, share ideas and experiences, learn about new methods and technologies, and celebrate our colleagues’ successes. This issue includes a section of articles relating to the conference; I hope you will take a moment to read them.

The Advisory Council for the Elimination of Tuberculosis (ACET) met in Atlanta the week after that, on June 29 and 30. Dr. Hazel Dean, Deputy Director of the National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP), reported that Dr. Frieden testified to Congress in April 2010 on antibiotic resistance; TB was among the high-priority infections he discussed. In my DTBE updates, I reported on the June 22–24 National TB Conference in which DTBE staff had recently participated, and announced the June 25 release of CDC’s new IGRA guidelines, “Updated guidelines for using Interferon gamma release assays to detect *Mycobacterium tuberculosis* infection – United States, 2010,” *MMWR* 2010; 59 (No.RR-5).

I also reported on NCHHSTP efforts to promote health equity and social determinants of health, and outlined DTBE activities in support of health equity. One such effort is the toolkit, *Working Together to Stop TB -- Building Community Partnerships to Eliminate TB in African-American Communities*, developed to help public health workers raise awareness about TB in the African-American community. A small cohort of TB

programs will pilot test the toolkit and provide feedback and suggestions for improvement. We include an article about the project in this issue.

Andrew Rein, MS, CDC's Associate Director for Policy, was on hand to discuss the Affordable Care Act and public health. He characterized the Affordable Care Act as a real opportunity for public health. As provided for by the Act, the President has already established, within the Department of Health and Human Services, the National Prevention, Health Promotion and Public Health Council, to help begin to develop a National Prevention and Health Promotion Strategy; the U.S. Surgeon General serves as the Chairperson of the new Council. The Act also provides for new funding for a variety of health programs.

Dr. Stuart Berman reported on the U.S. Preventive Services Task Force, an independent panel of health experts who make recommendations regarding which preventive services should be routinely incorporated into primary medical care, and whose recommendations will determine, under the new Act, which preventive health items or services will be fully covered by health insurance. He asked ACET to consider whether or not CDC or ACET should pursue a high recommendation from the Task Force for screening for latent TB infection.

We also heard from Dr. Bill Burman on an initiative to involve children in the TB drug development process, which will improve treatment and outcomes in this population. A number of other updates were given on domestic as well as international issues. Several of these updates were also presented at the National TB Conference and thus will not be repeated here, since many *TB Notes* readers were at the conference. The next ACET meeting will be held in the fall of 2010; we will confirm the date later.

We've designated Dr. Jessie Wing as DTBE's point-of-contact for activities related to the Affordable Care Act. In conjunction with the National Tuberculosis Controllers Association (NTCA), she has planned a consultation for October 7 to explore how TB prevention and control can be advanced in the context of health reform.

The TB Education and Training Network/TB Program Evaluation Network (TB ETN/TB PEN) Annual Conference was held August 10–12, 2010, in Atlanta. This year's meeting focused on partnerships, social determinants of health, capacity building, and tools that enhance TB education, training, and program evaluation. Conference activities included skills-based workshops, informational presentations, and networking opportunities. In addition, this year TB ETN celebrates 10 years of bringing together TB professionals to network, share resources, and build education and training skills. In recognition of this milestone, a special reception was held on August 10. Congratulations to TB ETN for this achievement and best wishes for many more years to come!

Kenneth G. Castro, MD

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## HIGHLIGHTS FROM STATE AND LOCAL PROGRAMS

### Public Health Prevention Specialist Application Process: The North Carolina Experience

*Background.* The Public Health Prevention Service (PHPS) is a 3-year training program that assigns prevention specialists to public health organizations in order to prepare them for leadership positions in health programs. The program provides invaluable learning experiences for the prevention specialists, as well as important assistance for public health programs willing to invest in mentoring. The qualifications for the PHPS include a master's degree in public health or in a management-related field, strong interest in a leadership and management career in public health, 1 year of public health work experience, and 1 year of on-the-job training at CDC.

The North Carolina TB Control Program (TCP) received a Request for Applications (RFA) e-mail from CDC in November 2008, and despite the lengthy process such applications entail, the program decided it was well worth the effort. The TCP had a critical need for program evaluation assistance and an interest in providing a meaningful experience for the right individual.

*Description of Process.* In December 2008, the TCP decided to request a prevention specialist to systematically evaluate and improve the conduct of contact investigations. The first step was to write a Letter of Intent (LOI), which was due about 45 days after receipt of the RFA e-mail. The purpose of the LOI is to describe the proposed assignment and the activities the

prevention specialist would undertake. Specifically, the LOI provides information about the agency, and a statement of need that describes the health problem to be addressed, the priority population, key collaborations, and details about the assignment, along with a good description of the requesting program's organizational structure, and the supervision to be provided. Below is the information that was provided in the NC TCP's LOI.

#### *Health problem to be addressed*

Tuberculosis (TB) remains a persistent threat to public health in the United States and North Carolina. While the number of cases is declining *gradually*, public health expertise to control TB is declining *rapidly*. Furthermore, resources for TB control are diminishing out of proportion to the reduction in caseload, resulting in less capacity to effectively control TB. The continuing social, public health, and economic costs of TB provide a compelling rationale for TB elimination. In 2007, 13,293 new cases of TB disease occurred in the United States, and an estimated 11 million people have latent tuberculosis infection and are at risk of future disease. Although TB incidence is at an all-time low, the remaining cases are disproportionately occurring in difficult-to-reach populations, such as disadvantaged minorities, recent immigrants, homeless persons, and persons who abuse alcohol and/or illicit drugs. Ongoing TB transmission is facilitated in these populations by poor health care access and utilization, language and cultural barriers, and suboptimal relationships with the health care system. Outreach efforts are required to interrupt TB transmission in these populations.

Identification and targeted testing of persons at high risk for latent TB infection remains a

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cornerstone of TB control efforts in the United States. Persons at highest risk include recent contacts to infectious TB, and latently infected persons in populations with high prevalence of comorbidities (e.g., HIV) that increase the risk of progression from latent to active TB. Once identified, high-risk individuals with latent TB can be treated, thereby preventing future cases of TB. Ensuring efficient identification of latent TB infection and subsequent adherence to latent TB treatment requires expertise and commitment on the part of local health department staff. However, funding declines have made it virtually impossible to employ or maintain adequate staff to conduct effective contact investigations, particularly in more rural areas of North Carolina.

To address these issues, North Carolina proposes to develop a team of specially trained individuals who would be responsible for assisting local TB control programs in conducting large contact investigations, responding to

outbreaks of active cases of TB, and coordinating targeted outreach efforts. The prevention specialist would serve as the lead coordinator on this team.

*Priority population(s)*

As stated above, the priority populations include 1) contacts to infectious cases of TB. These contacts of active cases are at high risk of developing TB disease, and 2) populations locally identified as having high risk for latent TB infection and suboptimal health care access/utilization. In particular, populations associated with prior TB transmission in a given community will be targeted.

*Key collaborations*

The prevention specialist will foster collaborations both among local health department personnel (TB nurses, TB physicians, local health department supervisory staff), and also between the state TB program (nurse consultants, medical consultants) and the local health department. Furthermore, the prevention specialist will interact with state and local personnel involved with other communicable disease outreach efforts (e.g., HIV testing outreach staff) to optimize the efficiency and yield of outreach efforts.

*Assignment Description*

Major activities and performance requirements:

- Enhance the existing Outbreak Response Plan for North Carolina. Collaborate with local health department TB program staff members, Regional TB Nurse Consultants at the state level, the TB Medical Director, and any other public health staff from other programs, along with community providers and laboratory professionals regarding conducting contact investigations.
- Partner with community groups as well as cross-disciplinary public health groups to conduct outreach efforts to find those who may have been exposed to infectious TB.

The forging of partnerships with community groups will help avoid potential problems such as barriers preventing contacts from reaching proper health care.

- Evaluate contact investigation methods and results. Collect, track, and analyze the investigation and genotyping data necessary to determine the effectiveness of contact investigation and outbreak response efforts within North Carolina.

#### *Organizational Structure and Supervision*

Assignment location. The public health prevention specialist will be housed at the TB Program Central Office in Raleigh, North Carolina.

Developmental and training opportunities. The PS will be provided all the necessary education and training appropriate to conduct activities described. Specific activities will include the introduction to TB Program Management course, attendance at the Duke TB Symposium, and the TB/Respiratory Diseases Institute conference. On-site mentoring at local health departments will also be provided. The specialist will also work with staff from other communicable disease programs such as HIV and sexually transmitted disease (STD) prevention and control.

Primary Supervisor: Maureen O'Rourke, MS. Ms. O'Rourke is a Senior Public Health Advisor and the current TB Program Manager in North Carolina. Maureen has been with the Division of TB Elimination since 1999 and with the North Carolina TB Program since February 2006. She has worked in several states and has a wide range of public health experiences.\*

Secondary Supervisor: Jason Stout, MD, MHS. Dr. Stout is board certified in internal medicine and infectious diseases and is an Assistant Professor of Medicine with the Division of Infectious Diseases at Duke University Medical Center in Durham, North Carolina. Dr. Stout is the TB Medical Director and TB Controller for

North Carolina. He also serves as the TB Medical Consultant for the Wake County Human Services TB Program in Raleigh, NC.

*Results of Activity.* North Carolina's Letter of Intent was one of 169 LOIs received. Based on these LOIs, 100 of the 169 programs were invited to submit a full application for a Prevention Specialist; NC was among them. The full application was developed and submitted to the PHPS office by the due date of April 6, 2009. On April 13, the PHPS office sent biosketches of Prevention Specialists to the TCP. During April 27–May 8, we had the opportunity to communicate with Prevention Specialists by e-mail and phone calls. This is called the open recruitment stage of the process, and it allows for open discussion between Prevention Specialists and the public health organizations about expectations and interests. Open recruitment also allows time to address any questions or concerns regarding the assignment. Ten prevention specialists were interviewed by telephone during open recruitment. We were soon notified that our agency was one of about 55 agencies selected to participate in the PHPS interview day on July 10. North Carolina TCP staff interviewed six candidates during interview day in Atlanta. After the interviews, both the agencies and the Prevention Specialists ranked each other using a standardized scoring system from 1 to 6 (1 being most desirable, 6 least). Agencies were then matched with Prevention Specialists utilizing both scores. Not every agency receives a specialist; in this case, only 23 candidates were available, and no state can accept more than two specialists. The North Carolina TCP was very excited to be matched with a Prevention Specialist, who started on-site in October 2009.

*Lessons Learned (thus far).* We learned that all the work involved in applying for a Prevention Specialist is well worth it! Also, agencies need a clear understanding of the proposed assignment, as well as the financial obligations each agency will incur having a Prevention Specialist for a 2-

year assignment. A well-defined and organized training plan is key to making the specialist feel welcome and to optimizing the value of the experience for both the specialist and the organization. However, it is also important to be flexible and provide the specialist with unique experiences when they arise. For example, our specialist has done an excellent job in assisting with a large contact evaluation at a college, mapping infection by location in a dormitory.

*Future Plans.* We intend for our Prevention Specialist to complete a comprehensive evaluation of TB contact investigations across North Carolina, with suggestions for program improvement. In return, we hope that she will have obtained on-the-ground experience in public health practice and management. Most importantly, we hope that our enthusiasm for TB control is infectious!

*—Reported by Maureen O'Rourke-Futey, MS  
Public Health Advisor, Div of TB Elimination*

\* Note from the NC TCP: Since we applied for the Prevention Specialist, Maureen has moved to a new position in California.

### **TB Outreach Among Indigenous Mexican Immigrants in San Francisco**

Tuberculosis has long been associated with poverty, probably due to a combination of factors intrinsic to the experience of being poor: overcrowding, substandard living conditions, malnutrition, and decreased access to health care. As TB prevalence decreases owing to good TB control practices in wealthier countries, TB cases are becoming concentrated in marginalized and impoverished sectors of society. In San Francisco, socioeconomic gaps are addressed by numerous programs, such as universal health care for all citizens and multilingual staff to serve as cultural and linguistic interpreters for our diverse clientele. Here, we describe the discovery of unforeseen and unrecognized cultural barriers that impeded a TB

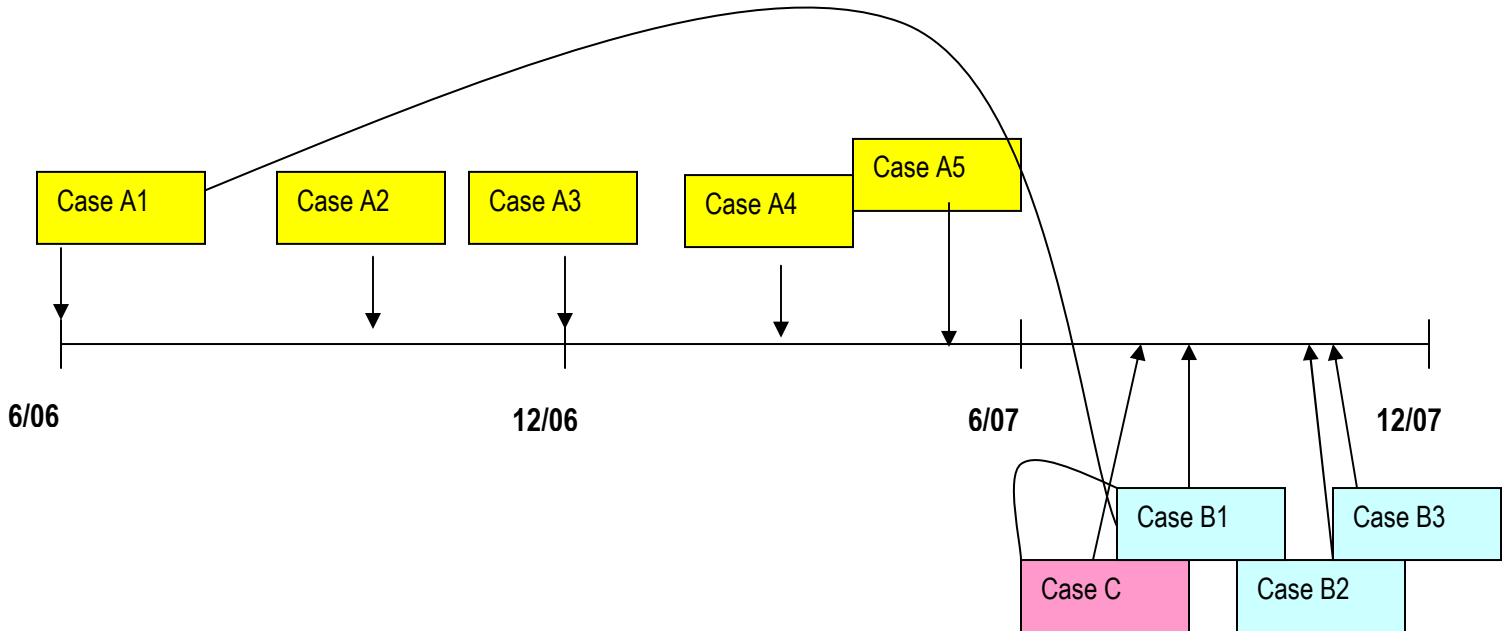
contact investigation among indigenous Mexican day laborers.

A 33-year-old man (case A1) from Mexico's southernmost state of Chiapas presented to our hospital on June 20, 2006, with 1 month of productive cough, chills, night sweats, and about 11 lbs. of weight loss. He had left-sided chest pain, with radiation to his back associated with coughing, and his chest x-ray (CXR) showed multiple left upper lobe cavitory lesions with air fluid levels. Both his tuberculin skin test (TST) and QuantiFERON Gold In-Tube (QFT GIT) test result were positive and he was started on a standard four-drug TB treatment regimen.

He lived at location A, a two-story apartment with 33 other men from the same region. Each floor consisted of a shared kitchen, bathroom, and multiple bedrooms, each with several bunk beds. Contact investigation results showed that 26 out of 32 (81%) contacts had a positive TST result, defined as greater than 5 mm induration, three had negative TST results, and the remaining three could not be reached or were unwilling to be screened. Of those 26 with latent TB infection (LTBI), 21 (81%) initiated and completed treatment. Contact evaluation found that 4 out of 33 (12%) had pulmonary TB; 2 were diagnosed initially (cases A2 and A3), and 2 more were diagnosed (case A4 and A5) 8-10 months later when they moved back to the apartment and were screened.

Case B1 was a 31-year-old man referred from the local day labor program and seen in the TB clinic on September 25, 2007. He had cough, fever, hoarseness, and weight loss of 13–25 lbs. for 1 year. His CXR showed extensive left upper lobe and left middle lobe cavities and fibro-nodular changes. Because of his hoarseness, he was suspected of having laryngeal TB, and started on TB treatment immediately owing to the highly infectious nature of TB laryngitis.

Timeline of Diagnoses of Cases in Chiapan TB Outbreak in San Francisco



Case A1-A5 (boxes over the line): initial contact investigation associated with Case A1

Case B1-B3 (under the line): Expanded contact investigation when Case B1 diagnosed and linked to Case A1

Case C (under the line): separately diagnosed case later found to have epidemiologic links and matching genotype

Case B1 emigrated from Chiapas in April 2007 to San Francisco, and stayed with a roommate at two other locations before settling at Location B. Location B was the top floor of an apartment building that consisted of five bedrooms, each sleeping 4-6 persons, and a common kitchen and bathroom, housing day laborers from Chiapas.

Out of 30 contacts screened at location B, 24 (80%) were positive by QFT-IT blood test or had a history of positive TST. Twelve of these contacts (50%) started LTBI treatment. There was one additional case of laryngeal TB case B2, found at this site.

Upon further discussion with the social worker, it was discovered that Case B1 had shared daily car rides with case A1 including trips to the TB clinic where he waited in the car while case A1 received DOT. He was never named as a contact and, therefore, never screened. Case C, independently diagnosed and treated through the

San Francisco Public Health Department, told the social worker that he was related to Case B1 and had been a previous roommate. After lengthy education about TB transmission, he showed the disease control investigator and social worker two more sites where he and Case B1 had lived. From this expanded investigation, one more pediatric case, Case B3 was diagnosed. All 8 specimens that were sent for genotyping studies matched (cluster CA\_414). One other case in this cluster, in another county, originates from Chiapas, Mexico as well. There are no other cases of this genotype in the U.S.

Analyzing this outbreak, the unique aspects that led to delayed diagnoses of TB and transmission were the following: 1) an isolated community that had very little socio-cultural exposure outside of their village/region, and 2) little or no spoken fluency in Spanish. These conditions caused barriers to TB testing, but also to cooperating with routine contact investigation. Most of these

men had never interacted with a medical system, much less seen a doctor, or received injections or phlebotomy. The social worker realized through her interactions with these contacts that they were willing to be cooperative, but there was another layer of barrier that existed. She discovered that they had poor Spanish comprehension; there was a language gap with Spanish, as their native tongue was Tzeltal, an indigenous language of Southern Mexico. In addition, she realized after persistent questioning that they were unfamiliar with conventional things in our society that we take for granted such as mail, mailboxes, or addresses (i.e., that locations are uniquely identified by a number and street). This knowledge and communication gap delayed our initial contact investigation, since these young men were unable to correctly provide addresses or read their notifications in Spanish instructing them of their need for evaluation. The social worker's role as a cultural broker was essential to earning their trust. She provided education on many basic things including enrollment in the local health plan and acting as a conduit to navigate the health system for other health concerns.

There are 36 million indigenous people in Mexico, constituting one third of the country's population. Most originate from the south-central states of Mexico, with 62 different languages spoken. Day laborers and other Mexican immigrants that work in San Francisco reflect this diversity. According to an August 2008 article in the Mexican newspaper *Milenio*, 22,581 people died of TB in Mexico between January 2000 and June 2008 (equaling a death rate of about 2.7/100,000, 10 times higher than the U.S. TB death rate). TB mortality is second highest in Chiapas, after the state of Veracruz. We realized that these indigenous groups, not fluent in Spanish, are an underrepresented minority that faces frequent unique difficulties such as rent gouging, unsafe working and living conditions, and lack of access to legal rights. They often live in overcrowded situations that violate city codes

and are at increased health risks for many diseases, including TB.

Building on the trust forged by our social worker, we decided to arrange a coalition of community leaders and service providers to offer access and education to these underserved immigrants. With access to health care and health education, we hoped these non-Spanish speaking immigrants would feel safe enough to come in for diagnosis earlier, preventing further transmission in their community. We held our first coalition meeting on March 20, 2008, and had an overwhelming response from the community, with 21 participants from 10 associations represented. The meeting was conducted in Spanish and English, and gaps and priorities for taking care of these communities were identified. Spanish-language educational materials from multiple sources were distributed for participants to review at the second meeting, and plans were made to develop educational outreach materials in a few indigenous languages for radio announcements or dubbed videos. The telenovela-style material developed by the Southeast National TB Center was particularly popular (telenovelas are popular Latin television melodramas, much like American soap operas). There were also requests for health care training for community leaders, so they could act as health advocates. Although we have not located funding for these projects to date, we are actively investigating creative partnerships to get these materials developed.

Unexpectedly, the men who were originally evaluated as contacts became our best source of outreach. They have referred newly arrived roommates who have chronic cough or other TB symptoms to us for evaluation, lest they become re-exposed to or re-infected by yet another new case of TB. They have walked their friends with TB to the clinic for follow-up surveillance, to ensure compliance and treatment cure. They have called our social worker with other health-related questions, to ensure that important health issues are addressed in a timely manner. This

outbreak, a unique cluster in the United States isolated to these Chiapans, has provided us with insight into the barriers to TB diagnosis and control in these challenging populations and has given us an opportunity to provide outreach to the indigenous communities in San Francisco.

This experience has revealed to us the numerous indigenous groups from Latin America living in our region. We may not be aware of their linguistic and cultural differences, and providing language translation may not be adequate in these persons. Although these cultural and linguistic differences may initially go unrecognized, establishing trust by assisting them with acculturation and access to general health care has been the key to garnering their cooperation, and turning them into partners for TB prevention in this tight-knit community.

—Submitted by Christine S. Ho, MD, MPH  
*DTBE Medical Officer, San Francisco, California*

## News from the 2010 National TB Conference

The 2010 National TB Conference was held in Atlanta June 21–June 24. Following are reports from some of the events of the meeting.

### History of the National TB Nurse Coalition

On June 21, the National TB Nurse Coalition (NTNC) held its annual meeting. Brenda Ashkar, who served as first president of the national TB nurses group, gave the keynote address at the NTNC meeting. Below is a slightly edited version of her remarks.

When asked to provide the history of the NTNC, I began by thinking about why TB nurses needed an organization in the first place. In the early 1980s, I was the nurse in charge of one of the largest TB programs in the United States (Los Angeles County), but I was essentially isolated. California did not have a state TB nursing

consultant. If I called CDC with a question, I talked to the Duty Officer, but often this did not give me the nursing perspective. Nurses need to talk to other nurses! Then in 1984 I met Carol Pozsik at CDC's *TB Today!* Course in Atlanta (precursor of the Program Managers Course) and — this is no exaggeration — my life and career changed.

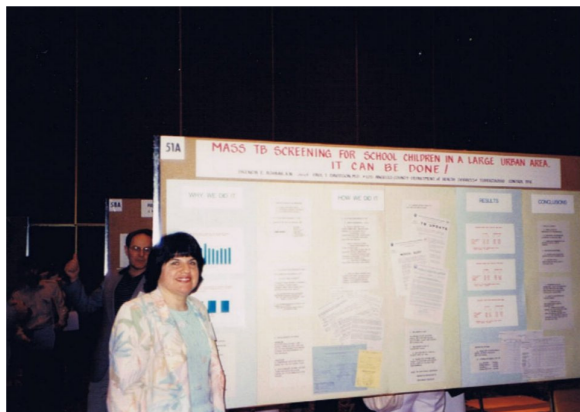
Carol Pozsik was the new TB Controller for South Carolina. She had joined the American Thoracic Society (ATS) and had become a member of its Scientific Assembly on Microbiology, Tuberculosis, and Pulmonary Infection (SAMTPI) Program Committee. She subsequently invited other TB nurses to take part in TB programs at upcoming ATS meetings.

In 1986, only four TB nurses attended the ATS meeting in Kansas City. A number of nurses had submitted posters, but were turned down by ATS because their posters were deemed not scientific enough. Several TB nurses spoke about this to Mr. John Seggerson, then Chief of the Field Services Branch in CDC's TB division. John promised to look into this, and asked two nurses in the division, Mary Hutton, Nurse Epidemiologist, and Tina Schein, Nurse Researcher, to assist. John also received approval to hold a National TB Conference the next year and assured the nursing group that state and big city nurse consultants would be invited.

This was the spark we needed. Our first meeting was held in New Orleans in May 1987 in conjunction with the ATS meeting and the National TB Conference. More than 80 nurses attended; our theme was "A Nursing Network to Improve TB Control." We agreed to reconvene at the next ATS meeting, and we also proposed the idea for holding an evening poster session designed specifically for sharing program-oriented success stories in TB control. This would give nurses a reason to come to the meeting. A poster being accepted to the session would generate permission to come!

In June 1987, Kay Herd and Sue Etkind, TB nurses in Massachusetts, contacted Mary Hutton at CDC with thanks for the May meeting and the opportunity to meet with other TB nurses. They talked of the significance of the meeting, proposals, and ideas discussed as well as the dynamic leadership potential in evidence. Their strong feeling was that we must continue to foster and formalize the nursing network, and that members of the group could provide each other with much information and support. They envisioned a more structured organization and urged a working committee to meet later in the year.

At the second nurses' meeting, held at the 1988 ATS meeting in Las Vegas, we were calling ourselves the TB Nurses Special Interest Group. The highlight of the 1988 meeting was the first CDC poster forum. This was very successful, with more than 150 posters presented. The forum did exactly what was intended by allowing nurses from throughout the United States to come together and share their ideas and achievements.



Brenda Ashkar at the first CDC poster forum.

The Advisory Committee [now Council] for the Elimination of Tuberculosis (ACET) was formed in 1987, with Carol Pozsik as the nursing representative. During these early years of the nurses group, Carol traveled throughout the United States to speak on behalf of the committee and DTBE's newly approved TB elimination plan. She spoke with nurses throughout the country. They had so many

questions about TB care, and they wanted standards.

In November 1988, Carol communicated with Dr. Dixie Snider, then Director of the TB division, about the need for nursing standards, orientation plans, staffing standards, nursing policies and procedures, nursing practice standards, sample standing orders, and quality assurance measures such as nursing audits. She informed him that in many states there were inadequate or no standards, reminding him that TB cannot be eliminated without quality assurance. Carol had contacted other nurses, and they were interested in joining her in the development of a comprehensive nursing standards document that could be a model for the entire country. She asked for CDC's endorsement and the assistance of the TB nurse consultants there. Carol also contacted the Executive Director of ATS in March 1989 to ask for her assistance in funding a committee to pursue the project of writing patient care standards.

At the 1989 ATS meeting in Cincinnati, a TB nurses meeting was convened; 80 nurses registered. At this meeting, we developed outlines for a document on patient care standards. The TB Nurses Special Interest Group gave a progress report to SAMTPI at the ATS meeting on the progress of the Patient Care Standards. The National TB Controllers meeting was held the next day.

In July 1989 the ATS sponsored the Patient Care Standards Committee, and we met in Atlanta to begin writing the Patient Care Standards Manual with the outlines provided by the TB Nurses Special Interest Group. In August 1990 the TB Patient Care Standards Committee met again in Atlanta, sponsored by ATS. Carol and I, as well as Dr. Larry Farer, Kay Lawton, and Tina Schein of CDC, attended the meeting. We had completed six chapters at that point and planned to meet again in early 1991. In August 1991, Carol and Tina rented a house for a week at Myrtle Beach, South Carolina, and invited my

daughter and me to join them. There we spent half of each day writing and editing the Manual and the other half day relaxing. What a great way to finish a project!

Nurses active in TB control activities continued to meet as the TB Nurses Special Interest Group to network and solve problems during the ATS meetings in Anaheim in 1991, Miami in 1992, San Francisco in 1993, Boston in 1994, and at the CDC-sponsored National TB Controllers Workshops. In addition, the majority of the nurses attended business meetings and held joint programs with ATS/ SAMTPI. I am grateful to say that this arm of ATS has always been extremely supportive of the TB nurses.

In 1994 CDC moved the National TB Controllers meeting to Atlanta and the nurses began discussions about formalizing the TB Nurses Special Interest Group. In January 1995, the TB nurse consultants from a majority of the states and large cities formally organized as the National TB Nurse Consultant Coalition (NTNCC). After much discussion, we decided to be a section of the newly formed National TB Controllers Association (NTCA). We felt that under the NTCA umbrella, we could be a collective voice for nurses working in TB control activities and provide counsel to TB Controllers, as well as develop standards for practice for PHNs. I was elected the first president; Helen Gretz of Oklahoma, president-elect; and Jerry Lama of Chicago, secretary/ treasurer. A few months later we met and wrote by-laws. The first meeting of the NTNCC was held during the 1995 ATS meeting in Seattle.

NTNCC participated in the hiring of Walt Page, long-time TB controller and DTBE staffer, as the first Executive Director of NTCA. He began serving in this position in 1996, and under his direction, NTCA decided that its future meetings would be held in Atlanta and not at ATS. In August 1996, the membership chairman of NTNCC, Evelyn Lancaster, created the logo and

membership brochures for both the NTCA and NTNCC.

One of the major accomplishments of NTNCC was the publication in 1997 of the manual, *Tuberculosis Nursing: A Comprehensive Guide to Patient Care*. As of this writing, a second edition is nearing completion. On January 1, 2006, our organization formally changed its name to the National TB Nurse Coalition (NTNC) to be more inclusive of nurses who are not nurse consultants.

In the NTNC, TB nurses share ideas and knowledge with other TB nurses. What a confidence builder for nurses to know whom to call for help! Please join the NTCA and NTNC so your voice can be heard!

—By Brenda Ashkar, RN, MSN, PHN  
Retired TB Nurse Consultant and first president of  
the NTNCC

### **National TB Conference Poster Contest Winners**

This year the National TB Conference held its fifth annual poster contest; 43 posters were developed and submitted by TB program staff from throughout the country, and were available for viewing during most of the meeting. A panel of judges reviewed and rated the posters on three criteria:

1. *Relevance to TB control or elimination*  
Topic provides information that can potentially be transferred to another program; addresses or identifies a high-priority area of a TB program or problematic area; provides strategy for better use of resources.
2. *Clarity of information*  
Information is clearly written, using short sentences and bulleted points to enhance readability; adequate amount of information is provided to allow readers to understand

project, but is not a complete journal article!

3. *Graphic presentation*

Graphics are utilized to clearly present information (photographs to demonstrate or model, graphs and charts to display data); graphics are appealing to the viewer (not crowded, and colors are used appropriately).

The poster judges for this year were Wanda Walton, John Jereb, Mitch Yakrus, and Denise Garrett. A special thanks to them for their time and diligence.

This year the judges gave a first-place and a second-place award, and multiple third-place awards because of ties among the entrants.

The first-place award was given to *Margaret Patterson*, Kentucky Department of Public Health, for her poster, "Investigation of Ongoing Transmission of *M. tuberculosis* Genotype Cluster – Jefferson County, Kentucky, 2000-2009."

The second-place winner was *Adam Langer*, Division of TB Elimination, for his poster, "Multistate Outbreak of Multidrug-Resistant TB Among Foreign-born Seafood Production Workers Identified by Genotype Cluster Investigation."

Third-place awards were given to *Heidi Behm, RN, MPH*, Oregon Department of Human Services, for her poster, "Where Are They Now? A Comprehensive Approach to Achieving a High Treatment Completion Rate in a Worksite TB Exposure in Washington County, Oregon."

*Wendy Cronin, PhD*, Maryland Department of Health and Mental Hygiene, for her poster, "A Statistical Method to Prioritize *M. tuberculosis* Genotype Clusters for TB Control Programs' Use in the United States."

*Julie Franks*, Charles P. Felton National TB Center, for her poster, "Knowledge, Attitudes, and Beliefs About TB Testing Among Healthcare Workers Who Receive an Interferon-Gamma Release Assay as Part of Routine Employee TB Testing."

Congratulations to the winners of this year's competition, and thank you to all submitters for sharing your data, experiences, and excellent solutions!

—Submitted by *Regina Bess*  
Div of TB Elimination



**Nuestra Casa – A Touring Project for TB Advocacy, Communication, and Social Mobilization**

On June 23, over 150 people attended the grand opening of *Nuestra Casa* (Our Home), at CDC's Global Health Odyssey museum. Attendees included participants from the 2010 National Tuberculosis (TB) Conference, CDC staff, and other invited guests. DTBE hosted the event to raise awareness about TB, which kills millions of people worldwide every year. Distinguished speakers included Dr. Kenneth Castro, Director of DTBE, whose comments inspired and motivated everyone to continue the fight to eliminate TB, and Miss Rachel Orduno, who shared her incredibly moving story about TB and led a call to action.

*Nuestra Casa* is a three-dimensional house that serves as a testimony to the lives of people affected by TB, their surroundings, and their messages of reality and hope. The exhibit provides museum visitors with an experiential learning opportunity by inviting them into the "home" of a person with TB. The house is filled with individual stories, photographs, and personal items, all contributed by persons affected by TB



from the U.S.-Mexico border area. The exhibit reflects the need for social and political commitment to recognize the problem of TB, to increase the political will to improve TB disease prevention and control, and to reduce the stigma and discrimination experienced by persons affected by TB.

Included in the exhibit are a series of very powerful photographs and stories from the TB PhotoVoice project. The TB PhotoVoice project provides cameras to community members (survivors, caregivers, friends, and family) affected by TB. Participants take photographs to help them identify and improve their communities. The photographs represent what is happening in the participants' lives and serve as a point for discussion about what can be done to change the present situation in regards to TB, stigma, education, and related issues. These unique photographs, and their accompanying narratives, give a face and voice to TB.

As a special feature of *Nuestra Casa*, visitors could write comments about the exhibit on pieces of cloth and hang them on a clothesline located outside of the house. As many as 245 visitors did so, their comments expressing a range of reactions: how much empathy they felt for people with TB, how they were reminded of the homes of their relatives, and how thankful they were for what they had. Some visitors indicated how informative the exhibit was, and others expressed their desire to hold our political leaders accountable for this dreadful disease.

The following quotes were selected to illustrate how moving and powerful our TB educational efforts can be:

*"I am now rethinking my career path so that I can do research to contribute to the efforts to combat TB. Also, I want to go abroad so that I can actively help out."*

*"I am going to med school one day. Five minutes in this house just convinced me I'm going to do Doctors without Borders for at least a year."*

*"This exhibit inspired me to research TB on my own to better understand its causes, effects, and how it damages the body. Now I want to be a scientist and work for the Centers for Disease Control."*

*"It's a wakeup call. A lot of people need help. I'm going to start a fund raiser to help the people with TB."* (13 years old)

*"It is a wonderful exhibit. It brings the main part of the team into the picture, allowing the health of the patient to have a voice and be heard."*



The organizations Project Concern International (PCI) and the Alliance of Border Collaboratives, in collaboration with the Mexico National Tuberculosis Program and with financing from USAID-Mexico, helped make the *Nuestra Casa* project a reality. *Nuestra Casa* was exhibited in South Africa and Mexico before arriving at CDC in June. *Nuestra Casa* was on exhibit at the CDC Global Health Odyssey until September 3, 2010.

*Nuestra Casa reminds us of who we are serving and how important it is to educate all people about TB.*

*—Reported by Peri Hopkins, MPH  
and Cheryl Tryon  
Div of TB Elimination*

### Special Awards Presented at the National TB Conference

Several special awards were presented at the 2010 National TB Conference over the course of the meeting. These awards are special because they not only recognized the outstanding contributions of the award recipients themselves, but they also honored the distinguished careers and accomplishments of the TB experts for whom the awards were named. These awards, which will be given annually, were presented this year for the first time.

On Tuesday, June 22, the first three awards were announced. The Advocacy Award is to be bestowed on an organization or individual who has rendered outstanding efforts and achievements in advocating for increased support of TB control and prevention efforts. Phil Griffin called Charles DeGraw, Louisiana TB controller, to the stage. As Charles came forward, Phil said, Charles, this award is not being given to you – it is being *named for you*. This award will hereafter be called the Charles DeGraw Advocacy Award.” Mr. DeGraw, who gave a presentation at the conference on the importance of grassroots advocacy, is a tireless crusader for increased support for TB control. The Charles DeGraw Advocacy award was presented to Ms. *Nuala Moore* of the American Thoracic Society, Washington, DC. Ms. Moore has been instrumental in advocating for TB funding and supportive legislation in Washington and in helping to guide the NTCA advocacy efforts.

The President's Award is given at the discretion of the NTCA President to acknowledge special accomplishments of an individual or organization who has contributed to the NTCA or the TB community in general. In presenting this award, Phil noted that there were many outstanding persons to whom he could have given this award, but that one person stood out – one person who preferred to remain behind the scenes, but who had been the “voice of reason” and had urged

him to move on rather than be distracted by side issues. Phil then presented the NTCA President's Award to *Deborah (Deb) K. Sodt, RN, MPH*, Minnesota Department of Health, St. Paul, MN.

Also on Tuesday, Michael K. Leonard, MD, President of the National Society of TB Clinicians, presented the William Stead TB Clinician Award. Dr. William Stead, long-time TB controller for Arkansas who died in 2004, was regarded during his lifetime as the outstanding TB clinician in the United States and perhaps worldwide. In the 1970s, he and colleagues developed short-course TB therapy, adopted worldwide as the definitive therapy for TB, and he made major contributions regarding TB in prisons and nursing homes. (*TB Notes* readers may recall that Dr. Kashef Ijaz, until recently the chief of DTBE's Field Services and Evaluation Branch, worked with Dr. Stead at the Arkansas Dept. of Health.) This honor is bestowed upon a TB physician for outstanding patient care services. He presented this award to dedicated TB physician *Barbara Seaworth, MD*, a nationally recognized expert in the care of patients with MDR and XDR TB; she is with the Heartland National TB Center, San Antonio, TX.

On Wednesday, June 23, several more awards were presented. Phil first announced an award for laboratory staff, hereafter to be known as the Ed Desmond Award, named for distinguished laboratorian Edward Desmond, PhD, Chief, Mycobacteriology and Mycology Section, California Department of Public Health. His laboratory, as one of two labs providing genotyping services for all U.S. TB control programs, performs strain typing of *Mycobacterium tuberculosis* complex cultures for the western half of the United States. Dr. Desmond's laboratory also performs molecular beacons testing on acid-fast, smear-positive sputum samples and cultures to detect *M. tuberculosis* and drug resistance. This award is bestowed on a TB laboratorian for outstanding tuberculosis laboratory services. This was awarded to Dr. Desmond's colleague *Shou-Yean*

(Grace) Lin, MS, of the California Department of Health, Richmond, CA.

For the second award presentation on Wednesday, another long-time TB professional was honored with the naming and presenting of the Carol Pozsik TB Nurse Award. This award is bestowed on a tuberculosis nurse for outstanding services as selected by the National TB Nurse Coalition. As noted by Brenda Ashkar in her earlier remarks, Carol's influence and impact on TB nursing have been huge in scope and impact. She brought nurses together, organized and publicized their contributions, and helped them find their collective voice. Like her colleague Charles DeGraw, she has been a long-time TB control leader and advocate, and serves as the current NTCA Executive Director. Kathy Kolaski, NTNC President, gave the award to Ms. Laurie Hickstein, BSN, of the Southern Nevada Health District, North Las Vegas, NV, who has worked for a decade in the health district's TB treatment and control clinic.

Next, the Dixie Snider Award was given. Dr. Dixie Snider, who retired from CDC in 2006 as CDC's chief science officer, served CDC for more than 33 years. From 1985 to 1993, Dr. Snider served as Director of the TB Division. During that time, he was responsible for the establishment of the Advisory Council for the Elimination of Tuberculosis (ACET), and for the development of the 1989 Strategic Plan for the Elimination of Tuberculosis in the United States. He gained support for the plan by building coalitions with various groups and through extensive collaboration with key partners. Thus, this honor is bestowed on a CDC employee who has rendered outstanding support, through partnership, to the state- or local-level TB community in the interest of TB control and prevention program improvement. Phil presented this award to Angela Starks, PhD, of DTBE's Mycobacteriology Laboratory Branch, Atlanta.

The fourth award presented on Wednesday was the Robert Koch TB Researcher Award, which is

bestowed on a tuberculosis researcher for outstanding contributions. As readers know, on March 24, 1882, Koch announced to a medical group in Berlin that he had isolated, and grown, the organism responsible for tuberculosis. Years later, this date was chosen by the World Health Organization as the date on which World TB Day would be observed. In 1905, Koch won the Nobel Prize for his investigation and discoveries in relation to TB. Wendy Cronin, PhD, of the Maryland Department of Health, Baltimore, MD, was honored as the recipient of this award.

On Thursday, June 24, the last official day of the 2010 National Tuberculosis Conference, Phil presented the last award. The TB Controller of the Year, NTCA's highest award, is given for meritorious service and achievement at the state, regional, or national level in recognition of contributions related to the improvement of tuberculosis control and prevention leading toward elimination. This important award was presented to Mr. Mike Holcombe, MPPA, Division Director, Office of TB and Refugee Health, of the Mississippi State Department of Health, Jackson, MS. Mr. Holcombe was the President of NTCA for the first 2 years of the organization and has continued to contribute tirelessly to the organization and to the TB community. He was an early and passionate proponent of DOT, helping to lead the charge to make it the gold standard of care. Mr. Holcombe has also been very instrumental in the creation of these annual awards of excellence.

Thanks to Phil Griffin for his help with this article, and for all his substantive contributions as immediate past president of NTCA!

—Reported by Ann Lanner  
Div of TB Elimination

## 2010 EIS Conference

CDC's 59<sup>th</sup> annual [Epidemic Intelligence Service \(EIS\)](#) Conference was held in Atlanta April 19–23, 2010. EIS is a postgraduate program of

service and training for health professionals interested in applied epidemiology. EIS is modeled after a traditional medical residency program where much of the education occurs through on-the-job learning. EIS officers also serve as one of CDC's primary resources for responding to urgent public health problems.

Since the EIS program began in 1951, over 3,000 EIS officers have passed through the program, with about 75% remaining in public health for their careers. Currently, about 160 EIS officers are serving their 2-year assignments throughout CDC, in state and local health departments, and at the Indian Health Service and other federal health agencies, with six in CDC's Division of Tuberculosis Elimination (DTBE).

Each April, the EIS conference provides the opportunity for current EIS officers to deliver scientific presentations about their work to fellow EIS officers, EIS alumni, CDC staff, and the broader public health community. In addition, the conference serves as "match week" for the approximately 80 members of the incoming EIS class. Once again this year, DTBE was happy to match all three of its available EIS positions.

#### Current/Recent EIS Officers' Talks

Bisrat Abraham, MD, MPH, presented "Evaluation of Tuberculosis Surveillance — Republic of the Marshall Islands, 2004–2008," at the poster session of the 2010 EIS Conference.

Sean Cavanaugh, MD, presented "Extensive Tuberculosis Outbreak Associated with an Assisted Living Facility for Adults with Mental Illness — Florida, 2008–2009," as part of the opening session of the conference.

Ellie Click, MD, PhD, had two presentations: "Relationship between *Mycobacterium tuberculosis* Lineage and Extrapulmonary Tuberculosis — United States, 2004–2008" and "Evaluation of Integration of TB/HIV Surveillance

into Tuberculosis Treatment for Children — Ethiopia, 2007–2009."

Krista Powell, MD, MPH, presented "On-Site Case-Finding During a Tuberculosis Outbreak in a Homeless Shelter — 2008–2009," as part of the TB session at the conference.

Philip Ricks, PhD, MPH, presented "Genotypic Clustering of Tuberculosis Cases among the Foreign-born — United States, 2004–2008," at the TB session.

Matt Willis, MD, MPH, presented "Increase in HIV-associated Tuberculosis in the Context of Widespread Drug-Resistant Tuberculosis — Kazakhstan, 2003–2008," as part of the HIV session of the conference.

Following the completion of their EIS training, Krista joined the Surveillance, Epidemiology, and Outbreak Investigations Branch (SEOIB) and Sean joined the International Research and Programs Branch (IRPB) as staff members.

#### Incoming EIS Officers

In August 2010, after completing the traditional 1-month course that begins EIS, these three new officers joined DTBE:

Brian Baker, MD, is the new EIS Officer for SEOIB. Brian is a graduate of the University of California, Berkeley, and the University of California, San Francisco, School of Medicine. He extended medical school to work at the Institute for OneWorld Health, helping plan a control program for visceral leishmaniasis in India. He also spent 6 months living in Tanzania, working for the Axios Foundation on HIV prevention efforts. He most recently lived in New York City, where he completed his emergency medicine training at New York University and Bellevue Hospitals. Brian moved to Atlanta with his wife, Mikaela, who will be a faculty member at Emory in the Department of Emergency Medicine.

Lindsay Kim, MD, MPH, is one of the new EIS officers in IRPB. Tar Heel born and bred, Lindsay developed her love of college basketball during her childhood in Atlanta and at the University of North Carolina at Chapel Hill. It was at UNC where she fortuitously landed in public health. After receiving her MD from Emory University and her MPH in epidemiology and biostatistics from Johns Hopkins Bloomberg School of Public Health, Lindsay left her Southern roots for the cold winters of Boston, where she completed her internal medicine – primary care residency at Beth Israel Deaconess Medical Center. Lindsay had the opportunity to provide health care for people living with HIV/AIDS in Zwedru, Liberia, and in Kampala, Uganda, witnessing firsthand the devastation that HIV has wrought on the African continent. In her free time, Lindsay enjoys trying new ethnic restaurants, drinking strong coffee, traveling internationally, and rappelling down cliffs and waterfalls around the world.

Gloria Oramasionwu, MD, MPH, is the other new EIS officer in IRPB. Gloria is Nigerian by heritage and was raised in Winnipeg, Canada. She has always enjoyed traveling and working with children. Her love of caring for children motivated her to attend medical school at Baylor College of Medicine, where she developed an interest in infectious disease and public health. During her Boston-based pediatric residency, she built on her international experiences in medical school and traveled to Nigeria to work in a government hospital, where she looked more closely at the management of malaria and non-localizing fever. After obtaining her MPH at Johns Hopkins, she completed a pediatric infectious disease fellowship back at Baylor. In addition to traveling, Gloria enjoys reading, singing, and interior design.

—Reported by Eric Pevzner and Maryam Haddad  
Div of TB Elimination

## UPDATES FROM THE TB EDUCATION AND TRAINING NETWORK

### Member Highlights: New Members of the Conference Planning Workgroup

In this issue, we highlight the three new members of the TB ETN Conference Planning workgroup: Mabel Smith-Duffus, Marcee Mortensen, and Sandra Bible.

Mabel Smith-Duffus, RN, MSN, is the Director of Education / Employee Health, and is in charge of infection control for the Treasure Coast Hospice in Stuart, Florida. Her employer provides end-of-life and palliative care to persons in the community with advanced illness. The populations served by the hospice include cancer patients as well as patients with other advanced disease such as pulmonary disease, HIV/AIDS, Alzheimer's, stroke, and others.



In addition to her MSN and RN degrees, Mabel is a Licensed Health Care Risk Manager (LHCRM). Her job responsibilities include developing infection control policies and procedures, conducting new employee orientations, handling employee health issues, carrying out risk management activities with corrective actions, and providing infection control education and management. One of the most recent programs Mabel developed is a pediatric palliative care program, which addresses the special infection control challenges related to the pediatric

population in the hospice setting, as well as the care of infants infected with TB and/or HIV. She also developed an in-house protocol and training for the management and care of veterans with latent TB infection after discharge from VA hospital to hospice.

In addition, Mabel has conducted a variety of educational programs, including a clinical infection control field study for new devices as well as other infection control related issues. In addition, she recently developed an in-house "biggest loser" program as part of the hospice's wellness program; this is an ongoing process.

Mabel is a member of the Conference Planning workgroup, where she is currently working on the energizer committee. She first learned about TB ETN through an online search. Since that time she has joined TB ETN to learn "best practices" as they relate to TB and to learn about cutting-edge technology as it relates to the care and management of persons with TB infection.

In the next couple of years, Mabel would like to see TB ETN increase community awareness about latent TB infection and TB disease, TB signs and symptoms, and treatment; initiate community involvement in reducing the incidence of TB; and increase funding for community education to include the private sector.

In Mabel's spare time she enjoys kick boxing, yoga, and Pilates. She is also passionate about helping children, and working with volunteer organizations such as Big Brothers and Sisters.



Marcee W. Mortensen, BS, CHES, is a Tuberculosis Health Educator for the Utah Department of Health. Marcee earned her bachelor of science degree in public health education from Brigham Young University in

August 2008; she will graduate with a master's degree in public health in April 2011.

The Utah Department of Health Tuberculosis (TB) Control Program collaborates with local health departments and community partners in working towards the elimination of TB in Utah. Over the last 10 years, morbidity has declined, high-risk groups have been targeted for testing, and knowledge of TB in the community has increased through educational outreach programs that are both linguistically and culturally appropriate. The TB Program continues to collaborate with community-based organizations to expand services and to fill potential gaps in current services.

Marcee is currently employed part-time at the Utah Department of Health as a TB health educator for the Treatment and Care Program, and attends graduate school full-time. As the health educator, her job responsibilities include, but are not limited to 1) providing TST trainings throughout the community, 2) managing and updating the TB Program website, 3) serving as a member of Utah's World TB Day Conference Committee, 4) acting as a resource person, 5) evaluating Utah's biannual TB Cohort Review, 6) serving as Utah's focal point for both TB ETN and TB PEN, 7) serving as Utah's Human Resource Development Coordinator (HRDC), and 8) assisting with refugee health responsibilities when needed.

A large part of Marcee's job is providing TST trainings within the community. The training includes three main elements: 1) watch a CDC training video entitled "Mantoux Tuberculin Skin Test," 2) practice administering a TST (using saline), and 3) practice reading a TST (using palpable TB practice arms). Between September 1, 2009, and June 30, 2010, she trained 114 individuals to place and read the Mantoux tuberculin skin test.

The most recent product that Marcee assisted in developing is the revision of the Utah Department

of Health Tuberculosis Provider Guide. The original Provider Guide was developed in 2003; the revised Guide was made available in 2009.

Marcee learned of TB ETN from her Program Manager, Cristie Chesler, upon her hire in August 2008. She then joined TB ETN to collaborate with other TB health educators in regard to trainings and educational products. "I also greatly enjoy attending the annual TB ETN Conference," Marcee explained. She is a member of the TB ETN Conference Planning workgroup. "I joined the workgroup so as to try something new and enhance my conference planning skills; joining the workgroup was also an opportunity for me to meet and work with new people," stated Marcee.

In the next couple of years, Marcee hopes that TB ETN memberships will continue to increase, especially among international members. She also hopes the TB ETN workgroups can increase their memberships and ultimately increase participation. "Increased membership and workgroup participation can only improve TB ETN (trainings, resources, educational products, etc.)," Marcee explained.

In addition to Marcee's TB-related daily responsibilities, her other public health interests include sexual health, social marketing, and public administration. Marcee added, "Whenever I am not working or studying, I simply enjoy spending time with my family."

Sandra P. Bible, MA, BSN, is an Assistant Program Specialist and Public Health Nurse for the Los Angeles County Department of Public Health. She holds an MA degree in health science focused on administration and education and a BS degree in nursing, both from California State University.



The County of Los Angeles has nearly 10.3 million residents, 3 million of whom are uninsured. Los Angeles County (LAC) is divided into eight Service Planning Areas (SPAs), supporting 11 public health clinics, and there are three county hospitals that care for patients with TB. The County is a major port of immigration and a resettlement destination for large numbers of immigrants and refugees. The LAC Tuberculosis Control (TBC) Program receives reports of TB cases and suspects from 116 private hospitals, one VA hospital, and many, many private physicians. There are 30 labs that perform some level of TB testing within LAC.

Sandra's job responsibilities include 1) providing leadership to the health education unit; 2) serving as the designated focal point for the Human Resource Development Planning (HRDP) Committee; 3) providing TB technical expertise, TB education and training materials, and in-service training on TB basics (TB 101); 4) serving as point person for compiling TB data for Program Collaboration and Service Integration activities; 5) providing advocacy to community based organizations and the private sector, as well as planning for World TB Day, as a member of the TB Coalition and TB Coalition Planning Committee; 6) serving on the TB Planning Council, and co-chair of the Private Medical Doctors (PMD) TB Education and Outreach Workgroup; and 7) serving as Wellness Coordinator for the LAC TBC Program.

The most recent products that Sandra has developed, in collaboration with the HRDP Committee, are two brochures specific to LA County on latent TB infection and active disease. The English versions of the brochures were recently finalized by the HRDP and External Relations Dept. of LAC and are posted on their TBC website. They plan to have the brochures translated into four different languages.

Sandra initially heard about TB ETN from supervisors at TBC when she joined the staff in 2005. She joined TB ETN the same year, when

she was appointed as the focal point for the HRDP. After being a member for several years, she wanted to become more engaged with TB ETN. She enjoys sharing the benefits she has received with others in the Health Education Unit and with other TBC staff. "I utilize the materials throughout the year as a point of reference," Sandra stated. Sandra hopes that TB ETN can continue to evolve as a leader of training for more Public Health Nurses, Health Educators, and others involved in TB education and training

Sandra's hobbies include healthful cooking, biking, and hiking. "I enjoy cooking healthy food and making it simple, wholesome, and delicious, and promoting the benefits of healthy eating to others," Sandra explained. She's also a Team-In-Training participant with the Leukemia, Lymphoma, and Myeloma Society and trains every Saturday; she will take part in a biking event on November 20 in Tucson, Arizona.

If you'd like to join Mabel, Marcee, and Sandra as a TB ETN member and take advantage of all TB ETN has to offer, please send an e-mail requesting a 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 Tuberculosis Elimination, CDC, 1600 Clifton Rd., N.E., MS E10, Atlanta, Georgia 30333 or, if you would like additional information about the [TB Education and Training Network](#).

—Reported by Regina Bess  
Div of TB Elimination

### **Program Highlight: TB Update and Tuberculin Skin Testing Practicum for Nurses**

In 2007, the Colorado Department of Public Health and the Denver Metro TB clinic partnered to develop a TB update and skin testing practicum for nurses. Until that time there was no TB training available for health care providers anywhere in the state. Both state and local health departments frequently fielded calls from

providers at local hospitals, long term care facilities, home care agencies, and correctional facilities with basic TB and skin testing questions, and patients were often sent to public health clinics with skin tests that were placed or read incorrectly.

The state and local health department collaborated to develop a course to train health care providers on the basics of TB and correct tuberculin skin test (TST) placement and reading. Using materials from the Curry Center and CDC, course objectives and a curriculum were developed. By the end of the course, participants are able to express an increased and updated knowledge of TB infection and TB disease and demonstrate their skill in placing and reading the TST. Teaching methods include lecture, DVD/video, discussion and a hands-on practicum portion where students place skin tests on each other under the supervision of experienced TB outreach workers and practice reading TB skin tests on mannequins. A new learning tool that was recently incorporated into the class is an audience participation system. Each participant gets an electronic device that quickly records each person's answer to questions during the pre-test and post-test. This provides immediate feedback on students' understanding of important topics during the course; subsequent courses will be adapted to cover some of the knowledge gaps that were encountered. The class is held quarterly from 12:30 pm to 5 pm, with light snacks provided; the cost is \$30, and participants receive 3.5 CEUs, a CDC skin testing DVD, and a packet of educational materials.

Since June 2007, 12 classes have been held and 258 individuals have been trained. Participants attend from around the Denver Metro area as well as from many other cities around the state, some traveling as long as 6 hours to the course.

Collaboration between state and local TB control programs can lead to successful training and education opportunities that benefit patients and health care providers from a variety of health

care facilities. Eventually, this is a course we would like to take outside the Denver Metro area to assist and encourage other local health departments to begin their own training programs.

For more information or questions, please contact Kerri at [kerri.mcclory@state.co.us](mailto:kerri.mcclory@state.co.us)

*—Submitted by Kerri McClory, MSPH  
CO Dept of Public Health and Environment*

## **UPDATE FROM THE TB PROGRAM EVALUATION NETWORK**

### **Update from the TB PEN Tools Team**

The mission of the TB Program Evaluation Network (TB PEN) is to develop and strengthen the capacity of state and local TB programs to monitor and evaluate their programs and use findings to enhance the effectiveness of prevention and control activities.

TB PEN currently has five teams, allowing active members, voting members, and organizational members to focus on a specific area of interest. The five teams are Technical Assistance, Tools, Communications, Training, and Implementation.

The Technical Assistance Team has four objectives:

1. Provide technical assistance to state and local programs and assist DTBE staff in implementing NTIP and evaluation activities.
2. Develop and provide guidance pertaining to evaluation activities.
3. Encourage quality assurance as part of the evaluation process.
4. Establish guidance for developing evaluation reports that will facilitate appropriate and effective use of findings.

The Tools Team has three objectives:

1. Maintain an active indicator library and make it easily accessible.

2. Collect and review the repository of evaluation tools or instruments developed by the TB programs.
3. Foster the development and distribution of evaluation tools.

The Communications Team has four objectives:

1. Enhance communication related to TB program evaluation at all levels.
2. Conduct assessments to determine needs and current status of capacity to perform program evaluation.
3. Describe expectations for TB program evaluation activities.
4. Facilitate feedback between DTBE and programs related to program evaluation.

The Training Team has four objectives:

1. Develop a training plan to increase monitoring and evaluation knowledge and skills at the national, state, and local level.
2. Develop training sessions for program evaluation for use at the state and local levels; archive training webinars.
3. Develop targeted training materials for program evaluation.
4. Host annual joint conference with TB ETN.

The Implementation Team (Evaluation Findings) has three objectives:

1. Disseminate and share evaluation findings and tools reviewed.
2. Assess evaluation findings and ensure use and implementation.
3. Conduct a meta-evaluation of evaluation plans.

We hope you will consider joining one of our TB PEN teams.

The Tools Team has been conducting monthly conference calls since the 2009 TB ETN/ TB PEN Conference. A lot of progress has been made in placing program evaluation tools, including cohort review tools, on the new Wiki website. Please read the next article to find out more about this exciting project.

The TB PEN Tools Team has a new website, and they need your help! The TB PEN Tools Team was formed at the first annual TB PEN conference in July 2009 to build on the accomplishments of the Evaluation Working Group (EWG) Tools Teams (2004-2009).

As stated above, this team has three main objectives:

1. Maintain an easily accessible indicator library.
2. Collect and review evaluation tools developed by TB programs.
3. Encourage development and distribution of evaluation tools.

To meet these objectives, the Tools Team developed an online site <http://tbpen.pbworks.com/>, where users can access and share program evaluation tools that have been successfully used to complete cooperative agreement program evaluation requirements. This online site is a Wiki, which looks and functions just like a regular website but can be easily updated by the Tools Team.

Tools are grouped on the site according to the national TB program objectives. Although anyone will be able to view the tools, TB PEN focal points from each state will have the ability to provide comments on their tools as well as other states' tools. Tool modification will not be allowed on the website, but individuals will be able to download any tool to their own computer where they can modify it to fit their needs.

Still not sure how the online site works? Here's an example of how the Team hopes it will be used:

*Scenario*

TB Controller Jane works in a state with low TB incidence. She is developing a data collection survey for the national objective for "treatment completion," and is looking for a tool that will describe factors contributing to the gap between the target performance on the indicator,

"completed treatment within 12 months," and the program's actual performance. She would like a tool that uses qualitative analysis and does not require any training to use. Jane decides to visit the Tools Team's online site for some ideas.

*Visiting the online site*

Jane visits the online site by simply opening her internet browser and typing in the website's address <http://tbpen.pbworks.com/>. On the website's front page she sees a list of the national objectives. She selects "treatment completion," and a list of all the tools that have been submitted for this objective appears. The tools are divided by high-, medium-, and low-incidence areas, and are labeled by state/TB project area. Jane scrolls down to tools from low-incidence areas. Each tool listed is characterized by the developer's summary as follows:

- Evaluation question(s) addressed
- Number of times the developer used the tool
- Developer's plan to revise the tool, how it will be revised, and when
- Primary diagnostic categories of patients targeted by the tool (i.e., active TB patient, high-risk LTBI, etc.)
- Suggested analytic approach: qualitative or quantitative analysis
- Suggested training requirements

Jane sees that TB Controller Joe from another low-incidence state has developed the type of tool she needs. She selects the tool and downloads it to her computer. The tool, a spreadsheet, includes columns for most of the information she is hoping to collect, but is missing a few items. After making a few modifications, Jane has the tool she needs and quickly begins collecting and entering her data. A few months later, Jane begins analyzing her data and wonders how Joe did his analysis. Jane returns to the online site and sees that Joe had agreed to answer questions about his tool and provided his e-mail address. Jane contacts Joe, who explains his methods of analysis for the tool. Jane is so happy with her modified tool that she

sends it to the Tools Team to be posted online with her developer's summary. She also puts several comments on the treatment completion page of the online site, explaining how and why she modified Joe's tool for her area along with some suggestions for other states looking to collect similar data.

We hope this explanation helps you better understand how to utilize the online site for program evaluation tools. Now we need your help. In order for this site to be a success, we need more tools! When your TB program develops a tool, such as a logic model, a survey instrument, a template or procedures for tool analysis, or chart abstraction tool that helps you understand contributing factors for performance measures, please send it to the Tools Team for sharing with your TB colleagues. If you do not have the letter and form the team sent out last April, please contact Nickolette Patrick at [npatrick@hria.org](mailto:npatrick@hria.org).

#### Tools Submission Form Questions

1. What is the primary NTIP focus area? Other focus areas?
2. What evaluation question(s) does this tool address?
3. How many times has the tool been used?
4. Are you planning to revise the tool, and if so do you know how it will be revised and when?
5. Which category of patient is the primary target for the tool, i.e., active TB patient, high-risk LTBI, etc.?
6. Does this tool require qualitative or quantitative analysis?
7. What training is needed to use the tool?
8. If you are willing to answer questions about the tool, please include a contact name, telephone number, and e-mail address.

—Reported by Jill Fournier and Eileen Bosso  
for the TB PEN Tools Team

## UPDATES FROM THE TB EPIDEMIOLOGIC STUDIES CONSORTIUM AND THE TB TRIALS CONSORTIUM

### **TBESC Task Order 11 Update: Addressing TB Among African Americans in the Southeast**

*An earlier version of this article appeared in The Northeastern Spotlight volume 5, No. 2, Summer 2010.*

### **TBESC Task Order 11 Update: Addressing TB Among African Americans in the Southeast**

Tuberculosis rates in the United States represent a significant health disparity between African Americans and non-Hispanic whites. While TB rates have declined among all racial/ethnic groups, TB rates for African Americans have remained more than eight times higher than rates for non-Hispanic whites. African Americans accounted for 25.3% of all reported cases of TB in 2008 and over 45% of cases among U.S.-born persons, although they represent only 12.4% of the U.S. population.<sup>1,2</sup>

The Tuberculosis Epidemiological Studies Consortium (TBESC) funded Task Order 11 in an attempt to understand this persistent disparity in TB rates between white Americans and African Americans. The PIs on this study are Nickolas DeLuca and Wanda Walton from CDC, and Rachel Royce from the North Carolina site of TBESC at RTI International.

Task Order 11 was conceived in two phases. The first phase entailed conducting formative research at three sites to determine TB knowledge, attitudes, and sources and preferences for medical information. Using information from the first phase, an advocacy, communication, and social mobilization (ACSM) intervention consisting of local TB "summits" was

designed to increase public awareness and encourage collaboration between community stakeholders and local health departments. Summits were held in four sites in 2008 and 2009.

*Phase 1 – Formative Research*

County-level surveillance data were used to identify areas in the southeastern United States with high TB rates, along with disparities in rates between African Americans and non-Hispanic whites. Two urban counties, DeKalb County (GA) and Davidson County (TN), were selected, along with one rural county, Montgomery County (NC). Between April 2006 and March 2007, individual interviews and focus groups were conducted at each site with six groups of individuals:

- African Americans undergoing treatment for TB,
- African Americans receiving LTBI treatment,
- African Americans considered to be at high risk for TB according to local epidemiological information,
- Community leaders,
- Community health providers, and
- Local health department staff.

Interviews with patient and community participants revealed misconceptions about TB and LTBI, including the idea that an annual tuberculin skin test was a vaccination against TB. Participants noted the lack of attention given to TB, compared to other diseases such as HIV and STIs. TB was seen as being stigmatizing, with concern being expressed about police officers using masks and gloves when arresting people presumed to have TB.

Regarding sources of health information, many patients and community members stressed the need for direct, oral, and personal communication. While television and the Internet could play a role in providing information, these individuals wanted the opportunity to ask questions. Community members voiced concerns about the treatment that African

Americans receive at public health clinics, but those who had actually received services expressed positive views of the health department.

*Phase 2 – Advocacy, Communication, and Social Mobilization Intervention*

Review of the Phase 1 Formative Research results suggested that an ACSM intervention would be a fruitful way to address the situation of TB among African Americans in the Southeast. ACSM approaches are advocated by the World Health Organization’s Stop TB strategy.<sup>3</sup>

The purpose of advocacy is to educate decision makers and other community leaders about TB and encourage support for TB control program policies. The communication component seeks to provide persons with or at risk for TB and community members with accurate information about TB and TB control program services, as well as reduce stigma and discrimination associated with TB. Finally, social mobilization brings community stakeholders together in order to raise awareness and promote action for TB control program improvement and sustainability.

This approach was first tested in a national summit “Stop Tuberculosis in the African-American Community,” held in Atlanta in May 2006 and sponsored by CDC and RTI International. Evaluation results indicated that the summit succeeded in increasing awareness about this health disparity, bringing together new partners, and motivating them to engage in a variety of activities focused on curbing TB in this community.

Four communities were then chosen to host local TB summits. Three were communities in which the formative research took place, and the fourth was Memphis, TN. In each community, RTI field staff worked with the local health department to engage in a planning process with community partners to tailor the summit to their needs. All sites succeeded in mobilizing community partners to plan and implement the summits.

Each summit had an informational segment. Attendees were shown a video which was a component of the Southeastern National TB Center (SNTC) toolkit *Working Together to Stop TB*, developed by RTI International under contract with the SNTC. Additionally, a local TB clinician spoke, followed by a question and answer session. The other major segment of the program was devoted to developing short-term action plans. Summit participants were contacted at 3 months and 6 months after the summit to ascertain progress on their action plans. Health department staff and community partners were generally enthusiastic about the summits and felt that they had contributed to an increased awareness about TB in the community. Most action items focused on new outreach activities, which varied from distributing the aforementioned video to beauty salons and barbershops, to staging a 1-day health fair in the rural community that included TB testing for approximately 25 people.

Evaluation of follow-up data is currently underway. Preliminary analysis indicates that relationships between the health department and community groups were formed and in many cases reinforced. However, for these relationships to thrive and to sustain mutually beneficial activities, the health department would need to devote consistent attention to nurturing the relationships. Health department staff members are trained most often as clinicians or as educators to work one-on-one with individual patients, and not so much as community liaisons. During the intervention, it became apparent in some of the communities that there would be a need for additional resources, along with training and guidance, for health department staff to assume an expanded role consistently and confidently.

#### *Conclusion*

TBESC Task 11 represents one of the first major attempts to investigate TB in the African-American community as well as to implement an ACSM intervention in that community. Phase I

generated new insights into the communities' understanding of TB that can be of use to TB control programs planning activities with this community. Full analysis of the ACSM intervention will provide information on the short-term impact of a modest investment of resources on enriching and sustaining partnerships and activities. Material developed to help sites plan and execute the summits may be useful to others interested in trying this approach and will be made available to all who are interested.

—Submitted by Paul Colson, PhD, Program Director, Charles P. Felton Natl TB Center, Columbia University;

Rachel Royce, PhD, MPH, Principal Investigator of the NC Site of the TBESC, RTI International; and Julie Franks, PhD, Health Educator & Evaluator, Charles P. Felton Natl TB Center, Columbia University

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#### **Consortia Session at the 2010 ATS International Conference**

An overview of the Tuberculosis Epidemiologic Studies Consortium (TBESC) recompetition and the new Tuberculosis Trials Consortium (TBTC) was the focus of a session at the 2010 American Thoracic Society International Conference in New Orleans in May 2010. The session also included an update on recent research involving high-dose rifamycins and the use of the QuantiFERON-Gold In-Tube (QFT GIT) test in predicting TB among U.S. visa applicants. The purpose of this session, held on May 16, 2010, was to present data on recent studies performed by the consortia and describe plans for both research consortia.

Denise Garrett, MD, provided an overview of the TBESC recompetition. After reviewing the progress made by the current consortium, she reported that a Strategic Planning Workgroup had been formed to assist with the selection of the research focus of the new consortium. She stated that the focus of the new consortium will be research related to latent tuberculosis infection (LTBI). Unlike the current TBESC, which currently has implemented 33 studies, the new consortium will focus on one main intervention related to LTBI, with several smaller substudies. Next steps in planning for the new TBESC include issuing the request for proposal (RFP) for new sites. This RFP is expected to be issued in the fall of 2010.

Elsa Villarino, MD, updated session participants on the composition and activities of the new TBTC. In 1995, the TBTC began enrollment for its first study, and in 1997 became a consortium guided by bylaws. The TBTC was re-competed in 1999, and established a consortium of 23 sites. In 2009 TBTC was re-competed once again, and increased its international presence. In the 2010-2020 TBTC, there are 11 sites in North America and 10 sites outside of North America. TBTC is concluding Study 26, a 3-month treatment regimen of INH and rifapentine for LTBI. It is also enrolling patients in Study 29, a trial of high-dose rifapentine to shorten treatment of pulmonary TB.

Randall Reves, MD, presented results from the TBESC study titled, "Evaluation of QFT GIT and TST during TB screening of U.S. Visa Applicants in Vietnam." Data from this study, designed to evaluate QFT vs. TST and determine the ability to follow applicants in the United States, will be relevant to the over 1 million persons screened by panel physicians and civil surgeons each year. Dr. Reves reported that QFT had high sensitivity (89%) when used to screen patients for TB, and that QFT could be used as a "gateway" to prevent excess chest x-rays. However, he also noted that use of QFT without chest x-ray would result in occasional missed TB cases.

Eric Nuermberger, MD, presented data on the TBTC study called "High-Dose Rifamycins – Opportunities." Dr. Nuermberger reported that rifapentine has a much longer half-life than rifampin (14-18 hours vs. 2-4 hours), and that rifapentine provides a greater rifamycin exposure than does rifampin for the same dose. The study currently underway involves randomization of smear-positive pulmonary TB patients to rifapentine 10 mg/kg or rifampin 10 mg/kg. Both groups also receive isoniazid, ethambutol, and pyrazinamide. Currently, 80% of enrollment is complete; study endpoints include sputum culture conversion at 2 months and discontinuation regimen. The study will also look at death and time to culture conversion as secondary outcomes.

Despite its being held shortly after a thunderstorm causing widespread flooding and a tornado warning, the TBESC/TBTC session was very well attended. The audience asked questions demonstrating their interest in present and future TB research being performed by the consortia. These presentations were useful in providing an overview of some of the important research being done in LTBI and TB diagnosis and prevention both domestically and internationally.

*—Reported by Suzanne Beavers, MD  
Div of TB Elimination*

### **TBESC Meeting in San Francisco**

Approximately 150 principal investigators, project coordinators, and TBESC study staff attended the 17<sup>th</sup> semiannual meeting of the Tuberculosis Epidemiologic Studies Consortium (TBESC) held July 28-29 at the Hilton Financial District in San Francisco, CA. Meeting participants were welcomed by Jenny Flood, MD, MPH, from the California Department of Health, and by Phil LoBue, MD, Associate Director for Science for the Division of Tuberculosis Elimination. Meeting participants attended scientific sessions and breakout sessions to discuss the progress of

research studies and plans for data analysis. The meeting was also a productive forum for the many manuscripts to be written now that studies are being completed with the end of the first consortium.

Meeting attendees attended updates from several TBESC research studies. In one study, "Factors Associated with Acceptance of and Adherence to Treatment for Latent Tuberculosis Infection," Yael-Hirsch Moverman and Paul Colson, PhD, reported that males and persons with social support are more likely to accept treatment for latent tuberculosis infection (LTBI). The most common reason for refusing LTBI treatment, Dr. Colson stated, were concerns about medication tolerability and toxicity. The study also queried participants about their knowledge of tuberculosis (TB) and LTBI; greater knowledge about both was associated with greater acceptance of LTBI treatment.

Participants also heard an update on "Evaluation of new IGRAs in the diagnosis of LTBI in health care workers," presented by Bob Belknap, MD. They found that only 3% of health care workers with a negative QuantiFERON-TB Gold In-Tube (QFT GIT) test at baseline had a positive QFT at 6 months, whereas almost 53% of persons with a positive QFT at baseline testing had reverted to a negative QFT at 6 months. QFT conversions were more common than tuberculin skin test conversions (0.4%), and weren't explained by QFT results that were borderline positive.

Other first-day highlights included a presentation on the TBESC recompetition by Denise Garrett, MD, TBESC project officer, "Prospective Evaluation of Immunogenetic and Immunologic Markers for Susceptibility to *M. tuberculosis* infection and Progression from *M. tuberculosis* Infection to Active TB."

On the second day of the meeting, principal investigators presented data from Task Order 9, "Missed Opportunities for TB Prevention in the Foreign-born." Dr. Katz reported that most (78%)

foreign-born persons in the study were diagnosed with TB as a result of a medical evaluation for their symptoms; only approximately 6% of study participants were diagnosed with TB during the visa screening process. Study PIs also presented data on the epidemiology of TB in study participants. Of the approximately 1,200 persons with pulmonary TB, 54% had smear-positive disease. Smear-negative cases were more than twice as likely to be prevented by Division of Global Migration and Quarantine or civil surgeon screening than were smear-positive cases.

During the second day of the meeting, participants also heard updates on activities of the External Relations Committee, the Publications and Presentations Committee, and the Translating Research into Practice Workgroup. The principal investigators of Task Order 20, "Evaluation of QFT-GIT and TST during TB Screening of U.S. Visa Applicants in Vietnam," also provided an update on their analysis.

The next TBESC meeting will be in Atlanta, GA, on January 19-20, 2011.

—Reported by Suzanne Beavers, MD  
Div of TB Elimination

## **INTERNATIONAL RESEARCH AND PROGRAMS BRANCH UPDATE**

### **Vladimir Center of Excellence for TB Infection Control**

In October 2008, the Vladimir Center of Excellence for Tuberculosis Infection Control (Vladimir Center) was established. The Vladimir Center is a partnership that includes the Vladimir Oblast Administration, the Central TB Research Institute (CTRI–Moscow), USAID, CDC/DTBE, and WHO–Moscow, and is located at the

Vladimir Oblast TB Dispensary. The Vladimir Center is involved in monitoring and implementing infection control (IC) measures, and serves as an IC training hub for Russia and other Russian-speaking countries.



*Photo 1. A nurse in Vladimir Oblast TB dispensary providing DOT. A combination of TB infection control interventions are used here (administrative controls, environmental controls, and respiratory protection).*

Training topics include the airborne concept of TB transmission; the hierarchy of TB IC measures; the TB transmission risk assessment; the cost effectiveness of various environmental controls, the development of a prioritized, structured TB IC plan; the development of TB facility floor plans for (re)construction with ventilation requirements; the upper-room ultraviolet gamma irradiation (UVGI) concept; the measurement and assessment of ventilation and UVGI parameters; the testing and safe practices of biosafety cabinet use; the design, installation, and use of sputum collection booths; respiratory protection program development and respirator fit-testing; and costing, budgeting, advocacy, and resource mobilization issues for TB IC.

The risk of TB among health care workers in the Russian Federation exceeds the risk in the general population by more than 20-fold. Further, the Russian Federation has among the highest levels of multidrug-resistant (MDR) TB in the world. The occurrence of TB among health care

personnel and prison guards in Vladimir heightens anxiety about institutional transmission.

In response, CDC, WHO, and Russian Federation partners implemented the Vladimir Center of Excellence for Tuberculosis Infection Control to adopt infection control measures that will protect health care staff, patients, homeless shelter personnel, prison staff, and prisoners from institutional or nosocomial TB transmission. We know that institutional transmission of TB is prevented by a three-tier hierarchy of control measures: administrative (organizational and managerial) controls, environmental (engineering) controls, and personal respiratory protection. High quality infection control practices prevent TB transmission and provide a safer environment for all.



*Photo 2. TB IC course participants and Vladimir TB laboratory technician during the practical exercise on laboratory biosafety: discussing specimen flow and SOPs.*

The Vladimir Center strives to sustain and build upon its success through its emphasis on training and, especially, on developing local sites as examples and training centers for other territories of Russia and the Commonwealth of Independent States (CIS). Currently, the Vladimir Center will be the only location in Russia capable of providing such high-level training.

Photo 3. Viktor Pronkov, pioneer TB infection control ventilation expert in Russia and former Soviet Union states, lecturing on environmental controls.



The goals of the Vladimir Center are to

- Decrease occupational TB among institutional staff, so as to substantially decrease the spread of nosocomial (re)infection in TB institutions.
- Disseminate the infection control experience of the Regional TB Dispensary to other TB institutions in the Russian Federation and the CIS.
- Assist in the development of TB infection control programs in the CIS and the Russian Federation, through the Vladimir Center.
- Train others to implement new IC recommendations, including administrative controls, environmental and engineering controls, and personal respiratory protection, and any other recommendations applicable to facilities with a high risk for TB transmission.
- Provide training courses for Russian Federation and CIS health care professionals at the Vladimir Center, using the Vladimir Oblast TB dispensary as a working classroom, also using a state-of-the-art lecture hall and state-of-the-art engineering control laboratory.
- Develop and offer new training courses on TB laboratory biosafety, to include the certification of biological safety cabinets, as well as the design, commissioning, operation, and maintenance of ventilation systems.

Several IC interventions have been implemented at the Vladimir Oblast Tuberculosis Dispensary. Infection control training, including respirator fit testing, was initially conducted in 2002 by CDC specialists. After the training, the Dispensary staff developed an infection control program for their new location. Included in the plan were administrative measures, engineering measures, and respirators. Three key administrative control measures included: patients separated according to smear status and drug susceptibility test (DST) results; limited access to high risk zones; and transfer of patients from other facilities to the TB hospital immediately upon receiving smear positive test results. The key engineering control measures included updated and improved ventilation systems to meet current Russian and international standards; biosafety equipment; shielded upper-room UVGI fixtures that allow for 24-hour usage; and sputum collection booths. A respiratory protection program, including training and fit testing, was initiated. Staff working in areas with significant risk of occupational exposure to airborne TB were given N95/EU FFP2 (European Union filtering face piece class 2) respirators.



Photo 4. Paul A. Jensen, CDC, teaching course participants on BSC design, routine testing, maintenance, and safe working practices.

As a result of these IC interventions, a remarkable reduction in the rate of occupationally acquired TB was achieved in the Oblast TB

dispensary (from 1,083 new cases per 100,000 to 166 during the first 5 years of the program, and no new cases of occupational TB in 2008–2009). Funds from the Oblast budget were allocated in 2005 for the ventilation reconstruction and for the purchase of respirators. Infection control measures were incorporated as a major component of the targeted regional TB control programs (2004–2006, 2007–2009, and 2010–2012). However, district-level TB institutions lack the resources and expertise needed for the effective protection of staff and patients from the risk of nosocomial TB. Although completely eliminating the risk for transmission of *M. tuberculosis* infection in all health-care facilities may not be possible, implementation of and adherence to the internationally recommended measures in other places has dramatically reduced the risk of nosocomial transmission of TB.

—Reported by Paul Jensen, PhD, PE,  
Div of TB Elimination, and  
Grigory Volchenkov, MD,  
Vladimir Center of Excellence

## MYCOBACTERIOLOGY LABORATORY BRANCH UPDATE

### Cross Resistance Among the Injectables: Is It Always Guaranteed?

One of the main areas of research of the Applied Research Team within the Mycobacteriology Laboratory Branch is to elucidate the molecular mechanisms of drug resistance of *Mycobacterium tuberculosis*. Resistance to the first-line drugs has been studied extensively, and the majority of the mutations and affected genes are known. However, less is known regarding the second-line drugs used to treat drug-resistant TB. Understanding the molecular basis of resistance in *M. tuberculosis* is key to developing molecular tests that can rapidly identify drug-resistant strains. An earlier diagnosis could help prevent the spread of TB and allow the treatment

of patients with an effective drug regimen in a timelier manner.

We are currently investigating the molecular basis of resistance to the injectable drugs (e.g., kanamycin, amikacin, and capreomycin) and fluoroquinolones used to treat drug-resistant disease, and we recently published related findings in [Proceedings of the National Academy of Sciences](#) describing a novel mechanism of kanamycin resistance in *M. tuberculosis*. We identified mutations in the promoter region of a gene encoding an aminoglycoside acetyltransferase (*eis*, Rv2416c); these mutations ultimately increase the level of this protein that is able to modify and inactivate kanamycin, resulting in drug resistance. A unique feature of this mechanism is the lack of cross-resistance to the other injectables, which is common for mutations in the gene encoding the 16s rRNA (*rrs*). Therefore, strains harboring specific *eis* promoter mutations are resistant to kanamycin but are susceptible to amikacin and capreomycin. Based on these results, the Clinical and Laboratories Standard Institute document M24-A, *Susceptibility Testing of Mycobacteria, Nocardiae, and Other Aerobic Actinomycetes; Approved Standard*, is being revised to recommend testing kanamycin and amikacin independently instead of using kanamycin as the class representative. This new testing strategy could help prevent the removal of amikacin from an effective drug regimen for patients infected with strains of *M. tuberculosis* harboring *eis* mutations.

—Submitted by James E. Posey, PhD  
Div of TB Elimination

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## PERSONNEL NOTES

Warren Benson, Juanita Elder, Pat Farah, Brenda Furr, and Gloria Gambale, who comprise the DTBE Resource Management Team, were the recipients of the Director's Recognition Award for the 3rd Quarter in 2010. Although the work and efforts of these staff members is unlikely to be presented at a national or international meeting or through an abstract or in a scientific or public health journal article, it would be next to impossible for other DTBE staff to attend these meetings or have the data, staff, or resources to do the programmatic/research work without them. There are no "statistically significant" indicators or outcome measures to demonstrate their efficiency and productivity; however, through their work, over 99.9% of a \$145+ million budget gets spent appropriately each fiscal year through a wide variety of mechanisms, and 209 FTEs are accounted for. This work gets done by the Resource team working closely with -- and depending upon a veritable alphabet soup of -- organizations across the agency: DTBE staff in all Branches and the OD, NCHHSTP OD, PGO, FMO, Building and Facilities Office, AHRC, SBU, MASO, MISO, ITSO, REIT management, and an even larger array of data systems, forms, and processes/procedures that are meant to facilitate but often hinder their work.

The work of the Resource Management Team essentially touches every aspect of our Division's work, and most of the time it takes place behind the scenes. As with most staff in the agency who have primarily administrative responsibilities, their work is too often taken for granted and tends to be noticed during the rare occasion when something goes wrong. More specifically, the accomplishments of this Team included the FY 2010 Cooperative Agreement Awards made for 68 recipients nationwide, totaling over \$84 million ahead of the PGO timeline; a major office renovation completed, which created a "net gain" of nine new work spaces *at minimal cost* involving significant coordination; follow-up and

weekend oversight of installation by project lead; and accounting for 100% of DTBE property inventory 2 weeks ahead of established deadline. Of note, much of this work was done while staff were teleworking, and while a project lead was recovering from surgery! Congratulations to the DTBE Resource Management Team for being deserving of this recognition.

Rosanna Boyd, MPH, has joined IRPB. She is a Public Health Advisor and will be based in Gaborone, Botswana, with the HIV/TB Research Division of BOTUSA for 2 years. Rosanna began her public health career as a Peace Corps Volunteer in Malawi, where she focused on HIV prevention, capacity building, gender equality, and health education. After serving in the Peace Corps, she worked as an infectious disease epidemiologist for the state health department in Georgia, conducting surveillance activities, investigating and responding to disease outbreaks, and training other public health workers. Rosanna came to CDC in 2008 to work as a Public Health Advisor / Project Officer for the National Center for immunizations and Respiratory Disease / Immunization Services Division. During this time, she worked closely with state health department grantees providing technical and management assistance. Rosanna's experience in Malawi inspired her to pursue a career in international public health, and her subsequent experiences have provided a skill set that will be useful in her new position. She is very excited to have the opportunity to live and work in Africa again.

Jesse Bradley, Maria Fraire, and Sharon McAleer, the DTBE Web Team, won the August NCHHSTP Director's Recognition Award for their outstanding contributions in migrating the DTBE website into the new CDC web template. The DTBE website is a vital communication tool that receives over five million page views each year. Migrating the DTBE website into the new template was a monumental undertaking. At the time of the migration, the DTBE website was the largest division site at CDC to move into the new

template. DTBE was also the first division in NCHHSTP to move into the new template. In all, the Web Team migrated over 4,000 web pages, including PDF files and images. For their exceptional work, the DTBE Web Team won the NCHHSTP Director's Recognition Award. Congratulations to the Web Team!

Terry Chorba, MD, DSc, MPH, FACP, FIDSA, has been selected as Chief of the Field Services and Evaluation Branch. Terry received his medical degree from SUNY at Buffalo School of Medicine, his MPH from the University of North Carolina at Chapel Hill, and his MPA from the Harvard University Kennedy School of Government. A Navy veteran, Terry came to CDC in 1983 as an EIS Officer with the Division of Host Factors in the Center for Infectious Diseases, where he worked on AIDS surveillance for the U.S. hemophilia population during the earliest phases of the HIV epidemic. In 1986, he received the Alexander Langmuir prize for work elucidating the hypothesis that B19 infection caused erythema infectiosum (a common childhood rash) and red cell aplasia (in persons with chronic hemolytic anemias). From 1985 to 1987, he was assigned by the Epidemiology Program Office (EPO) to the State Health Department in North Carolina. From 1987 to 1995, he worked in EPO and in the National Center for Injury Prevention and Control.

From 1995 to 1999, Terry established CDC's Central Asian Office in Kazakhstan, coordinating technical assistance regarding diphtheria, polio, hepatitis, tuberculosis, malaria, typhoid, acute respiratory illnesses, and diarrheal diseases in five former Soviet republics; established two regional poliovirus laboratories; and facilitated introduction of directly observed short-course therapy (DOTS) for tuberculosis and coordinated the establishment of a national tuberculosis reference laboratory in Kazakhstan. From 1999 to 2001, he was Director of NCHSTP's research field station in Abidjan, Côte d'Ivoire (Projet Retro-CI), with 180 persons on active research teams for diagnosis, treatment, and prevention of

HIV, STDs, and TB. Despite four *coup d'etat* attempts, one successful *coup d'etat*, and multiple curfews, this site became a pace-setter in the Global AIDS Program, expanding HIV testing and care to thousands of patients. In 2001, he was named Researcher of the Year by the National Hemophilia Foundation for continued work on many aspects of HIV infection among persons with hemophilia. From 2002 to 2004 with the Division of STD Prevention, he developed and obtained funding for an evaluation of health care providers' adherence to national guidelines for provision of STD and hepatitis services to HIV-infected men who have sex with men, a portion of the results of which has just been published.

From 2004 through 2006, Terry served as NCHHSTP's Associate Director for Science (ADS). In 2006, he left CDC to be a Vice-President at MACRO International, Inc., working on its Global AIDS Program Monitoring and Evaluation Capacity Building Team supporting the U.S. global AIDS partners. He returned to his position as Associate Director for Science in NCHHSTP in 2007. Since 2002, Terry has also served as a staff physician for one afternoon per week in the TB Clinic of the Fulton County Department where he manages the clinical care of patients with TB exposure, infection, and disease. In June, he was awarded a Doctor of Science degree by one of his alma maters, Oxford University, in recognition of career contributions to public health.

Kendra M. Cuffe, MPH, has joined the Program Evaluation Team of FSEB as an ASPH (Association of Schools of Public Health) Fellow. She began her public health career volunteering at the local HIV/AIDS Resource Center while attending the University of Michigan, Ann Arbor. Her volunteer experience inspired her to pursue a career in public health with a focus on infectious disease in vulnerable populations; this spring she received her MPH degree in epidemiology from Tulane University School of Public Health and Tropical Medicine. While there

she worked with the Louisiana Office of Public Health as an evaluator for the Louisiana Refugee Health Screening program. After concluding this evaluation project, she made several recommendations that included screening child refugees for lead poisoning and providing refugees with presumptive treatment for intestinal parasites. She also became involved in the Louisiana HIV/AIDS Department wellness center projects where she served as an analyst as well as database manager and data analyst. In addition to working with the health department, Kendra has been involved in several community service activities through her position as a fundraising co-chair for the Society of Young Black Public Health Professionals. As a result of working with the refugee program in Louisiana, she became aware of the prevalence of TB in immigrant and refugee populations. She plans on utilizing her acquired skills in order to continue working on and contributing to TB and other immigrant and refugee health issues.

Derrick D. Felix, Public Health Advisor (PHA) assigned to Hawaii, has been selected as the Deputy TB Branch Chief for the State of Hawaii, effective May 23, 2010. In this new assignment, he assists in carrying out administrative, epidemiologic, and regional TB coordination activities for the U.S.-affiliated Pacific Islands (USAPI). Some of the duties and responsibilities of this management-level position include working with staff at all levels in the State and local TB programs and developing policies and procedures.

Derrick has been assigned to the Hawaii State TB Control Program in Honolulu, Hawaii, since November 2005. He has provided oversight for the State of Hawaii CDC Cooperative Agreement for TB, monitored the federal budget, and authored applications, progress reports, and correspondence to CDC. He implemented and facilitated monthly TB case conferences on Oahu and the Neighbor Islands. Derrick provided leadership and direction on several large-scale TB contact investigations. He spearheaded the

transition from TIMS to eRVCT for reporting Hawaii TB cases to CDC. He served as the TB PEN Focal Point and the TB ETN Focal Point for Hawaii from 2005 to 2008. In addition, Hawaii has been without a TB Controller since January 2009, which has placed increased demand on Derrick's role in order for programmatic progress to be sustained.

From September 2004 to November 2005, Derrick was assigned to the Allen County Department of Health TB Control Program in Fort Wayne, Indiana. In that assignment he provided leadership, guidance, and direct assistance in the control of a TB outbreak involving a cluster of cases in the local African-American community. He instituted directly observed therapy as the standard of care for the treatment of all TB cases and contacts, and implemented and facilitated monthly TB case conferences.

Derrick began his CDC career with DTBE in April 2003; his first assignment was with the Chicago TB Control Program in Chicago, where he provided case management of TB patients and their contacts to ensure successful evaluation and treatment outcomes, provided directly observed therapy, conducted contact investigations, conducted pre- and post-test HIV counseling, and administered the Orasure HIV test.

During his career with DTBE, Derrick participated in TDY assignments in the Republic of the Marshall Islands (October 2009); Baton Rouge, Louisiana, for a 3-week Epi-Aid investigation post-Katrina (September 2005); Fort Wayne, Indiana (May 2004); Augusta, Maine (February 2004); and Portland, Maine (October 2003). Before Derrick began his CDC career he worked for the Florida Department of Health as a TB Outreach Worker for the Palm Beach County TB Control Program in Delray Beach, Florida.

Kashef Ijaz, MD, who has been on an extended temporary assignment at CDC's Global Disease Detection Program (GDD) in the new Center for

Global Health (CGH), was recently selected as the Senior Regional Advisor for Field Epidemiology and Laboratory Training Program (FELTP) in Egypt. He will be stationed at the GDD Center at the Navy Army Medical Research Unit-3 (NAMRU-3) in Cairo. In addition to Egypt, he will be responsible for FELTP activities for countries in the Eastern Mediterranean Region. During the past few months, Kashef has played a key role on the leadership team to establish the new CGH, including his role in leading the GDD Branch, where he helped establish the GDD Center in India and initiated the selection process for the new GDD Center site (likely to be either in Southern Africa or South America). In his new role, Kashef will work under Dr. Pattie Simone, another esteemed DTBE colleague.

Kashef joined DTBE in January 2002 as a medical epidemiologist, and shortly afterwards was selected to lead the Outbreak Investigations Team in the Surveillance, Epidemiology, and Outbreak Investigations Branch. During his tenure as the Chief for the Outbreak Investigations Team, he trained numerous EIS officers and also helped turn the tide for establishing trust and collaborative relationships with the state and local health departments. This resulted in numerous requests for assistance from CDC to help with outbreak investigations as well as several joint peer-reviewed publications with the state and local health departments. Due to his efforts in training EIS officers, in April 2006 the EIS alumni association presented him with the Philip S. Brachman Award. In 2007, Kashef was selected to lead the Field Services and Evaluation Branch. During his tenure as FSEB chief, he established trust and collaboration with state and local partners as well as branches within the division. Some of his major accomplishments were establishing a Program Evaluation Network, updating the DTBE funding formula in collaboration with the National TB Controllers Association, establishing an outbreak roster for field staff responding to programmatic aspects of outbreaks, and highlighting the need for collaboration and coordination of activities

between the Division of Diabetes Translation and DTBE in the U.S.-affiliated Pacific Islands.

This news is bittersweet in that Kashef will be missed by all of us in DTBE, but we are delighted to see that he is able to pursue his interest in global health. He will no doubt contribute to the strengthening of GDD activities and facilitate future opportunities for collaboration with DTBE. We wish Kashef and his family the very best in his overseas CDC assignment.

LCDR Roque Miramontes, PA-C, MPH, US Public Health Service, has been selected to serve as the Team Lead for the Surveillance Team in SEOIB. He replaces Valerie Robison, who was TB Surveillance Lead from 2005 to December 2009, and Lori Armstrong, who was Acting Surveillance Team Lead from December 2009 to present.

Roque joined CDC in 2006 as an Epidemic Intelligence Service (EIS) Officer with the Division of Foodborne and Mycotic Disease in the National Center for Zoonotic, Vector-Borne, and Enteric Diseases. His investigations during EIS included vaccinia virus, influenza, and cryptococcosis in the United States, histoplasmosis in Guatemala, and cryptococcosis in Mozambique. Before EIS, Roque, a physician assistant, worked as the sole primary care provider in rural community health centers in California and Montana. As the Clinical Director for an 80-employee community health center in rural Montana, he performed data analysis of locally collected disease surveillance data, led a two-county health assessment done in partnership with local agencies and public health departments, and assisted various county agencies in acquiring funds for improvement of health services.

Since joining SEOIB/DTBE in July 2008, Roque has served as an epidemiologist on the Outbreak Investigations Team. In that capacity, Roque regularly served as team lead researcher or supervisor during on-site epidemiologic

investigations in domestic and international settings, including an outbreak of MDR TB, a TB outbreak among Guatemalan factory workers, a TB outbreak among drug users, an investigation of TB in a van driver who transported vulnerable patients, and an investigation of a large number of TST conversions among hospital workers.

Recently, Roque deployed to Haiti within days of the earthquake to establish post-disaster disease surveillance and deployed to Peru in partnership with the Peruvian MOH to provide primary care to the indigenous populations along the Amazon River.

Roque has contributed to molecular epidemiology activities to launch TB-GIMS, published influential scientific articles in peer-reviewed journals, supervised interns, and presented scientific findings at numerous conferences. His extensive leadership and research experience have provided him with a broad public health foundation that will serve him well in his new role as Team Lead of the Surveillance Team, where he will oversee national TB surveillance activities.

LCDR Miramontes received his BA degree in Biology and his masters degree in Physician Assistant Practice from the University of Southern California and his Masters in Public Health from the University of Washington. We congratulate Roque on his new position!

Lauren Polansky, MPH, has joined FSEB and the Program Evaluation Team as an ASPH (Association of Schools of Public Health) Fellow. Her work as a public health professional has focused on designing and implementing evaluation research. Over the past 2 years this focus has taken her to Bolivia, to formally evaluate a nutrition rehabilitation center's effectiveness in improving weight and height deficits in children; to the Mesoamerican region, to develop a regional plan for increased vaccine coverage in the poorest and most disparate populations via the Mesoamerican Health

Initiative; and to Honduras, to evaluate the impact of technological upgrades in the public hospital system. She has collaborated with government and nongovernmental organizations, academic institutions, health initiatives, and private organizations in developing practical study designs and action plans that provide results central to program management and achievement. It's her hope that building evaluation capacity and engaging stakeholders in the evaluation process will lead to better decision-making in public health and to efforts that more realistically and effectively meet needs. In 2009 Lauren was awarded an MPH degree in Global Health from Emory University Rollins School of Public Health.

Philip Ricks, MD, has left DTBE/IRPB. Philip is taking on a new challenge as an Epidemiologist with the Surveillance Branch of the Division of Healthcare Quality Promotion (DHQP). Philip joined the Epidemic Intelligence Service (EIS) Class of 2008 and was assigned to the DTBE International Research and Programs Branch. During his tenure in the branch, Philip conducted research on TB surveillance, TB and HIV treatment adherence, and MDR TB in Southern Africa. He also conducted an Operations Research training course in the Philippines, and conducted research on H1N1 testing among American Indians and TB genotyping among foreign-born persons. Philip was also responsible for leading TB outbreak investigations. He also presented at various international and national conferences and meetings on his work during the past 2 years.

While we are saddened to see Philip leave DTBE, we are pleased that he is able to pursue other career interests and apply his skills to a new and important area. Philip's great passion for his work and his intense desire to help others has provided DTBE with numerous dividends. We will greatly miss his presence in the office. Please join us in wishing Philip the very best as he assumes his new position in DHQP.

CAPT Cheryl L. Scott, MD, MPH, retired on August 1, 2010. Cheryl joined CDC in 1993 and began an EIS reproductive health field assignment to California's Department of Health Services Maternal and Child Health section. During her early tenure with California State, Cheryl developed the state's first Severe Complications of Pregnancy Surveillance System, which helped California reduce preterm delivery among all racial groups. During a subsequent field assignment as New Jersey's State Maternal and Child Health Epidemiologist, she served on New Jersey's Blue Ribbon Panel on Black Infant Mortality, a multidisciplinary collective responsible for systematically targeting black infant mortality in New Jersey. While at CDC headquarters, Cheryl led a 14-year update of national post-neonatal mortality surveillance, which revealed that nearly 50% of deaths were due to potentially preventable causes. She subsequently supported health sector reform and collaborated on public health performance standards development with the Pan American Health Organization for its member states. During 2000-2005, she served as CDC Chief of Party and Director of the Global AIDS Program - Tanzania office and collaborated with the Tanzania government on strengthening Tanzania's health care infrastructure and developing a national HIV/AIDS prevention, care, and treatment program. She then joined California's Department of Public Health Tuberculosis Control Branch (2006-2010) where she led the state's Multidrug-Resistant Tuberculosis Service and supported efforts to control TB in California. Throughout her USPHS career, Cheryl provided disaster response and helped U.S. and global communities develop emergency preparedness systems.

Cheryl began her international health career in 1982. She has worked in both long- and short-term assignments to Cote d'Ivoire, India, Kenya, Lesotho, Tanzania, Ecuador, Haiti, and the U.S. Virgin Islands. Before joining CDC, she practiced internal medicine in St. Croix and New York City, focusing primarily on women's health. She has

been a member of international evaluation teams, and chaired and participated on government and community workgroups, panels, committees, and advisory boards. She has received several awards and commendations, including the DHHS Secretary's Award for Distinguished Service for her work with Kosovo refugees; the Alumni Achievement Award from the University of California; recognition from the State Assembly of the California State Legislature; and a presidential citation from the United Republic of Tanzania.

Cheryl earned her MPH in international health from Johns Hopkins School of Hygiene and Public Health, her MD from Boston University School of Medicine, and a BA in biology from the University of California at Santa Cruz in 1974. She completed residencies in Internal Medicine and Preventive Medicine at the University of California/King-Drew Medical Center in Los Angeles and CDC, respectively. She has led and collaborated on publications in areas of tuberculosis, HIV/AIDS, reproductive and child health, and disaster epidemiology.

Sarah Segerlind, MPH, has joined DTBE as of September 27 as a health education specialist with the Education, Training, and Behavioral Studies Team in CEBSB. Sarah first came to CEBSB in July 2008 as an Association of Schools of Public Health (ASPH) Fellow. During her time with CEBSB, she has worked on a variety of projects, including the creation of the Self-Study Modules on Tuberculosis, 1-5, Slide Sets and Facilitator Guide and the development of an online TB 101 course with the TB Regional Training and Medical Consultation Centers (RTMCCs). Sarah also serves as the CDC liaison for the TB Education and Training Network (TB ETN) Membership Development Workgroup and is a member of the TB ETN Steering Committee. She has also assisted with the management of the training and education component of the RTMCCs and is collaborating with colleagues to conduct the 2010 RTMCC needs assessments. Prior to coming to CDC, Sarah worked as an

intern with Migrant Health Promotion (MHP), a community-based organization that works with migrant farm workers and their families to improve health. While at MHP she researched and developed a community health worker training manual chapter on emergency preparedness.

Sarah graduated from the University of Michigan School of Public Health in 2008 with an MPH in health behavior and health education. She received her BS degree in anthropology/zoology with a minor in environmental studies from the University of Michigan in 2006.

## CALENDAR OF EVENTS

October 13–16, 2010

### **Denver TB Course**

Denver, CO

[National Jewish](#)

October 19–20, 2010

### **16th Annual Four Corners TB & HIV Conference**

Flagstaff, Arizona

For more information, contact Kelly Szymanski, phone (602) 258-7505; or e-mail

[KSzymanski@lungarizona.org](mailto:KSzymanski@lungarizona.org).

October 18–30, 2010

### **Implementing the Stop TB Strategy: Skills for managers and consultants (TB, MDR-/XDR-TB, TB/HIV and more)**

Sondalo, Italy

[WHO Collaborating Centre, Italy](#) 

Registration fee deadline: August 15, 2010

November 11–15, 2010

### **41<sup>st</sup> UNION World Conference on Lung Health**

Berlin, Germany

IUATLD

November 15–16, 2010

### **TB: What We Know and What Lies Below**

Toronto, Ontario, Canada

[Ontario Lung Association](#) 