



Dear Colleague:

We continue to await news about funding and policy decisions that will affect our TB control activities and programs. On March 11, the President signed into law HR 1105, the Omnibus Appropriations Act, 2009, which includes appropriations for Health and Human Services; we will know our FY 2009 funding levels later this spring. In the meantime, DTBE staff members remain busy with new and ongoing work.

A number of important meetings were convened in late winter, with others planned for the spring and summer. On February 4–5, members of the TB Epidemiologic Studies Consortium (TBESC) convened in Atlanta for the 14th semiannual meeting of the TBESC. The 13th annual conference of the International Union Against Tuberculosis and Lung Disease (IUATLD), North America Region, was held in Vancouver, Canada, February 26–28, with the theme of “Reaching the Unreached.” The Advisory Council for the Elimination of Tuberculosis (ACET) met in Atlanta March 3–4. Meetings scheduled for May include the 2009 Association of Public Health Laboratories (APHL) annual meeting, Anchorage, Alaska, May 5–8, and the American Thoracic Society’s ATS 2009, May 15–20, San Diego, California. In addition, I hope that many of you will be attending the National TB Controllers Conference, scheduled for June 15–18.

CDC has published several important TB-related reports in recent months. One is entitled “Updated guidelines for the use of nucleic acid amplification tests in the diagnosis of tuberculosis.” *MMWR* January 16, 2009; 58(1): 7–10. CDC recommends that nucleic acid amplification (NAA) testing be performed on at least one respiratory specimen from each patient with signs and symptoms of pulmonary TB for whom a diagnosis of TB is being considered but has not yet been established, and for whom the test result would alter case management or TB control activities, such as contact investigations. Another is entitled “Plan to combat extensively drug-resistant tuberculosis. Recommendations of the Federal Tuberculosis Task Force.” *MMWR* February 13, 2009; 58(RR-3): 1–43. This document recommends specific action steps to be taken in response to existing problems encountered in efforts to fight XDR TB. In addition, DTBE had three articles in the *MMWR* for March 20, 2009; 58(10): “World TB Day—March 24, 2009”; “Trends in tuberculosis—United States, 2008”; and “Two simultaneous outbreaks of multidrug-resistant tuberculosis—Federated States of Micronesia, 2007–2009.” Please visit the DTBE website for links to all five of these reports: <http://www.cdc.gov/tb/>

In February, the CDC Office of Enterprise Communication (OEC) announced the availability of the 2008 *State of CDC*, the agency’s annual health impact report. The document, which is currently online, highlights success stories about health protection,

cutting edge research, and disease investigations that CDC staff conducted in 2008. I am pleased to point out that the report features a TB-related story in its Best of Science section. Limited to 10 stories, this section highlights successful and inspiring programs at CDC; among these is a story entitled, "More Immigrants Being Screened for Tuberculosis." This report can be found at www.cdc.gov/about/stateofcdc/index.htm

DTBE commemorated World TB Day with several events, starting with the Third Annual TB Awareness Walk on Saturday, March 21. Although I was unable to join in the walk this year owing to my participation in an important Stop TB Partnership meeting in Rio, I understand that this year's walk boasted the best attendance thus far (more than 700 persons!), and we were joined by Drs. Richard Besser, acting CDC Director, and Terry Chorba, Associate Director for Science, NCHHSTP. Both offered remarks, including their personal experience in dealing with TB. The walk was followed by a World TB Day observance and luncheon on March 24. I hope you all planned similar events around this day. It is important for us to share our successes and our challenges with each other and with the public and thus increase awareness about tuberculosis. Please see the related articles about these events in this issue of *TB Notes*.

Kenneth G. Castro, MD

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HIGHLIGHTS FROM STATE AND LOCAL PROGRAMS

Rotary International Working to Prevent and Control TB on the Texas-Mexico Border

Rotary International is known for its extraordinary work around the world against polio. Currently, Rotary clubs in several Texas-Mexico districts are working diligently in collaboration with the TB binational projects to help prevent and control tuberculosis (TB) on the Texas-Mexico border. The binational projects, which receive CDC funding for personnel and infrastructure, treat Mexican patients who have complicated TB and who are frequent border crossers. The four projects are located in the Mexican states of Tamaulipas and Chihuahua, in the border cities of Matamoros, Reynosa, Nuevo Laredo, and Juarez.

In one Rotary project called TB Plus, the Rotary clubs in the area are helping patients enrolled in the TB binational projects receive adequate nutritional support while receiving their TB medications. This assistance is critically important for children being treated for TB. Rotary clubs in Texas and Mexico also support the binational projects by providing supplies and equipment. The Dallas Rotary Club is a good example; the club has been a very significant partner and ally to the binational projects in the Rio Grande Valley area of Texas, whose

population is predominantly Hispanic. The members have provided medical equipment and computers to the projects; in addition, they provide school supplies to the children and nutritional support such as Ensure® to the patients.

In August 2008, in another collaborative effort, members of Rotary International met with the Methodist Healthcare Ministries (MHM) and the General Board of Global Ministries (GBGM) of the United Methodist Church (UMC) in the Rio Grande Valley of Texas to discuss how they could work together to strengthen efforts to prevent and control TB on the Texas-Mexico border.

Also of note, the Rotary clubs in Texas joined those in Mexico to apply for funding from the Rotary Foundation to assist in the establishment of a TB laboratory in Reynosa, Mexico. The Rotary Foundation approved the application and funded the project with a \$300,000 grant, one of only 17 grants given worldwide by the Rotary Foundation. The Mexican state of Tamaulipas received approval from its Health Commissioner to construct the new laboratory building; the Rotary Foundation funds will be used to outfit this laboratory with equipment and supplies, and the Texas Department of State Health Services will provide training to the laboratory personnel working in the new laboratory. Currently, the Texas Dept of State Services laboratory

Rotary is an international organization that provides humanitarian service, encourages high ethical standards in all vocations, and strives to build good will and peace in the world. In 1985 Rotary established its Polio Plus program and has since played a crucial role in global efforts to eradicate polio. Since then, Rotarians have contributed over US\$600 million and helped immunize more than 2 billion children, slashing worldwide cases by 99%. Rotary's partners in the "Global Polio Eradication Initiative" are WHO, CDC, and the United Nations Children's Fund (UNICEF). From the International Federation's Global Agenda (2006–2010). Interntl Fed of Red Cross and Red Crescent Societies, 2008; www.ifrc.org/docs/pubs/health/measle-polio-final-report.pdf

TB Notes is a quarterly publication of the Division of Tuberculosis Elimination (DTBE), National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP), Centers for Disease Control and Prevention (CDC). This material is in the public domain, and duplication is encouraged. For information, contact

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provides diagnostic services for the TB binational projects in Reynosa and Matamoros. Working with the state laboratory in Tamaulipas, Mexico, the grant will enable the Reynosa laboratory to provide smear and culture capacity. This will have the positive effect of decreasing the number of specimens for the Texas laboratory to process and analyze.

To provide some context, Reynosa is a sister city to McAllen, Texas, in Hidalgo County, where over 40% of the residents live below the federal poverty level. Hidalgo County has over 900 *colonias*, unincorporated communities in the border region lacking adequate infrastructure such as water, sewer services, and paved roads. The housing in these communities is substandard; in some cases, the structures are made of cardboard. The only health interventions in these *colonias* are those provided by *promotoras*, community health workers who enter the *colonias* to perform TB

case finding and contact investigations. Rotary is working to support those families on both sides of the border with the best TB laboratory services available.

—Reported by Charles Wallace, PhD
Texas TB Control Program

Denver Metro TB Clinic: Update for Civil Surgeons on the New TB Technical Instructions

Civil surgeons are physicians appointed by local offices of the Bureau of U.S. Citizenship and Immigration Services (USCIS) to perform the medical examinations of aliens, or noncitizens, already residing in the United States. Noncitizens who require medical examination include persons applying for adjustment of immigration status (e.g., nonimmigrant visa holders applying for citizenship) and other persons requiring a medical examination as determined by the Department of Homeland Security. The USCIS released new guidelines for civil surgeons and a new I-693 form on May 1, 2008.

In July 2008, the Denver Metro TB Clinic, in collaboration with the Francis J. Curry National TB Center and the Colorado Coalition Against TB, held a course for civil surgeons in the Denver area to update them on TB and the new TB component of the Technical Instructions for the Medical Examination of Aliens in the United States.

The course was held in the evening, from 5:45 pm to 8:30 pm to allow physicians to attend after completing their office hours. The topics included information on the epidemiology of TB, the new overseas TB screening requirements for immigration, a review of the new I-693 technical instructions for TB screening, identification of suspect and active TB, and management of latent TB infection (LTBI).

Upon completion of the course, participants would be able to-

- Complete the I-693 form correctly and completely;
- Explain when, where, and how to refer patients with suspect or active TB;
- Describe the roles of the panel physician, the civil surgeon, and the U.S. public health physician in the prevention and control of TB;
- Explain which immigrants are at greater risk for drug-resistant TB;
- Interpret chest x-ray findings and differentiate between latent TB infection and TB disease; and
- Explain when and how to treat LTBI.

Physicians received a light dinner, continuing education credits, and a packet of materials. The materials included copies of the course slides, the new technical instructions, and a variety of educational materials on TB and the medical screening of immigrants and refugees.

If you would like more information or copies of any of the handouts, please contact Carolyn Bargman, RN-C, MA, at cbargman@dhha.org.

—Submitted by Carolyn Bargman
Denver Metro TB Clinic

Construction Beginning on New TB-Care Facility in San Antonio

The following is an excerpt of an article that was featured in the Texas Dept of State Health Services (DSHS) Staff News, an online publication of the DSHS. This excerpt is reprinted with permission from the author, Ms. Shelly Ogle. Permission to use photos was granted by the subjects.

After 13 years as superintendent of the Texas Center for Infectious Disease (TCID), Jim Elkins is delighted that a new patient-care building—the hospital's first one in more than 55 years—is being constructed at the San Antonio facility.

TCID is the only TB hospital in Texas and is one of just six TB centers in the nation. It's designed to treat patients for the duration of their treatment—6 months to 2 years. Fifty years ago,

when Texas had 21 such facilities, TCID was known as the San Antonio State TB Hospital and housed nearly 1,000 patients.

Tuberculosis is no longer so prevalent; last year, the hospital treated 78 patients with TB. It also provided outpatient care for 17 patients with Hansen's disease.

"TCID's services are still needed to support the state's TB treatment and indigent-care systems," says Elkins. "I am glad that the hospital is relevant."

Its relevancy is proven by the state's commitment to pay \$23 million for a new two-story, 82,000-square-foot hospital that's set to be completed in May 2010.

On Dec. 15, Elkins hosted a ground-breaking event at TCID for the new building. Guests included professional colleagues, members of the DSHS leadership team, representatives from the construction firm, and local dignitaries.

"I really appreciate the people who work here for their talents and devotion to a different type of patient care than is found in most modern hospitals," says Elkins. "I'm grateful to see up-to-date facilities built in which they can continue to serve the patients who are treated here."



The new building will hold 75 single-patient rooms designed with safety features specifically for TB patients. Because TB bacteria can be airborne, the air drawn into the patients' rooms is exchanged every 10 minutes and is never expelled into hallways or other common areas. The building will also contain nurses' stations and medication rooms.



"The present design uses the best of all previous plans," says David McCormick, manager of the DSHS Hospital Construction Unit. "We all feel very good about this design and are looking forward to the anticipated completion in 2010."

Three other existing buildings adjacent to the new patient-care building will be renovated for clinical-support, diagnostic, therapy, administrative, and food-service spaces. Studies are under way to determine whether the buildings that now house patient-care units can be converted to other uses by DSHS.

TCID is a specialty hospital without emergency services, operating rooms, or intensive-care units. Patients needing such acute-care hospital services are transferred to an area hospital for care and treatment and then returned to TCID for hospitalization.

Patients stay at TCID until their TB is cured or they are stabilized enough to be returned to their communities to continue outpatient TB treatment at home.

—Contributed by Shelly Ogle, Editor
Texas DSHS Staff News

Indiana: Outbreak Planning in Low-Incidence Areas

Shameer Poonja, a CDC Public Health Advisor assigned to Indiana for 2.5 years, reported to DTBE on the results of outbreak planning activities in that state.

Although Indiana continues to be listed as a low-prevalence state (case rate 2.0 per 100,000), it has had several outbreaks in its northeast area. Between 1999 and 2007, Kosciusko County had 43 cases linked either through genotype or epidemiologic associations; 10 of the 43 cases were reported in 2005. Five other Indiana counties have also reported cases in this cluster. Many of these case patients had extensive alcohol use, with a smaller number of persons being current drug users. Some of these cases have been linked through social networks that included bars, work sites, and public buildings.

As in previous situations, the 2005 Kosciusko outbreak quickly overwhelmed resources at both the local and state health departments. DTBE provided supplemental funding as well as technical assistance from an Epi-Aid team in fall 2005. The recommendations of the Epi-Aid team were to 1) pursue case findings around this cluster, 2) conduct thorough contact investigations, 3) continue to provide directly observed therapy (DOT) to TB patients until treatment completion, 4) treat contacts having latent TB infection (LTBI), and 5) educate local health care providers about TB to ensure early diagnosis and start of treatment. This report focuses on the program's actions surrounding improving overall outbreak identification and response, and improving contact investigations (recommendation 2).

In early 2006, the state procured additional funding to add a full-time TB epidemiologist to the program to oversee the reporting of contact investigation activities. For every pulmonary TB case reported, the reporting jurisdiction is required to submit a preliminary and final contact

investigation form. With the addition of the TB epidemiologist to oversee these activities, the TB program has been proactive in establishing infectious periods and reviewing data relating to potential sites of exposure. TB suspects and cases having epidemiologic linkages, including those in congregate settings (e.g., homeless shelters, schools, or correctional facilities), or cases with more than 25 contacts identified, are deemed "high priority" for investigation. Guided by this high-priority list, the TB program has been able to work with the local health departments on a daily basis to follow up on these types of investigations. This list is reviewed monthly by the TB epidemiologist, TB Program Director, and CDC PHA during case management sessions to prioritize any additional resources needed, including manpower and funding, and ensure adequate and timely follow-up.

Many TB programs throughout the country have benefited from the use of genotyping of TB isolates to find clusters of cases that may otherwise not be detected through traditional investigative activities. In Indiana, the process begins when all newly cultured isolates identified as *M. tuberculosis* through the Indiana State Laboratory are sent to the Michigan reference laboratory for genotyping. The submitted isolate undergoes genotyping via spoligotyping and mycobacterial interspersed repetitive unit (MIRU) analysis. When the results become available, all necessary demographic case information is entered into the newly created database along with the laboratory results received from the Michigan laboratory. A cluster number is assigned to all isolates with the same spoligotype and MIRU numbers. Any provider-diagnosed or clinical case that is linked epidemiologically within a cluster may also be added to ensure that the investigation includes all counted cases. From this information, basic timelines and reports can be generated to look at similarities between cases and establish links. All information is shared with local case managers and reviewed internally by program staff to review all possible linkages between cases or to establish an

epidemiologic link between cases. If an epidemiologic link does not exist, or cannot be established, a secondary patient interview or chart review at the local health department may be required.

In addition, the TB program has also established a formal TB outbreak response plan. The purpose of the plan is to define a working definition of an outbreak and establish a set of procedures to follow in response to a TB outbreak or an expanded screening in a community.

As a direct result of these initial actions, the Indiana TB Control Program has been able to provide extra guidance in two small outbreaks and several expanded screenings throughout the state. In one investigation that involved three genotypically related TB case patients living and working in two different counties, the outbreak plan enabled the various case managers to work together to narrow potential sites of exposure and focus the investigation on a common worksite. As a result of initial conference calls, additional interviews were conducted with all three patients, and links were established between two cases. This particular situation also emphasized for the local case managers the importance of detailed case investigation interviews.

Overall, these activities have resulted in

- The establishment of a high-priority list of contact investigations that ensures critical investigations are conducted;
- The establishment of a working definition of an outbreak to ensure a more rapid reaction when new linkages are established;
- The creation of clear timelines for actions to ensure that potential sites of exposure are investigated and reviewed with the local case manager and, when necessary, the County Health Officer is alerted; and
- The assurance that resources needed to complete tasks will be assessed earlier and,

if necessary, additional resources will be made available.

In order to improve the early identification of TB transmission in Indiana, the State Health Department recognized the need for dedicated resources to oversee contact tracing. Initially the TB epidemiologist was assigned to take on the established program practice of sending out contact investigation forms for all pulmonary TB cases. However, the TB epidemiologist has incorporated the use of genotyping to collect and analyze data in order to establish links between cases. Having dedicated personnel enabled the TB program to emphasize the prioritization of contacts to ensure that the high-risk contacts are identified, evaluated, and treated appropriately.

In terms of our outbreak process, the program has since removed the expanded screening component of the plan and included it into a newly drafted contact investigation protocol. We have also reviewed and updated our contact investigation forms and timelines for reporting. Several education sessions with local health department staff have already taken place to highlight these changes. Continued emphasis and training will be placed on improving contact investigation activities by illustrating contact identification, evaluation, and completion rates as outlined in the CDC Aggregate Reports for TB Program Evaluation (ARPE).

The program plans to annually revisit the outbreak plan process to incorporate new findings.

—Reported by Shameer Poonja
Div of TB Elimination

A Tale of One Patient, a Very Resistant Bug, and Two Different Public Health Systems

Bruce Heath, a CDC Public Health Advisor assigned to Texas for 3 years, reported to DTBE on drug-resistant TB in a foreign national who crossed the border many times while infectious.

Background

On April 16, 2007, a “be on the lookout” alert (lookout) was issued by the El Paso Quarantine Station for a Mexican national who had “a very dangerous and contagious strain of TB.” The lookout listed the subject’s name and date of birth. The lookout also stated that the patient was a businessman who traveled into the United States frequently. The Texas TB program learned of this patient on April 18, 2007, when the lookout was sent to the state TB program by another office in the Texas Department of State Health Services (DSHS) who thought we should be aware of the situation. I immediately checked to determine if the patient was receiving treatment from the Juntos Binational TB Project (a program funded by CDC to provide treatment of patients with complicated TB cases along the U.S./Mexico border). I learned that the patient had been enrolled in Juntos on April 18, 2007.

The lookout requested that anyone with information regarding the patient contact the CDC quarantine station in El Paso. I contacted the medical officer there and learned that he had been instrumental in initiating the lookout and, in fact, had been quite involved with the patient’s case before the lookout was issued. The medical officer was employed by the Texas Dept. of State Health Services in El Paso before becoming a CDC employee and was very involved in the management of the Juntos program. He continues to work with Juntos, serving as a member of the Juntos MDR TB review committee. Owing to this unique relationship with Juntos, he had been aware of the patient, the patient’s travel history, and the possibility that the patient may have had MDR TB.

During the conversation with the medical director of the El Paso Quarantine station and other conversations with the Juntos project coordinator, I learned that this patient had a long history of being treated for TB. He began his trek towards MDR TB in April 2001 when he was first diagnosed with TB by a health care provider in the City of Chihuahua and placed on

unsupervised treatment in Mexico. He was treated with Rifater, a one-pill combination treatment of isoniazid (INH), rifampin (RIF), and pyrazinamide (PZA). In April 2002, the patient continued his MDR journey when his cough returned and he went to a health clinic in the City of Chihuahua. He was again prescribed Rifater, and again was not placed on directly observed therapy (DOT). After this, the patient began taking Rifater intermittently whenever he became symptomatic. (Note: TB medications can be purchased over the counter in Mexico.) The patient also reported taking ofloxacin for "fevers."

The patient was then not seen in the Mexican public health system until January 2007, when he presented with TB again to the Juarez City Health Department. The group Juntos provides support to the Juarez TB program by processing cultures, as there is no capacity to perform culture in Juarez. (The Juarez TB program can only perform smears.) The Juarez TB program started the patient on a four-drug regimen in January 2007, and this time placed him on DOT.

In March 2007, the culture reports confirmed that the patient had multidrug-resistant (MDR) TB (resistant to INH, RIF, PZA, and ofloxacin), and his case was referred to Juntos for review by the MDR committee. The patient's case was enrolled in Juntos on April 18, 2007.

It is important to note that Juntos provides services to patients on the Mexican side of the border in Juarez, Chihuahua, which is the sister city to El Paso, Texas. Although medications are provided by the state of Texas and project personnel are supported through the TB cooperative agreement, Juntos patients are Mexican patients, reported as Mexican morbidity, and ultimately fall under the responsibility of the Mexican public health system.

The contact investigation

After determining that the patient was receiving treatment from Juntos, I communicated frequently with the Juntos project coordinator to

ensure that a complete and comprehensive contact investigation was performed in a timely manner. During these communications, I discovered that not only was the project coordinator communicating with the patient on a regular basis, the medical director of the El Paso Quarantine Station was also speaking with the patient, as was the chief of the Juarez City Health Department. The purpose of the conversations was to advise the patient against crossing the U.S. border and against traveling by air, and to attempt to gather information to conduct a contact investigation.

It became very clear that the patient was not telling all that he knew about his travels and contacts. I consulted with the senior PHA in Texas and the manager of the Texas TB program. We all decided that I should try to interview the patient in person; however, the Juarez City Health Department declined my offer to assist in the interview/contact investigation process. The health director stated that he felt that an interview by me would put too much pressure on the patient.

During this time, the patient maintained possession of his border-crossing visa. The previously mentioned lookout remained in effect. However, the name on the lookout did not exactly match his correct name on the visa, and the patient was able to continue traveling into the United States (land and air travel), even after he had been advised not to do so.

I continued to communicate with the Juntos project coordinator to provide guidance in the interview process. The patient's entire household was skin-test positive. However, they all had negative chest X-rays. They had not been tested for TB during the patient's previous TB episodes.

The project coordinator was finally able to convince the patient to bring in some business records and was able to establish some contacts to investigate. A total of 11 business contacts

were investigated in the United States, in many different states. Of these contacts, one was skin-test positive and one refused to be tested; the remainder were skin-test negative. The positive contact was a person with whom the patient worked on a regular basis.

Is isolation a possibility?

During the process of the contact investigation and in the first few weeks, it was clear that the patient was not heeding the “no traveling” advice of Juntos, the Juarez Health Department, and the El Paso Quarantine Station. He was also being evasive and uncooperative regarding the contact investigation. We began discussions regarding the possibility of isolation, including isolation in Mexico. According to the public health officials, there are laws in existence that allow involuntary isolation. However, the president of Mexico must approve any involuntary isolation. This has never been done.

After it was determined that the patient could not be isolated using Mexican public health law, we consulted with the DSHS Office of General Counsel to explore any options in the Texas public health code. Texas has no authority to isolate foreign nationals. If the patient were to cross into the United States illegally, he would fall under the authority of Immigrations and Customs Enforcement (ICE). ICE will only hold infectious TB patients until they are treated sufficiently to become noninfectious. Patients are then deported to their country of origin.

Involvement of multiple U.S. organizations

This case gained much attention very quickly. I participated in many meetings and conference calls with representatives from the Texas TB program, the Dept of Homeland Security, Customs and Border Protection, the U.S. Dept of State, and CDC (DTBE and DGMQ). As a result of these meetings, the patient was placed on a national “Do not board” list.

Customs and Border Protection staff members were also able to assist in obtaining a listing of

each time the patient crossed the border. Through this list, we were able to officially confirm what we had already concluded earlier: that the patient had entered the United States multiple times after he had been advised not to travel.

We were also able to convince the patient to voluntarily surrender his border-crossing visa, with the agreement that the U.S. Dept of State would hold his visa rather than revoke it. This compromise guaranteed that the patient could not legally travel to the United States, but did not formally revoke his visa.

Conclusions and lessons learned

The patient has since completed adequate treatment, administered via DOT by Juntos staff. His treatment was based on consultation with Texas TB experts. Staff of Juntos reported that he remained compliant throughout his treatment. He has been removed from the “no fly” list and is allowed border-crossing privileges again. Thankfully, there were no additional cases associated with this case.

There were many lessons learned as a result of this case. I think that the most important lesson is that we need to continue to work closely with the El Paso Quarantine Station to enhance communication regarding border TB (and other infectious disease) issues. Also, the state TB office should have been notified of the lookout posting before it was issued. This would have alerted us of the issue and allowed us to work with health authorities in Mexico, through Juntos, to ensure a unified case management and contact investigation.

Another very important lesson learned from this case is that we have extremely limited options for isolation when a binational patient becomes noncompliant. Mexican public health laws do not support involuntary isolation, and Texas has no authority for patients who are not Texas residents. This one case exposes a serious flaw in public health safety along the border. It asks

the question: "What if this patient were infectious with a virulent form of influenza during an epidemic?"

Another major issue demonstrated by this case is the extreme difference in the two public health systems in the management of TB. The Mexican public health system definitely placed a very high priority on this individual patient's rights versus the health of the public. This was demonstrated by the way in which the interviews were handled. The interview process was not assertive, even after it was determined that the patient was being untruthful. My offers to provide assistance in the interview were declined. The patient was basically allowed to manage his own contact investigation.

Although this is the case that has been brought to our attention, it is most likely not the only case of its kind along the U.S./Mexico border. There are thousands of border crossings each day, and many cases of TB and drug-resistant TB in the Mexican border states. We are fortunate that this patient was enrolled in Juntos, thus allowing us to obtain information on him. If this link had not been made, it is likely that information regarding this patient's resistant TB and treatment would have been much slower getting from the El Paso Quarantine station to the Texas TB office.

With so many binational issues (isolation, individual rights vs. public health, etc.) regarding ONE patient, what happens when we have 20, 40, 100, or more infectious patients attempting to enter the U.S. for business or to seek medical care? How will we coordinate between the two nations? How will we ensure that the public's health is protected on both sides of the border?

—Reported by Bruce Heath
Div of TB Elimination

Evaluation Workgroup Retreat

The Tuberculosis Evaluation Work Group (EWG) Strategic Planning Retreat convened in Atlanta,

Georgia, on November 13–14, 2008, and included more than 30 participants from state and city TB control programs, Regional Training and Medical Consultation Centers (RTMCCs), the National TB Controllers Association (NTCA), the Advisory Council for the Elimination of TB (ACET), and DTBE. The purpose of the retreat was to open the next chapter of the evaluation capacity-building efforts of TB control and prevention programs. Attendees set the stage for the future of program evaluation in TB by discussing their accomplishments and challenges in building evaluation capacity and practice over the last 4 years.

During the retreat, attendees reviewed the impact of the EWG Strategic Plan for 2004–2008; determined challenges and barriers to implementing the plan; determined current needs and expectations for program evaluation capacity building and technical assistance; and developed the next EWG Strategic Plan for 2009–2013. After sharing the lessons learned and the challenges in bringing evaluation into program management over the last 5 years, attendees discussed the future role of the EWG and the responsibilities of membership in the EWG.

One outcome of the retreat was a new moniker: the group has been renamed the TB Program Evaluation Network (TB PEN), reflecting its evolving goals and objectives. The TB PEN Steering Committee was formed to

- Review program evaluation findings and assess applicability and generalizability of findings;
- Direct evaluation efforts;
- Promote evaluation projects for funding; and
- Determine needs for evaluation training, technical assistance, and evaluation tools.

Attendees agreed that establishment of evaluation focal point positions in state and big city TB programs was imperative to the future of program evaluation in these TB programs. The evaluation focal point will serve as each TB program's point of communication with CDC and

will be responsible for overseeing evaluation initiatives in their area, providing updates to CDC, and sharing lessons learned with other programs. This focal point, serving as a subject-matter expert, will also oversee and participate in evaluation research. Appointing an evaluation focal point will be a requirement in the TB cooperative agreement for the upcoming years.

Partnerships with other organizations were discussed, and several exciting collaborative opportunities were identified, such as working with

- The TB Epidemiologic Studies Consortium in the development of an evaluation tool;
- The RTMCCs to jointly develop a training curriculum on TB program evaluation;
- The TB Education and Training Network (TBETN) in support of a joint annual meeting for TB PEN.

The retreat was deemed successful and productive by DTBE. For more information about the retreat, please contact Linda Leary (LLeary@cdc.gov).

—Reported by Linda Leary
Lakshmy Menon, and
Vidya Venkataramanan
Div of TB Elimination

Special Events

Rifampin Turns 50

In 1957, a sample of soil from a pine wood on the French Riviera was brought for analysis to the Lepetit Pharmaceuticals research lab in Milan, Italy. There, a research group headed by Prof. Piero Sensi (1920–) discovered a new bacteria, which was then named *Nocardia mediterranei*. This new species was immediately deemed to be of great scientific interest, since it produced a new class of molecules with antibiotic activity.

Prof. Sensi's group had the humorous habit of choosing names for new compounds from

popular culture. Since Prof. Sensi and some of his fellow researchers were particularly fond of a French crime story of that time whose title was *Riffifi* (about a street fight between rival gangs), they decided to call these compounds rifamycins. After 2 years of research and testing to find more stable semi-synthetic products, in 1959 a new molecule with high efficacy and good tolerability was produced, and was named "rifampin."

Since then, the derivatives of rifamycins have changed the face of TB in the world, shortening treatment regimens to the current 6- to 9-month short-course therapy, and thereby improving cure rates, relapse rates, and incidence of adverse reactions. In 2006, almost 2 million new TB cases were cured with the rifampin-based World Health Organization (WHO) regimens, and it is likely that many millions of lives have been saved since the 1968 introduction of rifampin in clinical practice.

On May 4, an official celebration of the discovery was held in Milan City Hall, with Prof. Sensi himself in attendance. Dr. Sensi provided a vivid flashback to the heroic times of this research. He was then awarded the Milan City Medal by the local authorities for his important and historic work.

—Reported by Dr. Luigi R. Codecasa
Head of the TB Reference Centre
Villa Marelli Inst.-Niguarda Hospital
Milan, Italy

2009 TB Awareness Walk

DTBE's Third TB Awareness Walk took place on Saturday, March 21, 2009, in Atlanta's Grant Park. It was a chilly morning, but all the sunshine eventually made it a pleasant event. Many activities were available this year for the participants, including a steel band and a rock duo



providing entertainment, face painting for adults and kids, and a clown who provided balloons in various shapes and sizes for the kids. In addition, we had three speakers: Dr. Richard Besser, the acting Director of CDC; Dr. Terry Chorba, Associate Director for Science from our center, NCHHSTP; and Ken Patterson from RESULTS International. This event is not a fundraiser, but it is an awareness raising effort. Therefore, there is no registration fee, and free t-shirts are provided each year. In fact, the t-shirts account for most of the expenses of the walk which are covered by donations from many businesses and individuals. The names and logos of the donors/sponsors were displayed on the back of the t-shirts.



As with many events, partnerships are one of the essential ingredients to success. This idea builds upon the U.S. theme for World TB Day, "Partnerships for TB Elimination." The partnerships for the walk included the National Tuberculosis Controllers Association (NTCA), the lead organization for this event; CDC; the American Lung Association of the Southeast Region; the Georgia Division of Public Health; the Fulton County Health Department; the DeKalb County Board of Health; RESULTS International; the Watsonian Society (a CDC employee organization); Emory University; and Morehouse College.

We tried to reach out to the Atlanta community and beyond in a number of ways. Our marketing

efforts included word of mouth, e-mails, our website, www.tbwalk.org, Craig's List, Facebook, Twitter, flyers and business cards, write-ups in community bulletins, the CDC parents' network, and CDC announcements.

So, what were the results? We had 1,170 online registrations this year, at least 200 more than the previous year. The number of individuals who actually showed up reached 738 this year, which again is almost 200 more than the previous year's estimate of 550 attendees. Fox 5 News provided media coverage.

An after-action review was conducted on April 15, 2009, to obtain feedback on the walk. We discussed what went well, what did not, and any improvements that are needed for next year. We hope to have an even better turn-out in 2010!

—Submitted by Vic Tomlinson
Div of TB Elimination
On behalf of the TB Walk Committee

World TB Day Observance and Luncheon

On March 24, 2009, Atlanta DTBE staff organized two events in commemoration of World TB Day 2009: an observance that featured several presenters, and a luncheon. The World TB Day observance began with opening remarks and a welcome from Dr. Terry Chorba, Associate Director for Science, NCHHSTP, and Mr. Phil Talboy, Deputy Director of DTBE. They highlighted the sobering current status of the global TB problem, setting the stage for the talks that followed.

Dr. Val Robison, team lead for the surveillance team in the Surveillance, Epidemiology, and Outbreak Investigations Branch (SEOIB), presented 2008 provisional TB data and trends. She reported that the 12,898 new TB cases (rate: 4.2/100,000) represent the lowest U.S. number and rate ever recorded. Yet despite this good news, progress has slowed, and we are seeing a plateau in the rate of decline. Persons of foreign

origin and racial/ethnic minorities still bear a disproportionate burden of TB disease, and intensified efforts are needed to address these persistently high rates.

Dr. Mitesh Desai, an Epidemic Intelligence Service (EIS) Officer in DTBE, reported on two simultaneous outbreaks of multidrug-resistant (MDR) TB in Chuuk state, Federated States of Micronesia (FSM), during 2007–2009. The investigation revealed extensive transmission among household contacts; 16/205 (8%) of the contacts had confirmed or suspected MDR TB disease, and 124 (60%) had latent TB infection. As of March 13, 2009, about half of the confirmed and suspected cases of MDR TB (10 of 21) have been in persons under 15 years of age. But because second-line drugs for MDR TB were not available in FSM, five persons died, including two children. These outbreaks have underscored how a lack of basic TB control activities can allow the emergence and spread of drug-resistant TB. Please see the two articles in the *MMWR* for March 20, 2009.

Mr. John Seggerson provided an update on the development of the new TB elimination plan from Stop TB USA. For context, he outlined previous U.S. TB control or elimination plans, the most recent being the 2000 Institute of Medicine (IOM) report, *Ending Neglect*, and gave a brief assessment of U.S. progress towards achieving the five major goals of the IOM report. With this background, John then outlined Stop TB USA's recommendations for all entities involved in TB control. These include recommendations for CDC to continue its basic control activities, while at the same time accelerating the research that will yield better tools for the diagnosis and treatment of TB and LTBI. CDC's partners in public health should ensure that they have effective and just TB control laws and regulations, and that patients have timely access to high-quality TB diagnosis, treatment, and prevention services. We will hear more about this important document in coming months.

Mr. Vic Tomlinson reported on the Third Annual TB Awareness Walk, held on Saturday, March 21, 2009, in Atlanta's Grant Park. This has become a much-anticipated event among DTBE staff, owing to hard work, planning, and a little luck in the weather department. Vic has inspired a small army of volunteers to pool their time and talents into planning, organizing, and carrying out this event each year. The organizers have thoughtfully added entertainment to the event so that family members and friends of DTBE staff have as much fun as we do!



Photo: Dr. Besser, at back, with the 2009 TB Walk organizers

Following the World TB Day observance presentations, we proceeded to the World TB Day luncheon. The staff members of the Field Services and Evaluation Branch traditionally organize this luncheon for the benefit of the division, and they once again came through with a memorable event. At the luncheon, we heard a spirited performance of three musical selections from the Atlanta affiliate of the U.S. Public Health Service Wind Ensemble, consisting of Drs. John Jereb, Tim Holtz, and Mary Reichler. This was followed by the amazing work of Mr. Joe Turner, a magician who stumped us all with his feats of illusion. We enjoyed an abundance of good food, as long as we all remembered to bring the tickets we had purchased! And as if this were not enough, there were door prizes galore. Hats off to the hard-working and well-organized members of the luncheon committee for another great

World TB Day luncheon, especially to Mr. Bruce Heath, who as the newest member of FSEB was “volunteered” to head the committee!

We hope other TB control programs enjoyed their World TB Day events and activities as much as we did!

—*Reported by Ann Lanner
Div of TB Elimination*

TB EDUCATION AND TRAINING NETWORK

TB ETN Member Highlights

In this issue we highlight Kelly Smith, MPH, and Sherry Carlson, BS, the new co-chairs for the TB ETN Conference Planning Workgroup.

Kelly received her MPH degree from Tulane University School of Public Health and Tropical Medicine, with a focus on international health and development. During her graduate studies, she participated in the Masters Internationalist program, which included a 2.5-year Peace Corps service in the Dominican Republic.



Kelly works as a program manager at the Francis J. Curry National TB Center in San Francisco, California, which is one of the four CDC-funded TB Regional Training and

Medical Consultation Centers (RTMCCs). She oversees the development, implementation, and evaluation of the Curry Center's trainings. This includes both on-site and off-site intensive trainings and web-based trainings. The most

recent training she managed was the development of a 90-minute national web-based seminar on interferon-gamma release assay (IGRA) tests for the diagnosis of TB infection. The training was held in January 2009 and had hundreds of participants; 632 completed the continuing education requirements, although “we documented over 1,000 viewers,” Kelly said. She also works closely with content experts, review committees, graphic designers, and other vendors to develop educational products such as books and recorded online presentations. She is the Curry Center's liaison for the TB Education and Training Focal Points, also known as the Human Resource Development Coordinators (HRDCs), and facilitates quarterly conference calls with them. In addition, she works as a project coordinator with an ongoing international HIV/AIDS project in the Caribbean region which is a collaborative project led by the International Training and Education Center on HIV/AIDS (I-TECH).

Kelly first learned about the TB ETN conference when she began working at the Curry Center in early 2006 and has been attending the annual conference every year as the Center's representative. Kelly relates, “Working at an RTMCC, TB training and education are a daily part of my job. I feel very strongly about the importance of training and education and see TB ETN as a wonderful resource. It's really a community of individuals committed to providing effective and relevant training and I also see it as a way to improve my own skills.” She has been a member of the Conference Planning Workgroup for the past 2 years, and this year she joined the Cultural Competency Workgroup. She hopes that TB ETN will continue to increase its membership and develop dynamic and innovative ways to enhance the TB education and training skills and expertise of its members.

In Kelly's free time she enjoys photography, hiking, scuba diving, and traveling whenever possible. She also loves music and trying different kinds of ethnic foods.

Sherry Carlson, BS, is a TB Education Promotion Consultant for the Washington State Department of Health (DOH) TB Services. Her main responsibilities include maintaining the TB website and TB services manual, developing educational materials, providing support for educating special populations, developing and delivering public health outreach presentations to stakeholders, and acting as the liaison for DOH partnerships with the Washington State TB Advisory Council (member of the education committee) and Seattle Biomedical Research Institute. Sherry was recently involved in training new TB staff throughout Washington State on the new RVCT forms and Washington's new system for reporting TB cases. In addition, she worked with Washington's DOH to develop educational materials for American Indian populations; these are available on the TBNET website, a multinational TB patient tracking and referral project that works with mobile, underserved populations:

www.migrantclinician.org/services/tbnet.html

The program hopes to continue to develop more educational materials for populations in the state that have higher rates of TB. Sherry took the lead for planning the DOH's 2008 World TB Day activities and also planned the 2009 World TB Day event. She also assisted in planning the Washington State Annual TB Meeting.

Sherry was introduced to TB ETN through her co-worker, Sheanne Davis, a fellow TB ETN member and past workgroup co-chair. Sherry hopes to become more involved in the TB education and training community and to network with peers who work in TB both domestically and internationally. She also hopes that TB ETN will



continue to provide access to education and training resources, particularly culturally appropriate resources, and continue to increase networking opportunities for its members.

Sherry's hobbies and interests include snowboarding, water sports, music, spending time with friends, and watching her boyfriend race cars. She hopes to return to school to pursue a masters degree in public health.

If you'd like to join Kelly and Sherry 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. 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, visit the [TB Education and Training Network](#) website for additional information.

—Reported by Trang Nguyen, MPH
Div of TB Elimination

TB ETN's Ask the Experts

This feature is brought to you by the TB ETN Membership Development Workgroup.

Question:

I am responsible for providing outreach and training to health professionals throughout the metro area. Due to work schedules, traffic, and distance, it is difficult to get everyone in one place at the same time. I would like to do something online but am not sure what format to use. I don't understand the terminology enough to talk to our computer consultant. Can you help?

Answer:

With new technologies available, we need to rethink how we provide tuberculosis (TB) education. The Internet is one way to get TB education "to the masses," whether the audience

is spread around the community or around the health care facility. Two available formats are discussed here: web conferences (including webinars, a type of web conference) and webcasts. This article will give you a very brief overview of so you can converse with your information technology (IT) department and explain what you would like to accomplish.

Web-based education: What does all this computer terminology mean anyway?

Web conferences are fully interactive and represent a way to conduct face-to-face meetings over the Internet. They are "live" and thus work in real time, with specific starting and ending times. Web conferences work well for in-depth, collaborative meetings and trainings. The following options are available with a web conference, depending on the system used, the size of the audience, and the allowed budget.

- Slide-show presentations (e.g., PowerPoint) can be viewed on the audience members' computers and be discussed by the presenter.
- Some web conferences allow for screen sharing, whereby slides, MS Word, or other documents can be displayed and then manipulated by the audience members.
- Webcam and digital video allow the presenter, as well as the computer screen, to be seen by the audience.
- VoIP (real-time audio through the computer with headphones and speakers) or telephone audio conference calls allow the audience to hear the presenter.
- Meetings may be digitally recorded for later viewing or distribution.
- Attendees are allowed to mark items on the slide presentation or make notes, much like a dry-erase board or whiteboard.
- Text chat can occur between two participants or can be open to everyone connected to the meeting.
- Conversation, questions and answers, polls, and surveys may be conducted between the audience and presenter.

Webinars (from web-based seminar) are a type of web conference. Webinars are often used to train a large number of people and to conduct focus groups and press conferences. Often a webinar consists of one-way communication from presenter to audience, frequently in the form of a slide show. But it can also be designed with some interaction between presenter and audience. In addition to logging on with a computer, attendees may call in on their telephones in the same way as they would for a conference call. Over the telephone, the presenter discusses the information transmitted to everyone's computer screen and participants can ask questions. All that is needed for a webinar is a computer, Internet access, and a telephone line for listening to the teleconference portion. A benefit of webinars is that a large audience can be reached at a reasonable cost.

Webcasts are broadcast over the Internet in much the same way as television programs are broadcast. A live or prerecorded program of audio and/or video is sent from a central location to multiple viewers. A webcast uses "streaming media," a technology that compresses and transfers video and/or audio data through the Internet in such a way that the file can start to play while it is downloading. One example of a webcast would be a broadcast or simulcast of a radio or TV program over the Internet. A webcast is *usually* a professionally produced program that, if done "live," allows for a variety of interactive features like Q&A and polls. However, the interaction between presenter and audience members is more controlled than with a web conference. Video webcasts can only reach viewers with faster Internet connection speeds while audio-only can go to computers with slower connections.

Webcasts may be used for very large events, since the content is digitized and sent to computer servers that then distribute the content to the audience. The cost of a professionally produced program and the powerful servers

required can make the base cost of a webcast quite high. However, per-attendee distribution is cheap—just the cost of bandwidth—so very large events are less expensive done as webcasts than as web conferences.

How to choose a Web-based educational program

When beginning the search for a web-based educational format, it is important to talk to the IT department at your facility and screen a number of vendors. Visit their websites, review live demos, view their other projects, and talk to those clients and ask lots of questions. But first, be sure to set your objectives, note the features that you require, and figure out your budget. When planning your Internet-based program and deciding on what format to use, think about the following:

1. *How large is your audience? Where will they be? How much control do they have over their computers? Will they be in their own office or home on individual PCs, or gathering together in a room? Are they dispersed around the hospital, the city, or the world? A webcast sent to large numbers of people can be viewed from many disparate locations much more easily and cheaply than a web conference, and participants can still have a dialogue with the presenter. More elaborate web conferencing is best suited for small in-depth collaborative sessions with 5 to 10 people. Many of the tools for web conferencing require that specific software be downloaded to the computer. In many large organizations, health care facilities in particular, IT programs prohibit the downloading of software for security reasons. Most webcasting suppliers use software already available on a typical computer.*
2. *What level of production quality do you expect? Using audio alone or combined with video will change the quality of your presentation. Web conferencing is great for collaborating and sharing information.*

Webcasts typically use professional, TV-quality broadcasting. It is nicer looking but much more expensive. Web conferencing often uses webcams, so quality depends a lot on the experience of the person operating the camera, but they are less expensive. The streaming video used in a webcast is created by computers specifically designed for this purpose so there is less likelihood of their "crashing." In contrast, the typical PC may have other programs running at the same time which could cause computer malfunction.

3. *What is your budget? Web conferencing typically has a cost-per-minute, per participant charge; the more participants, the greater the cost. It is easier to figure out a budget for a webcast, since they are typically charged at a flat rate for a maximum number of attendees logging on at the same time. Many companies offer both webcasting and web conferencing. They should be able to give you cost comparisons so you can decide which format is the best for your needs.*

Computer technology is changing rapidly; for more information, please visit the following websites, which were used as references for this article: <http://webconferencing.blogspot.com/>; http://en.wikipedia.org/wiki/Web_conferencing#References; and http://www.streamlogics.com/news/webcast_vs_conf.htm (all accessed December 2008).

Do you have a question about TB education, training, and communication issues? In each edition of *TB Notes*, a TB education and training expert will answer questions about these issues and topics submitted by *TB Notes* readers. Just submit your question to tbetn@cdc.gov. Please keep your questions as brief as possible. Please note, we reserve the right to edit questions.

CLINICAL AND HEALTH SYSTEMS RESEARCH BRANCH UPDATES

Release of Guides Promoting Cultural Sensitivity

DTBE's Clinical and Health Systems Research Branch is pleased to announce the publication of the complete set of ethnographic guides, entitled *Promoting Cultural Sensitivity: A Practical Guide for Tuberculosis Programs That Provide Services to Persons (from China, Laos, Mexico, Somalia, Vietnam)*. You may have already seen the Hmong and Somali modules that were published in the fall last year, but the release of the Mexican, Chinese, and Vietnamese modules earlier this year completes the set of five ethnographic guides.

Each module in the series focuses on a distinct cultural group and contains a two-page summary of program tips, as well as chapters on the selected population's history and immigration to the United States; culture; and health issues relevant to TB care. The final chapter summarizes the common perceptions, attitudes, and beliefs about TB that emerged from DTBE's 2003 ethnographic study of foreign-born persons in the United States. Appendices containing tips on eliciting patients' perceptions of TB, working with interpreters, cultural competence resources, TB screening policies, and references are included in the guides. The series aims to help TB program staff gain a deeper understanding of pertinent issues that will lead to heightened cultural sensitivity, better communication skills and, ultimately, enhanced effectiveness of care and services in cross-cultural settings.

The modules have been distributed widely to TB controllers and programs throughout the United States. The guides in pdf format are available on DTBE's website:

www.cdc.gov/tb/EthnographicGuides. A CD-

ROM containing all five guides is also available in limited quantities.

A sixth guide, which will focus on Karen persons from Myanmar (formerly known as Burma), is currently being developed. Data collection is in progress. The guide is expected to be released toward the end of the year. Stay tuned!

—Reported by Robin Shrestha-Kuwahara, MPH
Div of TB Elimination

Tuberculosis Trials Consortium (TBTC) Updates

The TBTC continues its quest for the elusive goal of short-course therapy for TB treatment. CDC, currently represented by the TBTC, has been the federal agency assigned to conduct USPHS TB clinical trials since 1961. The consortium has now embarked on TBTC Study 29, the third in a series of Phase 2 randomized clinical trials, each trying to determine whether a new regimen appears potent and safe enough, during the first 2 months of treatment, to support a Phase 3 treatment-shortening trial. Secondary analyses help to evaluate important safety features and variations in response to treatment by region and clinical details.

The first patient for TBTC Study 29, "*Evaluation of a rifapentine-containing regimen for intensive phase treatment of pulmonary tuberculosis*," enrolled on December 8, 2008, in Harlingen, Texas. The goal of this Phase 2 clinical trial is to evaluate the antimicrobial activity and safety of an experimental intensive-phase (first 8 weeks of treatment) TB treatment regimen in which rifapentine is substituted for rifampin. Sputum smear-positive pulmonary TB suspects are enrolling at 23 sites in the U.S., Canada, Uganda, Brazil, Spain, and South Africa. As of April 28, 2009, 127 patients (26%) were enrolled, making full enrollment by the end of 2009 a good possibility. A strongly positive result from this study would support evaluating a rifapentine-based, 3- or 4-month regimen in a Phase 3 trial.

TBTC Study 28, "*Evaluation of a moxifloxacin-based, isoniazid-sparing regimen for tuberculosis treatment*," has been published in the *American Journal of Respiratory and Critical Care Medicine*, with Susan Dorman from Johns Hopkins University as first author. This study showed moxifloxacin to be safe and effective during intensive-phase TB treatment, although it did not show moxifloxacin to have a statistically significant advantage in improving culture negativity at the end of 2 months.

At the 2008 Union meeting in Paris, TBTC researchers presented analyses on combined data from Study 28 and the very similar TBTC Study 27, which substituted moxifloxacin for isoniazid and also found no statistically significant advantage for moxifloxacin at the end of 2 months:

1. *Lower 2-month sputum culture conversion is associated with extensive cavitation and region of enrollment* (Goldberg SV, Whitworth WC, Muzanye G, Padayatchi N, Villarino ME, Goodman P, Johnson JL, Dorman SE, Chaisson RE, Burman W, and the TB Trials Consortium)

2. *Does the presence of isoniazid during intensive phase of TB treatment affect the risk of hepatotoxicity?* (Burman W, Bliven EE, Goldberg S, Borisov A, Johnson JL, Saukkonen J, Dorman SE, Chaisson RE, and the TB Trials Consortium).

There were two new findings from these secondary analyses. First, lower sputum conversion in liquid cultures is associated with extensive cavitation and region of enrollment. In addition, the presence of isoniazid was not associated with a lower risk of hepatotoxicity among patients on rifampin- and pyrazinamide-containing intensive-phase regimens.

—Reported by Stefan Goldberg, MD
Div of TB Elimination

COMMUNICATIONS, EDUCATION, AND BEHAVIORAL STUDIES BRANCH UPDATE

Revised Self-Study Modules on Tuberculosis

Background. The *Self-Study Modules on Tuberculosis*, modules 1–5, were originally published by CDC/DTBE in 1995. These important TB education materials were developed in response to the 1985–1992 U.S. resurgence of TB. Large cities were hit hardest by the resurgence, so much so that the New York City Bureau of TB Control was compelled to hire new public health workers to help address this public health emergency. These new workers needed basic training about tuberculosis and TB control, and the Bureau turned to DTBE for help in 1992. Wanda Walton of DTBE facilitated the development of concise, easy-to-understand, scientifically accurate materials for these new staff. The materials were well received, leading Dr. Walton and colleagues in DTBE to revise and more fully develop these materials into training modules that could be used in any U.S. setting by any health worker new to TB control. Thus in 1995 the *Self-Study Modules on Tuberculosis* series was created for national distribution.

These booklets have served as an important resource in training scores of new TB control workers. Over the years, however, the body of knowledge and the literature about TB epidemiology, diagnosis, treatment, and other aspects of TB control has evolved. To ensure that new TB control workers have access to the best and most up-to-date information about TB control, the *Self-Study Modules* were revised and updated; they were published in fall 2008.

What's New:

The *Introduction* has been expanded to include a description of all nine modules in the *Self-Study Modules* series; the 1995 version only described

modules 1–5, the basic or “core” training modules. The new *Introduction* includes information on how to obtain the materials, online as well as in print; how to obtain continuing education credit for working through the modules; and where to find additional TB education and training materials.

Module 1, *Transmission and Pathogenesis of Tuberculosis*, has been expanded to include information on the various forms of drug-resistant TB; interferon gamma release assays, or IGRAs; latent TB infection, or LTBI; and additional species of mycobacteria. The history of TB has been updated with recent events.

Module 2, *Epidemiology of Tuberculosis*, has been updated to reflect current TB data, and the fact that TB trends have reversed since the first printing of the *Self-Study Modules*. In 1992, reported U.S. cases reached an all-time high of 26,673; in 2006, they had decreased to 13,779. Yet several concerns remain, including disproportionate rates in certain racial and ethnic minorities; an increasing proportion of TB cases in foreign-born persons; the continued incidence of MDR and XDR TB; and, despite overall decreases in TB, increases in some areas. HIV infection remains the strongest known risk factor for developing TB disease among people with latent TB infection.

Module 3, *Targeted Testing and the Diagnosis of Latent Tuberculosis Infection and Tuberculosis Disease*, changes its focus from the general diagnosis of TB infection and disease to targeted testing, to find those persons who are at high risk of developing TB disease and who would benefit from treatment. The discussion of diagnosing latent TB infection covers not only tuberculin skin tests (TSTs), but also IGRAs, describing how they are both performed and listing their advantages and disadvantages. The material on diagnosis of TB disease includes information on nucleic acid amplification (NAA) tests as part of the bacteriologic examination.

The 4th module, *Treatment of Latent TB Infection and TB Disease*, has been completely updated to reflect current recommendations for treatment of LTBI and TB disease. It includes recommendations for treating persons with HIV and other special treatment considerations.

Module 5, *Infectiousness and Infection Control*, also reflects the significant scientific advances that have occurred in the field of infection control, and summarizes CDC’s current official guidelines on the subject.

If you have questions about the updated *Self-Study Modules on Tuberculosis*, 1–5, please contact Amera Khan at ARKhan@cdc.gov. To view or order them, please access the webpage www.cdc.gov/tb/pubs/ssmodules/default.htm

—Reported by Amera Khan, MPH,
and Ann Lanner
Div of TB Elimination

MYCOBACTERIOLOGY LABORATORY BRANCH UPDATE

National Conference Sheds Light on Laboratory Issues

Rapid and reliable laboratory results are essential for the appropriate treatment of TB patients and the prevention of TB transmission. To shed light on important issues for the laboratory, the Association of Public Health Laboratories (APHL) and the Centers for Disease Control and Prevention (CDC) convened the 5th National Conference on Laboratory Aspects of TB in San Diego, CA, August 11–13, 2008. More than 200 laboratorians, TB controllers, and physicians attended the 3-day conference.

The primary purpose of the conference was to provide a forum for discussion of a variety of topics including TB drug susceptibility testing practices and standards in the United States, the use of molecular diagnostics, and the importance

of coordination between the laboratory and the TB control program. The first session included a keynote address by Kenneth Castro, MD, Director of the Division of Tuberculosis Elimination at CDC, describing the current status of drug-resistant TB globally. In addition, an overview of recommendations were presented from an APHL/ CDC expert panel to address issues regarding drug susceptibility testing of *M. tuberculosis* clinical isolates. Speakers provided information on validation of new molecular tests in the laboratory, efficient testing algorithms for nucleic acid amplification tests, and quality assurance and proficiency testing considerations. The conference gave participants an opportunity to share perspectives and experiences among clinicians, TB controllers, and laboratorians during interactive discussions. Additionally, attendees had the opportunity to network with other TB laboratorians, view posters displaying exciting advances in laboratory methods, and visit with vendors exhibiting the latest available technology in tuberculosis diagnostics.

Over the course of the 3 days, several key themes emerged:

1. Communication between TB controllers, clinicians, and the laboratory is imperative to the successful diagnosis and treatment of TB patients. Primary care physicians, who may not be familiar with TB, especially need to be educated about the definition of a high risk patient and available treatment options.
2. There is an undeniable need for more advanced and less expensive TB tests in the United States. New technologies provide faster and often more accurate results than traditional methods, greatly increasing the speed of diagnosis and treatment, thereby reducing the transmission of TB. However, in many cases, these technologies are not available commercially in the United States; and when they are, high cost often prohibits smaller laboratories from adopting them.

3. The core functions of public health laboratories in the area of TB should be formally defined. This will aid in the ability to identify gaps in lab capacity and provide data needed to support advocacy efforts.

Conference presentations are currently available on the APHL website at the following address: <http://www.aphl.org/profdev/conferences/proceedings/Pages/2008TBconference.aspx>

—Submitted by Kelly Wroblewski, MPH, MT (ASCP),
Association of Public Health Laboratories, and
Angela Starks, PhD
Div of TB Elimination

SURVEILLANCE, EPIDEMIOLOGY, AND OUTBREAK INVESTIGATIONS BRANCH UPDATE

14th Semiannual Meeting of the Tuberculosis Epidemiologic Studies Consortium (TBESC)

Approximately 25% of secondary TB cases are preventable at the time of contact investigation, said Dr. Mary Reichler, speaking at the 14th semiannual meeting of the Tuberculosis Epidemiologic Studies Consortium (TBESC). (Secondary TB is TB disease that develops in a contact as a result of transmission from an index patient.) Dr. Reichler is the CDC principal investigator for TBESC Task Order 2, "Prospective evaluation of immunogenetic and immunologic markers for susceptibility to *M. tuberculosis* infection and progression from *M. tuberculosis* infection to active TB."

The study included 761 persons at nine sites in the U.S. and Canada. All were born in North America and had not received BCG vaccine, and 87 (11%) had documented conversion from tuberculin skin test (TST) negative to TST positive after exposure (defined as more than 180 hours of exposure to a culture-confirmed TB case). Dr. Reichler concluded that decreasing the

time from TST reading to chest x-ray in contacts at high risk for TB would help prevent secondary cases.

Approximately 100 persons attended the TBESC meeting February 4–5 at the Crowne Plaza Ravinia Hotel in Atlanta. The attendees, including principal investigators, project coordinators, and other TBESC and CDC DTBE personnel, met to discuss recent TB epidemiologic research and to plan next steps needed for current research. TBESC researchers work at 16 sites across North America; each site represents a partnership between a research institution and a state or local health department. The primary purpose of TBESC is to conduct epidemiologic, behavioral, economic, laboratory, and operational research in TB prevention and control.

Attendees were welcomed by Dr. Kenneth Castro, Director of DTBE. After Dr. Castro's welcome, Dr. Denise Garrett, TBESC team leader at CDC, described the progress of the TBESC Strategic Planning Workgroup in preparing for the new TBESC in 2011.

Both days included scientific sessions. On the first day, Dr. Reichler and Dr. Tim Sterling presented the data from Task Order 2. The second day featured presentations by two panel physicians, Drs. Redentor Asis and Luis Todd, and Dr. John Painter of the Division of Global Migration and Quarantine, on "Prevalence of TB and latent TB infection among visa applicants screened in Mexico, Philippines and Vietnam." Dr. Kathy Moser also joined the group by conference line to discuss "Use of QuantiFERON-TB (QFT) Gold in immigrant and refugee children upon arrival in US, 2007–2008." Of 6,984 children screened in the Philippines from October 2007 to September 2008, as many as 2,971, or 43%, had a positive TST at 10 mm. In Mexico, 5,111 of 25,106 children screened (21%) had positive TST results.

In 2007, San Diego County began using QFT blood tests to screen immigrant and refugee

children with positive TST results (Class B2). Of 187 Mexican children screened, 101 (54%) had positive QFT results, and of 91 Class B2 Filipino children with positive TST results, 35 (38%) also had positive QFT results.

Other meeting highlights included an update on the STAR process, a presentation by Julio Lopez and Arnette Mayhew from CDC's Procurement and Grants Office (PGO), as well as updates from

- the Publications and Presentations Committee,
- the External Relations Committee, and
- the Turning Research into Practice (TRiP) Workgroup

The 15th Semiannual TBESC meeting will be held July 22–23, 2009, in Boston, Massachusetts.

*—Reported by Suzanne Beavers, MD,
and Dolly Katz, PhD
Div of TB Elimination*

NEW CDC PUBLICATIONS

CDC. Investigation of a genotype cluster of tuberculosis cases — Detroit, Michigan, 2004–2007. *MMWR* Mar 12, 2009; 58 (9): 226-229.

CDC. Plan to combat extensively drug-resistant tuberculosis: recommendations of the Federal Tuberculosis Task Force. *MMWR* Feb 13, 2009; 58(3): 1-43.

CDC. Trends in tuberculosis—United States, 2008. *MMWR* Mar 20, 2009; 58(10): 249-253.

CDC. Two simultaneous outbreaks of multidrug-resistant tuberculosis—Federated States of Micronesia, 2007–2009. *MMWR* Mar 20, 2009; 58(10): 253-256.

CDC. Updated guidelines for the use of nucleic acid amplification tests in the diagnosis of tuberculosis. *MMWR* Jan 16, 2009; 58 (1): 7-10.

CDC. World TB Day – March 24, 2009. *MMWR* Mar 20, 2009; 58(10): 249.

CDC/Clinical and Health Systems Research Branch. Promoting Cultural Sensitivity-A Practical Guide for Tuberculosis Programs. CD, including Individual Guides For Persons from China, Vietnam, Mexico, Hmong (Laos), and Somalia. 2008.

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Sohn H, Sinthuwattanawibool C, Rienthong S, Varma JK. Fluorescence microscopy is less expensive than Ziehl-Neelsen microscopy in Thailand [Notes from the field]. *The International Journal of Tuberculosis and Lung Disease* 2009 Feb; 13(2): 266-268.

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PERSONNEL NOTES

Alstead Forbes, Elvin Magee, Lilia Manangan, and Cheryl Tryon, the RVCT Training Team, received the DTBE Director's Recognition Award for the first quarter of 2009 (January–March). The RVCT Training Team utilized innovative approaches to develop updated training materials which included 1) self-study modules for local field staff, 2) a train-the-trainers course, and 3) a facilitated training session curriculum. These materials include complex case-studies and pretest and posttest assessments of participant understanding, features which will enhance and improve the usability of the new RVCT—all aimed at improving local capacity to enhance accurate reporting of TB cases. Some innovations implemented by the RVCT Training Team included collaborations with key partners, such as NTCA, CSTE, and state-based medical officers and other health care professionals. As part of their work, pilot tests were planned in five phases with state and local health department TB programs. Results from the pilot tests will serve as the evidence basis for refining these training materials. The group also incorporated team-building exercises within the training materials, which contributed to the high level of energy and good humor among participants. In sum, the RVCT Training Team represents the excellence and innovation within DTBE that contributes to partnership building while simultaneously building local capacity for enhanced TB surveillance activities. This combination of excellence and teamwork made the RVCT Training Team deserving of the DTBE Director's Recognition Award. Between January 2 and March 31, 2009, this team has access to the reserved parking spot in CDC's Corporate Square campus.

Ijeoma Agulefo, MPH, has joined DTBE in the Communications, Education, and Behavioral Studies Branch (CEBSB) as a Health Education Specialist. Prior to joining CEBSB, Ijeoma worked as a Health Education Specialist on the Clinician Communication Team (CCT) in the

Emergency and Risk Communication Branch (ERCB), Division of Health Communication and Marketing, National Center for Health Marketing at CDC. She was the CCT/CDC-INFO State liaison with the primary responsibility of outreach to the states regarding assessment of communication surge capacity. She coordinated and conducted outreach to U.S. states and territories for the purposes of determining the appropriate contact person and assessing the current capacity for public and clinician communications during a local, regional, national, and global public health emergency. From October 2006 to March 2008, Ijeoma worked on the Community Health Outreach and Education Team in ERCB and was responsible for implementing behavioral interventions and tailoring messages specific to Deaf, Hard of Hearing, and Deaf-Blind communities affected by public health emergencies. She developed and maintained hands-on contact with these communities, as well as state and local public health educators, to ensure that information related to an event was tailored and accessible to community members. Ijeoma received her MPH degree in international health from Morehouse School of Medicine and her BA degree in psychology from McMaster University in Ontario, Canada. She joined CEBSB on February 17.

Tracina Cropper has been selected for the Senior Public Health Advisor (PHA) position at the Pennsylvania Department of Health in Harrisburg, Pennsylvania. Tracina began her career in public health on September 23, 1991, when she joined CDC as a public health associate with the Division of Sexually Transmitted Diseases (STD) and was assigned to the STD Disease Intervention Specialist (DIS) training center in Decatur, Georgia. In October 1992, she was assigned to the Philadelphia STD program as a PHA/DIS. Tracina's interest in TB control led her to leave CDC's STD program in February 1998 and join the City of Philadelphia TB control program as a Disease Surveillance Investigator/Team Leader. On December 17, 2001, she returned to CDC and joined DTBE as

the Preventive Therapy Coordinator for the City of Philadelphia TB control program. In February 2003, she participated in a TDY in Seattle, WA, where she assisted with a TB outbreak among the homeless, and in July/August 2003, she was temporarily detailed to the state TB program in Harrisburg, PA. On October 6, 2003, she was reassigned to the Austin/Travis County (Texas) Health Department, where she served as an assistant to the Senior PHA and as a Program Manager in the Communicable Disease Unit. In April and June 2004, Tracina participated in a large TB outbreak investigation in Fort Wayne, IN, providing technical support and guidance. In May 2005, she accepted a promotion and was assigned to the Michigan Department of Community Health (MDCH) TB control program. Her responsibilities there included providing programmatic and operational support, and assisting in the design and implementation of various TB prevention and control activities. She transferred in October 2007 to the Fulton County Department of Health and Wellness to serve as the TB Program Coordinator. In this capacity, she supervised the TB outreach staff and was responsible for TB program management activities. Tracina began her new assignment in Harrisburg, PA, on January 20, 2009.

Jeffrey Driscoll, PhD, Senior Service Fellow, has joined the Mycobacteriology Laboratory Branch (MLB) Reference Laboratory Team where he will be leader of the Molecular Diagnostics Activity. Jeff's role will be essential in implementing a new TB drug susceptibility testing system for quickly determining drug resistance patterns for TB isolates referred from state or other health agencies. His previous position was Director of the Northeast Regional TB DNA Typing Laboratory at the Wadsworth Center, a research-intensive public health laboratory of the New York State Health Department. During 1992–1994 he served as a Postdoctoral Fellow at Wadsworth, where his field of research was genetic mechanisms of drug resistance. Jeff holds both PhD and MS degrees in Molecular Genetics from Albany Medical College. An

unusual fact about Jeff is his award of permanent residency by the Australian government based on his distinguished background.

Jameelah Franklin, BS, has joined the Mycobacteriology Laboratory Branch (MLB) Reference Laboratory Team as an ORISE Fellow. Jameelah received her BS degree in Biology from Spelman College in 2008. In addition to her studies at Spelman, Jameelah was a Lab Analyst Intern for the Analytical Environmental Service and a Research Assistant for the Chemistry Department. Jameelah is currently assisting with identification of species in the TB complex and will be involved in future studies in this area of research.

Gloria Gambale has received a promotion and permanent position with DTBE's Resource Management Team. Ms. Gambale began working for the federal government in 1987 at the IRS. She transferred to CDC in July 1998 in the Division of Oral Health. In 2000, she moved to NCHSTP/DTBE in the Data Management and Statistics Branch. Her duties included timekeeping, travel, training, property inventory, and she served as the help desk for all IT problems and as the point of contact for blackberries and cell phones. In her new role, Ms. Gambale is DTBE's primary liaison to the SBU for all Title 42, Guest Researcher, Senior and Associate Service Fellows packages; Commissioned Corp awards and leave slips; and summer student requests. In addition, she is DTBE's primary liaison with the SBU for ICE requests, IAAs, ORISE, etc. and maintains her role as POC for blackberrys, laptops, etc. Ms. Gambale played a key role in "bridging the gap" for many activities while on temporary detail to the OD for almost 10 months.

Stefan Goldberg, MD, is the recipient of the DTBE Director's Recognition Award for the second quarter 2009 (April–June), based on his exceptional and exemplary performance in supervising the USPHS/CDC Study 28 for the Tuberculosis Trials Consortium (TBTC). In

addition, Dr. Goldberg developed and implemented USPHS/TBTC Study 29 and coordinated a bridging study of microbiologic outcomes at the Uganda study site. These three efforts had to occur concurrently, and demanded extraordinary effort and dedication. Study 28 was undertaken in collaboration with the Global Alliance for TB Drug Development, and is part of the clinical development and FDA registration of moxifloxacin for a TB indication. Consequently, additional and extensive documentation was required to complete the Medical Research Report required for FDA submission. Like Study 27 before it, Study 28 failed to find a statistically significant advantage to a moxifloxacin-based intensive phase regimen for TB treatment. However, two similar studies performed at single sites in South Africa and Brazil reported statistically significant results favoring the moxifloxacin-based regimen. These conflicting results gave rise to doubts about the validity of the Study 28 results, compounded by the lack of standardization of microbiologic methods across the TBTC sites. To resolve these uncertainties, Dr. Goldberg and Ms. Lorna Bozeman undertook an extensive review of all microbiology findings in Study 28. This review involved evaluation of over 4,000 individual culture reports, and confirmed the original findings. Dr. Goldberg then led analyses of culture result differences between African and non-African sites, and coordinated the establishment of a collaborative project whose goal is to assess the performance of the several different solid media used in Study 28, in comparison with liquid culture, at the Uganda study site. This study is being supported in large part as a collaboration with the Tuberculosis and Mycobacterial Diseases Section, Division of Microbiology and Infectious Diseases, NIAID, and thus represents one of TBTC's first substantive collaborations with this important group at NIH. As this microbiology study was getting underway in Kampala, Dr. Goldberg was also serving as Project Officer for TBTC Study 29, a phase 2 trial of a daily rifapentine-based regimen for treatment of active TB. If successful, Study 29 will likely lead to a phase 3 treatment-

shortening trial. Design and preparation for Study 29 was not straightforward. Dr. Goldberg has reported on the issues at several recent TBTC meetings and international conferences, has participated in innumerable conference calls, and has spent an excessive number of late nights in his CDC office in order to accomplish all related tasks and facilitate the successful implementation of these trials, which are expected to be pivotal in the development of new, shorter treatment regimens.

Veena Goud, MS, has joined SEOIB for a 3-month rotation as an intern with the DHHS emerging leader program. She will be working on the aberration detection team in developing a TB cluster detection algorithm. She earned a master of science degree in epidemiology with a concentration in infectious disease from Johns Hopkins Bloomberg School of Public Health in Baltimore, Maryland, in 2008. She worked on the Community Access to Cervical Health (CATCH) Study, a population-based cross-sectional cervical cancer screening program in rural India. She also worked on the Behavioral Surveillance Research (BESURE) Study, a community-based cross-sectional survey designed to examine HIV risk behaviors and their prevalence over time in marginalized populations. She also worked at the Centre for Public Health Research, Massey University, New Zealand. Veena loves to travel, try new food, and see new places. Her hobbies include reading, watching movies, hanging out with friends, dancing, cooking, and yoga.

Patricia Hall, MS, has joined the Mycobacteriology Laboratory Branch (MLB) Applied Research Team as a Microbiologist. She has been assigned to the Molecular Genetics Activity where she will conduct research in support of a new TB drug susceptibility testing system. Patricia gained her experience in microbiology while working in a laboratory at Georgia State University. In 2007, she earned an MS degree in Geological Sciences from Northern Arizona University and was a Lab Supervisor for the U.S. Geological Survey in Flagstaff.

Awal Khan, PhD, has been selected as the new Team Leader for the Program Evaluation Team, Field Services and Evaluation Branch. As many of you know, Awal is not new to TB. He brings a wealth of experience based on his work at the state level as well as at CDC. Prior to joining CDC, he served as acting chief and systems analyst for the TB Epidemiology and HIV/AIDS Surveillance Units of the Georgia Division of Public Health. Owing to his excellent work, we were successful in bringing him to DTBE, where he worked as an epidemiologist in the Clinical and Health System Research Branch in the Tuberculosis Trials Consortium (TBTC), 1997–2006. As a TBTC team member, he was responsible for data management, primary data analysis, and quality assurance of TBTC clinical trials studies. He worked with project officers and principle investigators, and as a statistician for project related activities. He authored or co-authored several peer-reviewed publications related to multiple TBTC studies. In August 2006, Awal began working as the Team Leader for monitoring and evaluation at the National Center for Public Health Informatics, CDC. He was responsible for providing scientific assistance and coordination in developing innovative methods for monitoring and evaluation of Public Health Information Network (PHIN) activities. He oversaw development of evaluation and assessment tools, and provided technical assistance to other teams on database development, analysis, and evaluation activities. Most recently, he worked on implementing a “Communities of Practice” (COP) model for PHIN activities and presented COP model activities at PHIN and American Evaluation Association (AEA) conferences. Awal obtained his Ph.D. degree in nutritional sciences from the University of Arizona (1991) and also holds a B.Sc. degree in mathematics (1978) and an M.A. degree in demography (1982). He completed a NIH post-doctoral fellowship (1992–1995) in Maternal and Child Nutrition at Cornell University, N.Y. Awal started his new position the first week of March.

Allison Lentz, BS, has joined the Mycobacteriology Laboratory Branch (MLB) Reference Laboratory Team as a Microbiologist. She will provide support for the Molecular Diagnostics Activity. Allison comes to MLB from Cargill Meat Solutions, where she gained valuable laboratory experience in the Research & Development Unit. She received her BS degree in Microbiology from Missouri Southern State University in 2006.

Seidu Malik, PhD, has joined the Mycobacteriology Laboratory Branch (MLB) Applied Research Team as an ASM Postdoctoral Fellow. Seidu received a PhD degree in Pharmacy in 2007 from the University of Australia, where he continued as a Postdoctoral Fellow. He also holds an MS degree in Biology from Leiden University in The Netherlands and a BS degree in Agriculture from the University of Ghana. Seidu is conducting research on the mechanisms of fluoroquinolone resistance in TB with the Molecular Genetics Activity.

Patrick Moonan, DrPH, has joined the International Research and Programs Branch as part of the Program Strengthening/Epidemiology (PSE) Team. Patrick has more than 10 years of experience in tuberculosis research and public health practice at the local, state, and federal level. In 2005, he joined DTBE as an epidemiologist with the Outbreak Investigations Team and was charged with developing and expanding the implementation of TB genotyping in the United States. Under his leadership CDC developed a new team focusing on molecular epidemiology, its application in TB control efforts, and was the main architect for the forthcoming TB Genotyping Information Management System (TB-GIMS). His vision has led to the development of statistical models for detecting potential outbreaks using the National TB Genotyping Service (NTGS) database. Patrick has a wide breadth of epidemiologic experience, including several publications on the molecular epidemiology of *M. tuberculosis*, *M. bovis*, substance abuse and TB, pediatric TB, program

effectiveness, and interferon-gamma release assays. Patrick has a doctorate, as well as a Master of Public Health degree with a concentration in epidemiology, from the University of North Texas Health Sciences Center. He received a post-graduate diploma from the Institut Pasteur in molecular epidemiology and holds a BA degree in sociology from the State University of New York at Buffalo. Patrick is the proud parent of two children, Collin (age 6) and Mia (age 3). He is active with the Bridgeway Soccer Academy both as a coach of the U8 'Texas Longhorns' and as player in the adult league.

Subhadra Nandakumar, PhD, who prefers to go by the name "Subhi," has joined the Mycobacteriology Laboratory Branch (MLB) Applied Research Team as an ORISE Fellow. Subhi received her PhD degree in Medical Microbiology from the University of Madras in India. She has been teamed with Suraj ("Surge") Sable in the Immunology Activity and together, they are partnering with the Emory Vaccine Center to develop a new generation mucosal subunit vaccine against TB. Their project is being funded through a Georgia Research Alliance (GRA) Collaboration Planning Grant. GRA Collaboration Planning Grants are meritorious awards given to CDC scientists and their academic collaborators.

Delaina Paasch has joined the Mycobacteriology Laboratory Branch (MLB) Applied Research Team as an ORISE Fellow. She will be a part of the Genotyping Activity and assists in mycobacterial interspersed repetitive unit (MIRU) typing and epidemiological analysis of TB isolates. Delaina interned at the Pasteur Institute Tuberculosis research Laboratory where she acquired her genotyping skills. She received her BS degree in Biology from the University of Wisconsin in 2008.

Germania A. Pinheiro, MD, PhD, has joined the International Research and Programs Branch as part of the Program Strengthening/Epidemiology

(PSE) Team. She obtained her medical, Master of Sciences, and PhD degrees in Brazil, where she trained in Pulmonary and Occupational/Environmental Medicine. She was an Associate Professor at Rio de Janeiro State University for 7 years, where she coordinated a Reference Center for Occupational Lung Disease. During her training, she was involved in clinical care of innumerable cases of pulmonary and extra-pulmonary tuberculosis, including multidrug-resistant TB. She also worked as a physician in a correctional facility hospital for the treatment of tuberculosis at the Rio de Janeiro State Justice Department. In addition, she worked at a tuberculosis outpatient clinic at the Municipal level. Her participation in the American Thoracic Society Methods in Epidemiologic, Clinical and Operations Research (MECOR) course stimulated and shaped her interest in epidemiology. Subsequently, she was a CDC Epidemic Intelligence Service (EIS) Officer, CDC Senior Service Fellow, and a Senior Manager at GSK Biologicals working with pneumococcal vaccines, in Belgium. She currently holds an appointment as Adjunct Assistant Professor in the Department of Community Medicine, West Virginia University. She has recently moved back to Atlanta with her husband and her family.

Melisa Ramirez, PhD, has joined the Mycobacteriology Laboratory Branch (MLB) Applied Research Team as an Emerging Infectious Disease Postdoctoral Research Fellow. She is determining the role of the twin arginine translocation pathway in TB pathogenesis and will also examine the mechanisms of antibiotic resistance in TB. Melisa attended Virginia Tech where she received a PhD in Biological Sciences in 2008 and a BS degree in Microbiology & Immunology in 2003. She has a very strong background in the characterization of genes and therefore will be a great addition to the Molecular Genetics Activity.

Angela Starks, PhD, has joined the staff of the Mycobacteriology Laboratory Branch (MLB) as a Microbiologist on the Reference Laboratory

Team. She is leader for the Laboratory Capacity Building Activity and serves as TB Laboratory Consultant for 64 public health laboratories that receive TB cooperative agreement funding. Angela performs site visits and analyzes laboratory workload data to identify areas of intervention needed to improve clinical training and turn-around times. After receiving her PhD in Biomedical Sciences from the University of Florida in 2003, Angela served as a Postdoctoral Fellow in the Microbiology & Immunology Department at Emory University. In 2005, she came to MLB as a guest researcher and later became a Senior Research Fellow. In addition to her present duties, Angela continues to direct research projects aimed at clarifying molecular mechanisms of drug resistance in TB.

Grace Thiongo, a WESTAT contractor, has joined SEOIB's Epidemiology Team as a Data Coordinator for TBESC. Grace was born and raised in Nairobi, Kenya. In 2001, she moved to Kennesaw, GA, with her parents and four siblings. From 2003 to 2007 Grace attended North Georgia College and State University, in Dahlonega, attaining a Bachelor of Science degree in biology. In September 2007, Grace enrolled at Boston University School of Public Health to pursue a Masters in Public Health degree with a concentration in Epidemiology. Prior to joining SEOIB/DTBE, she also worked as a research assistant for Children's Sentinel Nutrition Assessment Program at Boston Medical Center. Grace enjoys reading novels, especially those by the distinguished African novelist Ngugi Wa Thiongo, socializing with friends, and watching movies.

Lisa Thombly, JD, MPH, has joined DTBE's Office of the Director as the new public health analyst for policy and issues management. Lisa joined the Centers for Disease Control and Prevention's Public Health Law Program as a Public Health Law Analyst (ORISE) in September, 2006, focusing on legal issues related to tuberculosis and other communicable

diseases, mutual aid, tribal public health, lead poisoning, and injury prevention. Lisa earned her law degree in May, 2006, from Loyola University New Orleans College of Law. While in law school, she led community service initiatives for the Environmental Law Society and the Delta Theta Phi legal fraternity, and served as a student attorney in the Loyola Law Clinic. She also clerked for two medical-legal partnerships, with an emphasis on legal issues affecting clients with communicable diseases. In May, 2008, Lisa received a Master of Public Health degree in Health Policy from the Rollins School of Public Health, Emory University. While pursuing her MPH, she earned the Dean's Award in Food and Drug Law at Emory University School of Law. She is licensed to practice law in the State of Georgia and serves as Vice Chair for the American Bar Association's Public Health and Policy Interest Group. Lisa will be working on a variety of TB-related policy issues and transition into the role as DTBE's lead for the model TB law project. Please join us in welcoming Lisa as a new CDC employee and member of DTBE!

Jim Tobias, BS, will be working with SEOIB using geographic information systems (GIS) to conduct mapping projects for the TB Genotyping Information Management System (TB GIMS). Jim earned a bachelor of science degree in marine science from the University of South Carolina, and will complete his master's degree in GIS at the University of Southampton in 2009. Jim earned his GISP certification through the GIS Certification Institute. He began working with GIS as a research fishery biologist for NOAA (1992-2000), and has provided mapping and spatial analysis support to a wide variety of marine biology studies. He transitioned to public health in 2000 and worked as a geographer for the Georgia Division of Public Health (2000-2004). He worked for SAIC in the National Immunization Program (2005-2006) and then transitioned to BearingPoint and NCPHI where he worked with Carl Kinkade to pilot test a shared geospatial services framework for Enterprise geospatial data, tools, models and

web services. Jim is now working for Northrop Grumman and will provide GIS support for DTBE.

Dawn Tuckey, MPH, has been selected as the new Project Officer for the Regional Training and Medical Consultation Centers. Dawn brings a wealth of public health and TB experience by virtue of her training and field assignments during her career. Additionally, she also brings a nice balance of programmatic as well as training and education experience. Dawn started her career with CDC in September 1985 as a Public Health Associate with the Sexually Transmitted Disease (STD) program in Fayetteville, North Carolina, followed by assignments to STD positions in Washington, DC, and Philadelphia, Pennsylvania. In July 1990, she accepted a transfer to New York City to join DTBE with the New York City Bureau of TB Control, where she worked as a clinical manager for three of the City's TB clinics. In April 1993, she transferred to Madison, Wisconsin, as the TB Program Director. Dawn left DTBE in February 1997 to take a position as the Program Director for the Division of Diabetes in Washington, DC, where she established the diabetes program for the District. In December 2000, Dawn returned to DTBE with a position in Philadelphia as the TB program manager. There she developed the court and detention process for noncompliant patients. In January 2001, she transferred to Atlanta, Georgia, as the program consultant for the Mid-West region, providing technical assistance and consultation to the nine cooperative agreement recipients in this region. Since arriving in Atlanta, she has worked on numerous TB outbreaks, was a team lead in Operation Katrina, and has assisted several TB programs in developing their infrastructure. Dawn received her MPH degree in Health Systems Management from Tulane University and also holds a BS degree in health education. Dawn started in her new position during the first week of February.

Melisa Willby, PhD, has joined the Mycobacteriology Laboratory Branch (MLB) Applied Research Team as a Microbiologist. She

will design and implement TB research projects in support of the Molecular Genetics Activity. Melisa will be involved with determining the mechanisms of drug resistance in TB, vaccine development, and TB pathogenesis. Prior to coming on board with MLB, Melisa was developing diagnostics for detection of respiratory pathogens and providing support for domestic and international respiratory pathogen surveillance for the Gastroenteritis & Respiratory Virus Lab Branch. Before coming to CDC, Melisa was a Postdoctoral Fellow at Emory University in the Department of Microbiology & Immunology. She received her PhD from the University of Georgia in 2002.

Holly Wilson, MHSE, CHES, has left DTBE and the Communications, Education, and Behavioral Studies Branch (CEBSB) for a position as a Health Communications Specialist in the National Center for Environmental Health, Division of Environmental Hazards & Health Effects. Holly joined CEBSB in 2006 as a Health Education Specialist, and for the last 3 years has been responsible for several important projects on the Communications Team. To mention a few of these, she headed up the planning and organizing of the TB Education and Training Network conference each year. These conferences reflected Holly's tremendous organizational skills as well as her creativity and always garnered positive reviews from attendees. She was also responsible for handling the public inquiries coming to DTBE through CDC INFO, the CDC-wide automated response system that replaced the Duty Officer system. In addition, she worked closely with the DTBE Web team to ensure the rapid and accurate posting of information on DTBE's Intranet. Holly came to DTBE from the Division of Viral Hepatitis (DVH) where she was also a Health Education Specialist. She received a BS degree in Health Science Education and a Master of Health Science Education degree from the University of Florida. Her last day with us was March 27. We miss her and wish her well in her new position!

Mary Analise Zaunbrecher has become a full-time FTE in the Mycobacteriology Laboratory Branch (MLB) Applied Research Team through the CCID Strategic Laboratory Recruitment Initiative. As a member of the Molecular Genetics Activity, she will continue her research investigating a novel mechanism of kanamycin resistance in TB. Analise is currently an Emory University PhD candidate in Microbiology & Molecular Genetics. Previously, she has conducted research at the Lafayette Biology Department in Lafayette, Louisiana, the San Diego State University Biology Department, and the Trudeau Institute in Saranac Lake, New York.

CALENDAR OF EVENTS

May 15–20, 2009

ATS 2009 International Conference
San Diego, CA
American Thoracic Society (ATS)
www.thoracic.org/

May 27–30, 2009

5th Union Europe Region Conference
Dubrovnik, Croatia
International Union Against TB and Lung Disease
www.iautld.org/upload/conference/1st_Announcement_12_abst_en.pdf

June 7–11, 2009

2009 CSTE Annual Conference
Buffalo, New York
Council of State and Territorial Epidemiologists
www.cste.org/dnn/AnnualConference/CSTEAnnualConferenceHomepage/tabid/122/Default.aspx

June 15–18, 2009

2009 National TB Conference
"TB Elimination - It Takes a Village"
Atlanta, GA
Crowne Plaza Ravinia Hotel
For information, please contact Sherry Brown at smh6@cdc.gov or 404 639-8989, or Carol Pozsik at cpozsik@tbcontrollers.org or 678 503-0503

July 14–15, 2009

ACET Meeting
Atlanta, GA
Division of TB Elimination (DTBE)

July 22–23, 2009

15th Semi-Annual TBESC Meeting
Boston, MA
Division of TB Elimination (DTBE)

July 28–30, 2009

TB Education and Training Network Conference
Atlanta, GA
Division of TB Elimination (DTBE)

August 18, 2009

Federal TB Task Force Meeting
Washington, DC
Division of TB Elimination (DTBE)

August 23–26, 2009

2009 National HIV Prevention Conference
Atlanta, GA
Convened by CDC
www.2009nhpc.org/

August 30–Sept. 3, 2009

Public Health Information Network (PHIN) Conference
Atlanta, GA
CDC & the National Association of County and City Health Officials (NACCHO)
www.cdc.gov/phinconference/2009/about_conference/index.htm