



Centers for Disease Control  
and Prevention (CDC)  
Atlanta GA 30333

TB Notes  
No. 3, 2012

Dear Colleague:

Summer has been busy as usual for the Division of Tuberculosis Elimination (DTBE). The Advisory Council for the Elimination of Tuberculosis (ACET) met on June 6 here in Atlanta. It was a short meeting, one day rather than the usual day and a half, and was conducted by webinar for field staff as well as in person for Atlanta staff. Dr. Andrew Hill of DTBE's Data Management and Statistics Branch gave an update on modeling TB trends in the United States, as summarized in a report published in January 2012 in the journal *Epidemiology and Infection*. The report concludes that given current TB control efforts are maintained, TB elimination in the U.S.-born population is possible before the end of this century. However, TB elimination in the foreign-born population is not likely in this same time frame, even if we increase rates of targeted testing and treatment of TB infection in U.S. residents and immigrants.

Dr. Tom Navin, Chief, Surveillance, Epidemiology, and Outbreak Investigations Branch (SEOIB), gave a talk about the importance of TB in special populations. Dr. Navin's branch used the software SaTScan™ to analyze a cohort of TB cases. SaTScan™ is a free software that analyzes spatial, temporal, and space-time data. In this case, zip codes of TB patients comprised the input data. Using this methodology, SEOIB was able to detect high-risk clusters, i.e., those likely to become outbreaks. This could provide a way to prioritize clusters for early intervention.

I provided a talk on future directions and challenges for TB elimination in the United States. For new ACET members, I restated DTBE's priorities: 1) prevent new cases of TB and LTBI by finding and curing all persons with TB, 2) reduce TB in foreign-born persons in the U.S., 3) reduce TB in racial and ethnic minorities in the U.S., 4) reduce the impact of MDR and XDR TB in the U.S. and the world, and 5) reduce HIV-associated TB in the U.S. and the world. To address the challenge of managing and dealing with the huge reduction in purchasing power from 1994 to 2012, DTBE has been revising the formula for distribution of TB prevention and control funding, in effect since 2005. We are moving towards the goal of distributing funds on the basis of each TB program's epidemiologic needs and performance.

Mr. Shannon Jones III, current chair of ACET, led a discussion of the need to develop a 3–5 year strategic plan for ACET. He asked ACET members to assess where ACET stands and to determine how the committee can best support DTBE. This topic will be revisited again after input is received from ACET members.

On June 6–7, 2012, the TB Epidemiologic Studies Consortium-II (TBESC) held its second semiannual meeting here in Atlanta. Please read the summary of that meeting provided by Dr.

Suzanne Beavers. Dr. Beavers has since left DTBE for another position in CDC's National Center for Environmental Health. We wish her good luck in her new position.

During June 11–14, DTBE and our TB control colleagues gathered in Atlanta for the 2012 National TB Workshop. In this issue we have the winners of the National TB Controllers Association (NTCA) poster competition, as well as winners of the second annual special awards for Exemplary Performance and Service in TB Prevention and Control. In addition, we share in this issue several of the presentations from the meeting.

On June 27, I was very pleased to announce that several DTBE staff and their colleagues in the TB Trials Consortium had received the prestigious Charles C. Shepard Science Award in the Prevention and Control category. The CDC Shepard Science Awards were established in 1986 in honor of Charles C. Shepard, MD. Dr. Shepard was the chief of the CDC Leprosy and Rickettsia Branch for over 30 years until his death in 1985. The prestigious awards began as a way to recognize the best manuscript on original research, and have now expanded to include four categories, as well as the Charles C. Shepard Lifetime Achievement Award. The four categories include Assessment, Prevention and Control, Laboratory Science, and Data Methods and Study Design. This year the competition included 69 nominated articles, with 630 authors in all, and four nominees for the Lifetime Achievement Award.

The winning Prevention and Control paper was “Three months of rifapentine and isoniazid for latent tuberculosis infection,” published in December 2011 in the *New England Journal of Medicine* (NEJM 2011; 365 [23]: 2155–2166). The authors were Timothy R. Sterling, M. Elsa Villarino, Andrey S. Borisov, Nong Shang, Fred Gordin, Erin Bliven-Sizemore, Judith Hackman, Carol Dukes Hamilton, Dick Menzies, Amy Kerrigan, Stephen E. Weis, Marc Weiner, Diane Wing, Marcus B. Conde, Lorna Bozeman, C. Robert Horsburgh, and Richard E. Chaisson for the TB Trials Consortium PREVENT TB Study Team. Andrey and Lorna were on hand to accept the award on behalf of their coauthors. Congratulations again to the TB Trials Consortium for this honor!

The Division had another strong contender nominated for the Shepard Award, the paper “6-month versus 36-month isoniazid preventive treatment for tuberculosis in adults with HIV infection in Botswana: a randomised, double-blind, placebo-controlled trial,” published in *The Lancet* in 2011 (Lancet 2011; 377: 1588-98). The authors were Taraz Samandari, Tefera B. Agizew, Samba Nyirenda, Zegabriel Tedla, Thabisa Sibanda, Nong Shang, Barudi Mosimaneotsile, Oaitse I. Motsamai, Lorna Bozeman, Margaret K. Davis, Elizabeth A. Talbot, Themba L. Moeti, Howard J. Moffat, Peter H. Kilmarx, Kenneth G. Castro, and Charles D. Wells, and received a certificate of recognition for demonstrating excellence in science.

Greg Andrews, Team Lead of the Field Operations Team II, FSEB, retired on June 29, 2012, after more than 38 years of exemplary service to CDC. He will be greatly missed by all of us in TB control! Please read about his myriad accomplishments in the Personnel Notes section.

From July 22 to 27, 2012, CDC staff from DTBE and other programs attended or participated in the XIX International AIDS Conference, held in Washington, DC. This was the first time in 22 years that the International AIDS Conference has been held in the United States; it was last held in the U.S. in 1990 in San Francisco. Subsequently, U.S. restrictions on the entry of people living with HIV prohibited the conference's return for two decades. Following years of

advocacy and under a process initiated by President George W. Bush and completed by President Barack Obama, the U.S. restrictions were lifted in 2010, paving the way for the conference's return. In light of the serious consequences of TB/HIV comorbidity, TB control programs should be constantly looking for ways to collaborate with colleagues in HIV/AIDS programs, such as implementing routine opt-out HIV testing of all TB patients. Collaboration is essential as we in TB deal with increasingly shrinking budgets and increasingly hard-to-reach patient populations.

I'm pleased to report that Dr. Tom Shinnick was unanimously elected to the position of Chair, Global Laboratory Initiative (GLI) Core Group, for the period 2012–2014. Tom took on this role effective August 1, 2012. The Global Laboratory Initiative (GLI), one of seven main working groups of the Stop TB Partnership (STP), is a network of international technical experts dedicated to accelerating and expanding access to laboratory services in response to HIV-associated and drug-resistant TB. It serves as an independent advisory group to the World Health Organization (WHO), the STP, development agencies, and countries. Congratulations to Tom for his appointment to this position!

I hope you survived the heat of the season, perhaps staying indoors to watch some of the Olympic events. In my humble opinion, all of you working in TB control are deserving of your own medals! Thanks for the important work you do.

Kenneth G. Castro, MD  
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Flag Officer  
CDC/ATSDR Commissioned Corps  
Director, Division of Tuberculosis Elimination  
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**HIGHLIGHTS FROM STATE AND LOCAL PROGRAMS**

**Reports from the 2012 National TB Workshop**

The following articles are based on talks or abstracts that were presented at the 2012 National TB Workshop in Atlanta and that the authors agreed to share in TB Notes.

**3HP Implementation – Mississippi**

With the release of the study results for 3-month, once-weekly isoniazid and rifapentine (3HP) for treatment of latent TB infection (LTBI), the Mississippi State Department of Health TB program (MSDH) had to look at workloads and budgets to determine if the switch to shorter LTBI therapy could be done. Reviewed here are those initial considerations and questions raised about the benefit and cost of the new regimen, as well as early results of the implementation in Mississippi.

**Initial Cost Justification**

Cost of rifapentine was the first obstacle to implementation. The estimated drug cost of the new regimen was approximately \$156–\$165, compared to \$19–\$25 for 9 months of isoniazid (9INH), self-administered (SA). Funds had to be identified for purchase of the medication. Second, it required 12 rather than 9 nursing visits when compared to 9INH SA treatment, with all doses of 3HP administered in a directly observed protocol. Third, it was noted that even though more patients completed 3HP, more patients stopped owing to adverse reactions, including hypersensitivity reactions. Finally, would the health providers be willing to accept a new regimen?

These factors had to be weighed against the benefit of a shorter medication time (12 weeks vs 9 months) with the potential for higher completion rates, and at least non-inferior (if not superior) long-term protection. With this information, we conducted an

analysis to determine if the MSDH might use this new regimen in a cost effective manner.

To begin, justification for the direct and indirect costs needed to implement the 3HP regimen were reviewed in three standard patient scenarios comparing the 3HP to 9INH: 1) a nurse going to the patient’s home or workplace to administer 3HP (3HP-N) vs. twice-weekly INH by DOT by a nurse (9INH-N); 2) an outreach worker (ORW) going to the patient’s home or workplace three times a month, and a nurse traveling once a month, to administer 3HP (3HP-ON), compared to twice-weekly INH by DOT by ORW, except for the once-per-month nursing visit (9INH-ON); and finally, 3) the patient reporting to the clinic for each visit (3HP-C) compared to taking 9INH-SA.

The hypothetical standard patient was assumed to be fully compliant and non-complicated. We calculated minimal MSDH nursing/ORW time, mid-range salary, and minimal laboratory testing and drugs for periodic follow-up while on treatment. Travel was based on a 10-mile round trip taking 15 minutes to complete. Nursing and ORW visits were assumed to be 15 minutes each. Nursing costs were based on \$26 per hour and ORW costs were based on \$10 per hour. (Baseline testing costs for TB infection—chest x-ray, HIV test, and physician visit—were assumed to be the same for each regimen.)

Under these assumptions, \$1,014.76 (including 32 hours of nursing time per patient) is saved by switching from 9INH-N to 3HP-N. The increased laboratory and drug costs (+\$5.56 and +\$140.88, respectively) are offset by savings in travel/mileage costs (-\$328.70) and in nursing costs (-\$832.50).

By switching from 9INH-ON to 3HP-ON, \$566.26 is saved (including 3 hours of nursing time and 30.5 hours of outreach worker time per patient). The increased lab and drug costs (+\$5.56 and +\$140.88 respectively) are offset by savings in travel/mileage

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costs (-\$328.70), nursing costs (-\$79) and outreach worker costs (-\$305).

By changing from 9INH-SA to 3HP-C, \$159.56 is added (including 45 minutes of nursing time per patient).

The cost/time savings of the first two scenarios indicated 3HP would be a viable option. The third scenario demonstrates the up-front cost most clearly; this scenario needs justification apart from convenience for use. By this estimate, switching to 3HP-C from 9INH-SA would increase up-front costs \$15,956 per 100 patient completions. The justification is found in the long-term public health benefit of the higher completion rates. The initial study demonstrated an increase in completion with 3HP vs 9INH (82% vs 69%). If we assume an increase in completion of 20%, the higher completion rates should translate into decreased morbidity and reduction in future transmission. If 3HP allows us to gain 20 additional completions per 100 patients, that should prevent two additional cases from occurring, 28 additional contacts (based on MSDH average of

14 contacts per TB case), and 5.9 new infections (based on MSDH average contact reactor rate of 21%). We estimate that an average MSDH contact investigation costs \$6,927, and the national average cost of treating a routine TB case is estimated to be between \$20,000 and \$25,000. By these estimates, increasing completions from 60 per 100 to 80 per 100 would save at least \$53,854 in future costs (costs of treating two unprevented cases and resulting contact investigations). Subtracting the costs of the new 3HP regimen from the future savings gives "bottom line" savings of at least \$37,989. The question becomes, Are you willing to spend \$15,956 to potentially save \$37,989 in the future through reduced morbidity follow-up?

#### Implementation

In June 2011, MSDH piloted 3HP and also switched from the tuberculin skin test (TST) to QuantiFERON Gold in two areas of the state: Hinds County Health Department, which has a high-volume clinic dealing with TB in a large homeless population, and District VIII (9 county health departments) because of the active involvement of the local health officer and the rural patient volume. In November 2011, it was expanded to District II in northeast MS (11 counties) and District IX (6 counties) on the Gulf Coast. In March 2012 we moved from pilot to statewide implementation (82 counties).

#### Results

Through July 20, 2012, a total of 251 patients started medication; 145 have completed and 61 remain open. This is a completion rate of 75% among those that should have completed treatment. Forty-five have been closed without completion of 12 doses, with 27 due to adverse reactions and 9 by patient choice; 5 were lost to follow up; 3 moved out of state; 3 homeless persons were lost to follow-up (2 after 9 doses), and 1 was closed administratively after QFT testing was negative.

#### Lessons Learned

3HP treatment was initially harder than we thought to complete. Incentives used mainly in the homeless population have provided little benefit, but enablers, mainly bus tokens, have been helpful. More mature patients often prefer fewer pills at one time and a

longer regimen over 3HP. It is challenging in high-risk/mobile populations. Some patients are apprehensive about the “new” regimen. The more intense monitoring (asking about specific side-effects) has increased emphasis on potential side effects. Health care providers were quicker to react to potential side effects of 3HP vs. INH, especially in the earliest implementation phase. Of 27 medical advice closures, only three have occurred in the past 3 months. Ten homeless patients have completed therapy.

Drug costs have to be paid up front. Nursing time is hard to measure, making actual savings more difficult to clarify. The question remains, will completion rates justify direct costs? Our completions have been less than desired so far, but are improving. MSDH already had high completion rates of LTBI with INH. The comfort level of health care providers is increasing and adverse reactions seem to be decreasing. Nurses like the shorter treatment. Combined with IGRA testing, we have seen a significant decrease in the number of LTBI patients statewide. While early, this is likely to be a popular regimen with patients and health care providers.

—Reported by Risa M. Webb, M.D.  
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### **Internet Directly Observed Therapy (I-DOT), the Future of DOT**

Background: The Barren River District Health Department (BRDHD) serves an eight-county area in South Central Kentucky, including urban and rural communities. The district serves 253,276 people spread across 3246.2 square miles. Population density ranges from 29.8 persons/square mile to 210.1 persons/square mile, depending on the county. The 10-year average TB case rate in the district is 4.6/100,000 (ranging from 0.8 to 9.8/100,000). With a shrinking budget and limited staff, providing directly observed therapy (DOT) has been a huge challenge.

Objective: To demonstrate that using the Internet to observe patients taking TB medications is an effective alternative to face-to-face DOT.

Methods: Since early 2011, BRDHD’s Communicable Disease (CD) team has piloted the use of a webcam (video chat) with a microphone over the Internet to observe patients taking their TB medications. Patients had to meet the terms of the BRDHD’s I-DOT protocol for active TB in order to participate. Data were collected, reviewed, and compared for the following three categories: 1) mileage to and from the patient’s residence/work site, 2) cost of gasoline and car maintenance using Kentucky State travel reimbursement rate, and 3) staff work time saved.

Results and findings: The data presented below are for two patients, both challenging in their own way. One patient traveled internationally for 2 weeks during the continuation phase. Eleven I-DOT encounters were completed while the patient was overseas. The other patient’s residence was a 101-mile round trip from the health department. BRDHD saved an estimated \$3,768 in transportation costs and 207 hours of staff time in less than a year just on these two patients.

Conclusion: With increasing access to reliable high-speed Internet, even in rural communities, observing patients take their TB medication via the Internet is a cost-effective and reliable method of DOT. Patients are carefully selected using the exclusion criteria set by the BRDHD’s I-DOT protocol for active TB.

*Barren River District Health Department Protocol for Internet DOT for Active TB*

Providing DOT for treatment of active TB increases patient adherence to the medical regimen. Increased adherence reduces the risk of disease recurrence and prevents the development of resistant *Mycobacterium tuberculosis* strains.

Once the patient has completed 3 weeks of medication by standard DOT (face-to-face observation of administration of TB medicine), Internet DOT (I-DOT) may be considered an option. I-DOT can be a substitution for home/office DOT which

the Barren River District Health Department (BRDHD) can offer to clients. I-DOT will not be considered as an option if any of the following exclusion criteria are present.

Exclusion criteria:

- Patient is in isolation.
- Patient has side effects requiring graduated doses of medication.
- Illegal activity is or has occurred in the home.
- I-DOT cannot be accomplished within 15 min.
- There is a lack of stable environment.
- There is a lack of Internet access at patient's location.
- Therapy compliance is less than 90% during the initial 3 weeks of standard DOT.
- Patient cannot effectively communicate via the Internet owing to disability
- Patient is unable to demonstrate effective use of the equipment.

To perform I-DOT, a weekly supply of prepackaged medication doses will be given to the patient at the weekly face-to-face DOT visit. A member of the BRDHD Communicable Disease Team (CDT) will arrange a set time for the I-DOT with the patient based on the signed DOT agreement. During the I-DOT, the patient will be expected to follow the BRDHD I-DOT procedure as outlined below. After successfully completing 4 weeks of I-DOT and attaining a compliance rate of 95% or higher, the patient will be allowed to increase I-DOT to 2-week intervals. This means they will be given a 2-week supply of prepackaged medicines and have a face-to-face DOT once every 2 weeks.

Procedure:

- BRDHD staff will set up the patient's computer for I-DOT and will be at the patient's home for no less than two I-DOT visits to ensure that the I-DOT access is properly functioning and the patient and/or family member is capable of accessing the Internet site independently.
- A telephone call will be placed to the client by a member of the BRDHD CDT at the agreed-upon designated time. The patient will have 15 minutes to access the Internet site for I-DOT.

- The patient understands that there is a 1-hour window period during which he/she must be available to BRDHD staff for the completion of the I-DOT.
- As with standard DOT, BRDHD staff will complete I-DOT Monday through Friday (based on the patient's current medication regimen). The patient will self-administer medications on the weekends and holidays.
- The patient will have a weekly face-to-face DOT visit, at which time he/she will receive a 1-week supply of prepackaged medications. Once 4 weeks of I-DOT have been completed at a 95% compliance rate, consideration may be given to extending the time frame between face-to-face visits to 2 weeks.
- The patient will have a packet of medicines, a clear glass of clear liquid, and both hands in sight of the CDT member throughout the I-DOT.
- The patient will display the prepackaged packet of medicines for the CDT member to inspect.
- The I-DOT visit will not be counted towards treatment if the patient does not keep hands and medicine in full view of the CDT member during the entire I-DOT encounter (until all medicines are taken).
- After swallowing medications (whether it is one, two, or three pills at a time), the patient will display hands for viewing in an open, palm-up position.
- After taking the last pill, the patient will allow the CDT member to inspect the mouth to ensure patient has not "cheeked" medicines.
- The CDT member will chart the I-DOT at the BRDHD.
- Original copies of chart will be taken to the local health department (LHD) and placed on clinic chart when face-to-face DOTs are completed.
- At any time the client falls below 95% compliance, I-DOT will be discontinued and face-to-face DOT will be resumed.

—Reported by Srihari Seshadri, MBBS, MPH,  
 Teresa Casey, RN, BSN,  
 Carolyn Lyons, RN, BSN, Sharon Ray, RN,  
 Tina Loy, RN, and Beth Greene  
 Barren River District Health Department, KY



## **CDC Reports from the National TB Workshop**

### **TB Programs and Billing in the Age of the Affordable Care Act**

The Patient Protection and Affordable Care Act (ACA) includes provisions that can change the way TB prevention and control services are delivered. With larger numbers of persons having health insurance beginning in 2014, TB and other public health programs will serve more people who are covered under some type of plan. For the first time, TB programs may find that it makes sense to set up systems to bill Medicare, Medicaid, or private health insurance companies (known as “third parties”) for TB services.

To explore this opportunity, DTBE hosted a roundtable discussion titled “The Impossible Dream? Billing for Services in the Era of Budget Cuts” at the 2012 National TB Workshop. Approximately 75 participants attended. The roundtable allowed personnel from TB programs that have begun billing to share information about their procedures, as well as information that could be used in determining whether to set up systems for billing. Speakers included Victor Balaban, PhD, and Christine Ho, MD, from DTBE/NCHHSTP, and Duane Kilgus, MPH, and Toscha Stanley, MHSA, from the National Center for Immunization and Respiratory Diseases (NCIRD).

Victor Balaban started off the session by providing an overview of ACA as it relates to TB prevention and control. Some of the main points included describing the potential impact for TB prevention and control programs of shifts in funding away from the health department (HD) setting as newly insured patients are treated in Federally Qualified Community Healthcare Centers (FQCHCs). TB differs from many other communicable diseases in that there are essential TB control activities (e.g., case reporting, contact tracing, legal orders) that cannot be done by private providers. Since many HDs are facing budget cuts in the immediate future, it may now make sense for at least some TB programs to develop billing procedures as a way to replace a portion of the lost

resources. Dr. Balaban emphasized that DTBE is not currently recommending implementation of third-party billing, but is providing information to help programs make their own decisions. Resources include other relevant programs within CDC such as the NCIRD Billables Project, other TB programs with billing experience, and relevant professional organizations, e.g., the American Thoracic Society Coding & Billing Quarterly, the Medical Association of Billers, and the American Academy of Professional Coders.

Christine Ho provided a handout that outlined the basic components of the ICD-9 billing codes and described codes that are currently being used by some TB programs to bill for TB services. For example, ICD-9 codes exist for TB screening with TB skin test or blood-based interferon gamma release assay (IGRA), diagnostic evaluation for contacts and TB suspects, and treatment of active cases. The extent to which programs bill varied greatly, from some billing for only a few select services (such as IGRA testing) to others billing comprehensively for all patient care including directly observed therapy. The impact of compensation for TB services on program budgets and service delivery also varied widely, from one small health department bringing in less than \$5,000 yearly to another urban program bringing in more than \$600,000 yearly. Patient volume, insurance status, and whether medical doctors provide services on site are also factors in how much money can be recouped for a program. Lastly, most programs that billed either partnered with a hospital or other facility that was already billing, or hired a contractor to handle the intricacies of billing.

Duane Kilgus and Toscha Stanley presented an overview of the NCIRD Billables Project, which funded 14 state grantees to develop and 14 more to implement billing plans for immunizations. Mr. Kilgus noted that billing rules and requirements vary between states; he stressed the importance of programs conducting self-evaluations of their current needs, as well as the resources they have that may support a billing program. State-specific billing toolkits were developed by many of these sites. He described some of these resources available through the NCIRD Billable Project website, such as the Public Health Billing Resource Manual developed by

the state of Georgia and the Local Health Jurisdiction Immunization Billing Resource Guide developed by the State of Washington. Ms. Stanley reviewed success stories, as well as barriers, that had been encountered by programs in implementing billing programs. She concluded that not all programs can or should bill for services, but all programs should evaluate whether it makes sense for them to bill.

After the presentations, Dr. Ho led a question-and-answer session during which TB program representatives from programs that are billing shared their experiences. Some programs described their success in billing, while others questioned the overall net benefit after accounting for the extra personnel required to bill. Some programs have not established billing procedures for various reasons, such as concern that compensation received would go into a general fund that would not benefit the TB program. Another TB program tracked the monies contributed into the general fund to leverage for funding TB services.

Overall, the roundtable was a great success. We look forward to sharing additional information as TB programs adapt to changes in health care delivery under ACA. Please feel free to contact Victor Balaban, vfb8@cdc.gov, Christine Ho, gtb9@cdc.gov, or Duane Kilgus dgk9@cdc.gov for further questions or information.

—Reported by Victor Balaban, PhD,  
Christine Ho, MD, and Ann Cronin  
Div of TB Elimination  
and Duane Kilgus, MPH, RS  
NCIRD

### 2010 TB Follow-Up Examination for Immigrants and Refugees Who Relocated to the U.S. with TB Conditions

Background: Approximately 400,000 immigrants and refugees legally immigrate to the United States each year; on average, 23,000 arrive with TB conditions. The Electronic Disease Notification system (EDN) notifies state and local public health officials of immigrants and refugees identified with suspected TB during their overseas medical examination. Arrivals with suspected TB are strongly recommended to

undergo a post-U.S. arrival TB follow-up examination to help lower the risk of spreading TB to the U.S. population. Domestic TB programs conduct follow-up examinations of these immigrants and refugees and report results to CDC through EDN. Health departments can electronically submit the domestic TB follow-up examination results by using the TB Follow-up Worksheet in EDN (Figure A).

Figure A. US TB follow-up worksheet

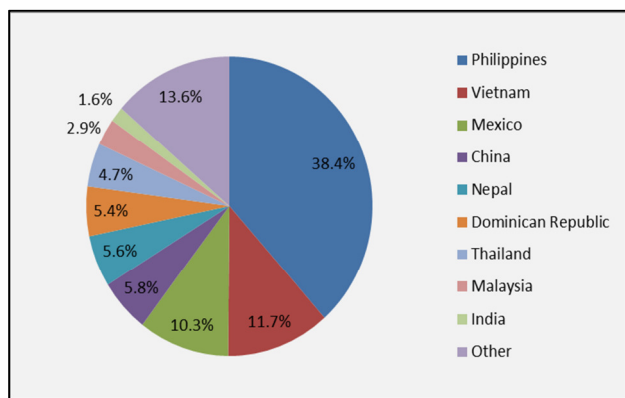
The image shows two screenshots of the 'TB Follow-up Worksheet' form. The left screenshot displays the top section, including patient demographics (Name, Age, Gender, etc.), TB history (Previous TB, Date of Diagnosis, etc.), and current TB status (Active, Latent, etc.). The right screenshot displays the bottom section, including TB treatment details (Medication, Duration, etc.), TB test results (Sputum, Smear, etc.), and a summary of findings.

U.S. national TB surveillance reports have shown that the U.S. foreign-born population is at a higher risk for developing TB disease than the U.S.-born population.<sup>1</sup> Epidemiologic studies have shown that among foreign-born persons, most TB cases occurred during the first few years after arrival in the United States.<sup>2</sup> Domestic examination results for newly arrived immigrants and refugees as reported to EDN were evaluated to determine the domestic TB follow-up rate and final TB diagnosis. We analyzed examination outcomes to help gauge U.S. TB prevention efforts for recent Class B arrivals.

Methods: Immigrants and refugees must complete a comprehensive physical and mental examination as part of the U.S. visa application process. To reduce the risk of spreading TB in the U.S., immigrants and refugees are evaluated for TB using the TB Technical Instructions (TI) overseas by panel physicians and domestically by civil surgeons. We analyzed domestic follow-up examination results for persons with an overseas diagnosis of Class B TB who arrived in the United States during 2010. Class B TB is defined as the following: having a chest radiograph consistent with TB but with negative sputum smears

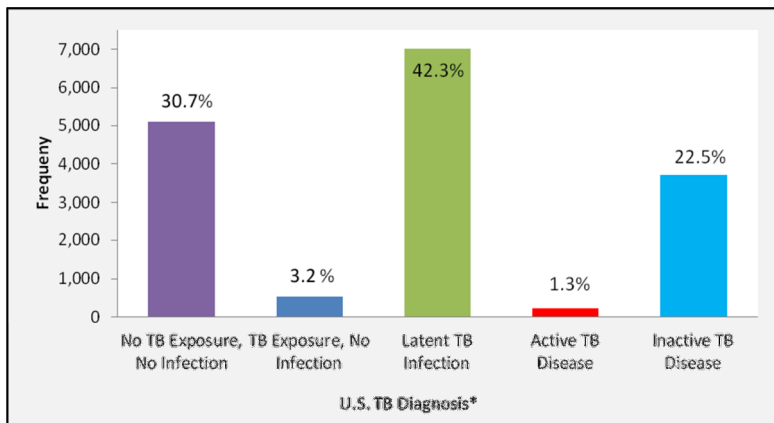
(1991 TB TI) or negative sputum smears and sputum cultures (2007 TB TI); or children 2–14 years of age with latent TB infection (LTBI) (2007 TB TI); or being a contact of a TB case (2007 TB TI).

Figure B. Class B arrivals, by country of origin (N=24,728), 2010



Results: In 2010, EDN notified U.S. health departments of 24,728 arrivals with Class B TB. Of these, 17.3% were refugees, 81.6% were immigrants, and 1.1% held other U.S. visas. The Philippines was the country of origin for a majority of these arrivals (38.4%), followed by Vietnam (11.7%) and Mexico (10.3%) (Figure B). The overseas examinations were performed according to the 2007 TB TI for the majority (91.1%) of these arrivals. Domestic follow-up examination results were reported for 80.4% of the Class B arrivals. Of those with reported outcomes, 80.9% had completed examinations, 5.5% examinations were initiated but not completed, and 13.6% did not have an examination started. Among those with a completed examination, 1.3% (223) were diagnosed with active TB and 42.3% were diagnosed with LTBI (Figure C).

Figure C. Post-US arrival TB diagnoses as reported by US health departments, 2010.



Conclusion: TB follow-up examination results are reported to EDN on a continuous basis. The high percentage of TB and LTBI diagnosed in the Class B cohort highlights the importance of timely and thorough follow-up examinations for TB. U.S. examination outcomes for 19.6% of Class B arrivals have not yet been reported to CDC through EDN. To increase the number of TB and LTBI cases identified and treated, efforts should be increased to address any challenges or barriers to TB follow-up examination and reporting.

—Reported by Kendra Cuffe, MPH, Nekeia Gray, Meghan Weems, MPH, John Painter, DVM, MS, and Rossanne Philen, MD, MS  
Div of Global Migration and Quarantine

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**Awards at the 2012 National TB Workshop**

**Winners of the Special NTCA Awards**

During the National TB Workshop, Dr. Charles Wallace, President of the National TB Controllers Association, presented awards for exemplary performance and service in TB prevention and control. The winners for 2012 were as follows:

*William Stead Clinician Award: F. Richard Ervin, MD*





Dr. F. Richard Ervin serves in two capacities in South Carolina: he provides direct patient care as the TB medical clinician for Regions 4 and 6, covering 13 of the 46 counties in South Carolina, and he provides policy and program guidance as the State TB Medical Consultant for South Carolina. Dr. Ervin specializes in infectious diseases; he has spent over 31 years in the field of TB and caring for TB patients in South Carolina. Dr. Ervin maintains offices both in Columbia as well as Florence. By functioning in both roles, Dr. Ervin is able to keep in touch with the realities of working in the field of TB while he works with the TB Division Director and Consultant staff to provide overall guidance for the TB Program in South Carolina. Dr. Ervin is well-known in South Carolina for his TB expertise and provides consultation on TB to private physicians, hospitals, and other care facilities across the state.

*TB Controller of the Year: Phil Griffin*



Phil Griffin was selected as the TB Controller of the Year. He is more than deserving of this award, as he has worked tirelessly for TB on both a state and national level since he started in TB. He has moved the Kansas TB Program to a premier program in the last 10 years that he has been the TB Controller. He was instrumental in getting a law passed that requires colleges to screen incoming students with QuantiFERON. He is a staunch supporter of regionalization, especially among low-incidence states that can benefit from sharing resources when faced with shrinking funding and resources. Phil has served two tenures as president of the NTCA, as well as serving in president-elect and past-president positions on the NTCA board. His willingness to share his expertise whenever there is a request for

training, whether it is in his own state, region, or country, exemplifies why he was selected as the NTCA TB Controller of the Year.

*Charles DeGraw Advocacy Award: John Seggerson*



John Seggerson began his CDC TB career in 1965, holding positions of increasing responsibility and serving for 19 years as the Chief of the CDC/DTBE Program Services Branch. Some of his other early accomplishments in the world of TB included Federal TB Task Force coordination, oversight for three Model Centers, planning for the National TB Controllers Conference, coordination of several TB Program review teams, and serving as a planner for World TB Day activities during 1997–2000.

In 1996, he began his formal advocacy career as DTBE Associate Director for External Relations. In that role, he was able to use his leadership and strong interpersonal skills to build relationships with nongovernmental agencies as well as private, professional, and voluntary agencies, which he continues to this day in his role with Stop TB USA.

*Robert Koch TB Researcher Award: Carol Dukes Hamilton, MD*



Dr. Hamilton serves as a mentor and role model for physicians working in TB in North Carolina. Dr. Hamilton was one of the original investigators in the newly reconstituted Tuberculosis Trials Consortium in the mid-1990s, and successfully integrated clinical research in TB treatment with public health practice in North Carolina. She has served in a leadership role in that consortium for a number of years, including as the current chair of the Advocacy and External Relations Committee. Dr. Hamilton has made her research programmatically relevant in North Carolina by serving in leadership roles within the North Carolina Tuberculosis Control Program and pressing for rapid implementation of the latest research findings into clinical practice. Dr. Hamilton has provided, through her work, outstanding contributions to TB clinical research nationally as well as her continued mentorship of the next generation of TB researchers.

*Ed Desmond Laboratorian Award: Kim Musser, PhD*



Dr. Vincent Escuyer, center, accepted the 2012 Laboratorian award on behalf of Dr. Kim Musser from Dr. Charles Wallace and Dr. Ed Desmond.

For her exceptional professionalism and dedication to public health; her ability to recognize public health gaps, then propose and develop solutions; and her willingness to share with others, Dr. Kimberlee Musser was selected to receive the Ed Desmond Laboratorian Award. Dr. Musser and her laboratory team recognized the delays in TB testing using smear and culture, in the current molecular testing, and, especially, in drug-susceptibility testing. She undertook the challenge of improving the speed as well as the sensitivity of molecular TB testing, and

addressed drug-susceptibility testing as well. Using pyrosequencing, she was able to improve the testing sufficiently to have it incorporated into the Wadsworth Center mycobacteriology laboratory, ensuring the turnaround times for the New York State Fast-Track Program were significantly cut. She has made this method publicly available by distributing control material and laboratory Standard Operating Procedures as requested. Please also see the write-up for Dr. Musser provided in the Laboratory Branch Updates section.

*Carol Pozsik Nursing Award: Tammy McKenna, RN, MSN*



Tammy McKenna, RN, MSN, has held every nursing position within the arena of TB control in South Carolina. She was hired in the early 1980s to be the SIT/SPIT (Supervised Intermittent Therapy / Supervised Preventive Intermittent Therapy) nurse in a county; she then became the TB Nurse Case Manager for the county, TB Program Manager at the region level, and currently is the only Nurse Consultant in the TB Control State Office. Her knowledge, skills, and abilities are showcased each day through her dealings with complaining patients, her assistance to persons who are navigating the health care arena related to TB, and her daily dealing with local infection control practitioners, private providers, and others who deal with TB and TB issues regularly. Tammy makes presentations on TB on a regular basis to health care agencies and infection control professionals. She provides ongoing orientation to new TB Program Managers across the state and assists with the orientation of new front-line TB public health nurses. She is truly an asset to the TB Program.



*Dixie Snider Award: John Jereb, MD*



Dr. John Jereb has provided outstanding leadership to the TB control community and through his partnerships with state and local TB programs. As a result of many of John's efforts, local TB controllers are able to obtain a national perspective on issues such as funding, immigration screening, and other vital issues, and likewise, he is able to enlighten DTBE on critical state and local issues. He provides leadership on a national level by serving as an author for MMWR articles, and assisting states in the implementation of important new tools for TB control. John is a vital liaison between DTBE and state TB Programs and will continue to grow this role in the future.



*President's Award: John Bernardo, MD*

The current NTCA President selects the recipient of this award to acknowledge the special accomplishments of an individual or organization that has made an outstanding contribution to the NTCA or the TB community. This award is given solely at the discretion of the standing NTCA president.

Dr. Wallace's choice for the recipient of the President's Award was John Bernardo, MD. In commenting on his selection of Dr. Bernardo, the gist of his remarks was: "John was always there for me. During the weeks and months that I was sick and undergoing treatment and had to be in isolation, he called me every day." Dr. Wallace's remarks were clearly heartfelt.

In addition, the planning committee for the 2012 National TB Workshop made one additional surprise special award. Ms. Sherry Brown, who has been part of the planning team for the National TB Workshop for many years, was formally recognized at the meeting with the thanks of the meeting organizers and was presented with a large plaque. Many attendees who are aware of her behind-the-scenes hard work were gratified to see her valuable contributions acknowledged.



*—Reported by Shea Rabley, Peter Davidson,  
and Carol Pozsik, NTCA  
and Ann Lanner, Div of TB Elimination*

### **NTCA Poster Competition Winners**

For the 6th annual poster competition of the National TB Workshop, 62 posters were developed and submitted by TB program staff from throughout the country. They were available for viewing during most of the meeting. A panel of judges reviewed and rated the posters based on three criteria areas:

Relevance to TB control or elimination  
Topic provides information that can potentially be transferred to another program; addresses or

identifies high-priority area of TB program or problematic area; provides strategy for better use of resources.

#### Clarity of information

Information is written clearly, in short sentences, with bulleted points to enhance readability; adequate amount of information is provided to explain project, but not a complete journal article posted on the wall!

#### Graphic presentation

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

The poster judges this year were Andrew Hill, Deb Sodt, Mitch Yakrus, Mark Miner, and Suzanne Marks. A special thanks to them for their time and diligence.

This year the judges gave one first-place award, one second-place award, and two third-place awards because of ties among entrants. Here are the winning posters of the 2012 competition:

#### *First place winner:*

"Predicting U.S. TB Case Counts by Foreign-born Country of Origin." Rachel Yelk Woodruff (CDC); Carla Winston, Department of Veterans Affairs; Roque Miramontes, CDC.

#### *Second place winner:*

"TB Screening Practices of Civil Surgeons Evaluating Status Adjustors Seeking Permanent Residence in the United States – New England, 2011." Kelley Bemis (CSTE/Connecticut Department of Public Health); Mark Lobato, CDC; Andy Tibbs, Massachusetts Department of Public Health; Jennifer Cochran, Massachusetts Department of Public Health; Alison Stratton, Connecticut Department of Public Health; Alfonzo Rodriguez, CDC; Lynn Sosa, Connecticut Department of Public Health.

#### *Third place winners (tie in scores):*

"2010 TB Follow-Up Examination for Immigrants and Refugees Who Relocated to the United States with TB Conditions." Kendra Michelle Cuffe (CDC);

Meghan Weems (CDC); Nekeia Gray (CDC); John Painter (CDC); Rossanne Philen (CDC).

"Describing Binational TB Patients in the San Diego-Mexico Border Region." Kathleen Moser, County of San Diego Health and Human Services Agency; Heather McClendon, Loma Linda University, School of Public Health.

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

—Reported by Wanda Walton, PhD, and Ann Lanner  
Div of TB Elimination

## **October 1, 2013, Deadline for 2007 TB TI implementation**

On August 9, 2012, staff of the Medical Assessment and Policy (MAP) Team of CDC's Division of Global Migration and Quarantine (DGMQ) held a webinar with U.S. Consular Sections around the world. In the webinar, DGMQ staff conveyed an important update regarding TB screening of immigrants and refugees: all U.S. panel physicians worldwide must begin screening for TB according to DGMQ's 2007 Technical Instructions for Tuberculosis Screening and Treatment Using Cultures and Directly Observed Therapy as soon as they are able, and no later than October 1, 2013.

All persons applying to enter the United States as immigrants or refugees must undergo medical screening for various conditions, including TB, prior to departure. This screening is carried out by panel physicians, using TB Technical Instructions (TB TI) developed by DGMQ.

The original TB TI, issued in 1991, required a chest radiograph and, for anyone with an abnormal chest radiograph, three sputum samples. DGMQ updated the TB TI in 2007, requiring sputum culture in addition to sputum smears, drug-susceptibility testing for all positive cultures, and direct observation of therapy for treatment of TB. Implementation of the 2007 TB TI is being scaled up to additional countries each year, with implementation based on several

factors such as a country's rate of TB, the number of immigrants and refugees coming from that country to the U.S., and other pertinent factors.

Implementation of the updated TB TI has thus far resulted in a three-fold increase in the overseas detection of TB, and is positively affecting U.S. TB control efforts. DTBE and DGMQ have been collaborating in carrying out site visits to the various countries as they implement the updated TB TI. Both divisions are excited about the prospect of completing implementation of the 2007 TB TI. Completing this transition is expected to further reduce the burden of TB in foreign-born persons in the United States and to contribute to international TB control efforts.

The current TB Technical Instructions, as well as other information pertinent to them and the medical examination for applicants for U.S. immigration, can be found online at [http://www.cdc.gov/ncidod/dq/panel\\_2007.htm](http://www.cdc.gov/ncidod/dq/panel_2007.htm). If you have any questions about these TB Technical Instructions, you may contact the Immigrant, Refugee, and Migrant Health Branch of DGMQ, CDC, at [cdcQAP@cdc.gov](mailto:cdcQAP@cdc.gov) or 404-498-1600.

*—Reported by Drew L. Posey, MD, MPH  
Div of Global Migration and Quarantine*

## **NCHHSTP Atlas Now Includes TB Data**

Tuberculosis data are now available in the updated Atlas, created by CDC's National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP). This online tool also now includes data on viral hepatitis, in addition to the HIV, AIDS, and STD surveillance data that were available in the previous version.

NCHHSTP developed the Atlas earlier this year to provide users a platform to query data, and create interactive maps and tables of surveillance data across the Center's focus diseases. A key feature of the tool is the ability to view data trends and patterns over time in the United States and across demographic groups, allowing users to view how

these epidemics have changed over time and across geographic location.

This valuable tool will help public health professionals, researchers, community leaders, health care providers, and others view overlapping disease trends, set research priorities, and plan prevention and care services. The Atlas is available for public use at [www.cdc.gov/nchhstp/atlas](http://www.cdc.gov/nchhstp/atlas).

*—Reported by Bindu Tharian, MPH, CHES  
NCHHSTP/HCSO*

## **TB EPIDEMIOLOGIC STUDIES CONSORTIUM II (TBESC) UPDATES**

### **TBESC Session at the 2012 ATS International Conference**

Current and future Tuberculosis Epidemiologic Studies Consortium-II (TBESC) and Tuberculosis Trials Consortium (TBTC) research studies were the focus of a session at the 2012 American Thoracic Society International Conference in San Francisco. The purpose of this session, held on May 20, 2012, was to present data on recent studies performed by the consortia, and describe future plans for both research consortia.

Denise Garrett, MD, provided a description of new TBESC research. In order to achieve TB elimination in the United States, she told session participants, it is necessary to identify and treat persons with latent TB infection (LTBI) who are at high risk for progression to TB disease. Therefore, the main study of the new TBESC will compare tuberculin skin test (TST), T-SPOT.TB, and QuantiFERON-Gold In-Tube to determine the best test for diagnosing LTBI and predicting progression to TB disease. The study will take place at 15 clinics in 11 states, and will enroll 48,000 persons over 8 years who are at high risk for LTBI or progression to TB. Persons diagnosed with LTBI will be treated as clinically indicated, and all study enrollees will be followed for development of TB. Additional sub-studies will be performed during the lifetime of the consortium, and may include testing of shorter LTBI treatment regimens, and



evaluation of measures to enhance adherence to LTBI treatment.

Dr. Dylan Shepardson of the TBTC discussed, “Can a shorter treatment regimen be a better use of resources for preventing tuberculosis?” By creating a model to evaluate health outcomes, health system costs, and patient costs when using 3 months of isoniazid and rifapentine (3HP) compared to 9 months of isoniazid (9H), he found that the use of 3HP prevented 5.2 TB cases per 1,000 persons treated, and saved 24 more quality-adjusted life years (QALYs) per 1,000 persons treated. However, 3HP costs more than 9H from both a health system and patient perspective. When health system costs are considered, 3HP costs \$112 more per person. When patient costs are taken into account, 3HP costs only \$22 more per person. The sensitivity analysis indicated that increased costs of directly observed therapy (DOT) and higher rifapentine costs favored the use of 9H. However, higher risk of progression to disease and greater value placed on patient time favored the use of 3HP. He stated that their future work includes creating an online model that would allow health departments to enter data pertinent to their site in order to identify the most cost-effective regimen.

Suzanne Beavers, MD, presented results from the TBESC study titled, “Tuberculosis Mortality: Epidemiology and Prevention Opportunities.” The study reviewed deaths of approximately 1,500 persons who died with a diagnosis of TB during 2005–2006 in the catchment areas of 15 national TBESC sites. Deaths were then reviewed by study researchers and classified using an algorithm as TB-related, not TB-related, or with insufficient information to determine TB relatedness. Approximately 70% of study deaths were found to be TB-related. Of the TB-related deaths, 21% persons were dead prior to diagnosis, and an additional 40% were dead within 1 month of diagnosis. When TB-related deaths were compared to age- and site-matched controls who completed treatment for TB, it was found that HIV, chronic obstructive pulmonary disease, and cirrhosis were associated with death. In addition, a non-TB diagnosis for TB symptoms was associated with TB-

related death. Dr. Beavers reported that analysis is ongoing for this study.

Dr. Payam Nahid, a TBTC site PI and Chair of the TBTC Biomarker Working Group, spoke about “GeneXpert and TBTC: Expected benefits and innovative uses.” He noted that GeneXpert has the potential to increase the patient pool available for TBTC clinical trials given the MTB/RIF assay’s high sensitivity and specificity for detection of *M. tuberculosis* as compared to sputum smear microscopy. As such, smear-negative pulmonary TB patients can be potential candidates for clinical trials. Further, patients with AFB-positive sputa due to suspected nontuberculous mycobacteria can also be more efficiently excluded from trial participation and referred for additional work-up and appropriate management. The assay’s rapid detection of rifampin resistance improves efficiency around screening procedures at two points. It does so at baseline for multidrug-resistant (MDR) TB and drug-susceptible TB trials, and also during follow-up, to detect acquired rifampin resistance in clinical trial patients with treatment failure or recurrence. However, challenges to be overcome include the need for INH monoresistance testing in clinical trials, the need to rule out extensively drug-resistant (XDR)-TB in patients with isolates shown to have rifampin resistance by the assay, and the fact that a positive result in GeneXpert doesn’t imply that the TB pathogen is viable. He stated that additional innovations are needed before the full capabilities for use in clinical trials are realized.

The TBESC/TBTC session was very well-attended. The audience asked a variety of questions demonstrating their interest in present and future TB research being performed by the consortia. These presentations were useful in providing an overview of some of the important research being done in LTBI and TB diagnosis and prevention, both domestically and internationally.

—Reported by Suzanne Beavers, MD  
Div of Environmental Hazards and Health Effects  
National Center for Environmental Health  
(formerly Div of TB Elimination)

## COMMUNICATIONS, EDUCATION, AND BEHAVIORAL STUDIES BRANCH UPDATES

### New Electronic Resources Available on TB and HIV

To coincide with the XIX International AIDS Conference held in Washington, DC, July 22–27, 2012, the Communications, Education, and Behavioral Studies Branch of DTBE collaborated with the Health Communication Science Office of the National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention to develop several videos and podcasts on TB and HIV. These videos and podcasts featuring DTBE Director Dr. Kenneth Castro are available on DTBE's website:

- [TB Testing for People Living with HIV](#)  
This podcast explains why it is important for people living with HIV to be tested for TB.
- [TB and HIV Coinfection](#)  
This podcast discusses the impact of TB on those who are HIV infected and the importance of detecting and curing TB.
- [Global TB Strategy](#)  
This video discusses the global strategy to address TB around the world.

—Reported by Nicole Richardson-Smith, MA  
Div of TB Elimination

## LABORATORY BRANCH UPDATES

### Dr. Kim Musser Wins the 2012 NTCA Ed Desmond Laboratorian of the Year Award

This year, the NTCA Ed Desmond Laboratorian of the Year Award was won by Dr. Kim Musser, of the Wadsworth Center Laboratory. DTBE congratulates Dr. Musser on her award. Dr. Musser was not able to be present at the NTCA meeting to accept the award,

but Dr. Vincent Escuyer was on hand to accept on her behalf. Dr. Escuyer kindly provided this brief accolade acknowledging Dr. Musser's contributions to TB elimination efforts.



Dr. Kim Musser is the Chief of Bacterial Diseases and Director of the bacteriology laboratory at Wadsworth Center–New York State Department of Health (NYSDOH). She leads the Molecular Development group, which has been involved in the development of numerous molecular assays for diagnostics and detection of drug resistance for a broad range of bacterial diseases. Four of these assays are directly related to TB testing and include real-time PCR assays for detection and identification of the different members of the TB complex and pyrosequencing for early detection of resistance to rifampin and isoniazid. Kim Musser is the driving force of this group and is always eager to incorporate the newest cutting-edge molecular technologies into the daily clinical testing. Furthermore, she always has a global public health vision emphasized by a constant willingness to share protocols and reagents with her colleagues from other public health laboratories. As a result, several of these laboratories have now implemented into their workflow the assays developed at Wadsworth Center and significantly improved their molecular testing capacity. The impact of Kim Musser's work goes beyond New York State and can be felt at the national level. For these reasons she is richly deserving of this award.

—Submitted by Dr. Vincent E. Escuyer, Director,  
Mycobacteriology Laboratory  
Wadsworth Center, NYSDOH

## APHL Awards Funds to Public Health Laboratories for Improving Laboratory Practices

The Association of Public Health Laboratories (APHL), in collaboration with CDC/DTBE's Laboratory Branch (LB), recently provided two separate one-time funding opportunities aimed at 1) exploring novel approaches to shared laboratory services for TB, and 2) evaluating the effective use of molecular diagnostics. Seven grants were awarded through a competitive process benefitting a total of 15 U.S. public health laboratories (PHLs).

One funding opportunity allows PHLs to explore novel approaches to sharing TB laboratory services among a group of two or more laboratories. As TB cases and the volume of specimens being submitted for testing continues to decrease, maintaining all testing services becomes increasingly expensive per case identified. In addition, maintaining technical proficiency can potentially be more difficult. However, the true costs of sharing services and the potential effects to TB controllers, clinicians, and clinical laboratories have not been adequately examined. PHLs provided proposals indicating the type of TB laboratory service to be shared along with plans related to shipping, reporting, and collaboration with the jurisdictional TB control program. Laboratories are required to maintain the service in-house during the pilot phase. All awarded PHLs will document the challenges and successes associated with sharing services. Results from these projects will contribute to evidence-based practices essential for maintaining a comprehensive and efficient laboratory system, which is critical to the continued decline of TB in the United States.

The second funding opportunity allows PHLs to evaluate the performance of molecular diagnostic tests for TB and increase evidence-based knowledge regarding the most appropriate use of these assays in settings with both high and low burdens of TB. This funding is a follow-up to the one-time APHL/CDC grants that were awarded for the expansion of nucleic acid amplification testing (NAAT) in PHLs in 2010. NAAT has become the standard of practice for direct

detection of *M. tuberculosis* complex (MTBC) from respiratory specimens and is now available to detect mutations associated with drug resistance. A variety of commercial and laboratory developed tests have become increasingly available for use in PHLs. However, despite CDC recommendations on the use of NAAT, there is considerable variability in how state TB control programs and PHLs use this testing, and there is no validated algorithm that directs its use at a programmatic level. Operational questions still surround the use of these technologies. Therefore, this funding opportunity was awarded as a mechanism for exploring and evaluating the best approaches to using these assays in their jurisdictions, considering their specific patient populations. Awardees will provide reports detailing how the funds are used and the impact and outcome of implementing either the shared services or the molecular diagnostic strategy. It is anticipated that awardee PHLs will contribute to published manuscripts detailing the benefits, challenges, and lessons learned based on these pilot programs.

—Submitted by Frances Tyrrell, MPH, MT (ASCP), SM,  
and Tracy Dalton, PhD  
Div of TB Elimination

## NEW CDC PUBLICATIONS

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## PERSONNEL NOTES

Curtis Allen recently arrived in DTBE as a member of the CEBSB Web Team, joining Jesse Bradley as a webmaster. Curtis, a contractor with Northrop Grumman, has several years of experience in the web design and web development field. He received his bachelor's degree from East Tennessee State University in Digital Media-Interactive Design with a minor in Art. Curtis started his career in 2005 as a Multimedia Production Designer at a small interactive web design firm called AVID Design. While at AVID Design, Curtis was responsible for developing and implementing multimedia CD-ROM projects for several hospitals including the Mayo Clinic and Saint Joseph. Following his position at AVID Design, Curtis spent 4 years working for CareerBuilder.com as a Front End Developer, where he designed, developed,

and implemented new sites and pages in the CareerBuilder.com custom asp.net environment. CareerBuilder is the largest online employment website in the United States, with more than 23 million unique visitors each month. In 2010, Curtis began working as a webmaster at VeriFone. Two years later he accepted a web designer / web developer position with Northrop Grumman supporting the CDC TB team. Curtis has also been featured in *Web Designer Magazine* and won an ADDY Award for his work on Paywaremobile.com. Welcome, Curtis!

Greg Andrews, Team Lead of the Field Operations Team II, FSEB, retired on June 29, 2012, after more than 38 years of exemplary service to CDC. Greg is admired by his colleagues for his accomplishments and integrity and is known for his dedication and service to public health for nearly four decades. During his 24-year tenure with DTBE headquarters, he has been responsible for the oversight of much of the Division's programmatic work, including most recently the programmatic activities and cooperative agreements with the Middle Atlantic States, the Western half of the country, and the Pacific Island groups. In the last year, he headed up DTBE's development of a funding formula to apply to millions of dollars in cooperative agreements with 68 jurisdictions, including all 50 States, 10 large cities, and 8 affiliated territories and states.

Greg started his CDC career in 1974 with the Birmingham, Alabama, VD Control Program as a co-op Public Health Advisor (PHA) after talking to Dennis McDowell, a PHA and fellow college alumnus. During this initial tour, Greg assisted with the Swine Flu national epi aid. In 1978, "Big John" Seggerson and Charlie Watkins recruited him to CDC's TB Division, and he moved to NYC. Greg's tenure in NYC (1978–1982) included stints as a clinic manager for multiple boroughs, as well as lead coordinator for CDC project funds awarded to NYC for direct administration of TB drugs to active TB patients by outreach workers. This project, originally called the supervised therapy program (STP), was later re-named directly observed therapy (DOT). Greg also assisted with efforts to address the Legionnaires' disease outbreak, conducted a 2-month TDY to

Three Mile Island, and assisted in CDC's Study 21 clinical trial on INH and rifampin alongside the late Tina Schein, CDC Public Health Nurse.

In 1982, Greg was transferred to Miami, Florida, as the TB program manager and the first TB PHA assigned in over 20 years; at the time, Miami had the highest TB case rate in the United States. Greg and the new TB Controller for Miami helped accelerate the use of DOT and of contact investigations, and helped with the assimilation of recently arrived "boat people" through the screening at Krome.

In 1984, Greg moved to Sacramento, California, for a new assignment as assistant state program manager. The entire California State TB Control Program consisted of the new TB Controller, an office assistant, and Greg. The primary goal was to double the state TB budget disbursed to local county programs, approximately \$250,000; this was accomplished in 1983. The TB program also worked vigorously to bring California (last state) on board with the new CDC/DTBE surveillance reporting system, and the next year implemented TB/HIV registry cross-matching.

In 1988, after much discussion with Louis Salinas, DTBE Program Consultant for California, Greg came to headquarters as a Program Consultant. In this position he covered, at one time or another, Federal regions I, III, V, VII, and IX. In time, he became a section chief/team lead for 36 TB project sites, and alongside Joe Scavotto, helped develop an extremely elite group of Program Consultants to assist DTBE's main partners—state and local TB control programs.

After nearly four decades of service, Greg will miss most of all the public health colleagues and friends he has worked for and alongside over the years. He has always held the local public health program staff in the highest esteem—and in turn has been highly regarded by them—and has dedicated himself to supporting their efforts in controlling and eliminating TB. Each one has contributed to his career and better understanding of public health.

Suzanne Beavers, MD, medical officer in SEOIB, has left DTBE to accept a position within the National

Center for Environmental Health in the Air Pollution and Respiratory Health Branch of the Division of Environmental Hazards and Health Effects. Her last day in DTBE was June 29. Suzanne began her career with CDC in 2006 as an Epidemic Intelligence Service Officer stationed in Kentucky. In 2008 Suzanne began her current position on the DTBE Epidemiology Team. Her primary responsibilities have been working as the CDC principal investigator on two Tuberculosis Epidemiologic Studies Consortium (TBESC) mortality studies, and planning for the new TBESC. Suzanne served as the SEOIB representative for TB Notes from 2009 to the present, and was the TB Walk photographer for 2009–2011.

Suzanne has an undergraduate degree in political science and her MD from the University of Florida. She completed an emergency medicine residency, and practiced emergency medicine for 7 years prior to joining CDC.

Suzanne has been a fabulous asset to the Epidemiology Team and to SEOIB and has been a wonderful coworker to everyone here. Her dedication, commitment, and great personality will be dearly missed. Congratulations to Suzanne! We wish her the best of luck and greatest of success in her new role.

Erin Bliven-Sizemore, MPH, has left DTBE for a position as an epidemiologist in DHAP's Program Evaluation Branch. Her last day with CRB and the Tuberculosis Trials Consortium (TBTC) data and coordinating center was August 24. CRB values Erin's achievements over the past 8 years and wishes her well in her new role.

Erin first worked with the TBTC data center from September 2004 through December 2005, while she was working on her master's degree in public health at Emory University. Since her return to the TBTC data center in September 2006, she has actively contributed to the life of the consortium. She managed online adverse event reporting in an 8,000-participant trial, trained site coordinators for several trials, served as the project officer for a liver-health sub-study and a 36-person study of rifapentine exposure in health volunteers, and collaborated on

several other pharmacokinetic studies. She has published secondary analyses on the association of relapse with the Beijing genotype, the influence of TB lineage variability, and the effect of HIV infection on treatment outcomes.

Tracy Dalton, Lois Diem, Denise Hartline, Jameelah Franklin, Erika Sigman, Allison Lentz, Delaina Paasch, Dorothy Kaminski, Heather Alexander, Kyle DeGruy, and Zilma Rey received the DTBE Director's Recognition Award for the third quarter of 2012. Tracy, Lois, Denise, Jameelah, Erika, Allison, Delaina, Dorothy, Heather, Kyle, and Zilma received the DTBE Director's Recognition Award for their exceptional work on the Preserving Effective TB Treatment Study (PETTS). This "dream team" of professional staff from DTBE and the Division of Global HIV/AIDS, CGH, was jointly nominated by Peter Cegielski and Beverly Metchock.

In a multinational, epidemiological study of MDR TB (PETTS), nine countries shipped 5,645 cultures of highly drug-resistant Mycobacterium tuberculosis isolates to CDC's TB laboratory from 2005 to 2010. Analysis of these isolates continues to this day and will continue for at least another year. The lab team cultured and cryopreserved them, testing baseline and follow-up cultures for susceptibility to 12 drugs. They extracted DNA and performed line-probe assays, genotyping, and targeted gene sequencing. They contributed to the reporting of provisional results at local, national, and international conferences.

The team has done an extraordinary job with PETTS's lab work. Their work provided some of the first data ever on the prevalence of extensively drug resistant (XDR) TB worldwide. The archive of isolates is unique and invaluable. The results quantify the risk of developing further drug resistance during MDR TB treatment, and are having substantial impact on global policy recommendations as international public health agencies are moving toward massive scale up of MDR/XDR TB treatment. Congratulations to the group for this well-deserved honor!

Vincent Fears has joined FSEB headquarters as a Program Consultant as of July 30. Prior to coming to

Atlanta, he served as a PHA in the Miami-Dade County Health Department's TB Control and Prevention Program. He joined CDC in April 1992 as a Public Health Associate assigned to the Palm Beach County (Florida) Health Unit (PBCHU) STD/HIV prevention program. Following training, he worked as a Disease Intervention Specialist (DIS) within the PBCHU, conducting contact investigations and contributing to case management efforts and program initiatives. He served as liaison between the PBCHU and the Palm Beach County Stockade as well as the Martin County Corrections facility. He also completed a detail to Ft. Pierce, Florida. He was then transferred to Cleveland, Ohio; while there he was detailed to the Cincinnati Health Department (CHD). He served as the liaison between the CHD and the Hamilton County Corrections (HCC) facility, improving communications between CHD and HCC and developing a program to rapidly screen inmates for syphilis and HIV at intake. This effort led to an increase in the average number of inmates tested, from 30 to 125 per week. From Cleveland, he transferred to the Louisiana Department of Health & Hospitals-Office of Public Health (LDHH-OPH) in Baton Rouge. He initiated a working relationship between the LDHH-OPH and the Southern University Student Wellness Foundation, leading to unprecedented on-campus screening for syphilis and HIV. He was invited to lecture on a recurring basis about STDs and safer sexual behaviors and was a regular presenter at the Teen Parent Center of Baton Rouge and Child Health America. In addition, he was detailed to the CDC Immunization program in Lansing, Michigan, investigating the cause of intussusception among infants. He was recognized for his work in Lansing with an HHS distinguished service award.

In 2001, he was assigned to the Chicago Department of Public Health (CDPH) TB Control Program. Besides carrying out typical DIS duties, he also assumed additional responsibilities, serving as Director of Program Planning and Evaluation. These duties included developing the TB program evaluation plan and the TB program's cooperative agreement budget, as well as the TB program annual progress report. He was also the lead for CDPH regarding high-profile TB cases, spearheading TB

genotype cluster investigations and communicating with CDC representatives in that regard. Vincent also served as the Assistant to the Program Manager in the Detroit Department of Health and Wellness Promotion (DHWP).

In 2008, he transferred to Miami to serve as the field operations manager for the Miami-Dade County TB Control and Prevention Program. He was responsible for analyzing high-profile cases and performing community outreach and TB 101 for local providers and institutions (schools, worksites, corrections). He conducted in-service teach-back programs for TB Control and Prevention staff; STD DIS also attended. And, after Vincent suggested to the State of Florida that Florida DIS workers deserve to be recognized with a special annual tribute, DIS staff are now honored every October on DIS Appreciation Day, not only in Miami but throughout the state of Florida.

Vincent received his BS degree in biology in 1991 from Alabama State University, and in 1998 earned a graduate certificate in public health after completing the Graduate Certificate Program at Tulane University. In 2003 he earned personal trainer certification from the National Council of Strength and Fitness. In 2004, he received an NCHHSTP Honor Award for his contribution to minority health programs in conjunction with the Partners Eliminating TB in African Americans project. Inspired by this initiative, he composed a rap song, the lyrics of which were worked into a TB information pamphlet, describing signs and symptoms of TB as well as a call to action to eliminate TB. Vincent also received an NCHHSTP Honor Award in 2010 for his work during a detail with the Federal Bureau of Prisons in Washington, DC.

Vernard Green, MSPH, BS, AA, has joined FSEB headquarters as a Program Consultant (North Dakota, South Dakota, Minnesota, Wisconsin, Kentucky, Michigan, and the City of Detroit). He started in his new position on July 29, 2012. Vernard began his public health career in 1985 as a Navy Corpsman assigned to the Naval Hospital at Camp Lejeune, North Carolina, in advanced trauma, EMT, and Advanced Cardiac Life Support (ACLS) training. After 2 years of training, he began a tour as an independent-duty senior Hospital Corpsman / hand-

to-hand combat instructor. He was assigned to several marine units, and was honorably discharged in 1992 after serving in Desert Storm. He received several awards, including a national defense service medal, a Navy meritorious unit accommodation, and commanding general accommodations.

From 2002 to 2005 Vernard worked for the Cumberland County (NC) Health Department and the Department of Health and Human Services, Fayetteville, NC, as a Disease Intervention Specialist (DIS) in HIV/STD and environmental health projects. In 2005 he began his CDC career as a trainee assigned to the Lattimore regional TB clinic in Newark, NJ. In 2006 he took a position in Trenton, NJ, as Chief Assistant/front line supervisor and Universal Genotype Project Coordinator. Other experiences included four TDY outbreak investigations, Epi-Aids, and technical assistance assignments throughout the United States as well as a deployment to provide assistance in the aftermath of Hurricane Katrina in 2006. In 2007 he took a position as Operations Manager for the City of Detroit's TB control program. During 2008 to 2010, he served as interim TB program manager and Public Health Advisor (PHA). From April 2010 to June 2012 he served as Senior PHA and TB liaison for programmatic support with the Michigan Department of Community Health at the state office. He has participated in the CDC/ATSDR mentor program and has provided guidance to mentees from other programs.

Vernard received an AA degree from Campbell University in 1991 and a BS degree in 1995 with a major in biology and a minor in chemistry. He received his master of science degree in public health from Walden University in 2005 and in special studies in 2011. He is currently enrolled in a PhD program with an epidemiology concentration at Walden University with plans to graduate in 2014.

Bruce Heath, Program Consultant in FSEB, has left DTBE to accept a promotion within the Division of STD Prevention as team lead for the Program Support and Strategic Priorities Team, Program Development and Quality Improvement Branch. His last day in DTBE was May 25. Bruce began his



career with CDC in the Miami STD Prevention Program in 1992 as a Disease Intervention Specialist. In 1995 he moved to Fulton County, Georgia, to continue his work as a CDC Disease Intervention Specialist. In 1999, he took a position with the Syphilis Elimination Program in the Division of STD Prevention at headquarters. Bruce then moved to the Training and Health Communications Branch in DSTD where he served as a project officer for the National Network of STD/HIV Prevention Training Centers. After a few years in headquarters, he went back to the field as an assignee to the Puerto Rico Department of Health STD/HIV Prevention Program as the Senior Public Health Advisor. In June of 2006 Bruce joined DTBE, moving to Austin, TX, to work with the Binational TB Projects along the Texas/Mexico Border. In 2008, he was selected to serve as a TB Program Consultant in FSEB, where he has been responsible for overseeing cooperative agreements for state, local, and territorial TB programs. Bruce has an undergraduate degree in Spanish and a graduate certificate in public health with a concentration in health education. Congratulations to Bruce and good luck with this new position!

Lilia Manangan and Suzanne Marks were winners of the June NCHHSTP Director's Recognition Award as part of the NCHHSTP Surveillance Workgroup! Lilia and Suzanne serve as DTBE representatives on the NCHHSTP Surveillance Workgroup. This workgroup has exhibited excellence in policy development and program services by developing integrated guidelines for the security and confidentiality of HIV, viral hepatitis, STD, and TB surveillance data. These guidelines reflect the combined efforts of program and surveillance leaders from DHAP, DVH, DSTDP, and DTBE. The other members of the workgroup are Patricia Sweeney, DHAP; Sam Costa, DHAP; Hillard Weinstock, DSTDP; Kashif Iqbal, DVH; Patrick Harris, DSTDP; and Nicholas Gaffga, Division of Global HIV/AIDS, Center for Global Health.

Nydia Palacios is a recent graduate of the CDC Public Health Associate Program (PHAP). Assigned to San Juan, Puerto Rico, she spent the first year of her fellowship as a field worker in the Puerto Rico TB Control Program. As a second year associate, Nydia

worked closely with DTBE veteran Olga Joglar in the CDC San Juan Quarantine Station. Nydia is excited to have the opportunity to learn more about TB with Ted Misselbeck and Patrick Ndibe in Houston. Nydia received her BA degree from Bryn Mawr College in 2009. Prior to joining CDC, Nydia worked at Callen-Lorde Community Health Center in New York City, which specializes in providing primary medical care services to the LGBT community and those living with HIV/AIDS.

Sarita Shah, MD, has joined IRPB, where she will serve as the Assistant Chief for Science and will lead the Program Strengthening and Epidemiology Team. She started in her new position on Aug. 13. After completing her EIS training in DTBE's IRPB in 2006, Sarita accepted a position with The Albert Einstein College of Medicine/Montefiore Medical Center in NY, where she served in various capacities. These included serving as 1) Assistant/Associate Professor of Medicine in the Division of General Internal Medicine and Infectious Diseases, 2) Assistant Professor of Epidemiology and Population Health, and 3) Attending Physician at Montefiore Medical Center's Infectious Diseases clinic and on the General Medicine and HIV/AIDS Inpatient Teaching Service. Since 2006, Dr. Shah has gained considerable experience leading and directing clinical and epidemiological research. She has also had significant experience implementing research grants supported by the National Institutes for Health and other US government agencies, including CDC and PEPFAR.

Dr. Shah earned her undergraduate and MD degrees at the John Hopkins University, received an MPH degree at Columbia University - Mailman School of Public Health, and completed an internal medicine residency and clinical and research fellowship in general medicine at Columbia-Presbyterian Medical Center at the University of Michigan.

Cortney Stafford, MPH, MT (ASCP), has joined the Laboratory Branch as a new consultant for the Laboratory Capacity Team (LCT). Cortney has extensive laboratory experience in bacteriology, virology, mycobacteriology, and laboratory quality control in her position as Senior Medical Technologist

at Washington Medical Center in Washington, D.C. Cortney earned her master's degree in public health in Epidemiology with a concentration in infectious diseases from Emory University. She has previously worked at the VA Hospital in Atlanta as a Health Science Specialist in Infection Prevention and Control. In this capacity, Cortney directed the hospital-wide MRSA Implementation Team, and also worked on the analysis and surveillance of multidrug-resistant organisms, prepared Medical Center Memorandums for multidrug-resistant organisms, designed materials used for nursing education, and conducted educational sessions on Infection Control practices.

Cortney also has experience in TB at CDC, where she served as a research assistant for the DTBE Tuberculosis Trials Consortium (TBTC). In this capacity, she was responsible for updating and ensuring accuracy of case study report forms for two TBTC clinical trials, coordinated data from four international clinical study sites, and helped organize and manage data at the TBTC Coordination Center. Her Master's thesis was a culmination of her work on TBTC initiatives: An analysis of risk factors for failure to convert sputum culture in the Tuberculosis Trials Consortium Study 27: Evaluating the activity and tolerability of moxifloxacin during the first 2 months of treatment for pulmonary tuberculosis. She has authored peer-reviewed articles for infection control and internal medicine journals and has given presentations at epidemiology conferences. The Laboratory Capacity Team is excited and pleased to welcome Cortney on board as a new laboratory consultant!

David A. Yost, MD, MSc, has joined CDC, DTBE, and FSEB as a Field Medical Officer assigned to the Puerto Rico TB control program. His assignment there began as of July 1, 2012. As one of the few second-generation physicians in the U.S. Public Health Service, CAPT David Yost began his Commissioned Corps career with the Indian Health Service in 1990. From 1991 to 2012, he served as the Clinical Director of the Whiteriver Service Unit, overseeing hospital, clinic, and public health services for the White Mountain Apache Tribe in rural eastern Arizona.

Dr. Yost received his BA degree from Bluffton College (Bluffton, OH) in 1983. He completed both his MD degree (1987) and his family practice residency (1990) at the University of Arizona College of Medicine. In 2004, he received his masters of science degree in infectious diseases from the London School of Hygiene and Tropical Medicine. From 2004 to 2011, Dr. Yost served multiple terms as the Chairman of the National Council of Clinical Directors and served several IHS Directors in a variety of national work groups for Succession Planning, Strategic Planning, and Core Formulary development. Dr. Yost also served as mentor for clinical administrators and a national peer reviewer in the IHS Risk Management Program.

As a public health administrator, Dr. Yost has overseen outbreak investigations in the areas of measles, hepatitis A, STDs, and Rocky Mountain spotted fever. He has supervised a variety of maternal and child health initiatives and has been recognized by the Commissioned Corps with both an Outstanding Service Medal and Meritorious Service Medical for his national public health leadership.

In addition to his medical administrative work, Dr. Yost maintains an active clinical practice in the fields of emergency medicine and obstetrics. He is a field clinical faculty member of the University of Arizona Department of Family and Community Medicine and regularly precepts medical students and residents.

## CALENDAR OF EVENTS

September 8, 2012  
5th International Workshop on Clinical Pharmacology  
of Tuberculosis Drugs  
San Francisco, California  
Virology Education  
Abstract submission deadline: July 13, 2012

September 8–11, 2012  
American College of Epidemiology  
Chicago, IL  
American College of Epidemiology

September 18–20, 2012  
2012 TB Education, Training, and Evaluation  
Network Conference  
Atlanta, Georgia  
TB ETN and TB PEN

October 10–11, 2012  
Midwest TB Controllers  
Deadwood, SD  
Midwest TB Controllers

October 10–13, 2012  
The Denver TB Course  
Denver, Colorado  
National Jewish Health

October 22, 2012  
SW TB Controllers Meeting  
Durango, CO  
Division of TB Elimination (DTBE)

October 23–24, 2012  
18th Annual Four Corners TB-HIV Conference  
Durango, CO  
Division of TB Elimination (DTBE)

October 27–31, 2012  
140th APHA Annual Meeting  
San Francisco, CA  
American Public Health Association (APHA)

November 13–17, 2012  
43rd Union World Conference on Lung Health  
Kuala Lumpur, Malaysia

International Union Against Tuberculosis and Lung  
Disease

November 19–20, 2012  
TB: Making a Difference  
Toronto, Ontario, Canada  
The Lung Association

December 4–5, 2012  
ACET meeting  
Atlanta, GA  
Division of TB Elimination (DTBE)

January 28–February 1, 2013  
TB Program Manager's Course  
Atlanta, GA  
Division of TB Elimination (DTBE)