



Dear Colleague:

The last quarter of 2008 kept us busy with a variety of activities. Division of Tuberculosis Elimination (DTBE) staff organized and attended several meetings this summer and fall. These included an expert consultation on the use of interferon gamma release assays (IGRAs), held August 4–5 in Atlanta. The Tuberculosis Education and Training Network (TB ETN) 8<sup>th</sup> Annual Conference was held in Atlanta August 5–7; please see the related article by Holly Wilson in this issue. The 5<sup>th</sup> National Conference on Laboratory Aspects of Tuberculosis was held in Atlanta August 11–13; we will provide a summary of that meeting in a later issue of *TB Notes*. Two meetings were held on November 13–14, 2008: The TB Trials Consortium (TBTC) held an important meeting in Atlanta to discuss and plan for the 2009 recompetition of the TBTC sites. Also, the Evaluation Work Group (EWG) convened in Atlanta to review the implementation of the 2004–2008 EWG Strategic Plan, identify implementation challenges, and seek input from members as well as from the Advisory Council for the Elimination of Tuberculosis (ACET), the National TB Controllers Association (NTCA), state and local programs, and DTBE staff. As a result of this meeting, the EWG will establish a strategic plan for program evaluation for the next 5 years. On November 18–19, the TB Epidemiologic Studies Consortium (TBESC) met to conduct its Semiannual Tuberculosis Advisory Review (STAR) process. The Coordinating Center for Infectious Diseases Board of Scientific Counselors (BSC) meeting was held December 4–5, 2008. The BSC topic was antimicrobial resistance; DTBE presenters at that meeting included Drs. LoBue, Moonan, Navin, Robison, and Vernon. And on December 9–10, the National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP) held a consultation in Atlanta on social determinants of health and infectious diseases; participants discussed how social determinants affect health and health outcomes and generated suggestions to guide policy, program, and research efforts. Suzanne Marks presented on TB disparities in African Americans at that consultation.

ACET met in Atlanta October 7–8, 2008. Dr. Hazel Dean, NCHHSTP Deputy Director, gave the NCHHSTP Director's Update in Dr. Fenton's absence. She discussed CDC's Healthiest Nation Initiative. The intent of this initiative is to develop a broad-based U.S. movement that supports and promotes health. It will mainly draw on broad-based partnerships to energize Americans to not only take personal responsibility for their health, but also encourage others to do so as well. In other updates, Dr. Dean related that a continuing resolution was signed; it extends federal government operations through March 6, 2009. Also, on

September 16, Dr. Gerberding testified before Congress on HIV/AIDS in the United States. In her testimony, she spoke of the new HIV incidence figures that were released in August. The first analyses, published in the August 6 issue of the *Journal of the American Medical Association (JAMA)*, showed that in 2006, an estimated 56,300 new HIV infections occurred; this is substantially higher than the previous estimate of 40,000 annual new infections. However, the new estimate does not represent an actual increase in HIV, but more accurate tracking as a result of using more advanced technology.

In my remarks to ACET, I reported on the 15 investigations of TB clusters or outbreaks in which DTBE staff were involved from January 2007 through August 2008. I also reported on the National TB Genotyping Service; as of September 2008, there had been 40,000 isolates genotyped. I shared two items of good news: starting in October 2008, CDC will cover shipping costs for isolates to be genotyped, and CDC has successfully renewed contracts for genotyping services with laboratories in California and in Michigan. Also, we now have an aberration detection unit (Molecular Epidemiology Activity) as part of DTBE's surveillance team. Members of the team will provide on-site consultation to TB controllers in prioritizing their genotyping clusters.

I reported that this year, TB control workers in the Gulf region were prepared for the return of hurricane season, having applied the lessons gained from Hurricanes Katrina and Rita. When hurricanes Gustav and Ike bore down on Louisiana and Texas, TB patients had been given 2- or 4-week supplies of medications and the telephone numbers of TB staff. Members of NTCA and DTBE communicated with each other and TB controllers to find and keep track of evacuated TB patients. As a result of the advance preparations, almost all TB patients have been found and returned to treatment. DTBE staff have collaborated with respective health departments to report on these activities for subsequent publication in CDC's *Morbidity and Mortality Weekly Report (MMWR)*.

Dr. Denise Garrett gave an update on the TB Epidemiologic Studies Consortium (TBESC) recompetition. In essence, the next round of TBESC task orders will focus on a single overarching goal. A Strategic Planning working group developed a list of broad research concepts, and determined that the focus should be on latent TB infection. Next steps will include developing concepts into proposals, developing a detailed research plan, selecting the new TBESC research, and selecting the new sites.

Drs. Drew Posey and Francisco Averhoff of DGMQ reported on immigrant health and on travel restrictions. Dr. Posey reported that as of October 1, 2008, persons from 14 countries are being screened according to the 2007 Technical Instructions for Tuberculosis Screening and Treatment; this includes 28% of the immigrants and 40% to 50% of the refugees. He also reported on the Electronic Disease Notification (EDN) system; DTBE and DGMQ planned to jointly hold a

summit in November to discuss EDN and come to a consensus on moving forward. Dr. Averhoff reported on air travel restrictions for public health purposes, specifically the Do Not Board (DNB) list. The DNB list is a new tool that helps public health officials prevent travel on commercial aircraft by persons posing a serious risk for infection to other travelers; please see the related report, Federal air travel restrictions for public health purposes—United States, June 2007–May 2008. *MMWR* 2008; 57(37): 1009–1012.

We heard a number of laboratory-related presentations. Dr. Tom Shinnick reported on an expert consultation that was convened on June 13, 2008, in Atlanta to consider revisions to the current recommendations for the use of nucleic acid amplification (NAA) tests for the diagnosis of TB. The working group suggested several revisions to the current guidelines for using NAA: all diagnosticians should have access to molecular tests; NAA testing should become standard practice; and the test should be done on at least one specimen from each suspected TB patient. He encouraged ACET and CDC to discuss and consider adopting the recommendations of the expert panel. (Editor's note: On the basis of the group's report and consultations with ACET, CDC issued Updated Guidelines for the Use of Nucleic Acid Amplification Tests in the Diagnosis of Tuberculosis (*MMWR* Jan 16, 2009; 58[1]: 7-10). Dr. Shinnick also discussed issues around molecular drug susceptibility testing. A working group will develop recommendations for this testing in early 2009. Dr. Beverly Metchock discussed the pros and cons of direct specimen microscopy, and raised the issue of whether procedural restrictions on direct microscopy improves the quality of the procedure or slows down the diagnosis. We also heard an update regarding the expert consultation on IGRAs that was held August 4–5, 2008. Guidelines on the use of this assay are being developed and will be published in the *MMWR* after ACET review.

Dr. Kashef Ijaz gave an update on proposed changes to the TB cooperative agreement funding formula. The NTCA formula workgroup members—representing ACET; DTBE; big cities; laboratories; and high-, medium-, and low-incidence states—have recommended a revised formula (55% base / 45% redistribution) using data reported to CDC for 2004–2008. We also heard about the investigation into several cases of multidrug-resistant (MDR) TB in Chuuk, Micronesia. The Epi-Aid and the follow-up work succeeded, owing in part to the program collaboration and service integration (PCSI) efforts of several public health entities. Dr. Rick Goodman gave an update on current activities regarding TB laws, including the review and characterization of selected states' express laws for TB control, a practitioner's handbook, and the development of a "Model TB Act" to be used as a tool by state and local TB controllers. The primary authors for these products are with the Centers for Law and the Public's Health, a collaborative team at Johns Hopkins and Georgetown Universities. CDC and a number of collaborating partners (including ACET, NTCA, and others) have been reviewing and providing feedback on the Model TB Act since the initial draft was received in early November 2008. We look forward to having the Center's report

on express TB laws, the accompanying handbook and slides, and the Model TB Act possibly in early 2009.

Mr. John Seggerson discussed the activities of Stop TB USA, which has been updating the plan for elimination of TB in the United States. The group recommends increases in advocacy, mobilization, and partnerships. Because responsibility for planning and implementing TB control cannot stay exclusively within the public health sector, its members have been deliberating over the draft TB Elimination Plan. Earlier this fall, the draft was distributed and commented upon. A community consultation was held in October, and the Plan is now being finalized. We look forward to the publication of this important document scheduled for World TB Day 2009.

We heard from Drs. Elsa Villarino and Andy Vernon that the TB Trials Consortium (TBTC) sites will be recompeted in 2009. Owing to fiscal restraints, fewer sites will be funded. The new TBTC configuration will be determined by public health and scientific needs, availability of patients, and funding. In addition, Dr. Villarino provided recommendations from the BCG Workgroup on the use of BCG vaccine to prevent TB in persons working in high-risk areas of the world. The Workgroup has drafted recommendations for the use of BCG in these situations, with all needed and appropriate caveats and instructions for its use.

Dr. Sundari Mase gave an update from another workgroup that had been asked to develop evidence-based guidelines for discontinuation of isolation for MDR TB. The workgroup conducted a literature review and found that most transmission occurred in facilities that did not initiate recommended isolation precautions. The group's recommendations will likely include the criteria of having a regimen tailored to susceptibility results, clinical improvement (no cough), a negative smear, and three negative cultures. Dr. Mase anticipated that guidelines would be published in 2009. Ann Cronin discussed after-action reports resulting from high-visibility incidents involving TB and air travel. CDC's recommendations include a call for increased laboratory capacity and additional investment in rapid diagnostics. After a few additional items of business, the meeting was adjourned. The next ACET meeting is scheduled for March 3–4, 2009, in Atlanta.

The 39<sup>th</sup> International Union Against TB and Lung Disease (IUATLD) World Conference on Lung Health was held in Paris October 16–20. The conference theme was "Global threats to lung health: The importance of health system responses." Conference sessions explored the challenges of building up and strengthening the readiness and preparedness of health systems in preventing global threats to lung health and mitigating their impact. DTBE was represented by a contingent of staff who organized, coordinated, led, or presented data at one or more of the many sessions.

The 2008 TB Program Managers Course was held this year during the week of October 27–31. This is an important annual training course that offers new TB managers an overview of the basic principles and practices of current TB control, with didactic lectures given by subject-matter experts, and hands-on exercises that help attendees practice what they have learned. We would like to thank those who took time out of their busy schedules to serve as faculty for the course. Please see the summary article by Regina Bess and Allison Maiuri about this year's course.

World TB Day, March 24, is fast approaching. This annual event commemorates the date in 1882 when Dr. Robert Koch announced his discovery that the organism *M. tuberculosis* is the cause of TB. Every year, TB control workers around the world take advantage of this day to celebrate hard-won victories and acknowledge persisting challenges. For more information and resources related to World TB Day, please visit the DTBE 2009 World TB Day web page at [www.cdc.gov/tb/WorldTBDay/default.htm](http://www.cdc.gov/tb/WorldTBDay/default.htm) as you plan your own local activities.

Kenneth G. Castro, MD

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

## HIGHLIGHTS FROM STATE AND LOCAL PROGRAMS

### New England TB Heroes Awards Go to Two Outstanding Nurses

The New England TB Consortium has launched a new award that recognizes persons who have made an exceptional contribution to TB control and the well-being of patients and the community. By creating the TB Heroes Award, the New England TB programs pay homage to those individuals who by some act or consistent performance embody the highest qualities of public health caring and service. The Award also demonstrates our appreciation for the recipients' dedication to patients and the example they set for all of us.

The 2008 recipients for the New England TB Heroes Award are Susan Nutini, RN, clinical nurse at the RISE TB Clinic at Miriam Hospital in Providence, Rhode Island, and Suzanne Gunston, RN, MS, former coordinator of the Maine TB control program.

On September 19, 2008, before a full auditorium at the Northeast TB Controllers meeting in New York City, Kathleen Gensheimer, MD, Maine State Epidemiologist, and Jill Fournier, RN, New Hampshire TB control program coordinator, introduced the award recipients.

The audience listened in rapt attention as the recipients and award presenters stood before the group. Susan Nutini was nominated for the award for her 23 years of service at the RISE TB Clinic where her tenacity, compassion, sense of humor, and dedication to patient care is legendary. In the years prior to the implementation of directly observed therapy in Rhode Island, Susan was known to drop off medications to patients at their homes after clinic hours to ensure that they stayed with the program. Over the years, Susan has trained countless physicians and nurses who have rotated through the clinic. Physicians around the state call the clinic to discuss cases with her and to gain her advice on care, a true measure of the medical community's respect for Susan.

New England TB Heroes Suzanne Gunston and Susan Nutini, in center, holding awards, are congratulated by Mark Lobato, DTBE regional consultant, and Kathleen Gensheimer, Maine State Epidemiologist, on left, and Jane Carter, former medical director of the RISE TB Clinic, and Jill Fournier, New Hampshire TB control program coordinator, on right.



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for other publications, information, and  
resources available from DTBE.

Through her dedication, she has saved lives by finding the exposed child who did not look quite right, by astutely interviewing patients to identify community exposures, by engaging difficult patients in care through a combination of tenacity and kindness, and by educating the community about TB. In the words of her nomination, "She can retire when TB is eliminated from Rhode Island or when cloning is possible — so we can be blessed with many Susan Nutinis! Susan Nutini is a hero in TB!"

Suzanne Gunston, RN, MS, is no novice to public health. After many years as a public health nurse, she found a passion for TB as the Maine TB program coordinator. Her nomination was for exemplary leadership, initiative, creativity, and quality-of-care improvements. Cutting her teeth on a large TB outbreak among the homeless that started in 2002, Suzanne became a TB leader respected throughout the state. Over time, Suzanne developed mutual respect,

collaborative relationships, and the ability to solve problems with provider partners throughout the state through clear communication and by working toward excellence in service delivery and design. She also collaborated with other public health nurses to enhance their capacity to work with high-risk groups, as well as with primary care medical providers on the implementation of the federal CDC guidelines on prevention of TB in health care facilities. She was able to understand the needs and concerns of medical providers, and to align these with the needs of patients. This meant not being dogmatic, but rather working with people to meet their needs and still accomplish good TB control. She also recognized the times when she could not compromise on regulatory issues because of the insidiousness of TB, and in these situations her patience and graceful persistence were recognized as a means to accomplishing the necessary goals.

During her tenure as TB program coordinator, Suzanne spearheaded the design of a calendar with animal figures to improve adherence in children being treated for latent TB infection, led the development of a toolkit for conducting screening for TB in homeless shelters, and demonstrated creativity and cultural competence in finding solutions for TB management among the Somali immigrant population. Retiring on May 1, 2008, "Suzanne has indeed left her mark on TB control in Maine," the nomination noted, "and for that, we are all grateful to her. It would truly be fitting to award her with the 2008 New England TB Heroes award."

—Submitted by the New England TB  
Consortium Nominating Committee:  
Sue Etkind, RN, MS, Director,  
Div of TB Prevention and Control,  
Massachusetts Dept of Public Health;  
Kathleen Gensheimer, MD  
Maine State Epidemiologist;

*Jill Fournier, RN, BSN, Coordinator,  
New Hampshire TB Program; and  
Mark Lobato, MD, New England TB  
Consultant, Div of TB Elimination*

### **TB Death Assessment Tool in California: Development and Pilot Test**

#### *Background*

In 2006, a total of 268 (9.7%) of California's 2,778 tuberculosis (TB) patients died with TB. Of these, 23.0% were diagnosed after death, 4.4% were alive at TB diagnosis but died before starting TB therapy, and 72.7% died during TB therapy. In 1995, CDC recommended that "TB control programs should evaluate ... each death caused by TB to determine whether ... the death could have been prevented. Based on such a review, new policies should be developed and implemented to reduce the number of preventable ... deaths."<sup>1</sup>

More than 10 years after these recommendations were published, there is no systematic method for determining which of these deaths are caused by TB, nor is there a method to assess preventability. CDC's revised Report of Verified Case of Tuberculosis (RVCT),<sup>2</sup> to be implemented in 2009, will capture information about whether a death is related to TB disease or to TB medication. A systematic approach is needed to accurately capture these new RVCT variables.

In order to respond to California's local TB control programs' requests for assistance in evaluating preventability of TB deaths, the California Department of Public Health (CDPH) Tuberculosis Control Branch (TBCB), with input from a working group of TB controllers, developed a tool to fill this important gap. The *TB Death Assessment Tool* systematically examines 1) whether or not TB contributed to death for each case

patient who dies *with* TB, and 2) missed prevention opportunities for TB-related deaths. The goal of the tool is to assess TB-relatedness of deaths and gather information from missed opportunities, which will be used to guide public health action at the local and state levels to prevent future TB deaths.

#### *Description of the Tool*

To determine whether a death is TB-related, data are abstracted from the public health record, hospital and out-patient records, laboratory reports, imaging studies, autopsy, and death certificate. The tool classifies deaths into one of five categories: definitely, possibly, not likely, definitely not, and unknown TB-related. This classification is performed by using an algorithm that considers the extent, severity, and consequences of TB disease; adverse effects associated with TB medications; and adverse outcomes associated with medical procedures within 30 days prior to death.

In this classification, TB-related deaths are defined as either definitely or possibly related to TB. For TB-related deaths, missed prevention opportunities are assessed. Deaths that are classified as not likely, definitely not, or unknown TB-related are not evaluated further. There are 35 missed opportunities in three categories: case detection (9), medical treatment (13), and case management (13). Two of the missed opportunities are defined based on expert opinion; the remainder are based on state regulations or state or national guidelines.

#### *Methods*

From September to December 2006, the tool was pilot tested by using it to assess TB deaths in a sample of 20 *M. tuberculosis* culture-positive TB cases. These cases were reported to four California local TB control programs from January 1, 2005, to June 30, 2006, with final treatment outcomes submitted to the State TB Registry by

September 30, 2006. The sample, drawn from a cohort of 54 eligible cases, consisted of five (25%) case patients who were diagnosed at death or alive at diagnosis but died before starting therapy; three (15%) who received less than 2 weeks of TB therapy; and 12 (60%) who received 2 or more weeks of TB therapy. Cases were randomly selected from these groups in approximately the same proportion as each was present in the 2000 to 2004 statewide cohort of TB deaths.

Local TB program staff provided copies of the public health record to state TB control staff, who reviewed the record for information gaps. If gaps were present, local staff attempted to obtain additional information, using all reasonable means, until the record was as complete as possible.

Two CDPH investigators (a TB clinician and an epidemiologist) abstracted information from each patient record into an electronic version of the tool and used the tool's algorithm to assess the contribution of TB to death for each case and evaluate missed opportunities for TB-related deaths. Missed opportunities were categorized as "potential" when information in the medical record was inadequate to assess the presence of a missed opportunity, but available information was suggestive. Microsoft Excel 2003<sup>®</sup> was used for data analysis.

To assess feasibility of the tool, the availability of essential patient information was determined and the time to complete the examination of case records using the tool was calculated. To examine utility, the tool's ability to determine the TB-relatedness of death and assess missed prevention opportunities was evaluated for each case. Inter-rater reliability was examined by assessing the concordance of two investigators' classification of the TB-relatedness of death for each case.

A survey instrument was developed to evaluate local TB control staff practices and needs in assessing TB deaths. One staff member from each program completed the survey prior to the pilot, either by interview or in writing.

### *Results*

The final pilot sample comprised 20 cases: 15 (75%) men and five (25%) women, with median age at death of 77 (range 46–93) years. Fourteen (70%) patients were foreign-born and had been living in the United States for a median of 20 (range 3–30) years.

Eleven (55%) patients had pulmonary TB only, five (25%) had extrapulmonary TB only, and four (20%) had both pulmonary and extrapulmonary TB. Of all cases, seven (35%) had acid-fast bacillus (AFB) smear-positive TB disease. Eighteen (90%) had pansensitive TB, one (5%) had multidrug-resistant TB, and one (5%) had isoniazid monodrug-resistant disease. The following co-morbidities were observed in these 20 patients: acquired immunodeficiency syndrome (AIDS) and lung cancer (1), lung cancer and diabetes mellitus (DM) (1), end-stage renal disease (ESRD) and DM (1), AIDS (1), lung cancer (1), ESRD (1), and DM (2). Other co-morbidities were also noted.

In the 20-case sample, six (30%) deaths were categorized as definitely TB-related, 11 (55%) as possibly TB-related, and three (15%) as unlikely TB-related. The cases that were definitely TB-related included one patient with TB meningoencephalitis complicated by hydrocephalus, one with tubercular empyema, one with miliary TB and AIDS, one with pulmonary and lymphatic TB who died of a pulmonary hemorrhage, and two with extensive pulmonary TB. No deaths were classified as definitely not or unknown TB-related. Overall, 17 (85%) deaths were determined to be TB-related.

All 17 patients with TB-related deaths were hospitalized during diagnostic work-up and/or treatment. For these patients, the median time from initiation of the diagnostic evaluation for TB to death was 38 (range 5–390) days, and, on average, patients spent half of this time hospitalized. For the 10 patients with TB-related deaths who received at least 2 weeks of TB treatment, the median duration of treatment was 45 (range 23–346) days.

Among the 17 TB-related deaths, the death certificate for nine (53%) listed TB as a cause of death. On the death certificates for the three deaths determined not to be TB-related, none listed TB. Thus, the overall concordance between the tool and the death certificate in assessing TB as a cause of death was 60% (12 of 20). The death certificate is already known to have suboptimal sensitivity for TB. Three of four (75%) patients with TB-related deaths who were dead at TB diagnosis did not have TB listed as a cause of death on the death certificate. For these patients, confirmation of TB diagnosis was received after the death was certified.

Of the 17 TB-related deaths, eight (47%) patients had missed opportunities in case detection only; two (12%) patients had missed opportunities in case detection and medical treatment; and two (12%) patients had missed opportunities in case detection, medical treatment, and case management. No missed opportunities were found for five (29%) patients.

For the 12 (71%) patients for whom opportunities were missed, a total of 28 definite and five possible missed opportunities were documented. Specific missed opportunities are detailed below.

| Definite Missed Opportunities                                                                              |            |
|------------------------------------------------------------------------------------------------------------|------------|
| Type                                                                                                       | n          |
| <i>Case detection</i>                                                                                      | 19         |
| Provider delays in reporting cases to the local TB program                                                 | 7          |
| Provider diagnostic delay                                                                                  | 6          |
| Patient diagnostic delay                                                                                   | 3          |
| Lab delay in processing and/or reporting positive AFB smears or pathology consistent with TB to TB program | 3          |
| <i>Medical treatment</i>                                                                                   | 5          |
| Delay in TB treatment initiation                                                                           | 2          |
| Inappropriate TB treatment                                                                                 | 1          |
| Inadequate management of adverse reactions to TB medications                                               | 1          |
| Lab delay in processing and/or reporting initial drug susceptibility results to TB program                 | 1          |
| <i>Case management</i>                                                                                     | 3          |
| Inadequate assessment of indications for directly observed therapy (DOT)                                   | 1          |
| Failure to initiate DOT                                                                                    | 1          |
| Inadequate transfers of TB patients                                                                        | 1          |
| <i>Other missed opportunities</i>                                                                          | 1          |
| Pharmacy transcription error                                                                               | 1          |
| <b>Total</b>                                                                                               | <b>28*</b> |

\*Some cases had no missed opportunities, and some had  $\geq 1$

| Possible Missed Opportunities                              |            |
|------------------------------------------------------------|------------|
| Type                                                       | n          |
| <i>Case detection</i>                                      | 2          |
| Provider diagnostic delays                                 | 2          |
| <i>Medical treatment</i>                                   | 3          |
| Delays in treatment initiation                             | 2          |
| Inadequate monitoring of adverse effects to TB medications | 1          |
| <b>Total</b>                                               | <b>5**</b> |

\*\*All cases with possible missed opportunities also had  $\geq 1$  definite missed opportunity

The tool was deemed feasible in the pilot test. Specifically, sufficient patient information was available to assess TB deaths, and the time required for all aspects of data collection and examination was approximately 4 hours per case. Inter-rater reliability in determining the TB contribution-to-death category was 95% (19 of 20). The tool appeared to accomplish what it was designed to do. Specifically, it was able to assess the contribution of TB to death and evaluate missed opportunities for TB-related deaths. However, there is no “gold standard” against which to compare the results and assess the accuracy of the tool.

In the survey of local program practices and needs to assess TB deaths, two of four programs reported conducting limited reviews of TB deaths. These programs noted a number of challenges, including lack of a standardized method to assess the TB contribution to death and prevention opportunities; consequent difficulty using findings to inform interventions; insufficient time to conduct reviews of TB deaths; and information gaps in the patient record. All four respondents considered examining prevention opportunities of TB-related deaths a program priority and noted the need for a structured, systematic, and timely review process that would minimize clinician time and that could readily be used to inform interventions.

Some limitations of this pilot test were noted. First, the sample was relatively small, limiting generalizations beyond the study population. Second, despite our attempts to obtain all pertinent medical records, we did not have complete records for all cases; for some, handwritten notes by health care providers were not legible. Inadequate medical documentation could result in inaccurate conclusions. This limitation was addressed, in part, by categorizing missed opportunities as “possible” if information to fully assess a

missed opportunity was lacking but available information was suggestive. Third, California's experience in assessing TB deaths may not be representative of other program experience. Fourth, although the tool is an electronic form that allows the user to enter data, the lack of an electronic database linked to the entered data tended to limit data analysis.

### *Conclusions*

Use of this death assessment tool provided a systematic method for determining TB-relatedness of death and detected missed prevention opportunities. In this sample, a high proportion of deaths were found to be TB-related, and a high proportion of TB-related deaths had at least one missed opportunity to prevent death.

These findings may be used to inform interventions to prevent future deaths. The most common missed opportunities were provider diagnostic delays and provider delays in reporting suspected or confirmed cases to the local program (which could result in delay in treatment initiation or initiation of an inappropriate TB regimen). Interventions suggested by these findings include feedback to private providers regarding diagnostic standards for TB, including the importance of a high index of suspicion for patients with certain risk factors, use of empiric TB therapy, and special treatment regimens for patients with pre-existing liver disease; reporting requirements, including the reporting of TB suspects; and the need to update the death certificate when a TB diagnosis is made after death and TB contributes to death. Other suggested interventions include intensification of private provider oversight during treatment and hospitalization of TB patients with complex co-morbidities, expanding DOT to patients with co-morbid conditions, and strengthening of local program transfer of care during moves.

The pilot highlighted the substantial toll of TB on both the patients and society. Interventions to prevent TB deaths may give patients the best chance of cure and survival and also result in substantial cost savings to society.

During 2008–2010, the CDC Tuberculosis Epidemiologic Studies Consortium will undertake a multisite mortality investigation of approximately 1,400 TB deaths which will extend beyond California. Study objectives include assessing the proportion of TB-related deaths, patient predictors of mortality, and missed prevention opportunities. Findings of this study, which will include a case-control study design, will be used to further test, revise, and finalize a systematic approach to assess TB deaths.

—Reported by Joan Sprinson, CA Dept of Public Health, TB Control Branch; Manisha Bahl, Univ of California–San Francisco School of Medicine; Robert Benjamin, Alameda Co. Public Health Dept, TB Control Program; Charles M. Crane, Contra Costa Health Services, TB Program; Lisa Gooze, San Mateo County Health Dept, TB Control; Connie Haley, Vanderbilt Univ; Masae Kawamura, San Francisco Dept of Public Health, TB Control; Marisa Moore, DTBE, CDC and San Diego Co. TB Control Branch; Karen Redwine, Alameda Co. Public Health Dept, TB Control Program; Karen Smith, Public Health Div, Napa Co. Health and Human Services Agency; Francie Wise, Contra Costa Health Services, TB Program; Jennifer Flood, CA Dept of Public Health, TB Control Branch

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2. U.S. Department of Health and Human Services Centers of Disease Control and Prevention. Form OMB 0920-0096.

### Getting TB Suspect Information from Hospitals When You Need It—Quickly!

Sending a cover letter to hospitals with an information request form can foster rapid reporting of TB suspects and cases to the local health department. As soon as new TB suspects and cases are found by hospital staff or private physicians, they should be reported to local TB programs so initial interviews can be scheduled. There are a number of factors contributing to reporting delays. Nurses, attending physicians, and resident physicians are often changing jobs and relocating to other cities or states. New personnel may not be acquainted with the local reporting requirements. Private physicians may see TB patients infrequently in their practice and may not know when to report or whom to contact at the local health department. Hospital staff may delay reporting TB suspects until culture results have been obtained.

Delays in reporting TB suspects and cases cause a number of concerns. Patients may be discharged from the hospital before an interview can be scheduled; this could be problematic, especially if young children could be exposed at the returning patient's home. Patients may be homeless and be discharged to the streets at the classic 4 pm on Friday, and may try to gain entry to a shelter while still infectious. Patients may be discharged without an adequate supply of TB medications. For these and other reasons, it is important for local TB programs to have an ongoing policy to ensure prompt notification of TB suspects and cases and to address notification problems when they occur.

To address these concerns, TB program staff members in some states have developed a cover letter for hospitals and a request-for-information form. In developing these documents, the TB controller, state nurse

consultants, local TB program nurses, and physicians should all have an opportunity to review and tailor them as needed. For instance, in Houston, the TB control staff added the state reporting law in the first sentence of the hospital cover letter. They also included information on the Health Insurance Portability and Accountability Act (HIPAA) on the information request form to address concerns of reluctance to provide medical record data. The value of the request-for-information form is that it can expedite the collection of patient information and permit the review of primary information on the TB suspect by the TB program staff. This helps in setting priorities for interviews and contact investigations. To provide added weight to the importance of these documents, the Houston TB program included on the hospital cover letter the signatures of the TB bureau chief, the director of the health department, and the physician in charge of the Houston Health Authority.

In Houston, once the cover letter was completed, the clinical nurse case manager supervisor scheduled appointments and visits to various hospitals in the area. Accompanied by two TB program nurse case managers, she visited the infection control nurse and staff nurses at the hospital. This was a positive step because it allowed everyone to see and meet the colleagues they had been speaking to when reviewing patient cases by telephone. The nurses also brought TB literature to the hospital as well as a small Mr. TB Germ and a bag of jellybeans. The visits began in early November 2007 to hospitals where delayed reporting had been noticed. Letters and request-for-information forms have now been sent, and visits made, to the infectious control nurses and staff at most of the hospitals that report TB suspects and cases. The TB control staff also fax the cover letter and form to other hospitals that rarely report

TB. The fruits of these efforts have been a thank-you letter from one of the infection control nurses, stating she appreciated the time taken in coming to the hospital. In addition, there has been more prompt reporting of TB suspects at her hospital.

*Lessons Learned.* TB control staff should not assume that all hospitals and private physicians will report TB suspects promptly every time. As mentioned before, personnel come and go. It may take time for new staff to learn the local reporting requirements. In addition, stays at hospitals are getting shorter. TB programs need to know about these TB suspects and cases as soon as possible in order to interview them before discharge, or to discuss the need to keep the infectious TB patient longer in the hospital until suitable housing can be located.

*Future Plans.* Future plans include establishing a regular schedule of these visits to all hospitals in the Houston area that routinely report TB suspects and cases. In addition, the interviewers who visit these hospitals will discuss and provide the hospital cover letter and request-for-information form to nurses in the units housing the TB patients. Finally, efforts will also be made to provide this information to private physicians through office visits, telephone calls, or local conferences, or by working with the Houston Medical Society.

For more information, or for sample copies of either the cover letter or the information request form developed in Houston, please contact Ted Misselbeck at [ted.misselbeck@cityofhouston.net](mailto:ted.misselbeck@cityofhouston.net)

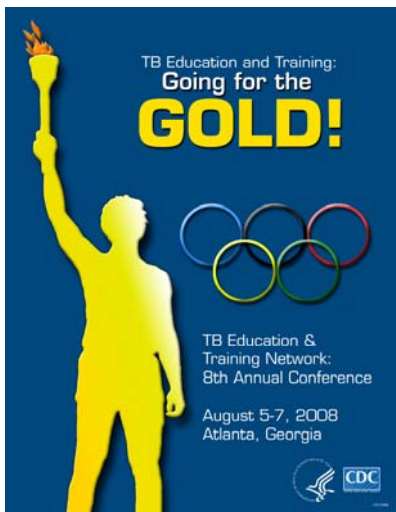
—Reported by Ted Misselbeck  
Div of TB Elimination

## TB EDUCATION AND TRAINING NETWORK UPDATES

### TB ETN Eighth Annual Conference

#### *Conference Highlights*

The TB Education and Training Network (TB ETN) held its eighth annual conference August 5–7, 2008, in Atlanta, Georgia.



Participants numbered 116 and represented state and local TB programs, non-profit organizations, and academia, from across the United States as well as from Canada and Sudan.

This year's theme, *TB Education and Training: Going for the Gold!*, was chosen to coincide with the summer Olympics and inspired presentations and activities throughout the two-and-a-half day meeting. Plenary topics included building capacity and forging partnerships; reaching your target audience; and developing a multi-language video about TB. Presenters from TB program areas spoke on a variety of topics from identifying barriers to TB control among Hispanics, to developing a web-based case study tool, to assessing stigma and other factors that influence the effectiveness of contact investigations.

In addition to the plenary sessions, participants had many engaging and useful breakout sessions to attend. Examples of the topics covered included reviewing basic training skills, using the systematic health

education process to develop materials, designing effective PowerPoint presentations, conducting needs assessments, and creating evaluation instruments.

For the second year, a special pre-conference session was held for TB ETN members who joined within the past year and for first-time conference attendees. Ann Poole, the 2008 TB ETN membership development workgroup co-chair, facilitated the session. Participants learned about TB ETN workgroups, education and training resources available to them through the TB Education and Training Website ([www.findtbresources.org](http://www.findtbresources.org)), and the TB ETN Connections Project. Participants were also given time to get to know one another.

Learning and networking continued outside of formal presentations. Participants viewed posters submitted by their colleagues and visited exhibits featuring TB education and training resources from DTBE, the Regional Training and Medical Consultation Centers, and state and local TB programs, among others. Tuesday evening's social event, sponsored by Cellestis (the company that develops and markets QuantiFERON® technology products) gave attendees a chance to catch up with old friends and to make new ones.

A preliminary look at the conference evaluations shows that nearly 80% of the participants either strongly agreed or agreed that the overall objectives for the conference sessions were met. Many attendees indicated that they enjoyed the conference and that they learned a lot. In all, this was another great TB ETN conference.

Congratulations to the conference planning workgroup for their hard work. Planning and organizing this conference is definitely a team sport and each person involved with

the planning and implementation of the conference deserves a gold medal for their efforts!

If you were not able to join us at this year's conference, we hope to see you in 2009. Stay tuned for information as we begin to plan the ninth annual TB ETN conference.

—Reported by Holly Wilson, MPN, CHES  
Div of TB Elimination

### ***Meeting of International TB ETN Members***

A breakout session was held for international TB ETN members at the Eighth Annual TB ETN Conference on August 5, 2008, in Atlanta, Georgia. The session was attended by TB ETN members from Canada and Sudan and by others who have worked in a variety of countries including Tanzania, Rwanda, Kenya, and Nigeria.

The purpose of the session was to provide a forum for international members to discuss TB prevention and control efforts in their countries. In addition, the session provided an opportunity to learn about TB education and training activities in other countries, and to brainstorm about raising awareness about TB ETN globally. As the discussion unfolded, other topics were explored, including how the organization might support participation of international members in TB ETN activities, working groups, and future conferences.

Suggestions included creating opportunities for grass-roots initiatives specifically involving international members. Some ideas were to create an international member working group; to explore communication technologies such as Skype (software that allows users to talk over the Internet); and to investigate the use of blogs that would make it easier for members working in alternate

time zones to engage in TB ETN working groups and activities.

Securing the funding needed to attend the TB ETN conference is a particular challenge for international members. Suggestions for sponsors and for cost-sharing initiatives from which international members could benefit were discussed, such as applying to local lung health associations and other non-profit groups for support, and sharing accommodations and transportation between the airport and conference venue. Participants also mentioned that obtaining travel visas was sometimes difficult. It was reiterated that DTBE has a standardized invitation letter that can be sent to participants for whom it is required.

We would like to extend our thanks to the conference participants who attended the session. We look forward to bringing the suggestions and discussions from the session to the TB ETN Steering Committee in the months to come.

—Reported by Linette McElroy, RN  
Tuberculosis Educator/Practice Consultant  
British Columbia, Canada, and  
Peri Hopkins, MPH  
Div of TB Elimination

### **Member Highlights**

In this issue we highlight the two new co-chairs for the Membership Development Workgroup, Millie Blackstone and Carolyn Bargman.



*Millie Blackstone, MPH, RN*, is a TB Nurse Coordinator with the Arizona Department of Health Services. Millie's job responsibilities include helping local TB programs ensure that patients with

known or suspected TB are given quality care. She provides TB education to public as well as private-practice health care workers, including physicians, nurses, and other health care staff. She assists state and local TB programs with issues related to TB patient management, infection control, contact investigations, and TB testing and screening. She also provides consultation to health care providers in correctional facilities, long-term care facilities, hospitals, and private clinics, and she conducts site visits to evaluate local TB control programs.

Millie first learned about TB ETN from her manager, and decided to join to learn new skills for educating health care workers. By joining the Membership Development Workgroup, Millie wants to ensure that new members have the resources and tools they need to educate other health care workers about TB. She also hopes to provide training at the TB ETN conference for new members who may not have prior TB knowledge and experience.

Millie believes that when educating others, one has to be cognizant of the variety of teaching methods. "Some people do not like working in groups, some do not like games, so you must know your audience; otherwise the audience will shut you out and not learn anything," Millie explained.

She has participated in several interesting training projects over the years. In a recent project, Millie helped develop the TB Nurse Case Manager Training in collaboration with the Heartland National TB Center. She was a planning committee member for the Four Corners TB/HIV Conference, held in Flagstaff, Arizona, in October 2008. In addition, she worked on the current Arizona TB program manual, accessible at [www.azdhs.gov/phs/oids/tuberculosis/ADHS%20TB%20Manual.pdf](http://www.azdhs.gov/phs/oids/tuberculosis/ADHS%20TB%20Manual.pdf). In a previous position that Millie held in California, she

participated in an emergency preparedness exercise at NBC Studios in Burbank, CA. The fire department was also involved in this half-day exercise. As part of the exercise, participants acted as first responders and set up a triage for the injured. She also developed and taught a course on Women's Health Issues at California State University in Northridge.

Millie's interests include house remodeling and furniture collecting.

*Carolyn Bargman, MA, RN*, is a TB Clinic Nurse and Educator with the Denver Metro TB Clinic and Boulder County Public Health Department. Her job responsibilities include managing cases of patients with latent TB infection (LTBI) and active TB disease and conducting contact investigations for Boulder County. She also sees patients for TB testing and clinical evaluation at the Denver Metro TB Clinic. In addition to her clinical responsibilities, Carolyn creates, reviews, and revises TB-related patient education materials, chart forms, protocols, and procedure manuals. She provides TB education to community health care providers, community groups, lay health promoters, and patients.

Carolyn first heard about TB ETN through the CDC website. She joined TB ETN because she thought it would be a good way to "learn from the experts" who have been conducting TB education and training courses much longer than she has. She also thought TB ETN members would be a good source of ideas and materials that she could adapt for use in her clinic and community.

By joining the Membership Development Workgroup, Carolyn is able to meet with other nurses working in TB. The workgroup is networking and learning about projects and programs done by others in the field,

and it's a way to meet other nurses for collaboration on future projects.

In the next few years, she hopes that TB ETN will focus more on training issues related to immigrant populations. Carolyn thinks there is a lot to learn about our own immigrant populations from nurses working in other countries, many who are TB ETN members. She would love to see collaborative projects between U.S.-based nurses and nurses in Africa, Asia, and Europe.

One recent educational activity that Carolyn was involved with was a TB update and review of the new U.S. Citizenship and Immigration Services (USCIS) TB screening guidelines for civil surgeons. The training was held by the Denver Metro TB Clinic in conjunction with the Francis J. Curry National TB Center. In addition, she developed a web-based TB update and skin test training for health care providers in the Denver Health and Hospital system, which includes a hospital, 21 community health clinics, and the public health department. Carolyn also helped develop protocols and training for nurses in the 21 Denver Health neighborhood health centers and school-based health clinics to provide treatment for latent TB infection (LTBI) to their clinic patients. She explained that the Denver Metro TB Clinic does not have the capacity to test and treat all LTBI patients in the Denver Metro area. Therefore, in providing additional training to the nurses at Denver Health, they were able to increase the number of patients who are being tested and treated for LTBI. She mentioned that the clinic nurses also enjoy these visits, as it gives them a chance to connect with their patients over a long period of time and in a way that they do not normally have the opportunity to do. Additionally, Carolyn has been heavily involved in the revision of the

Denver Metro TB Clinic's protocol manual, which was last updated in 1990.

Carolyn's hobbies include the typical Colorado activities of hiking, biking, and telemark and backcountry skiing. She is also a potter, loves to travel, and is a voracious bookworm. Another interesting fact about her is that she lived in Ecuador for 4 years as a Peace Corps volunteer, a Peace Corps staff member, and a Fulbright Scholar.

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

—Submitted by Trang Nguyen, MPH, CHES  
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 frequently asked for information on how to evaluate training courses. Can you explain the evaluation process and recommend some resources?

*Answer:* Evaluation is an integral part of training and should take place throughout each phase of the training process, not just as a last step. Following are some ideas to help you with this important activity.

#### *Formative Evaluation*

For example, after conducting a needs assessment, share the findings with other experienced program staff to interpret the

findings and set priorities for training and education. Have other trainers review written materials before finalizing and printing them for training. This kind of "formative" evaluation helps ensure that you have developed your training with great thought and analysis at each step.

#### *Participant Evaluations – Process, Outcome, and Impact*

The most obvious and frequent kind of evaluation occurs immediately after training; participants complete a course evaluation form after the training but before leaving the site. Evaluation can also take place at the end of each day of training through quick "How did it go?" discussions, or even during the evening in organized focus groups with participants. Longer-term, follow-up evaluations conducted 3 months to a year or more after training are also a possibility. These evaluations measure how participants use their newly acquired information and skills in their professional roles.

#### *Training Course Evaluation Model*

If you are looking for a theory to guide your evaluation, perhaps the best known training methodology is Kirkpatrick's Four Level Evaluation Model of reaction, learning, performance, and impact. According to this model, participant evaluation should always begin with level one, and then, as time and budget allow, should move sequentially through levels two, three, and four. Information from each prior level serves as a base for the next level's evaluation. Thus, each successive level represents a more precise measure of the effectiveness of the training program, but at the same time requires a more rigorous and time-consuming analysis. The four levels are—

##### 1. Level One – Reaction

Did participants like the course? What did they like or dislike about it? Did the course meet their expectations? Participants can

complete a simple questionnaire at the end of the training course.

##### 2. Level Two – Learning

What have participants learned during the course? Knowledge tests can be given to the participants at the beginning and end of the course.

##### 3. Level Three – Performance (behavior)

Did the participants use their new skills, knowledge, and attitudes in their daily work? To what extent have they incorporated the new behaviors into their work? Follow-up can be done with participants at their work sites after they have had some time to incorporate and practice their new skills.

##### 4. Level Four – Impact (results)

Has the training contributed to an improved health status of the people to whom the health workers provide health service? For example, are more cases of TB detected and cured? Attributing changes in disease incidence or other indicators to a single intervention such as training is a very complicated task, although not impossible.

Luckily, there are many great resources to assist you in conducting training course evaluations. For more information on training evaluation and Kirkpatrick's model, please see the resources listed below.

#### *Training Evaluation – Online Resources for Evaluating Training Effectiveness*

Note: These resources were accessible on the internet as of November 6, 2008.

[Instructional System Design – Evaluation Phase - Chap VI](#) by Don Clark (includes Kirkpatrick model); at url [www.nwlink.com/~donclark/hrd/sat6.html](http://www.nwlink.com/~donclark/hrd/sat6.html)

[Evaluating Training and Results](#) by Carter McNamara (includes additional links to

evaluation websites); url

[www.managementhelp.org/trng\\_dev/evaluate/evaluate.htm](http://www.managementhelp.org/trng_dev/evaluate/evaluate.htm)

[Evaluating Training](http://www.sil.org/lingualinks/literacy/ImplementALiteracyProgram/EvaluatingTraining.htm) from SIL International; url [www.sil.org/lingualinks/literacy/ImplementALiteracyProgram/EvaluatingTraining.htm](http://www.sil.org/lingualinks/literacy/ImplementALiteracyProgram/EvaluatingTraining.htm)

[Training Works! Evaluating Training](http://www.reproline.jhu.edu/english/6read/6training/Tngworks/evaluating.htm)

published by JHPIEGO; url

[www.reproline.jhu.edu/english/6read/6training/Tngworks/evaluating.htm](http://www.reproline.jhu.edu/english/6read/6training/Tngworks/evaluating.htm)

### **TB ETN Connections Project**

The TB Education and Training Network (TB ETN) Membership Development Workgroup reviewed and analyzed the TB ETN member registration forms to determine members' expectations – that is, how members hoped to benefit from being a part of TB ETN. Overall, the review and analysis found that members wanted to be able to

- Network with other TB educators
- Share work they had done
- Obtain suggestions and input from colleagues
- Borrow presentations and materials from others so as not to reinvent the wheel

To help meet these expectations, in August 2008 the TB ETN Membership Development Workgroup launched a new initiative called the *TB ETN Connections Project*. This project is designed to connect members who have special talents, interests, and strengths with members who would like to develop those same talents, interests, and strengths. We divided the areas of expertise into the following six categories:

1. Materials and products (e.g., posters, brochures, graphics, web design, e-learning)

2. Training skills (e.g., classroom techniques, PowerPoint, games and activities, train-the-trainer techniques)
3. Conference planning (e.g., site selection, marketing, registration, obtaining speakers)
4. Course development (e.g., needs assessments, curriculum development, evaluation)
5. Cultural competence (e.g., information about specific cultural groups and other populations such as jail inmates and homeless persons)
6. Research and publication (e.g., study design, methods, data, poster presentations, publication)

The Connections Project Needs You!

Are you one of those people who believe networking is the best part of any organization? Do you have a passion for TB and TB education? Would you like to share what you've learned with other TB ETN members? If you answered "yes" to any of these, then volunteering as a guide/mentor in the TB ETN Connections Project would be a great opportunity for you and a great benefit for your colleagues in TB ETN!

What would be expected of you if you signed up? The TB ETN Connections Project would ask you to make a small commitment to the project in terms of time and effort. Some examples include

- Availability and willingness to answer e-mails (within a week) and to answer phone calls (always at your convenience) from colleagues to discuss a current issue;
- Ability to point a colleague in the right direction or to another resource person;
- Willingness to share examples, samples, and humor; and
- A cheerful attitude and encouraging words!

How would you be connected to colleagues needing assistance?

- Your name, contact information, and areas of expertise will be listed on the TB ETN web site in the Member's Only Section
- It will be up to the member looking for information to contact you

What if you change jobs or need to be removed from the list for any reason?

- Contact one of the co-chairs of the Membership Development Workgroup and ask that your contact information be updated or removed.

If you would like to help your colleagues in TB ETN by participating as a guide/mentor in the TB ETN Connections Project, contact Ann Poole, Membership Development Workgroup Co-Chair, with the following via e-mail ([abpoole@dhr.state.ga.us](mailto:abpoole@dhr.state.ga.us)) or fax (404-463-3460):

- Your name, country, and e-mail address
- Category of expertise
- 1–3 specific examples of expertise

If you would like to find a guide/mentor in the TB ETN Connections Project, follow these steps:

1. Go to the TB ETN web page at [www.cdc.gov/tb/tbetn/default.htm](http://www.cdc.gov/tb/tbetn/default.htm) and click on "Members Only Section" (If you are not yet a member, see below.)
2. Log into "Members Only Section" with password
3. Click on "TB ETN Connections Project"
4. Locate the category you need and contact one of the listed persons

Membership to TB ETN is open to all persons who have an interest in TB education and training issues. There are no

membership fees, and new members may join at any time. Go to [www.cdc.gov/tb/tbetn/join.htm](http://www.cdc.gov/tb/tbetn/join.htm) to download a membership application.

—Submitted by Ann Poole, RN  
TB ETN Membership Development Workgroup

*"I am stopping TB by sharing my knowledge."*

### **Cultural Competency Update: Resources on Ethnic Nepalese Refugees from Bhutan**

#### *Summary of Bhutanese Refugee*

#### *Background and Demographics*

Nepal and Bhutan are small, neighboring countries lying between China and India. Despite their proximity, they are divided by cultural, linguistic, and religious differences; Nepal is predominantly Hindu, while Bhutan is a Buddhist kingdom. For 16 years, up to 100,000 Bhutanese have been living in refugee camps in Nepal. They are descendants of ethnic Nepalese who migrated to southern Bhutan around 1900 to find farm land. These ethnic Nepalese, known in Bhutan as the Lhotsampas, are a minority in Bhutan, but have increased in numbers and influence over time. In the 1980s, the Bhutanese government redefined citizenship so that most Lhotsampas were excluded due to ethnicity, language, and religion. Thousands of Lhotsampas were expelled from Bhutan; the majority fled to Nepal, with most arriving between 1990 and 1995. The U.S. Department of State agreed to accept at least 60,000 refugees from Bhutan over the next 5 years.

Nepali is the first or second language of the Bhutanese refugees, although some speak Dzongkha (the language of indigenous Bhutanese, written with Tibetan script). About 35% have a functional knowledge of English (day-to-day tasks). Some refugees are literate in Nepali, Dzongkha, or English,

with women having about 30% literacy and men about 60%.

Religious practices vary, with about 60% Hindu, 27% Buddhist, 10% Kirat (an indigenous animist religion), and 1%-7% Christian. Some people may have more than one religious practice.

Bhutanese refugees are grouped into castes (similar to South Indian castes), as they were in Nepal. They live in extended families; for example, an adult son would live in his parent's household with his wife and unmarried children. There is some polygamy and also arranged marriage—mostly within same caste—and early marriage.

*Bhutanese Refugees in Nepal—Background Documents*

1. Bhutanese Refugees in Nepal—Anticipating the Impact of Resettlement. Susan Banki. June 2008.  
[www.austcare.org.au/media/56970/arcnepalbp-lowres.pdf](http://www.austcare.org.au/media/56970/arcnepalbp-lowres.pdf)
2. Bhutanese Refugees in Nepal, produced by the Cultural Orientation Resource Center (COR) of the Center for Applied Linguistics (CAL). 2007  
[www.cal.org/co/pdf/files/backgrounder\\_bhutanese.pdf](http://www.cal.org/co/pdf/files/backgrounder_bhutanese.pdf)
3. Bhutanese Refugees in Nepal, Supplement. COR/CAL. Important information about caste considerations. 2 pages, January 2008. [www.cal.org/com](http://www.cal.org/com)
4. Bhutanese in Nepal, PowerPoint presentation by the UNHCR.  
[www.churchworldservice.org/Immigration/powerpoint/Bhutanese0807.ppt](http://www.churchworldservice.org/Immigration/powerpoint/Bhutanese0807.ppt) at—  
<http://www.churchworldservice.org/Immigration/sponsor-resources.html>

5. Map of Eastern Nepal and Bhutan, showing the Bhutanese refugee camps, UNHCR.  
[www.unhcr.org/publ/PUBL/44103ca70.pdf](http://www.unhcr.org/publ/PUBL/44103ca70.pdf)

6. Bhutanese Community Profile, Commonwealth of Australia, Department of Immigration and Citizenship, June 2007.  
[www.immi.gov.au/living-in-australia/delivering-assistance/government-programs/settlement-planning/\\_pdf/community-profile-bhutan.pdf](http://www.immi.gov.au/living-in-australia/delivering-assistance/government-programs/settlement-planning/_pdf/community-profile-bhutan.pdf)

7. A New Life for Refugees from Bhutan. Video, can be watched online. UNHCR, 2008.  
[www.refugeeyouthproject.org.uk/nepal/](http://www.refugeeyouthproject.org.uk/nepal/)

8. Adjusting to American Way of Life: Tips for Visitors, Students and Immigrants from Nepal. Bal Krishna Sharma, Ph.D. and Anita Adhikary, Association of Nepalese in Midwest America, 2001.  
[www.anmausa.org/resources/anmahandbook.pdf](http://www.anmausa.org/resources/anmahandbook.pdf)

9. Nepal and Bhutan: country studies. Federal Research Division, Library of Congress; edited by Andrea Matles Savada. Washington, D.C.: Headquarters, Dept. of the Army, G.P.O., 1993.  
<http://countrystudies.us/nepal/>

10. Bhutanese Refugees—Highlighted Resources. BRYCES (Bridging Refugee Youth & Children's Services). July 2008.  
[www.brycs.org/documents/ResourcesBhutaneseRefugees.pdf](http://www.brycs.org/documents/ResourcesBhutaneseRefugees.pdf)

*TB and Health among Bhutanese Refugees in Nepal*

1. High Success Rate of TB Treatment of Bhutanese Refugees in Nepal, IJTLD 2007.  
[www.ingentaconnect.com/content/iuatld/ijtlld/2007/00000011/00000001/art00009](http://www.ingentaconnect.com/content/iuatld/ijtlld/2007/00000011/00000001/art00009)

2. Malnutrition and Micronutrient Deficiencies Among Bhutanese Refugee Children—Nepal, 2007. *MMWR*, April 11, 2008 / 57(14):370-373.

[www.cdc.gov/mmwr/preview/mmwrhtml/mm5714a3.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5714a3.htm)

3. Refugee Health in Nepal: Joint UNHCR-WHO evaluation of health and health programmes in Bhutanese refugee camps in Nepal, 2005.

[www.unhcr.org/research/RESEARCH/425e6aee2.pdf](http://www.unhcr.org/research/RESEARCH/425e6aee2.pdf)

*TB Health Education Materials in Nepali*

Pictures Promoting DOTS in Nepal (Nepali)

[http://www.communityhealthglobal.net/documents/DOTS\\_Nepal.doc](http://www.communityhealthglobal.net/documents/DOTS_Nepal.doc)

Tuberculosis brochure. Nepal Ministry of Health. [www.hellisnepal.gov.np/](http://www.hellisnepal.gov.np/) then click on Publications / Health IEC Materials / Brochure / Tuberculosis.

—Submitted by Stephanie S. Spencer, M.A.  
Program Liaison, TB Control Branch  
CA Department of Public Health

## COMMUNICATIONS, EDUCATION, AND BEHAVIORAL STUDIES BRANCH UPDATE

### 2008 Program Managers' Course

*Overview of the TB Program Managers' Course*

The purpose of the TB Program Managers' Course is to improve the planning and managerial capabilities of new TB program managers throughout the country. The course is designed for TB controllers, program managers, public health advisors, and nurse consultants with programmatic responsibilities at the state, big city, territory, or regional (within a state) level. Optimally, a

course participant should have occupied a TB program management position for at least 6 months but no more than 3 years. Participants are nominated by the DTBE Program Consultant for their area.

#### *2008 TB Program Managers' Course*

The 2008 course was held in Atlanta, Georgia, October 27–31, 2008. This year's 5-day training was divided into 18 sessions. Each session stood alone as a block of instruction, but was sequenced to build logically on the sessions preceding it.

The course stressed practical application of planning, management, and evaluation concepts to the specific issues and concerns of TB programs. Skills essential to TB program management were presented, followed by exercises that encouraged participants to practice using the skills in the classroom setting. At the end of each session, participants were asked to address specific questions in a Planning Guide, which required them to synthesize concepts presented in the session and apply them to their own programs.



The Planning Guide was a tangible product that participants took home from the course, to serve as a record of personal course discoveries and, more importantly, as a road

map for improving their TB prevention and control efforts.

An initial look at the TB Program Managers' Course participant evaluations indicates the course was very well received. In the final session, participants were asked to share one thing that they wanted to add, change, or improve in their TB program as a result of taking the course. Some of the ideas for change included—

- Using genotyping data to make linkages based on something beyond contact investigation
- Implementing a cohort review process
- Seeking opportunities to improve management skills

The course concluded with a reading of the TB poem "Expressions from Us to You" by its author, Regina Bess.

For the participants, the course is not entirely over. A 6-month follow-up questionnaire will be mailed to them in April 2009. Once this is returned, each participant will receive a certificate of completion for the course.

The Communications, Education, and Behavioral Studies Branch (CEBSB) would like to thank the faculty and participants for making the course such a success. The hard work of the faculty in preparing the materials for their sessions and the participant's hard work during the course are appreciated.

—Submitted by Regina Bess, BS,  
and Allison Maiuri, MPH  
Div of TB Elimination

## **DATA MANAGEMENT AND STATISTICS BRANCH UPDATE**

### **2008 Public Health Information Network (PHIN) Conference**

The 6<sup>th</sup> Annual Public Health Information Network (PHIN) Conference was held in Atlanta, GA, August 24–28, 2008, at the Westin Peachtree Hotel. The theme for this years' conference was *Public Health Informatics: Collaboration at the Crossroads*. The conference brought together public health and information technology professionals from across the United States and some foreign countries. Attendees came from international, national, state and local public health agencies; colleges and universities; nonprofit organizations; and private corporations. Attendees had many presentations from which to choose, with topics including electronic lab reports (ELR), electronic health records (EHR), open-source software, surveillance systems, messaging, and project management. Several of these presentations were in reference to TB. The OntoReason group gave a presentation on their Content Validation Reasoner (CVR), which is an automated reasoning system. The CVR will be used to validate TB data sent to CDC by states using different surveillance systems. If the data are incorrect or missing, the CVR will send an alert back to that state to notify them of the error. This will help to ensure that our TB data are accurate and complete.

During the conference, the state of Illinois Department of Public Health announced it had received a Healthcare Information and Management Systems Society (HIMSS) Davies Award of Excellence for their development and implementation of the Illinois National Electronic Disease Surveillance System (I-NEDSS). This is the system that Illinois will use to replace TIMS to report their TB cases to CDC.

Some sessions at the conference were devoted to the launch of several communities of practice (CoPs). The six CoPs were PHIN, Enterprise Architecture, InfoLinks, Electronic Lab Reporting, Outbreak

Management, and Vocabulary and Messaging. These CoPs were set up to allow professionals in these areas to share information and new strategies, and to solve problems more efficiently. These CoPs were very popular among conference attendees.

Exhibit booths were set up by many companies and organizations to demonstrate their software applications and other products. There was also a poster session, at which abstracts were presented by public health and information technology professionals and students from around the country. One poster of particular interest was presented by the Wisconsin Department of Public Health with the Atlas Development Corporation, on the topic of implementing an HL7 message. (HL7, or Health Level 7, is a nonprofit organization that is developing standards for the exchange, integration, sharing, and retrieval of electronic health information). This poster was very relevant and useful for those states in the process of creating an HL7 message to transfer their TB data to CDC in 2009. Overall, the conference was informative and well-attended.

—Reported by Bruce Bradley, MPA  
Div of TB Elimination

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

### **Epidemiology of TB Among Foreign-born Persons in the United States**

The following is a summary of an article by Cain, Benoit, Winston, and Mac Kenzie (JAMA 2008; 300[4]: 405-12).

Rates of TB disease have declined among both U.S.-born persons and foreign-born persons, but the rate of decline has been

much slower for foreign-born persons, thereby widening the disparity in TB case rates between the two. In 2006, among all TB cases in the United States, 57% occurred among foreign-born persons. We assessed the epidemiology of TB among foreign-born persons to inform approaches to enhancing TB control in this population.

We estimated that adding TB culture to overseas pre-immigration screening for U.S.-bound migrants would have prevented the importation of at most 250 TB cases per year during 2001–2006. Since approximately 7,000 TB cases occur among foreign-born persons each year, additional strategies are needed. Finding and treating latent TB infection is one such strategy; however, with over 37 million foreign-born persons living in the United States, reaching out to all of them would not be feasible. To guide these interventions, we found that the risk of TB among foreign-born persons varies based on time since U.S. entry, age at U.S. entry, and country of birth. Annual TB case rates decline with increasing time since U.S. entry, but rates never decline to the level of U.S.-born persons. Rates are highest for persons born in most countries of sub-Saharan Africa and Southeast Asia, exceeding 100 times the rate of U.S.-born persons during the first 2 years after U.S. arrival. Among foreign-born persons with TB, over half of all cases occur in persons from the highest-risk countries, which include most countries of sub-Saharan Africa and Asia. On the other hand, persons born in Canada, Western Europe, Australia and New Zealand, and Japan had low rates. A map showing the level of risk for each country is available in the full article.

To control TB in foreign-born persons and to eliminate TB in the United States, latent TB infection testing and treatment both need to be more widely implemented. Doing so would be highest yield if the populations with the highest risk of TB disease were targeted first.

For more details, please see the full article.

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—Submitted by Kevin Cain, MD  
Div of TB Elimination

## MYCOBACTERIOLOGY LABORATORY BRANCH UPDATES

### Award of Genotyping Contracts

The Mycobacteriology Laboratory Branch (MLB) is pleased to announce the recent award of two contracts for the continuation of the U.S. National Tuberculosis Genotyping Service (NTGS). The contracts have been awarded to Dr. James Rudrik and his staff at the Michigan Department of Community Health in Lansing, Michigan, and to Dr. Ed Desmond and his staff at the California Department of Health in Richmond, California. The laboratory workers at these sites have extended experience in genotyping *Mycobacterium tuberculosis*. In the early 1990s, these sites served as regional laboratories providing IS6110-RFLP for suspected outbreaks and false-positive culture investigations. From 1996 to 2000, both laboratories participated in the National TB Genotyping and Surveillance Network. In 2003, they were awarded the original NTGS contract and have provided access to universal genotyping services to all TB control programs in the United States. Since the inception of this program, these laboratorians have genotyped more than 39,000 isolates. Their extensive experience and institutional knowledge of *M. tuberculosis* genotyping in the United States makes them exceptional partners for continuing the NTGS for the next 5 years.

### Launch of Expanded Genotyping Assay

MLB is also pleased to announce an improved method for genotyping *M. tuberculosis*. Instrumentation is being shipped to the NTGS contractors that will allow them to increase their throughput and also to perform an expanded mycobacterial interspersed repetitive units–variable number tandem repeat (MIRU-VNTR) assay. The original assay was based on the determination of the number of repeated units at 12 separate loci within the *M. tuberculosis* genome. The expanded assay will determine the number of repeated units at 24 loci — the original 12 loci and 12 new loci (hereafter referred to as MIRU1 and MIRU2, respectively). This expanded assay has been reported to reach the level of discrimination of IS6110-RFLP fingerprinting (Oelemann et al. *J Clin Microbiol* 2007; 45:691-697), and data generated in MLB suggest that it will divide some large clusters into smaller, and potentially more meaningful, clusters. The expected launch date of this additional typing assay was January 1, 2009. Starting at that time, all isolates submitted to the NTGS are being typed using spoligotyping, MIRU1, and MIRU2 assays.

#### *Frequently Asked Questions on the Expanded Genotyping Assay*

“How will this change affect my current database?” Continuity between the current genotyping approach and the new genotyping approach is critical. Spoligotype and MIRU1 fields will be reported as in the past. PCR types and state cluster names will continue to be based on spoligotype and MIRU1. MIRU2 results will be reported in a new field in the genotyping report sent to TB programs and will be used to subcluster the original PCR types and state cluster names. A new fact sheet describing this in detail will be distributed to TB control programs.

"Will I be able to request MIRU2 typing for some of our older isolates?" Yes. All isolates submitted for genotyping prior to January 2009 and their DNA preparations will be stored at CDC. You may request MIRU2 typing from CDC by following the guidelines for requesting IS6110-RFLP fingerprinting. However, conducting MIRU2 typing for all isolates collected prior to 2009 (approx. 39,000 isolates) would be unrealistic. Therefore, programs must demonstrate the need for further characterization based on public health impact, such as the need to conduct a cluster investigation, for which additional typing information might be useful.

"Will IS6110-RFLP fingerprinting continue to be available?" Yes. There will be no change in the mechanism or basis for requesting IS6110-RFLP fingerprinting from the genotyping contract labs.

We hope that you are looking forward to this major improvement as much as we are, but we also know that you may have questions and concerns. Your input is invaluable to us as we make this transition and we look forward to receiving your comments (TBGenotyping @cdc.gov).

—Reported by Lauren S. Cowan, Ph.D.  
NTGS Project Officer  
Mycobacteriology Laboratory Branch  
Div of TB Elimination

## NEW CDC PUBLICATIONS

CDC. Federal air travel restrictions for public health purposes—United States, June 2007–May 2008. *MMWR* 2008 Sept 19; 57(37):1009-1012.

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## PERSONNEL NOTES

Lorna Bozeman, MS, received the DTBE Director's Recognition Award for the 4<sup>th</sup> Quarter 2008 (Oct.–Dec.) for her contribution in validating and certifying the outcome data for the TB Trials Consortium's (TBTC) Study 28. This study had failed to find a statistically significant advantage to a moxifloxacin-based intensive-phase regimen for TB treatment. However, results of two similar studies in South Africa and Brazil did favor the moxifloxacin-based regimen. These conflicting results presented a critical challenge to the consortium's credibility. In reviewing data on solid vs. liquid culture at African vs. North American clinical sites, Lorna noted discrepancies between reports from the site coordinator and reports obtained directly from the laboratory. She then organized a detailed microbiology source data review, an analysis of discrepancies in culture findings, and a full re-analysis of outcomes. She sent spreadsheets to each site for validation of each culture report by the laboratory; then she and others reviewed these, comparing each validation report from the laboratories with the original site reports. In all, over 4,000 reports were evaluated, but in the end, only 5 (~1%) of 433 outcomes were modified. Thus, the original study findings were

confirmed, key reporting errors were corrected and demonstrated to be very few in number, and important microbiologic reporting practices were clarified. Lorna simultaneously played a leading role in the work of the TBTC Microbiology Working Group. Her contributions included collecting information on specific laboratory practices at all sites and determining laboratory capacity to make specific changes for future studies. Lorna's efforts provided critical support for the credibility of the consortium's laboratory findings, thus strengthening the foundation of all its work.

Erin Bugenske is one of three Emory work study students who joined the International Research and Programs Branch (IRPB). She is currently pursuing an MPH degree in epidemiology at Emory University's Rollins School of Public Health, with a particular interest in infectious disease epidemiology. Originally from Saginaw, Michigan, she graduated from the University of Florida in 2007 with a BA degree in anthropology and also spent a semester studying Italian language and culture in Florence, Italy.

Deborah Carr has left DTBE and returned to CDC's Division of Sexually Transmitted Diseases (STD); she began her new assignment in Austin, TX, on January 18, 2009. As a Public Health Advisor (PHA), her responsibilities will focus on assisting the senior PHA in planning and conducting activities and strategies that will have an impact on the incidence of STDs. Deborah started her public health career in 1991 as a Disease Intervention Specialist (DIS) with the Los Angeles County STD Program. In 2001 she became a Special Projects Coordinator with CDC and was responsible for planning, implementing, and overseeing operations for special STD/HIV screening activities in the Los Angeles County jail; many of these activities were written up and published. In 2006 she joined DTBE and transferred to the

Austin/Travis County health department. In this position Deborah was responsible for compiling morbidity reports, including the mid-year and annual progress reports; providing strategic direction relating to performance and quality assurance; promoting best practices for the delivery of care; identifying needs and gaps in services; building strategic alliances among various health department units and community based organizations; creating staff development presentations; and providing TB consultation to public and private entities. She also worked with the chair of the "Stop TB in African American Community" work group, a subcommittee of the Advisory Council for the Elimination of Tuberculosis (ACET). Deborah continues to give back to the community by coaching track and field and is now a USA Track and Field Official. She is also head of the Health Ministry at her church.

Sharoda Dasgupta, B.S., has joined the Field Services and Evaluation Branch (FSEB) as a student intern. She obtained a BS degree in biomedical engineering from the University of Texas at Austin in May 2006. She has extensive research experience in the fields of biomaterials, biochemistry, and bioethics. Sharoda is currently working towards an MPH degree in epidemiology through Emory University's Rollins School of Public Health. She hopes to utilize her engineering background and the skills she is acquiring in epidemiology to segue into a career in infectious disease control.

Bruce Heath was selected for a Public Health Advisor (PHA) position in DTBE's Field Services and Evaluation Branch in Atlanta, where he will be working as a program consultant. He started in his new position on December 22. Bruce was most recently assigned to the Texas TB program in Austin, Texas, where he worked with binational TB projects along the Texas-Mexico Border. He

has an undergraduate degree in Spanish and a graduate certificate in public health, with a concentration in health education. He began his career with CDC in the Miami STD Prevention Program in 1992 as a Disease Intervention Specialist (DIS). He moved to Fulton County, Georgia, in 1995, continuing to work as a DIS. In 1999 he took a position with the syphilis elimination program in the Division of STD Prevention at headquarters where he worked with the newly developed Syphilis Rapid Response Teams and other exciting projects. 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. Prior to joining TB, he was assigned to the Puerto Rico Department of Health STD/HIV Prevention Program as the Senior PHA.

Chrispin Kambili, MD, has joined the Field Services and Evaluation Branch as the new medical officer in New York City. Dr. Kambili replaces Dr. Sonal Munsiff as the Bureau Director for the New York City TB control program. Dr. Kambili received his MD degree from the Columbia University School of Medicine in New York City and a BS degree from Fisk University in Nashville, TN. He trained in internal medicine at New York Presbyterian Hospital-Columbia University Medical Center and completed a fellowship in infectious disease at New York-Presbyterian Hospital & Cornell University Medical College. He is board certified in internal medicine and infectious diseases. Dr. Kambili served as the Bureau of Tuberculosis Control's medical director from 2000 to 2003. Since then, he has worked in Africa, serving as Field Medical Director in Nairobi, Kenya, for the International AIDS Vaccine Initiative. He has also served as a medical director in Schering Plough Corporation's virology program, where he concentrated on HIV and hepatitis issues. He started on October 12 in his new position.

Amera Khan, MPH, was selected as a Senior Public Health Educator in the Communications, Education, and Behavioral Studies Branch (CEBSB). Amera first came to DTBE and CEBSB as a Health Education Specialist in 2003. In the time since, she has revised and developed science-based TB training and educational materials for both health professionals and persons with or at risk for TB; provided technical assistance to domestic and international partners; served as a principal investigator for a behavioral research project; managed, marketed, and evaluated the TB Education and Training Resources Website ([www.findtbresources.org](http://www.findtbresources.org)); and provided guidance on education and training activities to the TB Regional Training and Medical Consultation Centers (RTMCCs). Prior to coming to DTBE, Amera worked with the Division of Parasitic Diseases as a Health Analyst (2002–2003), and in the Division of Viral and Rickettsial Diseases as an ORISE Fellow Health Education Specialist (2000–2002). She has a BS degree in Economics and Political Science from the University of Illinois at Urbana-Champaign, and an MPH degree in Health Behavior and Health Education from the University of North Carolina-Chapel Hill. In her new position (effective September 28), Amera serves as lead technical advisor for education and training-related issues for the CDC-funded TB RTMCCs; provide leadership, technical assistance, and consultation in TB training and education issues related to program collaboration and service integration across the Center; and serve as lead in the update and development of the National Strategic Plan for Tuberculosis Training and Education.

Marquita Kilgore is an Emory work-study student who has joined the International Research and Programs Branch (IRPB). She is currently a sophomore at Emory majoring

in anthropology and human biology with an expected graduation date of May 2011. After completing her BS degree at Emory, she plans to attend medical school and business school in simultaneous pursuit of her MD and MBA degrees. She has lived in Loganville, Georgia, all of her life. She is most interested in foreign languages and culture, financial planning and investing, African-American studies, and public health.

Nicole Kosacz has joined the Field Services and Evaluation Branch (FSEB) as a student intern. She is a native of Chicago and a recent graduate of the University of Illinois Champaign-Urbana, where she earned her BS degree in psychology with a minor in anthropology. Currently she is in the first year of the MPH-Epidemiology program at Emory University's Rollins School of Public Health, where she is taking courses in infectious disease, surveillance, and public health disparities. Nicole will be working with the DTBE Pacific Islands TB elimination team on various activities, including administrative duties associated with the Pacific Island TB Controllers Association (PITCA) annual workshop; surveillance and reporting from the U.S.-affiliated Pacific Islands; and literature review and analysis of data associated with TB and diabetes.

Michael Marrone has joined FSEB as a student intern. Michael is a first-year student at Emory University's Rollins School of Public Health, where he is seeking an MPH degree in epidemiology. He grew up in San Antonio, Texas, and attended Austin College (which is in Sherman, Texas, not in Austin), where he received a BA degree in biology in 2005. While at Austin College, Michael participated in several different internships, including cancer research and HIV/AIDS education in Tanzania. After graduation, he served as a Peace Corps volunteer in the Kingdom of Swaziland as a community health HIV/AIDS educator. As a volunteer, he spent a

significant amount of time working with World Vision on HIV education and awareness projects. He will be working with Dr. Sundari Mase on a meta-analysis review of the literature on outcomes of surgery for TB.

John Oeltmann, PhD, has returned to DTBE as an epidemiologist on the TB/HIV team in the International Research and Programs Branch. John received an MEd degree from Vanderbilt University in 1993 and then spent a few years as a high school and middle school teacher before pursuing a degree in public health. In 2002, he received a PhD degree in epidemiology from the University of South Carolina. He came to CDC as an Epidemic Intelligence Service (EIS) officer in 2003 and was assigned to the Surveillance, Epidemiology, and Outbreak Investigations Branch, DTBE. Following EIS, John stayed with DTBE as an epidemiologist until February 2008. During his 5 years in DTBE, he conducted numerous TB outbreak investigations in both U.S. and international settings, conducted epidemiologic studies that documented rates of childhood TB treatment outcomes in Botswana, evaluated TB screening algorithms used for refugee populations immigrating to the United States, and assessed the association between illicit drug use and TB transmission. From March to August 2008, he worked in the Malaria Branch, Division of Parasitic Diseases; he returned to DTBE on Sept. 2, 2008.

Hannah Oh is one of three Emory work-study students who joined the International Research and Programs Branch (IRPB). She is currently a first-year MPH student at Emory University's Rollins School of Public Health studying public nutrition in the Department of Global Health. She was born in Los Angeles, California, but has spent most of her life in Korea where her parents now live. Hannah graduated from UC Berkeley with a major in immunology (infectious diseases). She is interested in

studying the short- and long-term effects of malnutrition in developing countries. Her career goal is to improve maternal and child health in developing countries.

Michele Pearson, MD, has joined DTBE as a Medical Officer in the International Research and Programs Branch, Infection Control Team. Michele is a Captain in the U.S. Public Health Service. She earned her BA (chemistry) degree at Emory University in Atlanta, GA, and her MD degree at Washington University School of Medicine in St. Louis, MO. She completed a residency in Internal Medicine at Michael Reese Hospital in Chicago, IL, and is board-certified in Internal Medicine. After her residency, she joined CDC's Epidemic Intelligence Service, where she was assigned to the Division of Healthcare Quality Promotion, then called the Hospital Infections Program (HIP). Dr. Pearson has spent most of her CDC career with that program, where she served as a Medical Epidemiologist and Branch Chief. She also served as Executive Secretary for the DHHS Healthcare Infection Control Practices Advisory Committee. She has been a consultant to the Food and Drug Administration, the National Institutes of Health, and the World Health Organization, and she serves on the advisory boards for several national organizations/initiatives. She has served as adjunct faculty in the Department of Family and Preventive Medicine at the Emory University School of Medicine and is a Fellow of the Society for Healthcare Epidemiology of America. Since joining CDC, her professional activities have included healthcare-associated TB, antimicrobial-resistant infections, latex allergy, and development of evidence-based infection prevention and control guidelines.

Shameer Poonja, MPH, has been promoted and reassigned to Los Angeles, California. Shameer was most recently assigned to the Indiana State TB and Refugee Health

Program in Indianapolis, Indiana, where he was involved in all aspects of TB control activities and supported the efforts of the TB Program Director. He was assigned to Indiana in March 2006 in response to several major TB outbreaks in the northeastern counties of the state. Shameer began his CDC career in 2002 with the New York City Department of Health and Mental Hygiene, Bureau of TB Control. There he oversaw the TB Bureau's funded activities with the Department of Homeless Service and HIV Care Administration (Ryan White). Prior to joining CDC, Shameer coordinated prevention activities for the Massachusetts Department of Public Health for 4 years (3 of which were with the Division of TB Prevention and Control). Prior to working in TB, Shameer spent a year with the Refugee and Immigrant Health Program at the Massachusetts Department of Public Health on a CDC-funded research project evaluating the TB screening practices of INS-appointed civil surgeons. Shameer has an MPH degree from Boston University. During the 1990s, he was a Peace Corps volunteer assigned to the Philippines. Shameer has been edging his way westward and made the big jump to Los Angeles TB program on Nov. 9.

Debbie McCune Powell has joined DTBE in the Surveillance, Epidemiology, and Outbreak Investigations Branch (SEOIB). Debbie has been with the federal government for 16 years. She was with the Georgia National Guard as a Contract Specialist for 9 years, then in 2001 came to CDC. In her first CDC position, she worked in the Procurements and Grants Office (PGO) in the International Branch; after about one year, she transferred to the Construction Branch where she remained until June 2008. She then moved to CDC's Information Technology Services Office (ITSO), where she worked as a Project Officer until December 2008. Now with the SEOIB, Debbie is working with the Epidemiology

Team. Most of her experience has been with government contracts; she hopes to bring her expertise to SEOIB to further enhance communications with PGO. She looks forward to new opportunities and challenges and thinks it is great to be here!

Heidi Soeters, MPH, has joined the Surveillance, Epidemiology, and Outbreak Investigations Branch (SEOIB) as a work-study student. Heidi is a second-year Global Epidemiology student at Emory University's Rollins School of Public Health, with a concentration in infectious diseases. After obtaining her bachelors degree in both Neuroscience & Behavioral Biology and French Studies at Emory University, she was a program associate at the Center for Public Health Preparedness at DeKalb County Board of Health in Atlanta before getting her MPH degree at Rollins. As part of her thesis research, she spent the past summer working at the National Institute for Communicable Disease in Johannesburg, South Africa. Additionally, she was a work study student at CDC's National Center on Birth Defects and Developmental Disabilities last year. Currently, she is working with SEOIB's Outbreak Investigations team and Molecular Epidemiology Activity on various activities, including developing user-friendly reports of transmission events picked up by the new TB aberration detection system and assisting with linking surveillance and genotyping data for the U.S. Pacific Islands.

Cynthia Taylor joined DTBE on September 15 on a detail to the International Research and Programs Branch. Cynthia officially works in the Coordinating Office for Terrorism Preparedness and Emergency Response (COTPER), Office of the Director, Workforce and Career Development Office as a Management and Program Analyst. From 2002 to 2007, prior to joining COTPER, Ms. Taylor was the Coordinator of the International Experience and Technical

Assistance (IETA) training program in the Coordinating Office for Global Health and NCHHSTP. In that position she oversaw all activities and phases of recruitment, selection, training, field assignments and evaluation of the IETA programs operations. Cynthia is assisting DTBE/IRPB with various administrative and budget-related activities.

Jenny Tegelvik, MPH, a Public Health Prevention Service (PHPS) Prevention Specialist Fellow, is serving her 6-month assignment on evaluation with DTBE's Program Evaluation team, Field Services and Evaluation Branch (FSEB). Jenny received her MPH degree from the Bloomberg School of Public Health, Johns Hopkins University, in May 2008. In the summer of 2008, she served as a Research Fellow with the National Forum for Collaborative HIV Research and the National Association of State and Territorial AIDs Directors. Jenny was the Program Director for an HIV prevention initiative in Honduras, Central America (2005–2007) for the Global Fund in collaboration with the United Nations Development Programme (UNDP). As Program Director, she focused on building program management capacity at the municipal level. Prior to her assignment with UNDP, she also served as a Peace Corps volunteer (2003–2005) and has several years' experience in program design, training, and leadership development. Jenny graduated with a BS degree in International Relations from Georgetown University in 1998 and speaks Spanish, French, and Swedish. During her assignment with FSEB, Jenny will be working on a joint evaluation project between FSEB and the Surveillance, Epidemiology, and Outbreak Investigations Branch (SEOIB) to determine the impact of outbreak investigations in controlling TB outbreaks in the United States.

Vic Tomlinson is the new DTBE Program Consultant for the Mid-Atlantic project sites (City of Baltimore, D.C., Delaware, Maryland, North Carolina, Pennsylvania, Philadelphia, West Virginia, Virginia). Vic took on his new responsibilities starting December 1. Vic has a long, rich history with DTBE, both as a public health advisor assigned to numerous cities and states and as a DTBE program consultant, during his 27 years with CDC. A big thanks to Al Forbes, Dawn Tuckey, and Regina Gore for helping out over the past 9 months with the Mid-Atlantic projects!

Rita Varga, Public Health Advisor with the Field Services and Evaluation Branch, will be retiring effective February 27, 2009. Rita began her civil service career in February 1986 as a co-op in CDC's Sexually Transmitted Disease program starting in Indianapolis, IN. Following assignments in Fulton County, GA, Boston, MA, Chicago, IL, and Los Angeles, CA, Rita transferred to DTBE in 1994 with an assignment as the Training Coordinator in New York City, whose TB program expected to have a training site for new public health advisors. However, the federal hiring freeze implemented by the Clinton administration resulted in the discontinuation of the training center. Rita continued to work with the NYC PHA cohort until they were well on their way to successful careers. In 1999, Rita transferred to Atlanta as the Training Coordinator for the DTBE Field Services Branch. In addition to those responsibilities, she has worked as the headquarters member for the Field Staff Work Group. The group is dedicated to helping field staff workers remain up to date about what is happening at the CDC "mother ship." Rita has been an active member of the Field Staff Planning Work Group, a center-wide advisory group that coordinates field staff concerns with CCID. Among her other associations, Rita has been a member of the TB Notes

committee and the DTBE awards committee for the last 9 years. An active member of the Watsonian Society, Rita has been that group's newsletter editor since 2002. Prior to federal service, Rita was a dedicated science teacher for 14 years in New Jersey, where she taught biology, chemistry, earth science, and physics to high school students. She really enjoyed that but felt she needed to expand her horizons and see the world, or at least a lot of the United States, with CDC. Rita will remain in the Atlanta area since most of her family has scattered from the Philadelphia, PA, homestead. She plans on having fun meeting with others who share her love of gardening, crafting, shopping, and traveling during the new retirement phase of her life. Rita retires with 23 years of service to CDC.

Jay Varma, MD, who was a member of the International Research and Programs Branch's field staff, has taken a position as the Chief of CDC's International Emerging and Infectious Disease Program in China. Jay has been with DTBE since 2003 and served as the Regional Advisor for TB Elimination and Chief of the TB Program at the U.S. CDC Southeast Asia Regional Office, in Bangkok, Thailand. He oversaw a diverse portfolio of public health programs and research in Southeast Asia, including activities related to strengthening the screening, diagnosis, and treatment of TB in HIV-infected patients; conducting surveillance and control of multidrug-resistant (MDR) TB; and expanding laboratory capacity in Thailand, Cambodia, Vietnam, and Laos. Some of the major research activities he worked on included evaluation of new tools for rapid diagnosis of TB and MDR TB, validation of algorithms for TB screening in HIV-infected patients, and epidemiologic evaluations of surveillance and program data. Jay worked closely with foreign government health officials at the

national and provincial level, with multiple divisions at CDC (including the Global AIDS Program, International Emerging Infections Program, Division of HIV/AIDS Prevention, and Division of Global Migration and Quarantine), and with other technical agencies, including the U.S. Agency for International Development, the World Health Organization country and regional offices, the Foundation for Innovative New Diagnostics, and the International Organization for Migration. Jay has made many significant contributions during his tenure in DTBE, and we wish him all of the best in his new position. He reported for duty in China in June 2008.

Kai Young, MPH, received the DTBE Director's Quarterly Recognition Award for the 3rd Quarter 2008 (July-Sept.) for her outstanding commitment to TB elimination program evaluation, and for her leadership and consensus-building skills. Kai led a workgroup consisting of representatives of state, local, and territorial TB programs to validate and standardize performance measures, and developed a monitoring system for tracking progress of program areas toward meeting the TB national and state program objectives. As a result of her leadership and the hard work of the workgroup, the National Tuberculosis Indicator Project (NTIP) was developed and funded by DTBE to provide TB programs with reports to inform them of their progress—based on existing data reported to the DTBE. This effort will build capacity for program areas to routinely incorporate program evaluation activities into daily operations. These reports will help programs prioritize prevention and control activities to work toward TB elimination. Specifically, Kai facilitated extended dialogues between DTBE and state and local partners, and among branches within the Division. Her ability to build consensus among the

workgroup members as to how the performance of TB control and prevention activities will be assessed is exceptional. Under Kai's leadership, all viewpoints were taken into consideration, thus ensuring that the performance of the partners would be accurately measured. This was a first-time effort in which DTBE reached out to our stakeholders and asked for input in shaping our national objectives. Kai's guidance and hard work has strengthened collaboration between DTBE and state and local partners. The result of her effort will reinforce national priorities at the national, state, and local levels; help prioritize the efforts for improvements; and facilitate evidence-based practices among TB control programs.

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### In Memoriam

Sandy A. Baxley, who served as the Resource Management Specialist in the Surveillance, Epidemiology, and Outbreak Investigations Branch (SEOIB), passed away on December 13, 2008, after a year-long struggle with cancer. Sandy had worked in the federal government for 33 years, which included 6 years with CDC's Procurement and Grants Office and 14 years with the Department of Defense at Fort McPherson. Most recently she worked with DTBE's SEOIB from June 24, 2007, until her retirement on June 17, 2008. During her year in DTBE, she proved herself invaluable in managing all financial matters of the TB Epidemiologic Studies Consortium. Sandy touched many peoples' lives and will be remembered for her strength, hard work, and willingness to help both co-workers and the many external partners she assisted through the years. She will be missed dearly.

## CALENDAR OF EVENTS

February 17–19, 2009

### **TB Clinical Intensive**

San Francisco, CA

Francis J. Curry National TB Center

[www.nationaltbcenter.edu/training/schedule\\_2009.cfm](http://www.nationaltbcenter.edu/training/schedule_2009.cfm)

February 25–26, 2009

### **TB Case Management and Contact Investigation for Nurses**

Newark, NJ

Northeast Regional Training and Medical Consultation Consortium

[www.umdny.edu/globaltb/courses.htm](http://www.umdny.edu/globaltb/courses.htm)

February 26–28, 2009

### **13th Union North American Region Conference**

Vancouver, Canada

International Union Against TB and Lung Disease (IUATLD)

[www.bc.lung.ca/lungdiseases/tuberculosis\\_iu\\_atld.html](http://www.bc.lung.ca/lungdiseases/tuberculosis_iu_atld.html)

March 2–5, 2009

### **Comprehensive Clinical TB Course**

Lantana, FL

Southeastern National TB Center

<http://sntc.medicine.ufl.edu/Training.aspx>

March 3–4, 2009

### **ACET Meeting**

Atlanta, GA

Division of TB Elimination (DTBE)/CDC

March 6, 2009

### **TST Train the Trainer Course**

Lantana, FL

Southeastern National TB Center

<http://sntc.medicine.ufl.edu/Training.aspx>

March 17–20, 2009

### **TB Case Management and Contact Investigation**

San Francisco, CA

Francis J. Curry National TB Center  
[www.nationaltbcenter.edu/training/schedule2009.cfm](http://www.nationaltbcenter.edu/training/schedule2009.cfm)

March 24–25, 2009  
**TB 101 and Training Basics**  
Phoenix, AZ  
Heartland National TB Center  
[www.heartlandntbc.org/training.asp](http://www.heartlandntbc.org/training.asp)

March 23–25, 2009  
**Third Stop TB Partners Forum**  
Rio de Janeiro, Brazil  
[www.stoptb.org/events/partners\\_forum/2009/](http://www.stoptb.org/events/partners_forum/2009/)

March 31–April 2, 2009  
**TB Nurse Case Management**  
Waukesha, WI  
Heartland National TB Center  
[www.heartlandntbc.org/training.asp](http://www.heartlandntbc.org/training.asp)

April 1–3, 2009  
**Global Tuberculosis Control and Patient Care: A Ministerial Meeting of High M/XDR-TB Burden Countries**  
Beijing, China  
[www.who.int/tb\\_beijingmeeting/en](http://www.who.int/tb_beijingmeeting/en)  
For more info, please contact WHO Stop TB Advocacy Officer Andrée Pinard Clark ([pinardclarka@who.int](mailto:pinardclarka@who.int) tel +41 22 791 46 70).

April 3, 2009  
**MDR Primer**  
Waukesha, WI  
Heartland National TB Center  
[www.heartlandntbc.org/training.asp](http://www.heartlandntbc.org/training.asp)

April 20–24, 2009  
**EIS Annual Conference**  
Atlanta, GA  
CDC  
[www.cdc.gov/eis/conference/conference.htm](http://www.cdc.gov/eis/conference/conference.htm)

April 21–23, 2009  
**TB Program Management**  
Overland, KS

Heartland national TB Center  
[www.heartlandntbc.org/training.asp](http://www.heartlandntbc.org/training.asp)

April 22, 2009  
**TB in Corrections**  
Collinsville, IL  
Heartland National TB Center  
[www.heartlandntbc.org/training.asp](http://www.heartlandntbc.org/training.asp)

April 22–25, 2009  
**The Denver TB Course**  
Denver, CO  
National Jewish Health  
[www.nationaljewish.org/education/pro-ed/cme-ce.aspx](http://www.nationaljewish.org/education/pro-ed/cme-ce.aspx)

April 23–25, 2009  
**American College of Physicians Annual Session**  
Philadelphia, PA  
American College of Physicians (ACP)  
[www.acponline.org/meetings/](http://www.acponline.org/meetings/)

April 28–30, 2009  
**TB Intensive Workshop**  
Newark, NJ  
Northeast Regional Training and Medical Consultation Consortium  
[www.umdny.edu/globaltb/courses.htm](http://www.umdny.edu/globaltb/courses.htm)

April 29, 2009  
**CTCA/TB Update**  
San Francisco, CA  
Francis J. Curry National TB Center  
[www.nationaltbcenter.edu/training/schedule2009.cfm](http://www.nationaltbcenter.edu/training/schedule2009.cfm)

May 5–8, 2009  
**2009 APHL Annual Meeting**  
Anchorage, AK  
Association of Public Health Laboratories (APHL)  
[www.aphl.org/profdev/conferences/2009annualmeeting/Pages/default.aspx](http://www.aphl.org/profdev/conferences/2009annualmeeting/Pages/default.aspx)

May 12–14, 2009  
**TB Program Management Course**

Raleigh, NC

<http://sntc.medicine.ufl.edu/Training.aspx>

May 15–20, 2009

**ATS 2009 International Conference**

San Diego, CA

American Thoracic Society

[www.thoracic.org/sections/meetings-and-courses/international-conference/2009/index.html](http://www.thoracic.org/sections/meetings-and-courses/international-conference/2009/index.html)

May 19–21, 2009

**TB Nurse Case Management**

San Antonio, TX

Heartland National TB Center

[www.heartlandntbc.org/training.asp](http://www.heartlandntbc.org/training.asp)

May 27–30, 2009

**Fifth Union Europe Region Conference**

International Union Against TB and Lung Disease

Dubrovnik, Croatia

[www.theunion.org/home/union-europe-region-conference-27-30-may-2009-dubrovnik-croatia.html](http://www.theunion.org/home/union-europe-region-conference-27-30-may-2009-dubrovnik-croatia.html)

June 1–3, 2009

**TB Intensive**

Tyler, TX

Heartland National TB Center

[www.heartlandntbc.org/training.asp](http://www.heartlandntbc.org/training.asp)

June 1–4, 2009

**Comprehensive Clinical TB Course**

Lantana, FL

Southeastern National TB Center

<http://sntc.medicine.ufl.edu/Training.aspx>

June 5, 2009

**TST Train the Trainer Course**

Lantana, FL

Southeastern National TB Center

<http://sntc.medicine.ufl.edu/Training.aspx>

June 7–11, 2009

**2009 CSTE Annual Conference**

Buffalo, NY

Council of State and Territorial

Epidemiologists

[www.cste.org/dnn/AnnualConference/2009AnnualConference/tabid/244/Default.aspx](http://www.cste.org/dnn/AnnualConference/2009AnnualConference/tabid/244/Default.aspx)

June 10–11, 2009

**TB Clinical Intensive**

Seattle, WA

Francis J. Curry National TB Center

[www.nationaltbcenter.edu/training/schedule2009.cfm](http://www.nationaltbcenter.edu/training/schedule2009.cfm)

June 12, 2009

**TB Case Management Workshop**

Seattle, WA

Francis J. Curry National TB Center

[www.nationaltbcenter.edu/training/schedule2009.cfm](http://www.nationaltbcenter.edu/training/schedule2009.cfm)

June 15–18, 2009

**2009 National TB Conference**

*"TB Elimination - It Takes a Village"*

Atlanta, GA; Crowne Plaza Ravinia

For questions regarding the conference, please contact Sherry Brown at

[smh6@cdc.gov](mailto:smh6@cdc.gov) or 404 639-8989, or Carol Pozsik at [cpozsik@tbcontrollers.org](mailto:cpozsik@tbcontrollers.org) or 678 503-0503

July 28–30, 2009

**9<sup>th</sup> Annual TB Education and Training Network Conference, "TB Education and Training: Recipes for Success"**

Atlanta, GA, Westin Atlanta North at Perimeter

E-mail: [tbetn@cdc.gov](mailto:tbetn@cdc.gov)

<http://www.cdc.gov/tb/Tbetn/conference.htm>