DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION
National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention
Division of Tuberculosis Elimination

Advisory Council for the Elimination of Tuberculosis
March 3-4, 2009
Atlanta, Georgia

Record of the Proceedings

TABLE OF CONTENTS

ATTACHMENT 1

List of Participants

ACET Members

Dr. Michael Fleenor, Chair
Dr. Iram Bakhtawar
Dr. William Burman
Dr. Christine Hahn
Mr. Joseph Kinney
Dr. Ana Lopez-de Fede
Dr. Masahiro Narita
Dr. Barbara Seaworth
Ms. Sirlura Taylor

Designated Federal Official

Dr. Hazel Dean, NCHHSTP Deputy Director

***Ex-Officio* and Liaison Members**

Dr. Naomi Aronson (Department of Defense)
Dr. William Baine (Agency for Healthcare Research and Quality)
Dr. Edward Desmond (Association of Public Health Laboratories)
Dr. Joseph Goldenson (National Commission on Correctional Health Care)
Mr. Phillip Griffin (National Tuberculosis Controllers Association)
Dr. Robert Kim-Farley (National Association of County and City Health Officials)
Dr. Michael Leonard, Jr. (Infectious Disease Society of America)
Dr. Edward Nardell (International Union Against Tuberculosis and Lung Disease)
Secretary Clemente Padilla (U.S.-Mexico Border Health Commission, Mexican Section)
Dr. John Redd (Indian Health Service)
Dr. Lee Reichman (American College of Chest Physicians)
Ms. Marian Rodgers (Department of Veterans Affairs)
Dr. Diana Schneider (Department of Homeland Security)
Ms. Rachel Stricof (Association for Professionals in Infection Control and Epidemiology)
Dr. Litjen Tan (American Medical Association)
Dr. Lornel Tompkins (National Medical Association)
Dr. Theresa Watkins-Bryant (Health Resources and Services Administration)
Dr. David Weissman (National Institute for Occupational Safety and Health)

CDC Representatives

Dr. Kevin Fenton, NCHHSTP Director
Ms. Madeline Barrow
Dr. Sal Butera
Ms. Gail Burns-Grant
Dr. Terence Chorba
Mr. Jeffrey Chrismon
Ms. Ann Cronin
Dr. Jeffrey Driscoll
Ms. Jameelah Franklin
Ms. Stacy Harper
Ms. Denise Hartline
Dr. Kashef Ijaz
Dr. John Jereb
Dr. Dolly Katz
Dr. Awal Khan
Ms. Allison Lentz
Dr. Michael Levin
Dr. Mark Lobato
Ms. Laura Leidel
Dr. Philip LoBue
Dr. Cindy Lyles
Ms. Suzanne Marks
Dr. Eugene McCray
Mr. Michael Melneck
Dr. Beverly Metchock
Ms. Sonia Montiel
Dr. Thomas Navin
Dr. Drew Posey
Ms. Angela Scott
Ms. Margie Scott-Cseh
Dr. Tanya Sharpe
Dr. Angela Starks
Dr. Dale Stratford
Dr. Andrew Vernon
Dr. Elsa Villarino

Dr. Wanda Walton
Ms. Pei-Chun Wan

Guest Presenters and
Members of the Public

Ms. Anna DeBlois Buchanan (Association of State and Territorial Health Officials)
Dr. Damian Gessler (New Mexico National Center for Genome Resources)
Dr. John Halpin (National Institute for Occupational Safety and Health)
Dr. Christy Hanson (U.S. Agency for International Development)
Mr. James Kirkwood (Association of State and Territorial Health Officials)
Dr. Barbara Laughon (National Institute of Allergy and Infectious Diseases)
Ms. Carol Poszik (National Tuberculosis Controllers Association)
Dr. Christine Sizemore (National Institute of Allergy and Infectious Diseases)
Mr. John Seggerson (STOP TB USA)
Dr. Gary Simpson (State of New Mexico Department of Health [Retired])
Ms. Kelly Wroblewski (Association of Public Health Laboratories)

ATTACHMENT 2

Acronyms Used In These Meeting Minutes

AAs	—	African Americans
ACET	—	Advisory Council for the Elimination of Tuberculosis
ACIP	—	Advisory Committee on Immunization Practices
AMK	—	Amikacin
APHL	—	Association of Public Health Laboratories
ARHC	—	Association of State Refugee Health Coordinators
ATS	—	American Thoracic Society
CAP	—	Capreomycin
CCID	—	Coordinating Center for Infectious Diseases
CDC	—	Centers for Disease Control and Prevention
DGMQ	—	Division of Global Migration and Quarantine
DHAP	—	Division of HIV/AIDS Prevention
DoD	—	Department of Defense
DOS	—	U.S. Department of State
DOT	—	Directly Observed Therapy
DST	—	Drug Susceptibility Testing
DTBE	—	Division of Tuberculosis Elimination
EDN	—	Electronic Disease Notification
EMB	—	Ethambutol
ESP	—	Economic Stimulus Package
FBPs	—	Foreign-Born Populations/Persons
FBWG	—	Foreign-Born Workgroup
FQ	—	Fluoroquinolones
HAIs	—	Healthcare-Associated Infections
HCP	—	Healthcare Personnel
HCV	—	Hepatitis C Virus
HDW	—	Health Disparities Workgroup
HHS	—	Department of Health and Human Services
HRSA	—	Health Resources and Services Administration
IGRAs	—	Interferon Gamma Release Assays
INH	—	Isoniazid
IOM	—	International Organization for Migration
IUATLD	—	International Union Against Tuberculosis and Lung Disease
KAN	—	Kanamycin
LTBI	—	Latent TB Infection
MDDR	—	Molecular Detection of Drug Resistance
MDR-TB	—	Multidrug-Resistant TB
MGIT	—	Mycobacterial Growth Indicator Tube
MIRU	—	Mycobacterial Interspersed Repetitive Unit
MLB	—	Mycobacteriology Laboratory Branch
MMWR	—	*Morbidity and Mortality Weekly Report*
M.tb	—	*Mycobacterium Tuberculosis*

NAAT	—	Nucleic Acid Amplification Testing
NCCDPHP	—	National Center for Chronic Disease Prevention and Health Promotion
NCHHSTP	—	National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention
NEDSS	—	National Electronic Disease Surveillance System
NETC	—	New England TB Consortium's
NMA	—	National Medical Association
NTBA	—	National TB Archive
NTCA	—	National Tuberculosis Controllers Association
NTIP	—	National TB Indicators Project
PAM	—	Program Area Module
PCR	—	Polymerase Chain Reaction
PCSI	—	Program Collaboration and Service Integration
PEN	—	Program Evaluation Network
PZA	—	Pyrazinamide
QFT-Gold	—	QuantiFERON®-Gold
RFLP	—	Restriction Fragment Length Polymorphism Analysis
RIF	—	Rifampin
RTMCCs	—	Regional Training and Medical Consultation Centers
RVCT	—	Report Verified Case of TB
SDH	—	Social Determinants of Health
SLD	—	Second-Line Drug
SNTC	—	Southeastern National Tuberculosis Center
TBESC	—	TB Epidemiologic Studies Consortium
TBETN	—	TB Education and Training Network
TBTC	—	TB Trials Consortium
TBTIs	—	TB Technical Instructions
TST	—	Tuberculin Skin Testing
VNTR	—	Variable Numbers of Tandem Repeat
WHO	—	World Health Organization
XDR-TB	—	Extensively Drug-Resistant TB

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION
National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention
Division of Tuberculosis Elimination

ADVISORY COUNCIL FOR THE ELIMINATION OF TUBERCULOSIS
March 3-4, 2009
Atlanta, Georgia

Minutes of the Meeting

The Department of Health and Human Services (HHS) and the Centers for Disease Control and Prevention (CDC) National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention (NCHHSTP) Division of Tuberculosis Elimination (DTBE) convened a meeting of the Advisory Council for the Elimination of Tuberculosis (ACET). The proceedings were held on March 3-4, 2009 in Building 8 of CDC's Corporate Square Offices, Conference Room A/B/C in Atlanta, Georgia.

Opening Session

Dr. Hazel Dean, Deputy Director of NCHHSTP and Designated Federal Official of ACET, called the meeting to order at 8:34 a.m. on March 3, 2009. She welcomed the attendees to the proceedings and particularly recognized the guest presenters and members of the public.

Dr. Dean announced that ACET meetings are open to the public and all comments made during the proceedings are a matter of public record. She emphasized that ACET members should be mindful of potential conflicts of interest identified by the CDC Committee Management Office and recuse themselves from participating in discussions or voting on issues in which they have a real or perceived conflict.

Dr. Dean informed the members that the ACET charter is currently undergoing the final approval process at HHS. The ACET charter would be signed and published in the *Federal Register* on March 15, 2009.

Dr. Michael Fleenor, Chair of ACET, joined Dr. Dean in welcoming the attendees to the meeting and opened the floor for introductions. The list of participants is appended to the minutes as Attachment 1.

NCHHSTP Director's Report

Dr. Kevin Fenton covered the following areas in his update. Dr. Richard Besser was appointed as the acting CDC Director. He began his career at CDC in 1991 as an Epidemic Intelligence Service Officer and previously served as the Director of the Coordinating Office for Terrorism Preparedness and Emergence Response. Dr. Besser's background also includes work in the CDC National Center for Infectious Diseases, HIV activities, and pediatric TB control at the county level. Dr. Fenton would meet with Dr. Besser later in the day to brief him on NCHHSTP's key projects and activities.

Dr. Besser appointed three Interim Deputy Directors: Dr. Anne Schuchat, Interim Deputy Director for Science and Program; Mr. William Nichols, Interim Deputy Director for Management and Budget; and Mr. Donald Shriber, Interim Deputy Director for Policy, Legislation and Communication.

Dr. Besser formed a team to evaluate and provide information on the impact of CDC's various organizational changes over the past six years. The team is also charged with formulating options for the incoming permanent Director of CDC. Dr. Steve Thacker, Director of the Office of Workforce and Career Development, is leading the evaluation of CDC's reorganization. The team expects to produce a report with recommendations in mid-April 2009.

On February 17, 2009, President Obama signed the American Recovery and Reinvestment Act of 2009, commonly known as the economic stimulus package (ESP). Of $1 billion that will be available for prevention and wellness under the ESP, $300 million will be appropriated directly to CDC for immunization of underinsured populations under the 317 Program; $650 million will be appropriated to HHS/ CDC for community-based prevention and wellness strategies; and $50 million will be appropriated to HHS for healthcare-associated infections (HAIs).

Over the past month, CDC has been identifying key projects and developing bold funding proposals to meet the objectives and two major priorities of the ESP: create jobs and improve health impact. However, HHS also encouraged CDC leadership to determine projects that could be considered as part of a larger and longer-term strategy for healthcare reform in the United States.

At the National Center level, Dr. Kathleen McDavid Harrison was appointed as the new Associate Director for Health Disparities; Mr. Gustavo Aquino was appointed as the Associate Director for Program Integration; and Dr. Jonathan Mermin was appointed as the Director of the Division of HIV/AIDS Prevention (DHAP) and will assume this position in July 2009.

In terms of the FY'09 NCHHSTP domestic budget, the $1 billion Conference Bill funding level provided $4.2 million above the FY'08 enacted budget and $6.4 million above the FY'09 President's budget. In the Conference Bill, the $143.9 million appropriation for TB prevention was $3.5 million above the FY'08 enacted budget; the $691.9 million appropriation for domestic HIV/AIDS prevention and research was level with the FY'09 enacted budget; the $18.3 million appropriation for viral hepatitis prevention was $0.7 million above the FY'08 enacted budget;

and the $152.3 million appropriation for STD prevention was level with the FY'08 enacted budget.

The outline of the President's 2010 budget was released on February 26, 2009 and will provide $76.8 billion to HHS. Specific dollar amounts that will be appropriated to individual HHS agencies and other details of the President's 2010 budget are not known at this time. However, language in the President's 2010 budget calls for increased resources to detect, prevent and treat HIV/AIDS domestically, particularly in underserved populations.

NCHHSTP convened a Social Determinants of Health (SDH) Consultation on December 9-10, 2008 in Atlanta, Georgia to identify short- and long-term priorities for addressing SDH in HIV, STD, TB and hepatitis prevention. The groundbreaking consultation represented the first time that CDC held an event to examine the relationship between SDH and infectious diseases. A presentation on the SDH Consultation would be made during the ACET meeting.

Dr. Fenton provided additional details on CDC's recent activities with regard to the ESP in response to specific questions posed by the ACET members. CDC submitted a diverse group of proposals to HHS to compete for ESP funding in the area of workforce development. DTBE and the Division of STD Prevention submitted a proposal that focused on enhancing the external CDC workforce, including public health advisors and apprentice programs, in state and local health departments. The NCHHSTP Office of Health Disparities submitted a proposal to strengthen the internal CDC workforce by using SDH to address the prevention portfolio and strategies.

The Office of Workforce and Career Development is coordinating the submission of workforce proposals for CDC to compete for ESP funding in three categories: strengthening CDC's Public Health Apprenticeship Development Programs, investing in the public health workforce at state and local levels, and enhancing core capacities and training of public health workers for the 21st century.

NCHHSTP and the National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) are evaluating a model in which community health workers were used to enhance HIV prevention in several Southern states. CDC is assessing this model as an opportunity to expand training of professional public health workers and also to support President Obama's vision of deeper and wider engagement of public health activities within communities.

Dr. Fenton emphasized that because most of the prevention and wellness funds under the ESP are earmarked for chronic disease prevention, NCHHSTP was placed in a weaker position of competing for ESP dollars to address infectious diseases. However, NCHHSTP made a strong case to demonstrate HIV and viral hepatitis as chronic medical conditions that require a shift in the traditional framework of prevention activities from an acute infectious disease focus to a chronic disease management focus.

NCHHSTP also submitted ESP proposals for TB and STD prevention, surveillance and control in the United States as part of the long-term strategic planning activity for healthcare reform. Although NCHHSTP's strongest ESP proposals are in the areas of HAIs, workforce issues and

health information technology, close collaboration with NCCDPHP will continue to clearly define "chronic diseases" and develop strategies to integrate infectious diseases into the chronic disease management framework.

CDC also submitted proposals to HHS to compete for other sources of ESP funding, including comparative effectiveness research, health information technology to strengthen and accelerate the implementation of electronic health record systems across the United States, and modernization of surveillance and strategic information activities.

In terms of new leadership, all of HHS's major agencies currently have interim directors with the exception of the Health Resources and Services Administration (HRSA). With the recent nomination of Governor Kathleen Sebelius as the new HHS Secretary, however, permanent directors for CDC and other HHS agencies are expected to be appointed on a faster track.

DTBE Director's Report

Dr. Philip LoBue, Associate Director for Science of DTBE, presented the update on behalf of Dr. Kenneth Castro, Director of DTBE, who was unable to attend the meeting. DTBE recently launched its annual planning process on February 24, 2009 with DTBE senior staff to develop three to five overarching flagship projects that will be conducted over the next three to five years. The projects will be designed to have a meaningful impact on TB elimination. DTBE will solicit input from ACET and other partners after the planning process is sufficiently mature.

The Federal TB Task Force "Action Plan to Combat Extensively Drug-Resistant Tuberculosis" (XDR-TB) was published in the February 13, 2009 edition of the *Morbidity and Mortality Weekly Report* (*MMWR*). The Action Plan addresses nine domestic and international response areas for XDR-TB: diagnostic laboratory; surveillance, epidemiology and outbreak investigation, infection control; clinical and programmatic interventions; ethical and legal issues; communication and education; research; partnerships; and cost analysis. The Action Plan was distributed to ACET for review.

DTBE submitted five proposals to the CDC Coordinating Center for Infectious Diseases (CCID) to compete for ESP funding:

1. A $5 million proposal to expand implementation of opt-out HIV testing of TB patients, suspects and contacts.
2. A $2.4 million proposal to improve planning for program collaboration and service integration (PCSI) of TB, HIV, syphilis and hepatitis C virus (HCV).
3. A $6 million proposal to evaluate comparative effectiveness studies of interferon gamma release assays (IGRAs) and tuberculin skin testing (TST) for latent TB infection (LTBI) diagnosis.
4. A $3.6 million proposal to conduct a prospective evaluation of contacts exposed to infectious TB patients, compare treatment regimens and establish a DNA repository for future genetic testing.

5. A $15 million proposal to expand new TB screening technologies by broadly implementing IGRA, nucleic acid amplification testing (NAAT) and molecular drug susceptibility testing (DST).

DTBE released online and printed versions of the 2007 Annual Surveillance Report in October and December 2008, respectively. DTBE plans to publish 2008 preliminary surveillance data in the *MMWR* no later than March 20, 2009 before World TB Day. DTBE released the revised report of verified case of TB (RVCT) form in January 2009 with instructions and will soon develop and distribute self-study modules in both print and electronic formats. Revised RVCT training courses were offered to the Pacific Island TB Controllers in Hawaii and five other courses will be held in Atlanta in the spring of 2009. DTBE will offer additional courses on the revised RVCT form as needed.

DTBE is upgrading its electronic TB reporting system. An upgrade with the revised RVCT form was deployed in December 2008 to 16 states that are currently using the TB program area module (PAM) in the National Electronic Disease Surveillance System (NEDSS). At this time, six states are in production with the TB PAM. The remaining ten states with the NEDSS base system will be in production with the TB PAM by the end of the first quarter of 2009. TB messages were successfully sent and received during testing of the TB PAM. States that do not use NEDSS will be provided with a web-based upgrade of the Tuberculosis Information Management System. Beta testing of the electronic RVCT is underway in Arizona and New Jersey. DTBE will offer webinar training and online support for this initiative.

DTBE is continuing its involvement in two outbreak investigations. Of 60 pediatric contacts identified in a TB investigation in Chuuk, Micronesia, an additional multidrug-resistant TB (MDR-TB) death was reported and five additional cases with suspect MDR-TB disease were identified in November 2008-January 2009. An article on this investigation and a surveillance report will be published in the *MMWR* for World TB Day. DTBE conducted a contact investigation in the District of Columbia, Maryland and Virginia in November-December 2008. A medical transport driver with TB was the potential source to 762 passengers with chronic medical conditions, but no evidence of transmission was detected. DTBE will publish the results of this contact investigation in the *MMWR*.

DTBE is currently re-competing the TB Epidemiologic Studies Consortium (TBESC). The "new" TBESC will have a new research focus and new criteria for selecting sites. The TBESC Strategic Planning Workgroup held its second meeting in January 2008 to discuss and rank six possible research interventions. The workgroup selected three interventions for further development and consideration and will convene its next meeting in October 2009.

The TBESC 14th Semiannual Meeting was held in February 2009 with ~100 participants. The scientific sessions focused on (1) an evaluation of immunogenetic and immunologic markers for susceptibility to *M. tuberculosis* (*M.tb*) infection and progression to TB disease; (2) the prevalence of TB and LTBI infection among visa applicants in Mexico, the Philippines and Vietnam; and (3) the use of QuantiFERON®-Gold (QFT-Gold) in immigrant and refugee children upon arrival in the United States. The TBESC 15th Semiannual Meeting will be held in Boston on July 22-23, 2009.

DTBE is also re-competing the TB Trials Consortium (TBTC) to strike a better balance between high-burden international and domestic sites. DTBE held a pre-solicitation conference in November 2008 and recently released the request for proposals with a deadline of May 13, 2009 to submit proposals for the TBTC re-competition.

TBTC Study 26 is an evaluation of three months of once-weekly isoniazid (INH) and rifapentine for LTBI. TBTC is conducting the study in collaboration with the AIDS Clinical Trials Group and the International Maternal-Pediatric-Adolescent AIDS Clinical Trials Group to increase the number of HIV-infected patients enrolled in the study. TBTC Study 29 is an evaluation of high-dose rifamycin therapy. To date, 38 patients have been enrolled. TBTC Study 30 is an evaluation of linezolid in MDR-TB patients and is scheduled to begin in April 2009 in Durban, South Africa.

DTBE is continuing its efforts on the National TB Indicators Project (NTIP). This system utilizes existing reportable data; standardizes measurements for tracking progress toward objectives; and can be used at national, state and local levels. NTIP will guide program evaluation efforts and reinforce national priorities for TB programs. DTBE will roll out the NTIP pilot to TB programs later in March 2009.

DTBE changed the name of the Evaluation Workgroup to the TB Program Evaluation Network (PEN) to better organize and more strongly reflect the activities of this initiative. TB PEN goals were designed for state and local programs to build capacity to conduct ongoing monitoring and evaluation; engage in program monitoring and evaluation; provide feedback; share lessons learned from evaluations; and use evaluation findings to make systemic changes.

DTBE will hold the annual meeting of the TB Education and Training Network (TBETN) on July 28-30, 2009 in Atlanta, Georgia. The meeting is entitled *TB Education and Training: Recipes for Success* and will include a joint meeting with the TB PEN to provide focal points for training and education.

World TB Day will be held on March 24, 2009. The communication and education resources for this event include an updated CDC web page with links to resources; a graphical web button, the CDC.gov feature, and data and statistics on the CDC and DTBE web sites; and posters, an e-card, and descriptions of events occurring within CDC and across the country.

The ACET members made a number of comments and suggestions for DTBE to consider in refining its ongoing projects and activities.

- DTBE should offer more cost-effective mechanisms to provide training on the TB PAM, such as online webinars, teleconferences or regional training sessions. Limited resources have increased the difficulty for TB controllers to attend training at CDC in Atlanta.
- DTBE should ensure that NTIP and TB PEN have a strong linkage and feedback mechanism. These initiatives are designed for different purposes, but have the capacity to share lessons learned, data from cohort reviews and evaluation methods.

- DTBE should capitalize on upcoming opportunities with ESP funding to enhance implementation of electronic medical record systems. TB programs are challenged by entering patient records into the current system and then inputting the same data into NEDSS. DTBE would have better compliance with data reporting if portals are developed for TB programs to upload Health Level 7 compatible data. This mechanism also would allow TB programs to analyze state and local data and make relevant programmatic adjustments.
- DTBE should use NTIP as an opportunity to explore and incorporate innovations or best practices into TB programs. DTBE also should design a rigorous quality improvement model for NTIP to help build an iterative learning process in the operation of TB programs.

In response to one of ACET's suggestions, Dr. Fenton confirmed that if CDC is successful in leveraging ESP funds, close collaborations would be established with colleagues across the country to launch innovative pilot projects to improve health information technology systems.

Update on the FY2010 TB Funding Formula

Dr. Kashef Ijaz, Chief of the DTBE Field Services and Elimination Branch, explained that 13,929 TB cases were reported in the United States in 2007 for an overall TB case rate of 4.4/100,000. In response to the changing TB epidemiology, DTBE and its partners developed a funding formula to more equitably distribute TB dollars.

In 2005, 20% of the total amount of funds allocated to state and local TB control programs were redistributed. In 2008, the 20% redistribution amount was increased to 35%. In 2010, the 35% redistribution amount will be increased to 45%. In 2013, the 45% redistribution amount will be increased to 60%. The ultimate goal of the TB funding formula is to redistribute and align all funds with data-driven epidemiologic needs and TB elimination objectives of TB control programs in the United States.

In 2008, the 35% redistribution formula was weighted based on data reported to CDC in 2001-2005 for specific occurrences of TB cases in various subpopulations. The formula relied on a five-year average of 40% of incident cases, 15% of U.S.-born minorities, 15% of foreign-born populations (FBPs), 10% of Class A/B1/B2 TB, 5% of HIV co-infection, 5% of MDR-TB, 5% of substance abuse, and 5% of the homeless population.

DTBE and the National Tuberculosis Controllers Association (NTCA) formed the FY2010 Formula Workgroup to achieve three major objectives. Existing formulas for the prevention, control and laboratory components would be reviewed and recommendations would be made on any necessary revisions to the FY2010 TB cooperative agreement funding allocations. Criteria for direct TB cooperative agreement funding to big cities in the future would be assessed. The distribution of funds to hold-harmless states that receive $\leq$$255,000 for TB would be evaluated.

DTBE thoroughly reviewed the workgroup's recommendations and made the following decisions on the three objectives for the FY2010 TB formula for the prevention and control components. For objective 1, the funding formula, DTBE decided on a 45% redistribution formula based on data reported to CDC in 2004-2008 for specific occurrences of TB cases in various subpopulations. DTBE decided that the formula would rely on a five-year average of 30% of incident cases, 35% of U.S.-born minorities and FBPs, 15% of smear- or culture-positive pulmonary TB, 5% of HIV co-infection, 5% of MDR-TB, 5% of substance abuse, and 5% of the homeless population.

For objective 2, direct funding to big cities, DTBE decided to maintain the current level of funding to the directly funded big cities until 2013 or 2015. DTBE's decision was based on the inability to cap indirect costs; the CDC Procurement and Grants Office's distinction between "continuing competitive" and "non-continuing competitive" announcements; major funding cuts at city and state levels; the potential of inadvertently adding new indirect costs to cities that currently have no indirect costs; and the need to publish the FY2010 cooperative agreement. DTBE will continue to collaborate with the NTCA Formula Workgroup, states and cities on the transition plan. DTBE also will further explore the workgroup's recommendation to establish a baseline threshold and discontinue direct funding if a big city falls below this level.

For objective 3, redistribution of funding among hold-harmless states, DTBE agreed not to apply the FY2010 TB funding formula. However, a base minimum funding level of $100,000 will be established. States that receive less than the base minimum funding level will receive additional funds to be equal to the base. States that receive $\geq$$100,000 will receive the same amount.

Dr. Angela Starks is a Senior Science Fellow and Leader of the Capacity Building Activity in DTBE. She explained that DTBE and the Association of Public Health Laboratories (APHL) formed a TB Laboratory Formula Workgroup with representation from NTCA, laboratory directors and supervisors in low-, moderate and high-incidence states. DTBE thoroughly reviewed the workgroup's recommendations and made the following decisions on the FY2010 TB formula for the laboratory component.

DTBE decided that the redistribution formulas for the TB laboratory and prevention/control components would be parallel: 55% of funds would be distributed based on historical funding and 45% of funds would be distributed based on workload. Funds distributed in FY2010 would be based on the current formula of the number of TB cases for which the laboratory provided a test result for completion of surveillance reports. DTBE decided on this approach to allow laboratories at least one year to collect retrospective data that will be required for elements of the new TB formula.

DTBE decided on six elements for the TB laboratory formula in FY2011-FY2014:

1. The total number of specimens [5% weight].
2. The number of patients for whom a TB culture was inoculated [15% weight].
3. The number of patients for whom a reference isolate was received by the laboratory for identification [15% weight].

4. The number of patients for whom NAAT is performed to detect *M.tb* directly from a clinical specimen [25% weight].
5. The number of patients for whom DST is performed for first-line drugs [25% weight].
6. The formation of a laboratory system to encourage collaboration and communication among clinicians, TB laboratories and TB control programs [15% equal amount among all laboratories].

DTBE will use data provided by laboratories to determine funding amounts for each of the six elements. The amounts of the individual elements will be added together to determine the formula-based portion of the award. DTBE's process of distributing TB funds for the laboratory component in FY2010-FY2014 is summarized below.

In FY2010, the current distribution formula of 55% base funding/45% formula funding would be parallel to the TB prevention and control component. In FY2011 and FY2012, the 55%/45% distribution would remain the same, but the six elements would be implemented with an incentive for laboratories that perform NAAT. In FY2013 and FY2014, the 55%/45% distribution would change to 40% base funding/60% formula funding with no incentive for laboratories that perform NAAT.

The ACET members made a number of comments and suggestions for DTBE to consider before implementing the TB funding formula in FY2010.

- DTBE should develop a more equitable formula to distribute TB funding. Most notably, Seattle-King County and other metropolitan areas with a high burden of TB cases that are not designated as "big cities" are not eligible for direct funding.
- DTBE should provide TB programs with clear guidance on using social determinants to more effectively address the subpopulation of U.S.-born minorities/FBPs in the TB funding formula.
- DTBE should make efforts to account for the duplication of subpopulations in the TB funding formula. For example, one state with an incidence of 5% of HIV co-infection, 5% of substance abuse and 5% of the homeless population would receive funding for all three subpopulations. This approach would misrepresent the total impact of TB in the state. DTBE could address this issue by requiring grantees to consult with at least 50% of health jurisdictions in the state that cover at least 50% of the population in the state.
- DTBE should conduct an analysis to determine whether the TB funding formula for the laboratory component would drive some state laboratories to engage in a regional model due to decreased dollars.

Summary of the NCHHSTP SDH Consultation

Dr. Tanya Sharpe, Deputy Director of the NCHHSTP Office of Health Disparities, announced that NCHHSTP convened a consultation on December 9-10, 2008 to address social determinants of HIV/AIDS, viral hepatitis, STD and TB. For purposes of the consultation, NCHHSTP used the World Health Organization (WHO) Commission on Social Determinants of

Health's published definition of SDH: "the range of personal, social, economic and environmental factors that determine the health status of individuals or populations."

During the consultation, NCHHSTP made a presentation on the relative influence of the five categories of determinants of population health that were published in 1999: genes and biology, health behaviors, medical care, total ecology, and social and societal characteristics. The study demonstrated that total ecology and social/societal characteristics account for ~75% of determinants of population health.

For purposes of the consultation, NCHHSTP used WHO's three action steps for addressing SDH. First, conditions of daily life should be improved, including circumstances in which persons are born, grow, live, work and age. Second, inequitable distribution of power, money and resources should be tackled, including structural drivers of the conditions of daily life at global, national and local levels. Third, the problem should be measured and understood; the impact of action should be assessed; the knowledge base should be expanded; a workforce that is trained in SDH should be developed; and public awareness about SDH should be raised.

NCHHSTP convened the consultation to support its programmatic priority of reducing health disparities and develop a comprehensive approach to address health disparities that considers SDH. The consultation also provided an opportunity for the participants to provide external input on key priorities to address social determinants of HIV/AIDS, viral hepatitis, STDs and TB that would be reasonable for NCHHSTP to undertake.

Moreover, the consultation served as a forum for 117 stakeholders to discuss more effective strategies to address social determinants of NCHHSTP's infectious diseases in four key public health areas: public health policy, agency partnerships and capacity building, data systems (surveillance and epidemiology), and prevention research and evaluation. The participants served on breakout groups for the four public health areas and made a number of key suggestions.

The Public Heath Policy Group advised NCHHSTP to provide leadership throughout CDC and align efforts with those of HHS and WHO. The group also suggested that NCHHSTP convene a national agenda setting meeting and partner with other federal agencies, non-governmental organizations, private foundations, philanthropic organizations and others with an interest in reducing health disparities.

The Data Systems Group advised NCHHSTP to identify key data elements and measurements that would be needed to develop and launch a national SDH initiative. The group also suggested that NCHHSTP share, link and integrate data to the extent possible to facilitate data analyses and provide a strong evidence base for SDH.

The Agency Partnerships and Capacity Building Group advised NCHHSTP to build capacity among SDH partners by including language in funding opportunity announcements and requiring state and local grantees to collaborate with and outreach to partners at state and local levels. The group also suggested that NCHHSTP launch a nationwide social marketing

campaign to strengthen the relationship between CDC and at-risk populations and engage a broader group of partners in delivering messages on infectious diseases.

The Prevention Research and Evaluation Group advised NCHHSTP to reframe traditional individual-based strategies and broaden targeted groups on the basis of families, communities, systems, partnerships and organizations. The group also suggested that NCHHSTP advance participatory research in which communities would be engaged from the beginning of conceptualizing studies to the end of finalizing projects.

NCHHSTP's next steps in the SDH initiative are summarized as follows. A summary report will be distributed to all participants who attended the consultation within the next two weeks. A communications plan is being created to guide, mobilize and inspire actions in SDH at federal, state, local and community levels. A white paper with both short- and long-term goals is being developed.

Both short- and long-term planning processes for SDH are underway in the NCHHSTP Office of Health Disparities. A special issue on SDH and its relationship to HIV/AIDS, viral hepatitis, STDs and TB will be published in *Public Health Reports* in 2010 and NCHHSTP will make additional contributions to the scientific literature. Key recommendations from the consultation and other SDH events will be used to inform NCHHSTP's 2009-2015 Strategic Plan that will be launched in FY2009.

Overall, the consultation was successful in identifying key priorities in four public health areas and will help to form an SDH strategy with clear goals and objectives. The consultation demonstrated the commitment of CDC's partners in addressing and broadening the conversation about SDH and engaging traditional and non-traditional federal and private-sector stakeholders that are concerned about reducing health disparities.

ACET commended NCHHSTP on convening the groundbreaking SDH Consultation that cut across all divisions in the National Center. The ACET members who attended this event noted that the consultation provided an amazing framework to begin to analyze issues related to the social determinants of HIV/AIDS, viral hepatitis, STDs and TB.

Several ACET members made suggestions and comments for NCHHSTP to consider in its further development of the SDH initiative.

- NCHHSTP should advance the SDH initiative to examine the role of program integration and social and cultural determinants of health in producing better outcomes, increasing employment opportunities, and using community outreach workers on a larger scale. These components of SDH should be incorporated into ESP activities, the FY2010 TB funding formula and NCHHSTP's other ongoing projects.
- NCHHSTP should partner with and encourage private provider groups to collect and report racial/ethnicity data on HIV/AIDS, viral hepatitis, STDs and TB to CDC. NCHHSTP also should use upcoming opportunities in the ESP to collaborate with private-sector companies to develop methodologies to capture and measure racial/ ethnic data elements in electronic medical records.

- NCHHSTP should reconsider using the WHO Commission on Social Determinants of Health's definition of SDH. NCHHSTP could make a strong contribution and strengthen the theoretical basis by developing a more meaningful definition of SDH.
- NCHHSTP should ensure that the SDH initiative is embedded as a strong theme and comprehensive approach in all infectious disease projects. With TB, for example, SDH should be incorporated into state and local TB programmatic activities, DTBE's TB in African Americans (AAs) projects, and CDC's updated "Recommendations for Prevention and Control of Tuberculosis Among Foreign-Born Persons."

Update by the Division of Global Migration and Quarantine (DGMQ)

Dr. Drew Posey, of the DGMQ Immigrant, Refugee and Migrant Health Branch, reported on DGMQ's ongoing activities related to the TB Technical Instructions (TBTIs) and Electronic Disease Notification (EDN) system. In terms of the TBTIs, all immigrants and refugees who apply for U.S. immigration are required to undergo TB screening. The 1991 TBTIs only relied on sputum smears, were inadequate to detect all applicants with TB disease, and missed smear-negative/culture-positive persons.

To address these issues, DGMQ developed and implemented updated TBTIs in 2007 that required TST for applicants 2-14 years of age in areas where WHO estimated the TB rate to be ≥20/100,000. Other requirements of the 2007 TBTIs include sputum cultures for all applicants suspected of having TB; DST on positive isolates; treatment according to American Thoracic Society (ATS)/CDC/Infectious Disease Society of America guidelines; and treatment delivered as directly observed therapy (DOT) throughout the entire course of therapy.

FY2007 data show that populations from 18 countries, or 33% of immigrants and 40%-50% of refugees, are currently being screened according to the 2007 TBTIs. The TBTIs are now being implemented in the Dominican Republic. This country is the fifth largest source of immigrants to the United States and accounted for 17,880 arrivals in FY2007. A private laboratory will perform the cultures and DST. The panel physicians and National Tuberculosis Program will provide DOT to the applicants with TB.

Other activities to support implementation of the 2007 TBTIs in FY2009 are described as follows. China is the third largest source of immigrants to the United States and accounted for 33,295 arrivals in FY2007. CDC will make a site visit to China later in March 2009 to finalize arrangements for implementation of the 2007 TBTIs. CDC is currently providing training to East African panel physicians in Kenya and will offer the same training seminar to Asian panel physicians in the Philippines in April 2009.

ACET and NTCA will conduct an evaluation of the International Organization for Migration (IOM) program in August 2009 in Nepal. This country is the site of the Bhutanese refugee resettlement and will account for >60,000 arrivals over the next few years. During FY2009, 15,000 Bhutanese refugees are expected to resettle to the United States. In Jordan, the Ministry of Health will serve as the culture laboratory. An IOM laboratory expert from Nairobi,

Kenya recently provided technical expertise on culture and DST to the Jordanian Ministry of Health at its TB laboratory.

DGMQ partnered with DTBE and the Regional Training and Medical Consultation Centers (RTMCCs) to provide clinical intensive TB training courses to panel physicians. In 2008, 13 overseas panel physicians from Ghana, Ethiopia, Kenya, Nepal, Thailand, Egypt and the Philippines attended these courses. The panel physicians and RTMCCs provided excellent feedback on the training courses.

U.S. Department of State (DOS) forms are completed by overseas panel physicians and are being updated to incorporate changes from the 2007 TBTIs. The forms are currently undergoing the DOS review process. Implementation of the updated forms is targeted for October 1, 2009 in parallel to the update of the EDN system and the update of the EDN-IOM electronic interface for refugee medical examinations.

The TBTI document also is being updated to be consistent with the new DOS forms and allow for incorporation of changes based on recommendations made by the TBTI Workgroup and evaluators who assessed the implementation of the TBTIs in the Philippines in 2008. Implementation of the updated TBTI document and the new DOS forms will be linked. A draft of the updated document was recently distributed to the TBTI Workgroup for review and comment.

Overall, the 2007 TBTIs have increased the yield and diagnosis of TB overseas. In the Philippines, for example, 302 smear-negative/culture-positive cases were diagnosed in the first fiscal year in which the TBTIs were implemented. The TBTIs also have provided an opportunity for overseas panel physicians to participate in TBESC meetings and other events.

In terms of EDN, this electronic system allows information to be sent to receiving health departments on all refugees who arrive in the United States and all immigrants who arrive in the United States with a Class A or Class B TB condition. EDN also serves as a mechanism for health departments to enter results of post-arrival TB evaluations. All 50 states receive information electronically through EDN and all quarantine stations are linked to EDN as well. Since October 1, 2008, 16,648 notifications were sent through EDN. Of 2,182 B1 notifications that received a TB evaluation, 402 worksheets were returned to the EDN system.

DGMQ and DTBE jointly convened an EDN Summit in November 2008 with representatives from the NTCA EDN Workgroup and the Association of State Refugee Health Coordinators (ARHC). DGMQ has taken a number of actions in response to suggestions for improvement and recommendations the participants proposed during the summit. For “technical issues,” DGMQ developed and presented a road map for technical improvements to the NTCA EDN Workgroup. For “data analysis and reporting,” DGMQ is currently developing a reporting format and time frame.

For “communication and feedback,” DGMQ is improving its regular communications with states both in terms of frequency and individual contacts. For “training and educational products,” the development of an *EDN User’s Manual* is underway. DGMQ is working to consolidate the leadership of EDN and hire an EDN Manager to have overall coordination of the system. It is

hoped this will better allow recommendations from the summit to be follow-ed up on and allow for integration of EDN with other systems. The final report of the summit was distributed to ACET for review.

EDN currently has a one-month backlog because DGMQ underestimated the data entry needs when West Coast quarantine stations began sending information to EDN in December 2008. In January 2009, the Customs and Border Patrol gave a large volume of medical packets to quarantine personnel in key stations for persons who arrived in the United States in December 2008. DGMQ had no additional data entry capacity to meet this need.

DGMQ is taking a number of actions to resolve the EDN backlog. A comprehensive analysis is being conducted to determine the cause of the backlog and document all potential causes for the delays. The analysis is focusing on quarantine station operations of sending information to EDN, data entry needs, and technical issues that might delay notification after data entry.

Additional data entry personnel were recently hired and more permanent and temporary staff will be made available in preparation of the surge in refugee arrivals in the summer of 2009. Informatics changes are being made to reduce the time between data entry and notification. DGMQ will soon provide a progress report to AHRC and the NTCA EDN Workgroup on the status of the EDN backlog.

DGMQ discussed with states the concept of not including a scanned copy of the medical packet with EDN notifications. DGMQ provided a strong rationale to support this approach. Electronic records are now much more accurate and the provision of a scanned copy for IOM refugees is redundant. Moreover, data entry personnel spend 30% of their time scanning medical records. Scanning also greatly contributes to delays in notifications.

Due to concerns expressed by NTCA and ARHC, a decision was made to continue to include a scanned copy of the medical packet with EDN notifications. However, DGMQ will follow up with NTCA and ARHC to better explain procedures that make electronic records more accurate, solicit more input from states, and develop a new plan regarding scanning.

Update on the Mexico National Tuberculosis Drug Resistance Survey

Ms. Sonia Montiel is the Binational Laboratory Coordinator at CDC. She explained that the Mexico Ministry of Health and CDC jointly conducted a study in 1997 to obtain data on TB drug resistance. The study was published in 1998 and showed that the MDR-TB incidence was 2.4% for primary resistance, 22.4% for previously treated persons, 12.4% for primary resistance to INH, and 56% for secondary resistance.

The study was limited in the following areas. Notification was delayed; 26% of cases reported to the Mexico Ministry of Health were not included; 27% of specimens were not cultured by the national laboratory; and the data were not nationally representative because only three states were included. To address these limitations, the National Tuberculosis Drug Resistance Survey

was initiated in February 2008 with the standardized WHO methodology of multi-stage cluster sampling and a formula recommended by WHO and the International Union Against Tuberculosis and Lung Disease (IUATLD) in 2003.

The U.S. Agency for International Development is funding the study to determine the magnitude of pulmonary drug-resistant TB in Mexico to strengthen the National Program. The sample calculation includes a TB case prevalence of 1,954 new cases, 542 cases with prior treatment, and 8% of lost samples. The study population includes pulmonary TB cases identified in clinics and the geographic coverage is based on 2005 national surveillance data. The total sample size of 2,700 specimens represents nine high-, medium- and low-incidence states, 53 jurisdictions and 4,365 health clinics.

Inclusion criteria for the study are patients <18 and $\geq$18 years of age who are new or previous smear-positive pulmonary TB cases. New and previous TB cases that are currently undergoing TB treatment as well as smear-positive contacts of patients who meet the inclusion criteria are excluded from the study. Elimination criteria include incomplete data on new or pretreated conditions, the exclusion of both samples and inconclusive results on both cultures.

The process to collect data from study participants is outlined as follows. Patients with respiratory symptoms would visit a local health facility and provide three sputum specimens. The local or state public health laboratory would perform smear testing. For positive smear results, a risk factor survey would be administrated and a second sputum specimen would be collected at the patient's home. The samples would be sent to state and national laboratories in Mexico. The best samples would be cultured at CDC and the national laboratory in Mexico.

The Agar proportion method and Bactec 460 will be used to perform DST to detect *M.tb* with ten drugs. The Mycobacterial Growth Indicator Tube (MGIT) automated method will be used for pyrazinamide (PZA). Monoresistant PZA spoligotyping also will be performed to detect *Mycobacterium bovis*. The total sample size that will be sent to CDC for proficiency testing and quality control is anticipated to be 612 specimens. As of February 2, 2009, 2,451 cases or ~91% of samples were enrolled in the study. All specimens are expected to be collected by the end of March 2009.

Challenges to the study include difficulties in locating patients due to persons who were homeless, gave wrong addresses or moved across the state or the U.S.-Mexico border. Changes in local or state personnel required additional training. Samples were lost or improperly packaged and stored. Delays also occurred in sending specimens to the state or national laboratory. Shortages of laboratory staff resulted in delays in smear testing and delivery of specimens to the jurisdiction and state. CDC has no knowledge at this time when the study will be published. Although ~91% of samples have been collected, Mexico has sent no isolates to CDC for blind testing to date.

ACET was pleased that CDC is undertaking this effort because the study will provide important new information on the incidence of TB drug resistance in Mexico. Several ACET members made comments and suggestions for CDC to consider in refining the study.

- The methodology should clearly state the purpose or objectives of the study, particularly the frequency of MDR-TB in Mexico. The methodology also should describe HIV co-infection, high-incidence states in Mexico, intravenous drug use and other risk factors for MDR-TB to assist clinicians in proactively treating these patients.
- Consideration should be given to including Tamaulipas, Mexico in the study due to the high incidence of TB in this state. The study most likely will underestimate the true incidence of TB drug resistance in Mexico due to the exclusion of Tamaulipas.
- A history of hospitalization and incarceration of persons with TB should be analyzed in the study as strong factors for MDR-TB. For example, a survey administered in Siberia on the potential causes of MDR-TB demonstrated that hospitalization for drug-susceptible TB was the major factor in this setting. The Siberian study also showed that institutional transmission and re-infection played a significant role in MDR-TB in this setting.
- Agreements should be established with laboratories to send specimens directly from Mexico to the United States. The transport of specimens from local clinics to Mexico City and finally to the United States will result in a loss of control and supervision of data.

Overview of the Healthcare Infection Control Practices Advisory Committee (HICPAC)

Ms. Rachel Stricof is the ACET liaison to both HICPAC and the Association for Professionals in Infection Control and Epidemiology. She explained that the mission of HICPAC is to protect patients and healthcare personnel (HCP) and also to promote safety, quality and value in healthcare delivery. Similar to ACET, HICPAC also is a federal advisory committee that is chartered to provide guidance and recommendations to the HHS Secretary and CDC Director. Unlike ACET, however, HICPAC is not a legislatively mandated committee.

HICPAC members are recommended by CDC and appointed by the HHS Secretary. HICPAC's 14 voting members develop strategies and issue guidelines for surveillance, prevention and control of HAIs. HICPAC also engages in information exchange with CDC staff and has both formal and informal interactions with other CDC advisory committees. HICPAC's liaison and *ex-officio* members represent a diverse group of federal agencies and professional organizations.

Many of HICPAC's areas of focus overlap with those of ACET. Most notably, HICPAC's focus on healthcare outcomes targets the incidence of disease, disability, death and cost of care, while its focus on emerging antimicrobial-resistant infections includes TB and MDR-/XDR-TB as models. HICPAC's other key areas of focus include (1) prevention and control of outbreaks and transmission of infectious agents in healthcare settings; (2) clinical microbiology laboratory efficiency, accessibility and quality; (3) cost and effectiveness of prevention interventions; and (4) development of infection control guidelines and policies.

On the one hand, several guidelines HICPAC has published over time are of interest and relevance to ACET's mission and key target audience of TB control programs, such as the 1998 Infection Control in Healthcare Personnel Guideline that will be updated in the near future, the

2003 Environmental Control in Healthcare Facilities Guideline, and the 2007 Isolation Precautions Guideline.

On the other hand, a number of ACET's previously published and upcoming guidelines are of interest and relevance to HICPAC's mission and key target audience of healthcare facilities, such as the 2003 Adverse Event Data and Revised ATS/CDC Recommendations Against the Use of Rifampin and Pyrazinamide for Treatment of Latent Tuberculosis Infection and the 2005 Guideline for Preventing Transmission of *Mycobacterium tuberculosis* in Healthcare Settings.

ACET also will update the 1996 Guideline on the Role of BCG Vaccine in the Prevention and Control of Tuberculosis in the United States and the 2005 Guideline for Using the QuantiFERON®-TB Gold Test for Detecting *Mycobacterium tuberculosis* Infection in the United States. Moreover, ACET will issue an updated Guideline for the Use of Nucleic Acid Amplification Tests in the Diagnosis of Tuberculosis in 2009.

HHS's new "National Policy on Lowering HAIs" is another area that is of interest and relevance to both ACET and HICPAC. Although the current incidence of HAIs in the United States is 1.7 million and accounts for ~99,000 deaths each year, no systematic approach has been established to date to reduce or prevent HAIs. However, ESP funding of $50 million will be allocated to states for HAI prevention activities. In preparation of the ESP funding, HHS described its role in reducing HAI rates during the June 2008 HICPAC meeting. At that time, HICPAC accepted HHS's formal charge to provide subject matter expertise in helping to develop the National Policy for both acute care hospital and outpatient settings.

Proposal of a Comprehensive Assessment of Available TB Laboratory Services

Dr. Starks described DTBE's proposal to conduct a comprehensive assessment of available TB laboratory services in the United States. At this time, 60%-70% of clinical decisions are directly influenced by laboratory results, including the initial diagnosis, decisions on releasing patients from isolation, and initiation of appropriate drug therapy. Even if a strong clinical suspicion for TB exists, some clinicians will delay treatment decisions until laboratory results are available.

To ensure continued progress in reaching the goal of TB elimination in the United States, a determined effort must be made to strengthen domestic TB laboratory capacity. Critical steps in this effort are to promote timely laboratory testing and ensure strong communications among public and private laboratories, clinicians and TB control programs. Moreover, jurisdictions must have access to high-quality TB testing and timely data reporting must occur as well.

The 2009 Federal TB Task Force *Plan to Combat XDR-TB* and the 2002 APHL/CDC *Future of TB Laboratory Services Report* both recommended a comprehensive assessment of available TB laboratory services in the public and private sector in the United States. The CDC Public Health Practice Program Office conducted an assessment in 1999 to determine training needs, but this evaluation was not comprehensive.

Of the national sample of mycobacteriology laboratories evaluated in 1999, 35.5% performed acid fast bacilli microscopy only, 46.5% performed culture without identification, 10.3% performed culture and identification, and 7.7% performed DST. The 1999 assessment showed that TB testing required referrals among public and private laboratories with different levels of service. The assessment also emphasized the need to ensure coordination between public and private sectors for referral services to prevent unnecessary delays.

Under TBESC Task Order 6, a laboratory survey was recently administered to assess laboratory services in the low-incidence states of Idaho, Montana, Utah and Wyoming and showed the following findings. A minimal number of laboratories in the region performed mycobacteriology services. Laboratories that provided services had very low specimen volumes. Most laboratories were not meeting goals for turnaround times. In response to the survey results, CDC offered training to the laboratories in the region to address turnaround times and reporting issues.

A comprehensive assessment of available TB laboratory services in the United States is still needed at this time because the 1999 training needs assessment and TBESC laboratory survey were quite focused. These two activities also did not address three outstanding issues. Jurisdictions might have limited knowledge about the status of TB laboratory services in their respective areas. A national picture of the current state of TB laboratory services is lacking. Gaps in laboratory knowledge and services need to be identified; barriers to sharing best practices within the laboratory community need to be overcome; and communication and training issues need to be addressed to develop and disseminate appropriate materials.

DTBE and APHL are collaborating to conduct a number of activities to support the development of a comprehensive laboratory services survey instrument. A face-to-face meeting will be convened with relevant subject matter experts to develop and refine the survey instrument. A list of laboratories to survey will be created. Pilot testing will be performed with a subset of public and private laboratories. Approval of the survey instrument will be solicited from the Office of Management and Budget. The comprehensive survey will be implemented in various local jurisdictions. Data will be analyzed and quality improvement plans will be developed. A report with recommendations will be written.

The survey topics will focus on available services in each laboratory, test methods and volumes, turnaround times and reporting processes, existing referral strategies, training needs, and relationships between public health laboratories and TB control programs. Survey data for jurisdictions will be provided to public health laboratories to increase awareness of TB services and provide an opportunity to take the lead in developing an integrated laboratory system for TB laboratories, control programs and clinicians.

At the local level, potential focus areas for jurisdictions will include improved coordination for referral of specimens and cultures; elimination of delays in laboratory testing and reporting; implementation of changes in services based on data; and development of baseline data for quality assessment activities, such as data reporting to stakeholders. The overarching goal of this effort will be to empower laboratories to use the comprehensive survey instrument to periodically reevaluate available laboratory services at the local level.

At the national level, DTBE will develop relevant training materials such as webinars, conference sessions and National Laboratory Training Network classes. These data also could be useful to DTBE to guide decision-making for funding, projects, future research questions and the establishment of new "TB Testing Centers of Excellence."

Dr. Starks concluded her overview by requesting ACET's feedback in the following areas: general comments on DTBE's proposal to conduct the comprehensive assessment of available TB laboratory services in the United States; suggestions on the design of the survey instrument; and a formal endorsement, response or recommendations to the comprehensive laboratory services survey. Because DTBE has not yet secured funding for this activity, Dr. Starks noted that ACET's formal endorsement might facilitate the development and implementation of the survey.

ACET fully supported DTBE's excellent proposal to develop and conduct the comprehensive assessment of available TB laboratory services in the United States. Several ACET members made comments and suggestions for DTBE to consider in designing the survey instrument.

- DTBE should design the survey to analyze and test the potential association between laboratory turnaround times and the likelihood that specimens would be submitted.
- DTBE should link the comprehensive laboratory services survey instrument with RTMCC activities. The RTMCCs could provide technical education and consultation to local laboratories in utilizing NAAT, QFT-Gold and other new technologies recommended in CDC guidelines.
- DTBE should include the "incidence of laboratory contamination" as an additional topic to analyze in the survey.
- DTBE should use the comprehensive laboratory services survey instrument as an opportunity to establish standards for the minimum number of tests laboratories should perform to maintain proficiency.
- DTBE should assure anonymity to laboratories that participate in the survey. Although state and local health departments would greatly benefit from having knowledge of specific laboratory services that are available at the local level, an anonymous survey most likely would yield better results. Alternatively, the survey could be designed to collect and release both aggregate and laboratory-specific data.

Dr. Fleenor closed the discussion by confirming that Dr. Starks' request for ACET's formal endorsement, response or recommendations on the comprehensive laboratory services survey would be revisited during the business session on the following day.

Update on *M.tb* Universal Genotyping Services in the United States

Dr. Lauren Cowan is the Project Officer for the National TB Genotyping Service in DTBE. She described the timeline of genotyping services offered by CDC. In 1990, IS*6110* restriction fragment length polymorphism analysis (RFLP) fingerprinting was introduced at CDC as a result

of studies that documented nosocomial and institutional transmission of TB. In 1993, the results of these and other studies led to the development of recommendations for a standardized methodology of IS*6110*-RFLP and the creation of six regional fingerprinting laboratories to track outbreak investigations, address laboratory cross-contamination, and distinguish between re-infection and relapse of TB cases.

In 1996-2000, services provided by the six regional fingerprinting laboratories were expanded to include universal genotyping at seven sentinel surveillance sites by seven regional laboratories. Although this effort demonstrated the usefulness of universal genotyping, better and faster methods were still needed at the national level. Based on this outcome, the regional fingerprinting laboratories were closed and CDC again was responsible for all universal genotyping and task order services. CDC then developed and transferred polymerase chain reaction (PCR)-based methods to high throughput instruments.

In 2000-2003, CDC piloted the application of the PCR-based methods and offered universal genotyping in six low-incidence states. In 2004-2008, contracts were awarded to offer universal genotyping nationally. A significant shift was made from IS*6110*-RFLP fingerprinting on all isolates to spoligotyping and mycobacterial interspersed repetitive unit (MIRU) typing on all isolates and IS*6110*-RFLP fingerprinting on secondary isolates. Based on a published study, a proposal was made in 2007 to standardize 24-loci MIRU variable numbers of tandem repeat (VNTR) typing. In 2009-2013, CDC will implement the MIRU-VNTR upgrade for universal genotyping.

CDC contacted two laboratories in California and Michigan to provide national genotyping services. During the first contract in 2004-2008, the two laboratories had the capacity to process 10,000 isolates per year; offered spoligotyping and 12-loci MIRU-VNTR as the primary typing methods; used IS*6110*-RFLP fingerprinting as the secondary typing method for 2,563 isolates based on CDC's funding capacity of 30%; and provided genotyping services at an average cost of $96 per isolate.

In the second contract in 2009-2013, the California and Michigan laboratories will maintain the same capacity to process 10,000 isolates per year; offer spoligotyping and 24-loci MIRU-VNTR as the primary typing methods; use IS*6110*-RFLP fingerprinting as the secondary typing method based on CDC's funding capacity of 10%; and provide genotyping services at an average cost of $117 per isolate. The change in MIRU units from 12 to 24 individual loci will allow CDC to add and analyze more data in its national genotyping services. However, this modification will not prevent CDC from consistently examining data that have been collected since 2003.

CDC's current genotyping activities are summarized as follows. Retrospective MIRU2 typing will be provided for any isolate submitted for genotyping between 2003-2008 upon the request of TB control programs. MIRU2 typing is being performed on 768 isolates clustered in North Carolina and Maryland between 2003-2006. CDC is serving as a test site for a 24-loci MIRU kit to better understand the impact of the genotyping changes on TB control programs. A proposal is being developed to standardize Luminex-based spoligotyping.

Overview of Proposed Molecular Detection of Drug Resistance in *M.tb*

Dr. Beverly Metchock is the Team Leader of the Reference Laboratory in DTBE. She described a new testing service for molecular detection of drug resistance (MDDR) that the DTBE Mycobacteriology Laboratory Branch (MLB) will offer later in 2009. The goal of this service is to decrease turnaround times for the detection or confirmation MDR-TB and to make information available about second-line drug (SLD) resistance much faster than current methodologies and testing algorithms. This initiative also will help MLB to generate data, inform applied research and facilitate the development of an improved testing service.

The role of the laboratory in *M.tb* DST is to detect drug resistance to enable clinicians to design effective multi-drug regimens. The current recommendations are to test initial *M.tb* isolates against the primary drugs of INH, rifampin (RIF), PZA and ethambutol (EMB) and to test secondary drugs, including fluoroquinolones (FQ), amikacin (AMK), kanamycin (KAN) and capreomycin (CAP), for RIF-resistant isolates.

The current practice for *M.tb* DST includes rapid broth-based methods that are routine and widely available for first-line drugs. Molecular assays for RIF and INH are available in a few jurisdictions and are performed on clinical specimens or culture isolates. Very few laboratories have the technical expertise and capacity to test SLDs. Testing is often performed in piecemeal fashion through referral algorithms and has slow turnaround times. No consensus methods have been developed to date for broth-based testing of SLDs.

MLB reviewed 2006 data from its *M.tb* DST Performance Evaluation Program to determine the capacity of U.S. laboratories to detect XDR-TB. Of 104 laboratories that participated in the survey, 30 tested at least one SLD; nine tested all six SLD classes; and seven tested KAN, AMK, CAP and FQ. The survey also showed that U.S. laboratories typically did not perform SLD testing as a comprehensive panel. MLB learned that with *M.tb* DST, some laboratories were reluctant or lacked confidence in using broth-based testing to report resistance prior to confirmation.

MLB's new MDDR service will play an important role in three major areas. For clinicians and programs, rapid confirmation of MDR-TB will be made available to jurisdictions that have an interest in sending isolates to the CDC laboratory. Laboratory testing data will be made available to clinicians about SLD resistance in cases of RIF resistance or MDR-TB. For research, services will be informed and improved by determining mechanisms of resistance, defining new target alleles, and confirming an association between mutation and resistance. For development, the correlation of molecular or genotypic results and DST or phenotypic results will be continuous. New drugs and alleles will be added to the testing panel.

MLB will initiate the new MDDR service with a molecular panel of nine genes and six drugs: RIF, INH, KAN, AMK, CAP and FQ. Testing will be offered initially on complex isolates of *M.tb* on solid media and positive broth culture, such as MGIT. The testing algorithm will include the entire molecular panel and MLB's routine agar proportion DST panel of ten drugs and the MGIT system for PZA. The method of the MDDR service will be PCR-based DNA sequencing. MLB

determined that this versatile and expandable platform will generate useful information to facilitate interpretation of results and provide feedback on the research and development components of the MDDR service.

Criteria for testing with the MDDR service include high-risk patients with RIF resistance or MDR-TB from populations with high rates of drug resistance; patients exposed to MDR-TB or RF-resistant TB cases; patients failing therapy; high-profile patients who have a significant impact on public health measures and patient management; patients with known RIF resistance as determined by first-line drug testing or the completion of molecular assays for the detection of RIF resistance; or patients with mixed or non-viable cultures.

State public health laboratories will make test requests for the MDDR service by notifying MLB through a dedicated e-mail address for gate-keeping and planning purposes. The requesting laboratories will be required to complete the following fields on the CDC test requisition form: contact information for the laboratory and individual requestor and criteria for testing.

MLB will issue interim or preliminary reports with molecular results through the MDDR service and a final report with both molecular and agar proportion DST results. The final report will include conclusions that link and explain discordance between molecular testing data and DST results. The conclusions also will include data that MLB used to interpret results, such as predictive values of certain mutations. Standardized language and editable boilerplate comments will be used for MDDR service reporting.

MLB recognizes the need to provide training on the new MDDR service and is currently developing educational materials for laboratorians, clinicians, TB programs and RTMCCs, including a web site and fact sheets describing the submission protocol, clinical consultation and the interpretation or discordance of results. MLB plans to evaluate the MDDR service by obtaining feedback from referring laboratories on the dates reported, methods and other aspects of their DST results as well as recommendations, problems or complaints with reporting language, communications or other components of the MDDR service. MLB also intends to solicit input from TB programs to define the utility of the MDDR service.

MLB will perform test verification of the MDDR service in two areas. The retrospective evaluation will assess ~240 isolates MLB collected from 2000-2008, including MDR-TB strains with SLD resistance, non-MDR-TB strains with SLD resistance, isolates that are pan-susceptible to both first- and second-line drugs, strains from both U.S. and foreign patients, and 60 isolates from the 2007 and 2008 WHO Supranational Laboratory Proficiency Testing Program. The retrospective verification is underway and is expected to be completed in April or May 2009.

The prospective evaluation will assess ~80 isolates that state public health laboratories will submit to MLB in February-May 2009. The prospective verification is underway and is expected to be completed in May-June 2009. MLB will publicize the MDDR service through “Dear Colleague” letters disseminated by NCTA and APHL, announcements published in *TB Notes*, and a presentation during a breakout session of the National Tuberculosis Conference in the summer of 2009. MLB anticipates that the MDDR service will be launched in the third quarter of 2009.

MLB's conservative estimate is that one to two requests will be made each week for the MDDR service. In 2007-2008, ~134 RIF-resistant strains were referred to CDC and ~20 states refer *M.tb* cultures to CDC at this time. The costs per isolate of CDC materials are anticipated to be ~$50 for DST and ~$110 for the molecular panel. In addition to the CDC costs, submitters also will incur costs for processing and shipping of each specimen. Overall, MLB expects that its turnaround time to produce results for specimens submitted to the new MDDR service will be ~96 hours initially if appropriate staff is available. However, MLB will make efforts to decrease the turnaround time to 48 hours as the MDDR service is refined over time.

Dr. Metchock concluded her overview by requesting ACET's recognition of the new MDDR service as a "work-in-progress" as well as ACET's comments and recommendations on the proposed plan to develop and implement the new testing service. She pointed out that MLB would add new targets, refine the reporting language and improve the MDDR service as new information is acquired over time.

Several ACET members made comments and suggestions for MLB to consider in further development of the new MDDR service.

- MLB should offer the MDDR service for smear-positive specimens from patients who meet the inclusion criteria for testing. Persons who have risk factors for drug resistance are the greatest challenge to clinicians and TB control programs.
- MLB should develop a mechanism for agencies or organizations that have no established linkages with state public health laboratories to utilize and submit samples to the MDDR service. For example, the Department of Defense (DoD) represents several TB laboratories, but does not routinely partner with state public health laboratories. DoD has a public health issue of its overseas military and civilian populations being exposed to non-American patients with presumed MDR-/XDR-TB in Afghanistan. However, samples that are submitted to Frankfurt, Germany are returned to DoD three to four months later. MLB's MDDR service might assist DoD in receiving diagnostic test results more rapidly and better protecting its overseas military and civilian populations against exposure to MDR-/XDR-TB.
- MLB should design the MDDR service to analyze the association between hyper-mutability of EMB strains that appear to predict strains and the potential of these strains advancing to multiple drug resistance.
- MLB should revise the MDDR service criteria for testing to include patients who are unable to take or are susceptible to RIF.

Overview of HIV Testing of High-Risk Patients in CDC-Funded Programs

Dr. Dale Stratford is the Chief of the DHAP Program Evaluation Branch. She explained that this topic was placed on the agenda to address ACET's previous concerns regarding the burden and amount of time grantees need to collect HIV testing data for mandatory reporting to CDC

and CDC's failure to provide feedback to health department jurisdictions on the requirement for data reporting.

CDC has collected HIV testing data since the late 1980s and published its most recent report in 2006 with five-year HIV testing data covering 1999-2004. CDC implemented its most recent reporting requirements in January 2008 with three parts on the HIV testing form. Part 1 covers all HIV test events, such as test-level data. Part 2 covers referrals for confirmed HIV-positive tests. Part 3 covers jurisdictions that are funded to collect and report HIV incidence data directly to local HIV incidence coordinators.

The HIV testing form asks grantees to respond to the following public health questions:

- The number of clients who received HIV testing services by ethnicity, race, gender, age, risk site type and test type.
- The number of clients who received test results by test result, client characteristics, including demographics and risk factors, site type and test type.
- The proportion of total tests that are positive by client characteristics, test type and site type.
- The proportion of positive tests that are newly identified based on self-reports.
- The proportion of newly identified positive clients who developed a risk reduction plan, received referrals to services, and accessed those services.

CDC uses HIV testing data reported by grantees to evaluate its funded HIV counseling and testing services based on three public health indicators: (1) the percent of newly identified and confirmed HIV-positive test results among all tests reported by HIV test sites; (2) the percent of newly identified and confirmed HIV-positive test results returned to clients; and (3) the percent of facilities reporting a prevalence of HIV-positive tests equal to or greater than the jurisdiction's goal. In 2010-2015, CDC will replace public health indicator 3 with the proportion of HIV-positive clients who were referred to medical care and attended their first appointment.

CDC now requires jurisdictions to report HIV testing data 45 days after the end of each quarter, but grantees and DHAP have recommended semiannual reporting due to the considerable reporting burden. CDC relies on feedback from the field and will analyze data to help determine the utility of any specific data element. A monitoring and evaluation plan will drive future data needs. Dr. Stratford presented slides of the actual HIV test form and provided an explanation on each of the three parts of the form.

The 2005 HIV testing report is currently undergoing the CDC clearance process and will be released in the spring or early summer of 2009. Analyses of 2006-2007 HIV testing data were initiated and are scheduled to be released in the summer of 2009. In the future, annual national reporting data will be posted on the CDC web site. Annual reports will be provided to individual jurisdictions and to the Division of HIV prevention and on a semiannual basis thereafter.

Dr. Stratford concluded her overview by requesting ACET's feedback or general comments on CDC's HIV testing data requirements. She emphasized that ACET's guidance would contribute to refining CDC's recommendations on program data requirements.

Several ACET members made comments, proposed suggestions and expressed concerns regarding CDC's current reporting requirements for HIV testing.

- CDC should be aware that its methodology of limiting HIV risk factors to the past 12 months could lead to significant skewing of actual risk factors in HIV testing data reported by grantees.
- CDC should seriously reconsider the implementation of a new public health indicator to evaluate its grantees. Beginning in 2010, grantees will be required to report the proportion of HIV-positive clients who were referred to medical care and attended their first appointment. However, the collection of this information from private providers will be extremely onerous and burdensome to local public health departments. Because attendance at the first appointment for referral services is not a reportable data element, private providers most likely would refuse to release these data to health departments.
- CDC should use its PCSI initiative to increase awareness in both HIV/STD and TB programs about TB as a risk factor for HIV, particularly in states with a low incidence of TB or HIV. CDC's education to HIV/STD and TB programs could increase the proportion of TB patients who are tested for HIV at the local level.
- CDC should compile and distribute best practices to its funded programs to clearly distinguish between "contacts" and "investigations." This approach at the national level would better support HIV and TB prevention and control efforts in the field.
- CDC should take extreme caution in adding more questions to the HIV test form. The form is already lengthy and the addition of more questions will decrease the number of HIV tests performed by grantees.
- CDC should make strong efforts to mitigate additional personnel costs and resources associated with grantees adhering to requirements for reporting HIV testing data. For example, grantees that have made the transition to electronic medical records are required to complete CDC's hard-copy HIV test form and then enter the same data into an electronic database. The need for grantees to expend more personnel resources to comply with HIV testing data reporting requirements has resulted in CDC unintentionally shifting the cost of "free" HIV tests to local jurisdictions and also has led to some grantees opting-out of providing HIV testing in TB clinics.

Ms. Suzanne Marks, a Senior Epidemiologist in DTBE, provided additional information in response to some of ACET's comments. At the division level, DTBE submitted an ESP proposal that requested ~$5 million in additional funding for HIV testing of TB suspects, patients and contacts. At the National Center level, NCHHSTP is conducting activities at this time to improve sharing of HIV data among programs. For example, NCHHSTP is currently developing combined guidelines for data security and confidentiality that are expected to remove barriers to data exchange among programs.

ACET Workgroup Reports

Foreign-Born Workgroup (FBWG). Dr. Dolly Katz, of DTBE, noted that a folder of numerous materials the FBWG subgroups developed to update CDC's 1998 "Recommendations for Prevention and Control of Tuberculosis Among Foreign-Born Persons" was distributed to ACET for review and comment. She also pointed out that the draft materials were in various stages of completion. She asked ACET to be prepared to engage in a comprehensive discussion and provide input on FBWG's draft foreign-born guidance document at the next meeting.

Dr. Katz emphasized that FBWG's ongoing revisions and ACET's feedback during its next meeting would facilitate the completion and submission of the final draft document to the CDC clearance process. She acknowledged the diligent efforts of the members of the FBWG and its subgroups in drafting and extensively revising the foreign-born guidance document over the past five years.

Stop TB in the African American Community Workgroup. Ms. Gail Burns-Grant is a TB Program Consultant in DTBE. She reported that the workgroup agreed to focus on three target areas: research, protocols and guidelines, and community awareness and outreach. TBESC's Task Order 11 intervention of "Working Together to Stop TB: Building Community Partnerships to Eliminate TB in African American Communities" supports the workgroup's three focus areas and was designed to overcome treatment barriers to TB disease and LTBI and.

Findings from the Task Order 11 intervention demonstrated inconsistent messages about TB in the AA community; the need for a stronger partnership between public health and the community to address TB; and the need for guidance and concrete action steps to establish and improve practices. To advance the Task Order 11 intervention, formative activities were conducted with health departments and communities. DTBE provided funding and technical assistance. The Southeastern National Tuberculosis Center (SNTC) and the Research Triangle Institute collaborated to develop a toolkit that is scheduled to be distributed in May 2009.

The toolkit includes a number of resources to facilitate closer collaboration among CDC partners and communities, such as a DVD, user's guide with tools, invitation letter and meeting agenda with the campaign logo, PowerPoint presentations, facilitator's guide, and links to resources on the SNTC web site. Health departments and their external partners are the target audiences for the DVD. The DVD will be available on the Internet and in hard copy upon request, but CDC and its partners are currently developing a more formal and broader dissemination plan.

DTBE conducted a number of activities to support the "Working Together to Stop TB" intervention. Fact sheets on TB in AAs and other minority groups were updated with the most recent surveillance data and posted on the CDC web site for access by partners. The TB in AA web page is being redesigned to match CDC's web templates and to be user-friendlier. DTBE's multidisciplinary Health Disparities Workgroup (HDW) is continuing to extensively collaborate with partners. A number of ESP and DTBE lead proposals were developed and submitted to compete for FY2009 funding.

HDW participated in or presented at several events, including a HRSA meeting, NCHHSTP's SDH Consultation and health disparity lectures, Gay Pride activities, DTBE brown bag lunches, the TB program manager's course, Task Order 23 Workgroup, and Health Disparity Workgroups for both CCID and NCHHSTP. HDW also nominated external participants to attend NCHHSTP meetings. Ms. Burns-Grant concluded her overview by showing the "Working Together to Stop TB" DVD.

ACET commended CDC and its partners on producing the outstanding "Working Together to Stop TB" toolkit, particularly the excellent DVD. Several ACET members made comments and suggestions for CDC and its partners to consider in broadly disseminating the toolkit.

- CDC and its partners should utilize diverse and innovative venues to widely disseminate the toolkit and reach more audiences. Distribution methods that should be considered for the toolkit include the National Medical Association (NMA) and other provider organizations; the National Association of Community Health Centers and other health center advocacy groups that are funded by or collaborate with HRSA; the African American Workgroup; Task Order 23 Community Advisory Boards; HRSA's Knowledge Management System Virtual Office; and RTMCC breakout sessions, poster sessions or newsletters featured during National TB Controllers meetings.
- CDC and its partners should submit the DVD to the National Association of County and City Health Officials to compete for the "Model Practice Awards." This approach could be used to promote and broadly distribute the DVD as an innovative social marketing product.
- CDC and its partners should use non-governmental organizations and other creative mechanisms to present the DVD to subpopulations in the AA community with the highest risk for TB.
- CDC and its partners should launch and target a national educational campaign to audiences that will use the toolkit. This strategy will increase the effectiveness and actual implementation of the toolkit. Moreover, solid partnerships will be extremely important to strengthen knowledge and understanding of cultural differences regarding TB in the AA community. At the local level, for example, health departments could collaborate with churches, beauty salons, barbershops and other community partners to provide education on TB in the AA population. To seriously address this issue, local health departments must make a strong commitment to provide leadership to and collaborate with communities. At the national level, NMA could serve as a solid partner in providing education on TB to AA physicians due to its location in six regions that cover the entire country.

Ms. Marks informed ACET that two papers were recently published addressing substance abuse among TB patients and knowledge, attitudes and perceptions regarding TB disparities in certain populations.

Joint BCG Workgroup with the Advisory Committee on Immunization Practices (ACIP). Dr. Elsa Villarino, of DTBE, reported that the 1996 ACET/ACIP document recommended the use of BCG for the prevention of TB among HCP in the United States in three situations: (1) a high percentage of TB patients infected with MDR-TB; (2) transmission of drug-resistant TB to

HCP and the likelihood of subsequent infection; and (3) implementation of infection control measures with no demonstrated success in preventing transmission. The 1996 ACET/ACIP guidance document also recommended the use of BCG for prevention of TB in children who were continuously exposed to MDR-TB.

The 1996 ACET/ACIP BCG recommendations were rarely implemented because the efficacy of the vaccine was found to be highly variable. Two large and comprehensive meta-analyses showed that the efficacy of BCG ranged from 0%-80% and the capacity of the vaccine to prevent disease in adults was questionable. Other studies demonstrated that BCG interfered with the interpretation of TST; experience with BCG was limited in the United States; the vaccine was not readily available; and infection control measures were effective.

ACET considered the need to extensively review the 1996 BCG vaccine guidelines due to a number of factors. TB epidemiology changed globally; the incidence of MDR-TB increased; and XDR-TB became an emerging problem. HCP, volunteers and students continued to conduct activities with high-risk populations through humanitarian efforts and university research programs. Implementation of infection control measures was found to be inadequate or incomplete. Transmission of TB in healthcare facilities was shown to affect HCP and patients and also amplify HIV. The availability of IGRA as a diagnostic tool for LTBI eliminated concerns regarding false-positive TST results due to BCG.

Based on these factors, ACET formed a new BCG Workgroup in 2008 with the following charge. New literature related to the efficacy of BCG would be reviewed. Recommendations would be offered for HCP, volunteers and students who travel to work in areas of the world where the incidence of MDR-/XDR-TB is high and infection control measures are inadequate. A joint writing committee would be formed with ACIP to ensure that the updated BCG guidelines would have the same co-endorsement as prior versions. ACET recognized that the workgroup's recommendations would be "expert opinion" for the most part.

The workgroup's charge was modified in 2009 as follows. The scope of the guidance document would be expanded from a targeted update of the 1996 BCG recommendations. The target audience of the recommendations would be HCP providing care to persons who travel for work in areas with a high risk for *M.tb* transmission. ACIP no longer would serve as a joint author of the guidance document. A new title was proposed to reflect the scope of the new guidelines: *TB Prevention and Control Measures for U.S. Healthcare Workers and Volunteers Serving in High-Risk Settings for Exposure to M. tuberculosis*.

The guidance document developed under the modified charge would propose BCG vaccination as only one of several potential interventions with the following recommendations. BCG vaccination should be administered at least eight weeks prior to travel when possible. The workgroup agreed on eight to ten weeks as an appropriate time frame for travelers to develop an immune response following TB exposure. This time frame also would allow an evaluation of immune response by IGRA or TST prior to the traveler's departure. The evaluation should be conducted eight weeks after BCG vaccination through TST or IGRA.

The post-travel evaluation should be conducted two months after exposure ends. The medical assessment to detect signs and symptoms of TB should be performed by IGRA and TST. If the medical assessment shows evidence of LTBI or symptoms, a chest x-ray should be performed and a referral should be made to local experts, state TB consultants, RTMCCs or another expert in the treatment of MDR-TB.

The workgroup convened a conference call in February 2009 to review the current draft guidance document and highlight areas that were absent or under-represented. After all pertinent sections of the guidance document are clearly defined, a new outline will be developed and writing tasks will be assigned to each workgroup member. A timeline will be created for the workgroup to produce the revised guidance document. Input provided by ACET during the March 2009 meeting will be considered.

Dr. Edward Nardell, ACET's liaison to IUATLD, added that the guidelines also would emphasize the need to develop a better respirator for HCP and volunteers to use in low-income countries.

ACET was divided on whether additional efforts should be made to further develop and release the guidance document with a modified scope. On the one hand, several members noted that the 1996 BCG guidelines need to be updated and expanded at this time. The members emphasized the need for CDC to provide advice to persons who work in areas of the world with extremely high-risk populations and inadequate infection control measures. The members also pointed out that the safety and efficacy of BCG are well known and the vaccine most likely is safer than a rifampin/moxifloxacin regimen.

The members clarified that ACET's guidance document would recommend BCG vaccination as only one of several potential interventions for persons who travel to high-risk areas for MDR-TB. The guidance document also would strongly emphasize the need for persons to be evaluated and educated pre-/post-travel. The members suggested that at some point after the release and implementation of ACET's guidance document, data on the effects and outcomes of BCG vaccination could be collected and rigorously assessed.

On the other hand, a number of ACET members expressed serious concerns with the guidance document in three major areas. First, ACET would develop and release CDC recommendations with no evidence basis. Knowledge is lacking on the use of BCG in high-risk settings and the immunology of administering the vaccine to adults. Moreover, no data have been collected to date to assist providers in caring for patients who have a positive IGRA or TST result after exposure to MDR-/XDR-TB.

Second, ACIP is no longer a joint author on the updated guidance document. Because the joint 1996 ACET/ACIP BCG recommendations are posted on the CDC/ACIP web site, ACET's updated document might conflict with the previous guidance and cause confusion. However, this problem could be avoided if the availability of the 1996 BCG recommendations is noted in ACET's updated guidance document. Third, BCG potentially could be viewed as a "traveler's vaccine" on CDC's web pages for international travelers. As a result, the actual protection and use of BCG might be misinterpreted.

Several ACET members made specific comments and suggestions on the modified scope of the guidance document.

- The proposed title of the guidance document should be shortened, but exposure to both *M.tb* and MDR-TB should be emphasized in the title.
- The focus of the guidance document should not be limited to HCP in high-risk settings. The recommendations also should be targeted to other populations at high risk in developing countries, such as persons who work in refugee centers, homeless shelters, prisons and other high-incidence areas.
- The potential side effects of BCG in adults should be carefully considered before issuing guidance on the vaccine. The literature shows that BCG is toxic and can cause disfiguring scars or draining sinuses. The guidelines should provide a stronger directive or instructions on the use of BCG, particularly for providers with no experience or knowledge in administering the vaccine.
- Challenges with some of the interventions proposed in the guidance document should be addressed. For example, the value of pre-/post-testing of IGRA has not been validated to date. Exposure to MDR-TB is the primary concern in high-risk settings, but the majority of local populations in these areas would be sensitive to TB. As a result, the guidance document should not necessarily recommend a rifampin/moxifloxacin regimen at the outset because INH would still be an option.
- ACET should develop and release a formal statement calling for a significant U.S. initiative to help define better methods for infection control in developing countries.

Dr. Fleenor confirmed that during the business session on the following day, the workgroup's request for ACET to formally endorse the proposed changes to its charge would be discussed. The outcome of ACET's vote on this issue would determine whether additional efforts would be made to further develop and release the updated guidance document with a modified scope.

With no further discussion or business brought before ACET, Dr. Fleenor recessed the meeting at 5:13 p.m. on March 3, 2009.

Overview of a New Regionalization Strategy for TB Control and Elimination

Dr. Fleenor reconvened the ACET meeting at 8:30 a.m. on March 4, 2009 and yielded the floor to the first presenter.

Dr. Mark Lobato, of DTBE, described the New England TB Consortium's (NETC) regionalization strategy for TB control and elimination. Because regionalization has advanced from a concept to reality over time, lessons learned should now be translated into generalized practice. Regionalization relates to field-based interventions by providing a rapid response to problems, increasing program capacity, promoting cooperation between federal and state agencies, strengthening program effectiveness, and reflecting a changing relationship between DTBE and states.

Regionalization is currently meeting the challenge of a number of issues, such as flat funding, a weakened public health infrastructure, loss of TB expertise, ongoing immigration that is leading to a global epidemic with implications for the United States, continued outbreaks in vulnerable populations, and minimal new diagnostics and drugs. Of the six states in the New England region, four are considered to be low-incidence areas. However, aggregated case rates in the region would be equivalent to the eighth highest TB burden in the United States. Moreover, TB is concentrated in several urban areas in the region with case rates >10-12/100,000.

The purpose of initiating the regionalization strategy in the New England region was to invest in core TB program activities. The six participating states designed the NETC collaboration for change in TB control with six key components: leadership, education, communication, genotyping, public health law and awards. Additional details on the NETC components are described below.

"Eliminating TB Case-by-Case" is a case series for providers and clinicians. An interactive web-based presentation with CDC continuing education credits was made in June 2008 to strengthen knowledge among providers in using QFT-Gold for TB testing. The case series are presented by master clinicians to reach private providers and strengthen the TB network in the New England region. "TB Talk-New England" is a case discussion by and for nurses, outreach educators and case management staff. Three case discussions have been held to date and the January 2009 "Ask the Expert" presentation featured a panel of TB experts with specialties in pulmonary, infectious disease and pediatric medicine.

The NETC web site at www.newenglandtb.org is currently being redesigned and serves as a mechanism to increase cohesiveness and visibility, promote regional and state education, and exchange tools and materials internally among programs and externally among providers and other groups. NETC's Genotyping Workgroup defined data management capacity, identified instances of interstate transmission in two clusters, highlighted missed opportunities, and measured strain dispersion across states.

NETC's consultation component provided early detection of outbreaks, emphasized the need for a CDC investigative team, facilitated technical support for three large contact investigations, and performed an average of seven consultations for contact investigations and 20 consultations for complex cases each year. NETC's Public Health Law Project was based on a call to action that was unanimously passed during the Northeast TB Meeting and forwarded to NTCA. The project addressed gaps in the Model TB Act, formed a broad partnership, and defined options for involuntary isolation of patients from other states. The project was submitted for consideration of CDC's "Innovations in Public Health Policy Award."

The "1st Annual New England TB Heroes Award" was presented at the 2008 Northeast TB meeting to energize programs, strengthen the focus on TB, and acknowledge exceptional contributions to TB control and the well-being of patients and communities. The award is featured in the current edition of *TB Notes*. A call for nominations for the "2nd Annual New England TB Heroes Award" was recently released. NETC is continuing its focus on PCSI to enhance collaborations between TB and other health department programs, particularly HIV and STD programs. NETC's PCSI activities were highlighted in a 2008 *TB Notes* article.

Laboratory collaborations are not a formal part of NETC, but are considered to be an essential component. At this time, five of six states in the New England region are administering a uniform survey to obtain data on current laboratory practices and capacity for TB diagnostics in hospitals and commercial laboratories. The survey also could serve as a marketing tool to encourage hospitals to utilize state laboratories.

NETC has widely publicized its activities and lessons learned since 2005 in a variety of venues, such as events sponsored by NTCA, ATS, IUATLD and TBETN; Northeast TB Conferences; and DTBE brown bag lunches. NETC also produced publications on TB in FBP, TB outbreaks in a community and a Connecticut prison, TB heroes, PCSI, TB regionalization and education.

DTBE evaluated NETC in the spring of 2008 to determine the factors that promote or hinder regionalization efforts. The evaluation showed that NETC created a formal framework with a consensus plan of action; provided a structure for all voices to be equally heard; and facilitated the sharing of knowledge and resources. The evaluation also demonstrated NETC's resource limitations that hinder program staff from optimizing involvement.

The evaluation concluded that NETC provides a model for building consensus through strategic planning and establishing formal agreements. Regional assignees were found to be effective in promoting regionalization and providing skills and resources as incentives to promote collaborative efforts. The full evaluation report of NETC was distributed to ACET for review.

Overall, the NETC regionalization project showed that modern TB control requires team leadership and trans-jurisdictional coordination and collaboration of activities. The project also demonstrated that regional efforts enhance individual programs and offers several advantages to CDC. To advance NETC, a leadership retreat will be held in the next few months to improve collaborative efforts, update the strategic plan and analyze strategies to replicate the model. Additional efforts will be made in the future to formally expand the NETC model to laboratories and refugee coordinators and enhance resources for treating complex or non-adherent patients. The long-term goal will be to extend the NETC model nationally and strategically place TB staff.

Dr. Lobato concluded his overview by asking ACET to provide input on two key issues. First, what approaches should NETC implement to increase support to state programs? Second, what aspects of NETC should be enhanced?

The ACET members made a number of comments and suggestions in response to Dr. Lobato's request for input on the NETC regionalization model.

- Advocacy should be added as another key component of the NETC regionalization model to increase involvement by health departments in TB control and elimination efforts and ensure that smaller TB programs remain functional.
- A formal retrospective evaluation should be conducted of HHS's previous regionalization model to determine successes and lessons learned that could be applied to strengthen the NETC regionalization project.

- A formal prospective evaluation should be conducted to analyze differences between the success of the NETC regionalization model in the New England region versus the potential lack of success of the project in other areas of the country. This assessment should be performed before efforts are made to expand the NETC regionalization model nationally.
- Lessons learned from the NETC regionalization model should be strongly linked and applied to the future structure of DTBE's TB cooperative agreement and TB funding formula.
- Stronger emphasis should be placed on the role of RTMCCs in the NETC regionalization model. The capacity of RTMCCs to provide TB training and medical consultation in four regions in the country is extremely important to and meets the needs of the New England region.

Dr. Fleenor announced that the ACET meeting would be adjourned at a much earlier time than noted on the published agenda. The acting Director of CDC approved a directive from the Office of Health and Safety for all occupants of CDC's Corporate Square Offices to evacuate the building due to a water main break.

As a result of this unexpected development, Dr. Fleenor explained that the remaining updates on the published agenda either would be truncated or tabled until the next meeting. He also pointed out that ACET would only discuss and attempt to resolve its most pressing issues during the business session.

Update on CDC's Public Health Law and TB Control Activities

Dr. Richard Goodman, of the CDC Public Health Law Program, reported on CDC's progress on this initiative since the October 2008 ACET meeting. The *Practitioner's Handbook on TB Control Law*, its companion PowerPoint slides for instructional purposes, and the scenario for assessing the sufficiency and understanding of TB control law in jurisdictions were completed and are now ready for dissemination.

The first draft of the TB Control Model Act was widely distributed in November 2008 to a large number of organizations and individuals. In January 2009, CDC compiled all feedback that was submitted on the model act. The input broadly ranged from immediate endorsement, insightful comments on the need for significant revisions and sharp criticism.

Most notably, three organizations requested face-to-face meetings with the authors of the model act to amplify their concerns regarding the strong emphasis on the ethics of voluntarism; heavy reliance on "non-essential" components of the Turning Point Model State Public Health Act; and the need to capture more best practices from CDC's study of expressed TB control laws in 25 jurisdictions in the model act.

The meeting between the three organizations and the authors of the model act would be held on the following day. Dr. Narita would attend the meeting to represent ACET. The overarching purpose of the meeting would be for the organizations to present principal thematic areas of concern and for the authors to outline a clear plan to respond to the organizations' concerns. The authors also would assure the organizations that changes would be made to maximize the use of the model act by organizational members, constituents and stakeholders.

Dr. Goodman concluded his update by asking ACET to formally endorse the completed handbook, companion PowerPoint slides and scenario at this time; formally endorse the model act during the July 2009 meeting; and formally recommend the use of the model act only in situations where the scenario has been implemented to convene key officials, assess the status of TB control laws and identify gaps.

Overview of the National TB Isolate and Genomics Archive

Drs. Gary Simpson, of the State of New Mexico Department of Health (retired) and Damian Gessler, of the New Mexico National Center for Genome Resources, explained that TB is now more complex and drug-resistant, develops faster and originates in other parts of the world. However, 19th century strategies are still being applied at this time to eliminate the disease. To address this gap, a multidisciplinary workgroup was established to identify necessary tools to eliminate TB in the 21st century.

TB is now at the edge of a paradigm changing approach for infectious diseases due to its high degree of international relevance, ability to be managed in the United States and 100-year infrastructure. A 20-billion genome basis on human data in a single run was achieved in February 2009 at a cost of ~$30,000-$50,000. This technology has the capacity to combine strains and genomes in a 4.4-megabyte TB genome with a 95-gigabyte run to sequence ~1,100 genomes in three to seven days. The cost per genome would be ~$10 or ~$120,000 to sequence every new case of TB by 2010. Technological changes in full genome sequencing are completely revolutionizing science at this time.

Sequencing deliverables include the detection of single nucleotide and insertion/deletion polymorphisms; high-resolution molecular epidemiology; population-based phylogenomics; and epistatic or full genome contributions to traits of public health significance, such as virulence, transmissibility, MDR-/XDR-TB, environmental and social risk factors, and population-based surveillance.

Evidence-based decision-making needs to be targeted to TB at the national level due to the low incidence, strong threat and high visibility of the disease. Public health professionals, clinical decision-makers and scientific researchers should have timely access to aggregated and integrated information on TB. In 2006, a policy science paper was published that introduced the concept of a National TB Archive (NTBA) based on consensus and endorsement by >24 of the country's most highly regarded experts in the fields of science, medicine and public health.

The NTBA would be the first comprehensive and integrated information and biological resource developed for a human pathogen in the United States. Existing investments that have been made in RVCT and the Universal Genotyping Program would be utilized to collect isolates from every TB case in the United States.

Etiological agents would be archived in the NTBA along with certain full genome sequencing and phylogenetic components. Although the NTBA would be accessible on the Internet, only credentialed persons would be allowed access to integrated genomic, phylogenetic, clinical or epidemiological data. Moreover, researchers could use the NTBA to conduct trace-backs from informatic searches to archived isolates and close the loop between etiological agents and evidence-based decision-making.

The immediate benefits of the NTBA would include a national and visionary scope, assistance to local and trans-jurisdictional contact investigations, identification of molecular-based cryptic MDR-/XDR-TB threats, and the ability to prospectively allocate resources and conduct planning. The NTBA also is relevant to the 2009 ESP due to its ability to increase local efficiencies through national capabilities; facilitate multi-state collaborations; add value to existing investments in universal genotyping; provide a 21st century approach to a global problem that is not retreating; and advance the baseline etiologic and informatic infrastructure in preparation of future technologies and challenges.

The NTBA would not change data release policies or data security levels. Private data would remain private and public information would remain public. For example, credentialed persons at the local level would be given access to county-level data for health departments and other local information. Persons with credentials for shared data would be given access to authorized trans-jurisdictional information. The public would be given access to aggregate reports and other public data. The NTBA would increase the efficiency of data access and analysis for existing credentialed persons, produce evidence-based, real-time and actionable information, and generate new discoveries.

The NTBA would be designed with architectural and technological principles to safeguard patient confidentiality. Data would be pathogen-centric rather than patient-centric. Names, addresses and other identifying data from RVCT would not be stored in or accessible via the NTBA. The NTBA would be developed with a dual-accession numbering system in which RVCT numbers would be stored at state health departments and linked to a hidden record number and public isolate accession number.

Overall, existing assets would be compiled and brought to bear to change the current approach to addressing TB. TB would be modeled as a national infectious disease response. Drs. Simpson and Gessler concluded their overview by requesting ACET's input and endorsement on advancing the NTBA.

***ISSUE 1*:** The following motion was properly placed on the floor and seconded by Drs. Burman and Seaworth, respectively:

> WHEREAS, HIV testing of persons with TB and their close contacts is an identified public health priority;
>
> WHEREAS, the reporting requirements for CDC-sponsored HIV testing programs are time-consuming and are a deterrent to comprehensive TB testing in TB control programs;
>
> WHEREAS, the recently adopted reduced reporting requirements for HIV testing programs are an improvement, but these testing requirements continue to be a barrier to more wide-scale HIV testing in TB control programs;
>
> WHEREAS, data on newly diagnosed cases of HIV infection are an important part of HIV surveillance and control efforts, but information on all persons who are tested is of much less importance and cannot be derived from CDC-sponsored testing programs. A number of large HIV testing programs do not report to CDC; and
>
> BE IT RESOLVED that CDC should reevaluate the reporting requirements for CDC-sponsored HIV testing. These reporting requirements should focus on persons found to be HIV-infected and collect little if any information on persons found to be HIV-negative.

ACET **unanimously approved** the motion with no further discussion.

***ISSUE 2*:** The following motion was properly placed on the floor and seconded by Mr. Kinney and Dr. Narita, respectively: "ACET endorses or otherwise communicates its approval of using the completed TB control law resources, *i.e.*, the handbook and companion PowerPoint slides, scenarios and report on expressed TB control laws." ACET **unanimously approved** the motion with no further discussion.

***ISSUE 3*:** The following motion was properly placed on the floor and seconded by Drs. Seaworth and Burman, respectively: "BE IT RESOLVED that ACET commends and supports CDC's proposed additional service of offering molecular detection of drug resistance testing." ACET **unanimously approved** the motion with no further discussion.

***ISSUE 4*:** The following motion was properly placed on the floor and seconded by Drs. Seaworth and Bakhtawar, respectively: "BE IT RESOLVED that ACET recognizes the need for and recommends a comprehensive assessment of all public and private domestic laboratory services." ACET **unanimously approved** the motion with no further discussion.

***ISSUE 5*:** The following motion was properly placed on the floor and seconded by Drs. Seaworth and Burman, respectively:

> WHEREAS, ACET recognizes the potential for exposure to MDR-/XDR-TB of U.S. travelers who provide medical care or humanitarian volunteer services to persons with these diseases in situations where infection control practices are inadequate or lacking, the risk for transmission and infection are possible, and no treatment for LTBI in these persons has been shown to be effective; and
>
> BE IT RESOLVED that ACET recommends the established workgroup change its objective from a focus on the use of BCG to more general recommendations on approaches to protect humanitarian and scientific travelers from the United States to endemic areas of MDR-TB where exposure and infection are possible.

ACET **unanimously approved** the motion with no further discussion.

ISSUE 6: A motion was properly placed on the floor and seconded by Drs. Seaworth and Lopez-de Fede, respectively, for ACET to accept the previous minutes. ACET **unanimously approved** the October 7-8, 2008 Draft Meeting Minutes with no further discussion.

***ISSUE 7*:** Dr. Fleenor led ACET in a review of the action item and future agenda items that were raised over the course of the meeting.

Action Item

- Ms. Margie Scott-Cseh, the ACET Committee Management Specialist, will distribute an electronic version of FBWG's documents to ACET.

Future Agenda Items

- Overview of NTIP with regular updates as the initiative is rolled out.
- Update on the TBESC evaluation of immunogenetic and immunologic markers for susceptibility to *M.tb* and progression to TB disease.
- Regular updates on the SDH initiative.
- ACET discussion and formal endorsement of the TB Control Model Act **[July 2009 meeting]**.
- ACET discussion and formal endorsement of the NTBA **[July 2009 meeting]**.
- Overview of TB pediatric therapies.

Public Comment Session

Dr. Fleenor opened the floor for public comments; no participants responded.

Closing Session

The next ACET meeting would be held on July 14-15, 2009. With no further discussion or business brought before ACET, Dr. Fleenor adjourned the meeting at 10:30 a.m. on March 4, 2009.

I hereby certify that to the best of my knowledge, the foregoing Minutes of the proceedings are accurate and complete.

_____
Date

_____
Michael E. Fleenor, M.D., M.P.H.
Chair, Advisory Committee for the
Elimination of Tuberculosis