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# TABLE OF CONTENTS

Acknowledgements ................................................................................................................................. i
Executive Summary ................................................................................................................................... 1
Overview of TB Consortium ..................................................................................................................... 2
  Purpose .................................................................................................................................................. 2
  Welcoming Remarks ........................................................................................................................... 2
Agenda Items .............................................................................................................................................. 3
  U.S. Panel Update and Discussion on TB Status and Issues ................................................................. 3
  México Panel Update and Discussion on TB Status and Issues ............................................................. 8
  Keynote Presentations by U.S. and Mexican Representatives .............................................................. 13
  Conclusions and Follow-Up Actions ................................................................................................... 16
  Closing Remarks ................................................................................................................................. 21
Summary of Priority Issues and Objectives ............................................................................................ 21
Summary of Recommendations .............................................................................................................. 22
Discussion and Next Steps ...................................................................................................................... 29
Appendices
  Appendix A: Meeting Agenda .............................................................................................................. A-1
  Appendix B: U.S.-México Border Health Commission Presentations .................................................. B-1
  Appendix C: Prepared Questions for U.S. and Mexican Panels ............................................................ C-1
  Appendix D: Panelists Biographies ........................................................................................................ D-1
  Appendix E: U.S. Panel Presentations .................................................................................................... E-1
  Appendix F: México Panel Presentations .............................................................................................. F-1
  Appendix G: Phillip Talboy’s Presentation ............................................................................................. G-1
  Appendix H: Dr. Miguel Ángel Lezana’s Presentation .......................................................................... H-1
  Appendix I: Participant List .................................................................................................................. I-1
EXECUTIVE SUMMARY

The U.S.-México Border Health Commission (BHC) convened the first meeting of the U.S.-México Border Tuberculosis Consortium (hereafter referred to as TB Consortium), hosted by the California and Nuevo León Outreach Offices of the BHC, on July 17, 2010, in San Diego, California, bringing together federal, state, academic, government and non-governmental organizations from the United States and México. The meeting created a venue for dialogue on tuberculosis (TB) control and prevention efforts along the U.S.-México border for the purpose of developing recommendations to unify binational TB efforts to reduce the incidence rates along the border.

The TB Consortium was divided into four parts: 1) introductions, 2) individual presentations from two panels, one from México and one from the United States, in which each panelist presented on one of six questions that were developed in advance to raise awareness about the most prevalent TB issues impacting the border region, 3) keynote speeches, and 4) open discussion about possible solutions in addressing those issues.

During the meeting, both Mexican and U.S. authorities discussed the importance of TB reporting and following binational TB patients, in addition to developing protocols and communication systems that can effectively identify and treat these patients.

Likewise, speakers and participants emphasized the need to effectively control and prevent multidrug-resistant TB, as well as the need to address the treatment of dual or multi-diagnosed patients with TB, HIV, and diabetes.

As a result of the conference, participants developed specific recommendations for future consortium action. These recommendations ranged from developing social marketing campaigns to elevating the awareness of TB, to establishing work groups to focus on different and specific aspects of TB prevention and control.

Participants and speakers also articulated a series of roles that the BHC and the TB Consortium could facilitate in order to improve TB control along the U.S.-México border.

In total, a list of 17 recommendations was compiled for future review at the next TB Consortium in 2011.
OVERVIEW OF TB CONSORTIUM

Purpose

The purpose of the U.S.-México Border Tuberculosis Consortium (hereafter referred to as TB Consortium), sponsored by the U.S.-México Border Health Commission (BHC), was to identify and gather professionals committed to the formation and implementation of the TB Consortium to discuss efforts to educate the community and prevent tuberculosis (TB) in the border region. The consortium was hosted by the California and Nuevo León Outreach Offices of the BHC, on July 17, 2010, in San Diego, California.

The TB Consortium was divided into four parts: 1) introductions, 2) individual presentations from two panels, one from México and one from the U.S., in which each panelist presented on one of six questions that were developed in advance to raise awareness about the most prevalent TB issues impacting the border region, 3) keynote speeches, and 4) open discussion about possible solutions in addressing those issues.

Welcoming Remarks

Dr. Miguel Ángel Lezana, General Director of the National Center of Epidemiologic Surveillance and Control of Illness (México) and Dr. Larry Kline, California, U.S. Section Member, BHC, delivered the welcoming remarks.

Dr. Lezana stated that the control of TB in the border region is a serious public health challenge, but he also added that the tools are available to confront this challenge. Dr. Lezana specifically noted the two strategies or indicators that the World Health Organization has defined as key to controlling TB: excellent detection (at least 70%) and a high cure rate for those who are treated (at least 85%). Finally, Dr. Lezana expressed confidence that this consortium’s initiative against the disease will yield significant results.

Dr. Kline recognized specific BHC staff and made special mention of Deliana Garcia, Director of International Projects Research and Development, Migrant Clinicians Network, and also mentioned that the Migrant Clinicians Network was selected as the 2010 Border Models of Excellence in Tuberculosis recipient.

Dr. Kline also recognized the work of the former group Ten Against TB (TATB). He invited those previously involved with TATB to take advantage of this unique opportunity to make a real difference in the control of TB through real, sustainable partnerships. In addition, Dr. Kline called attention to the fact that a full third of the world population has the disease and that a main obstacle is the failure to complete the treatment. At the same time, Dr. Kline commented that the leaders of the BHC and the Pan American Health Organization (PAHO) have identified TB as a high priority issue and invited all participants to work closely together.
AGENDA ITEMS

Official TB Consortium Presentation, U.S. México Border Health Commission

Following welcoming remarks, Dan Reyna, General Manager, BHC, U.S. Section, and Dr. Gudelia Rangel, Coordinator, Baja California BHC Outreach Office, presented on the structure, mission, and goals of the BHC and highlighted the control of TB as a primary concern for the border region (see Appendix B for BHC presentations).

Both reiterated that this TB Consortium is only the beginning and invited other professionals, health services, and civic organizations to participate in future consortiums.

Both also presented on actions and conferences related to TB the BHC has achieved since 2007 and referred to this newly formed TB Consortium as an example of the partnerships and expressed hope that it would be both effective and lasting.

U.S. Panel Update and Discussion on TB Status and Issues

Mauricio Leiva, M. Ed., Chief, California Office of Binational Border Health served as moderator for the U.S. Panel. He thanked the audience on behalf of Janet Huston, Associate Director, Office of External Affairs, California Department of Public Health and Mark Horton, Director, California Department Public Health, for participating in this TB Consortium and introduced the following six panelists (see Appendix D for panelist bios):

Dr. Marcos Burgos
Medical Director of the Tuberculosis Program
New Mexico Department of Health

Dr. Cara Christ
Tuberculosis Control Officer
Arizona Department of Health Services

Dr. James P. Watt
Chief, Tuberculosis Control Branch
Division of Communicable Disease Control, Center for Infectious Diseases
California Department of Public Health

Dr. Charles Wallace
Tuberculosis Control Program Manager
Infection Disease Intervention and Control Branch
Texas Department of State Health Services

Dr. Kathleen Moser
Chief, Tuberculosis Control and Refugee Health
County of San Diego Health and Human Services Agency

Eduardo Olivarez
Chief Administrative Officer
Hidalgo County Health Department, Texas

Each panelist discussed a specific set of topics, presented in the form of questions identified below:
1. **What strategies can be put into place to improve the availability and effectiveness of Directly Observed Therapy (DOT) in border states?** (This includes indicators, barriers, models of cross border DOT, and target population.)

Dr. Marcos Burgos, Medical Director of the Tuberculosis Program, New Mexico Department of Health, presented the five components of DOT according to the World Health Organization. He summarized these components as follows: strong political commitment, TB lab diagnostics (sputum microscopy) and multidrug-resistant (MDR) susceptibility tests, therapy given under direct observed therapy, adequate drug supply, and reporting of TB cases in a system, year to year.

Dr. Burgos explained how U.S. providers conduct culture testing, drug susceptibility tests, and chest X-rays free to the patient. In addition, he elaborated on the example of strong political commitment to TB Control by the Peruvian government. He mentioned that Peru was once considered one of the developing countries with the best DOT coverage.

Dr. Burgos then encouraged the audience to discuss the barriers to providing DOT along the border.

Participants voiced their comments as follows:

- Dr. Blanca Lomeli, Director of SOLUCION TB from Project Concern International, answered that, from her experience working in Baja California, México, one of the main barriers is the lack of dedicated TB workers. She described that most programs were understaffed. Dr. Lomeli also said that, in practice, DOT is not completed on a daily basis. She has seen models where DOT is observed weekly, or a neighbor or family members are assigned to observe medication adherence.

- Dr. Kathleen Moser, Chief of Tuberculosis Control and Refugee Health, County of San Diego Health and Human Services Agency, added that in San Diego, they do not have 100 percent DOT and that 100 percent DOT was not the most important goal. Dr. Moser explained that in San Diego they used a patient-centered approach where providers assess what model the patient needs.

- Eduardo Olivarez, Chief Administrative Officer, Hidalgo County Health Department, Texas, mentioned that a major challenge for DOT on the border is migration.

- Dr. Hector Perez, Binational MDR Coordinator of the Puentes de Esperanza Project, San Diego TB Control Program, said that lack of resources for developing good strategies for DOT was a major challenge. He mentioned that in Baja California DOT is centralized, where people are expected to travel to the clinic. He proposed that DOT services should be provided close to the patients’ home or work.

Dr. Burgos concluded this section by reminding the audience that, from the perspective of the patient, lack of transportation may be a major challenge. From the perspective of the TB control program, it is the lack of resources (to carry out administrative tasks and hire personnel) including adequate training.

2. **What steps should be taken to improve laboratory access, capacity, and quality?** (This includes standards of lab testing, turnaround times, current status of access, regionalization, and quality assurance practices.)

Dr. Cara Christ commented that, in an ideal world, providers would like to have sputum, culture, and drug susceptibilities at the beginning of the treatment. But since programs are understaffed, what can providers actually do given limited resources?
Dr. Christ mentioned that in the United States, TB programs do sputum, culture and that in some places second-line susceptibility testing must be sent to reference laboratories. Dr. Christ mentioned that a major limitation was the fact that populations are spread out with limited access to labs. She mentioned the distance from Cochise to the Navajo Nation. Dr. Christ also said that, in Arizona, providers need to do a better job on quality assurance. In particular, Dr. Christ listed the need to complete labs accurately and collect and report data accurately, too. Dr. Christ also explained the difficulties of following-up on patients when they move to other places/countries. She mentioned that the TB Net Program was a good resource for referring patients but that, even with programs like this one, patients often do not look for services after they move.

Dr. Christ also discussed cross-border efforts between Arizona and Sonora, describing how Arizona is working with Sonora to assist with training for laboratory testing. In terms of the regionalization of lab services, Dr. Christ argued that one limitation of the regionalized lab is that it takes more time to ship the sample and send the results back to the providers.

3. **What steps should be taken to evaluate the completeness of reporting?** (This includes cross-border reporting, evaluation of transmission, and models of reporting.)

Dr. James P. Watt, Chief of the TB Control Branch, Division of Communicable Disease Control, Center for Infectious Diseases, California Department of Public Health, discussed the status of TBs reporting, surveillance, and impact of the border dynamics on non-border counties in California. Dr. Watt described how, in California, the reporting system is redundant and consists of reports from providers and laboratories (confirmed and suspected cases). Dr. Watt stated that reporting of TB cases is required by law. He also explained how, in addition to initial reports, the California TB Control Branch compiles an outcome report that consists of the following categories: completed, died, lost, moved, and unknown. He later explained the impact of the border and recent migration on TB in California. Dr. Watt stated that in California, one-fourth of the TB patients are born in México and are more likely to possess a “moved outcome.” Dr. Watt showed that many patients with a moved outcome have been living in California less than one year.

Dr. Watt presented data on the impact of the border that extends beyond the traditional definition of 100 km. He showed data on the percentage of Mexican-born TB cases by region and the percentage of Mexican-born TB cases with moved or lost outcome by region in California. Counties just over 100 km from the border such as Orange, Los Angeles, San Bernardino, and Riverside counties have a higher proportion of Mexican-born TB cases than counties bordering México (San Diego and Imperial counties) or the rest of the state. Dr. Watt argued that, if the border definition was considered to be 100 miles instead of 100 km, 50 percent of the diagnosed TB patients in California would live in the border region. Dr. Watt concluded his presentation by saying that it is critical to understand how to report and follow patients along and across the border. Dr. Watt listed as key recommendations identifying cases, understanding what cases are binational, and having good systems of communication.

4. **What steps should be taken to address continuity of care for persons with active TB disease who are deported/returned across the border by immigration officials?** (This includes successful models and how have they measured their success.)

Dr. Charles Wallace, TB Control Program Manager, Infection Disease Intervention and Control Branch, Texas Department of State Health Services, discussed two major challenges: 1) immigration officials who are not concerned about where a person will go after deportation, and 2) deported patients who often return with TB and are unaware of their status until they are at the hospital. He
encouraged the audience to change national federal policies to allow providers to treat patients with TB in the United States.

Dr. Wallace commented on the hard work physicians in Texas are achieving working with four binational projects along the border. He described how the binational Project Juntos has been operating for 20 years with the goal of treating complicated TB patients. He also mentioned another program that treats patients in Tamaulipas before they come across the border. Dr. Wallace also mentioned that, in Texas, providers are developing better testing by trying to use interferon release assays to identify if people have latent or active TB. Another asset Dr. Wallace stated that they count on is a group of TB experts that serve as consultants to assist Mexican physicians with difficult cases in México. He also mentioned that in Texas they invest 300,000 dollars every year on second-line medications for binational cases.

Dr. Wallace emphasized the need to create a binational regimen/protocol for binational patients. He clarified that this protocol should not interfere with U.S. or Mexican protocols but should strengthen them in order to treat special needs and challenges of binational patients. Dr. Wallace also spoke of how Texas has supported in the past the initiative Ten Against Tuberculosis (TATB) and expressed his desire to share information on this experience.

5. What strategies must be implemented to address the diagnosis and treatment of drug-resistant TB, especially multidrug-resistance (MDR)? (This includes data available, second line medications, time between identification and treatment, guidelines, and expert oversight.)

Dr. Kathleen Moser, Chief of Tuberculosis Control & Refugee Health, County of San Diego Health and Human Services Agency, clarified that California does not have a binational project except for the support of a grant from the U.S. Agency for International Development (USAID) in Baja California, México (Puentes de Esperanza). Dr. Moser also discussed the importance of adequate laboratory capacity, medication supply, and expert advice. She presented the numbers of U.S. patients with drug susceptibility tests (DSTs) as reported in 2008. She also stated that the number of multidrug-resistant cases in the entire United States was 103. Thirty of those patients were reported in California and fourteen in Texas. Arizona and New Mexico did not report any MDR cases. Dr. Moser commented that studies have provided genotyping evidence showing that people are sharing this disease across the border. Dr. Moser’s slides also included information on the percentage of patients with a history of past treatment (see slides in Appendix E).

Dr. Moser highlighted the need for faster results to start appropriate treatment as early as possible and discussed the need to think of the advanced genetic test. According to San Diego TB data, Dr. Moser confirmed that almost 20 percent of patients have some level of drug resistance. Dr. Moser also emphasized the need to attain information about past treatments.

Dr. Moser commented that in the United States, federal funding is not available for medications and eligibility for Green Light Committee (GLC) medications or discounted medications is also not available. GLC is an initiative from the World Health Organization that helps countries gain access to high-quality, discounted second-line anti-TB, MDR drugs. She explained how funding from CDC precludes local departments from buying their medications. She stated how every state uses its own funding mechanism. In the case of California, she said that counties have to attain their own funding. She also mentioned how the supply in the United States of first-line medications is not a problem; however, she stated that on average, counties spent $10,000 per year for a patient needing second-line drugs. She explained how this is a major burden for small counties and that often they want these patients out of their jurisdictions.
Dr. Moser also discussed expert consultations as an important and necessary asset for treating drug-resistant patients. She explained how there are four regional training and medical consultation centers in California, Texas, New Jersey, and Florida and expert network teleconferences where every two months experts review cases and provide consultation services. In spite of these resources, Dr. Moser said that a national review of outcomes in the United States for MDR cases does not exist and strongly recommended the creation of a committee to review these outcomes.

6. Are infection control measures in place at all key levels in the health system?

Eduardo Olivarez, Chief Administrative Officer, Hidalgo County Health Department, Texas, discussed the importance of implementing and enforcing infectious control protocols to prevent and control TB. He stated that many hospitals have their infectious disease control including negative air pressure/isolation rooms, filtrations systems, UV lights, and TB screenings for primary care staff. The majority have one or maybe two in all hospitals. He mentioned that hospitals and health care systems need to be more careful about cleaning filters in facilities and appropriately using negative isolation rooms. A challenge is maintaining adequate control measures and TB screening in correctional facilities.

E. Olivarez addressed the importance of continuous education for staff on TB control protocols and mentioned the CDC guidelines mandating that TB patients should be hospitalized and treated for 14 days prior to discharge.

Dr. Moser intervened to say that, in 1994, a law in California was passed requiring hospitals to receive approval from the local county before discharging a TB patient. According to Dr. Moser, this law has allowed counties to visit the home setting.

E. Olivarez explained that adherence to this law varies and he estimated that 5-10 percent of the time hospitals do not call the county, especially in the case of immigrants where patients can become lost.

Questions and Answers for the U.S. Panel

- Dr. Gary Simpson, Professor of Medicine and Infectious Diseases, Texas Tech University, Health Sciences Center, emphasized the importance of maintaining standards of monitoring and following-up with patients or staff that are found with purified protein derivative (PPD) skin test conversions.
- Dr. Irma Gigli, Board Member of the International Community Foundation and Former Director of the Center for Immunology and Autoimmune Diseases, University of Texas Health Science Center, advocated for greater involvement in TB binational programs from academic institutions and mentioned that academic institutions can bring funding and research expertise.
- Dr. Charles Wallace, TB Control Program Manager, Infection Disease Intervention and Control Branch, Texas Department of State Health Services, addressed the previous comment by saying that, in the case of the four binational projects in Texas, universities are involved in the research aspects but not necessarily the operations. He mentioned that the programs operated with a sister-cities relationship model.
- Dr. Moser also added that, in the case of San Diego, partnership with the University of California-San Diego (UCSD) and San Diego State University (SDSU) are new and developing and that medical schools are now combining medical degrees to teach different skills and expertise.
- In addition, Eduardo Olivarez, Chief Administrative Officer, Hidalgo County Health Department, Texas, mentioned the work universities are achieving in producing new physicians that possess a clear understanding of TB.

- Dr. Jesús Gonzalo Solis, Director of the Mycobacteriosis Program, Tamaulipas State Health Services, agreed with Dr. Gigli that there should be a relationship with academic institutions and encouraged the BHC to facilitate their participation.

- Dr. Cecilia Rosales, Arizona Member, U.S. Section, BHC, congratulated the BHC on the panel format and the group discussion. She also appreciated the commitment of the participants and asked about primary prevention, specifically how to prevent the root causes of TB and asked what strategies are needed.

- Dr. James P. Watt, Chief of the TB Control Branch, Division of Communicable Disease Control, Center for Infectious Diseases, California Department of Public Health, responded to Dr. Rosales stating that the first and most important steps of primary TB prevention were 1) finding the patients as soon as possible, 2) completing effective surveillance and diagnosis, and 3) achieving effective case management. Dr. Watt discussed the difficulties of addressing patients who are infected. He explained that while it is a challenge to address all of them, it is important to address the prevention needs of high risk individuals, for instance, TB-HIV, TB-renal failure, and TB-chronic diseases.

- Dr. Rigoberto Isarraraz, Director of Health Services, ISESALUD Baja California, asked for clarification on the law that mandates hospitals to treat TB patients for 14 days and communicate with health departments. He also asked if this law applies to all detention centers and immigration services.

- Dr. Moser responded that this law does not distinguish among types of patients. In the case of San Diego, she confirmed that the county never calls immigration officials. She also explained that patients sometimes want to leave or stay and that her TB program tries to assist patients in both cases.

- Dr. Wallace added that health authorities in Texas do not want patients to be afraid or spread rumors that health departments will report them to the U.S. Immigration and Customs Enforcement (ICE).

**México Panel Update and Discussion on TB Status and Issues**

Dr. Miguel Ángel Lezana, General Director, National Center of Epidemiologic Surveillance and Disease Control of México, served as monitor for the México panel.

Dr. Lezana introduced the following six panelists (see Appendix D for panelists bios):

Dr. Patricia del Carmen Arredondo  
Chief of the Preventive Medicine Department  
Secretaría de Salud de Nuevo León

Dr. Jesús Gonzalo Crespo Solis  
Chief of the Tamaulipas State Department of Mycobacteriosis  
Secretaría de Salud de Tamaulipas
Each panelist discussed the same specific set of topics presented to the U.S. panel, presented in the form of the following questions identified below:

1. **What strategies can be put into place to improve availability and effectiveness of Directly Observed Therapy (DOT) in border states?** (This includes indicators, barriers models of cross-border DOT and target population.)

Dr. Patricia del Carmen Arredondo, Chief of the Nuevo León Preventive Medicine Department, Secretaría de Salud de Nuevo León, discussed the seven essential elements or strategies for TB control listed below. Dr. Arredondo mentioned that all health providers, community workers, and leaders need to know about these strategies and work together.

1) Political Support
2) Identification through Sputum Smears
3) Directly Observed Therapy (DOT)
4) Medication Supply
5) Surveillance and Register
6) Dual-diagnosed, Comorbidity (binomial), TB-Diabetes, TB-AIDS
7) Advocacy, Communication, and Social Mobilization

Dr. Arredondo stressed the importance of political support to effectively implement these strategies. She recommended the use of “coaching strategies” to motivate patients to continue their treatment. Dr. Arredondo also stated that Nuevo León needs dedicated and permanent TB staff and recommended working with nursing schools to obtain staff support.

In regards to epidemiologic surveillance, Dr. Arredondo suggested the use of a database to follow-up with patients and to conduct contact studies. She recommended paying special attention to those considered high risk. She also said that they need more medication for patients with dual diagnosis of TB-AIDS and TB-diabetes.

2. **What steps should be taken to improve laboratory access, capacity, and quality?** (This includes standards of lab testing, turnaround times, current status of access, regionalization, and quality assurance practices.)
Dr. Jesús Gonzalo Crespo Solís, Director of the Mycobacteriosis Program, Tamaulipas State Health Service, focused his presentation on early or prompt diagnosis. He explained that México has a network of 31 state laboratories and one national laboratory. He said that not all laboratories conduct susceptibility analysis. He also mentioned that state laboratories conduct cultures but not susceptibility analysis. In the case of Nuevo León, it was also mentioned that they do not possess the ability to conduct sensitivity analysis. In fact, he stated that México’s TB testing, like many other states, is centered on smear testing.

Dr. Gonzalo discussed early diagnosis as paramount for the control of TB and reviewed some general concepts of TB sputum/smear testing. He argued that smear testing should not be considered as an opportune test because pulmonary symptoms (cough and phlegm) reflect an already advanced stage of the disease or infection. Dr. Gonzalo encouraged Nuevo León to use more advanced diagnostic tests such as cultures in liquid medium, polymerase chain reaction PCR, and QuantiFERON-TB®.

Furthermore, Dr. Gonzalo addressed two major issues in the control of TB:

- The delay of patients visiting a medical provider from the time they begin to experience their first TB symptoms. Dr. Gonzalo recommended using short- and long-term media communication campaigns to educate the public on TB.

- The delays of the health institutions from the time a symptomatic patient enters a health institution to the time when his/her diagnosis is established and treatment is initiated. Dr. Gonzalo addressed the need to shorten the reporting time and emphasized the need to train health staff to be sensitive to TB patients. He also recommended the need to use better testing assays such as cultures, digital radiographies, and molecular testing such as QuantiFERON-TB® or T-SPOT-TB. Dr. Gonzalo also discussed a regional center against TB that is being developed in Reynosa, Tamaulipas.

- Dr. Gonzalo informed that the results of a study that measures the delay from diagnosis to starting treatment showed an average of 89 days or close to a three-month period of delays. He also mentioned that according to the World Health Organization, every month of delay in diagnosis can result in at least two more people infected.

3. **What steps should be taken to evaluate the completeness of reporting?** (This includes cross-border reporting, evaluation of transmission, and models of reporting.)

Dr. Mariza Zepeda Berkowitz, Director of Prevention and Disease Control, Secretaría de Salud de Sonora, described the status of TB in the five municipalities of the Sonora border. She mentioned that there were drastic variations among these municipalities and that some of the centers in these regions are focused on primary or secondary prevention. She also commented on the influx of patients with TB that they are seeing from Arizona lately. She specifically mentioned that there has been an increase in the number of patients referred or coming from Yuma, Arizona, to San Luis Rio Colorado, Sonora. She attributed this increase to the new law in Arizona that targets Latinos for verification of citizenship status. Dr. Zepeda also highlighted the challenge of caring for dispersed populations along the border and the long distance patients have to travel to receive care or get tested. She stated that in some cases, it takes hours to get to a health center or laboratory. She recommended including the leadership of local border hospitals and health centers in meetings and training on the control of TB. For example, she mentioned that the federal TB program is conducting good training. She recommended including staff of the border health centers in these kinds of trainings.
Dr. Zepeda also discussed the need to address the multiple emotional needs of the binational patients. To accomplish this, Dr. Zepeda recommended incorporating psychologists or specialists in TB control teams.

4. **What strategies must be implemented to address the diagnosis and treatment of drug-resistant TB, especially MDR?** (This includes data available, second-line medications, time between identification and treatment, guidelines, and expert oversight.)

Dr. Rafael Laniado-Laborín, Pulmonologist of the Tijuana General Hospital and Professor of the Faculty of Medicine, Universidad Autónoma de Baja California, presented the MDR project *Puentes de Esperanza*, funded by USAID, Rotary International and other foundations, that is currently diagnosing and treating MDR patients in Baja California. Dr. Laniado explained the history of this project and stated that Baja California has the highest rate of TB in México and that the estimated level of MDR in the region is between 6-17 percent. Dr. Laniado said that, before this grant was available, most MDR patients were either lost or died. He also said that out of 15 patients diagnosed, only one was cured in 2003. He emphasized that the ultimate goal of this project is to create permanent infrastructure and capacity needed to treat MDR patients. Dr. Laniado presented the following highlights of this project:

- This project enrolled 38 patients with an average resistance to 6 medications.
- Since 2009, 11 patients have been cured, 2 died and the rest are currently negative cultures.
- The rate of cure is 93 percent.
- This program is now seeing patients from all Baja California regions.
- The program has created a model for sharing binational expertise to discuss and treat difficult cases.
- The project has built capacity by conducting binational training of health providers along the border.
- Funding is available until 2011.
- The project has been awarded the Green Light Committee Award that allows them to buy discounted medications and the Chest Foundation Award.
- Funds are administered by the Public Health Institute of California, a U.S 501(c)3 organization.
- Patients receive strict DOT at home or at a health centers.
- A cadre of *promotoras* has been trained to conduct DOT.
- Patients receive monthly evaluations such as vision, audio, and blood exams to monitor side-effects.
- Laboratory testing is conducted in the laboratory of the Tijuana General Hospital.
- A panel of experts regularly meets to discuss patients’ progress or evaluations.

5. **Are infection control measures in place at all key levels in the health system?**

Dr. Mirna Florencia Beltrán Arzaga, responsible for the Mycobacteriosis Program of Chihuahua, Secretaría de Salud de Chihuahua, discussed an infection control program currently in place in four Mexican states: Chiapas, Chihuahua, Guanajuato and Jalisco. This program started in 2009 and was funded by CDC and USAID-México with the collaboration of the following three entities: the Mexican National Tuberculosis Program, the Southeastern National Tuberculosis Center, and the Francis J. Curry National TB Center San Francisco. Dr. Beltrán summarized the objectives of this
program as follows: 1) to guarantee control measures for infections in hospitals and health centers through training and 2) to diagnose health facilities and prepare local plans for infection control.

Dr. Beltrán presented the following highlights of this program:

- One hospital and a health center have developed local plans and trained their staff.
- 50 people have been trained in infectious control measures.
- A PPD study is being conducted for staff working at crowded or busy hospitals and health centers.
- Two cases of nosocomial infection have been detected.
- A high concentration of patients exists in the hospital or center settings.
- The hospitals do not have an isolation room and few respiratory measures.

Dr. Beltrán also discussed the following recommendations or future perspectives:

- Train other hospitals and health units of high priority in the state.
- Continuity and monitoring of the local plans for infectious diseases that are developed.
- Reach private hospitals to incorporate infectious control measures.

Dr. Beltrán ended her presentation by saying that many of the measures they are implementing are also administrative and do not entail a cost.

6. **What steps should be taken to address continuity of care for persons with active TB disease who are deported/returned across the border by immigration officials?**

Dr. Rigoberto Isarraraz, Director of Health Services, ISESALUD Baja California, summarized the status of TB in Baja California. He stated that Baja California is first place in incidence of TB, deaths, and reported multidrug resistance in México. He mentioned that Mexicali and Tijuana were the states most affected and that there are a lot of people getting sick during their most productive years.

Dr. Isarraraz presented the results of a study conducted in Baja California to identify the main problems/challenges they face. The study concluded that the main problems were—

- Delay in diagnosis
- Low rates of cure
- Increase in the number of MDR cases

This study also focused on three strategies:

- Improve DOT coverage by trying to enroll all patients: Dr. Isarraraz mentioned that they need a geo-mapping system to identify the health units and where the patients live or work. He also mentioned that they need to be able to hire and train dedicated staff (a cadre of *promotoras*) to conduct DOT and mentioned a temporary program the local health department runs.

- Integrate and strengthen a network of laboratories: Dr. Isarraraz spoke of the need to strengthen the ability to do cultures in Mexicali and the need for supplies and equipment like those needed for PCR testing. He expressed his concern about depending on an outside system of grants such as the program *Puentes de Esperanza* and said that it is important to attain self-sufficiency and sustainability.

- Provide comprehensive care including comorbidities.
Keynote Presentations by U.S. and Mexican Representatives

Phillip M. Talbou, Deputy Director, Center for Disease Control and Prevention (CDC), NCHHSTP, Division of Tuberculosis Elimination (U.S.)

P. Talbou outlined his presentations as follows:

- Epidemiology of TB in the United States
- Recent TB trends by state of residence, age, race/ethnicity, birthplace
- Foreign-born TB cases in United States and percentage born in México
- TB in U.S.-México border states

P. Talbou addressed the decreasing number of TB cases seen in the United States since 2000 in all age groups. He showed how California and Texas reported higher rates of TB than the U.S. average TB case rate of 4.2 per 100,000 people (2008).

In terms of ethnicity and race, P. Talbou showed that Hispanics represent 29 percent of all the TB cases reported in the United States in 2008. He stated that the highest rate corresponds to Asian Pacific Islanders.

P. Talbou also discussed the distribution of TB cases according to country of origin. He showed that 23 percent of the foreign born TB cases in the United States are people born in México. He discussed how the opportunity to spread the disease increases as people travel or regularly cross the border and stated “tuberculosis does not recognize borders.” He also argued that binational TB cases not only affect the border counties but other parts of California and presented the following 2008 data on the four U.S. border states:

<table>
<thead>
<tr>
<th>U.S. Border States</th>
<th>TB cases</th>
<th>TB rates/100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona</td>
<td>227</td>
<td>3.5</td>
</tr>
<tr>
<td>California</td>
<td>2,695</td>
<td>7.3</td>
</tr>
<tr>
<td>New Mexico</td>
<td>60</td>
<td>3.0</td>
</tr>
<tr>
<td>Texas</td>
<td>1,501</td>
<td>6.2</td>
</tr>
<tr>
<td>U.S. Border States</td>
<td>4,483</td>
<td>6.4</td>
</tr>
</tbody>
</table>

In terms of DOT, P. Talbou clarified that the U.S. health departments do not complete 100 percent of DOT but that they use a combination of reliable methods such as supervision by individuals living in the same household. He also noted that the proportion of patients with only self observed therapy is slightly higher among Mexican-born persons with TB in the border states when compared to Mexican-born persons with TB in non-border states (17.5% vs. 13.7%).

P. Talbou summarized the state of TB in the United States, along the border, and in the Mexican-born population with the following statements:

- TB incidence trends in the United States have been declining over the past 16 years.
- Racial and ethnic minorities are disproportionately affected by TB in the United States.
- The percentage of TB in foreign-born persons is increasing; 23 percent born in México
- TB rates exceed national average in 2 out of 4 border states.
- Mexican-born TB cases in non-border states are relatively younger.
• Although uncommon, MDR TB is more frequent in Mexican-born in both border states (4x) than in non-border states (3x).
• There is a lower proportion of Mexican-born TB cases on self-administered TB therapy in both border and non-border states.

P. Talboy concluded his presentation by stating that TB is an issue that needs to be addressed at the local level and that the window of opportunity exists to combat TB and win the battle. Finally he mentioned that the head of CDC supports these TB control efforts.

Dr. Miguel Ángel Lezana, General Director, National Center of Epidemiologic Surveillance and Control of Illness (México)

Dr. Rangel, BHC Coordinator, Baja California, introduced Dr. Miguel Lezana and thanked him for the technical support she has received from the national Mexican program such as reviewing documents and training.

Dr. Lezana shared some of the challenges and actions needed to address the control of TB along the border. In particular he said that the challenges include the following:

• Emphasizing the public health promotion work by better communicating the risks and symptoms to the population: He stated that one-third of the population has been in contact with the TB bacteria and could at some point develop the disease. Therefore, it was essential for people to recognize the risks and symptoms of TB.

• Reinforcing and maintaining epidemiological surveillance: Dr. Lezana stated that México has a good platform to monitor TB cases.

• Improving DOT and especially cure rates: Dr. Lezana mentioned that DOT is only a tool and that the main objective should be to achieve adherence and to cure the disease.

• Revising and developing strategic plans for the cases with multiple illnesses such as the different combinations or comorbidities of TB, HIV, diabetes, and obesity: These are increasing health problems in México that complicate the situation. Dr. Lezana described this as an opportunity to raise funds by looking for new alliances and adding new elements to this TB Consortium.

• Controlling MDR TB: Dr. Lezana mentioned a survey that estimated the prevalence of MDR in México between 2-3 percent, similar to Latin America. He explained that they have obtained the support of the Green Light Committee to buy medications at discounted prices. Dr. Lezana also reported that more than 200 MDR cases are under treatment with the support of federal resources.

Dr. Lezana encouraged the TB Consortium to create a public-private alliance and emphasized the need for non-governmental organizations and private providers to become more interested and involved in TB control efforts.

Dr. Lezana also spoke on the topic of advocacy and social mobilization. He stated that a recent evaluation concluded that social mobilization impacts on the incidence, adherence, and cure rates of patients with TB. Dr. Lezana stated that TB is fundamentally a social disease. He concluded his presentation by saying, “We must mobilize our society in order to accomplish the control and to be able to modify and identify the social determinants of tuberculosis.”
Questions and Answers Session for the Keynote Speakers

- Dr. Hector Perez, Binational MDR Coordinator of the Puentes de Esperanza Project, San Diego TB Control Program, asked Phillip M. Talboy, Deputy Director, Division of Tuberculosis Elimination, CDC, how many people were reported in 2008 with latent TB infection in the United States (LTBI). P. Talboy clarified that LTBI is not officially reported in the United States.

- Dr. Irma Gigli, Board Member of the International Community Foundation and Former Director of the Center for Immunology and Autoimmune Diseases, University of Texas Health Science Center, commented that they had not discussed the social-economic factors of TB such as poverty. Dr. Cecilia Rosales, Arizona BHC Member, explained that the BHC has been trying to integrate social determinants of health such as poverty as part of the 2020 plan. She invited the audience to consider how they could integrate a technical group to work on this topic. Likewise, Dr. Miguel Ángel Lezana stated that there is already a group in México working on this topic at the federal level.

- Dr. Larry Kline, California BHC Member, asked about the status of current studies that are testing a small innovative microchips inserted in pills so that once the patients ingest them, they send a signal via satellite. This signal is supposed to help providers confirm if the patient indeed ingested the pill, helping monitor adherence to treatment. Dr. Kathleen Moser responded that there were still some limitations on the kind of pill that can be used to carry the microchip but that engineers were continuously testing this technology.

- Dr. Charles Wallace, TB Control Program Manager, Infection Disease Intervention and Control Branch, Texas Department of State Health Services, mentioned that poverty is a major problem and that the focus should be on controlling TB. Along the issue of poverty, Dr. Kathleen Moser commented that one-third of the MDR cases enrolled in the project Puentes de Esperanza are below poverty levels, but that most of them were employed.

- Dr. Richard Garfein, Associate Professor of the Division of Global Public Health, UCSD Department of Medicine, discussed the importance of multidrug resistance and the need to work together to address this major issue.

- Dr. Blanca Lomeli, Project Director of SOLUTION TB, Project Concern International, emphasized the importance of advocacy and referred to the exhibition at the museum of the CDC “Our House/Nuestra Casa.”

Discussion by Richard Kiy, President and CEO of the International Community Foundation

Richard Kiy discussed the need to create vertical and horizontal strategies and alliances with the BHC. He argued that since most public agencies have few resources and governments cannot single-handedly address every issue, there is a need to expand public-private practices.

R. Kiy mentioned that the Obama administration established the White House Office of Social Innovation as an opportunity to create partnerships to address new issues. One example of this partnership is the private-public partnership created in Reynosa to build a laboratory.

R. Kiy provided the following recommendations:

- To engage the Department of Homeland Security in these discussions since they monitor immigration.
To educate people about TB and mobilize them to address this issue. Along these lines, he explained that, outside the border area, discussions on TB are uncommon. The challenge includes educating businesses that have maquiladoras along the border.

To better engage philanthropy to address TB. He further clarified that this includes not just engaging the Gates Foundations but also those who have not been traditionally interested in health or TB.

Conclusions and Follow-Up Actions

Richard Kiy and Dr. Miguel Ángel Lezana read and addressed questions and comments from the audience written on index cards during the day and facilitated the discussion on conclusions and follow-up actions.

Eduardo Olivarez, Chief Administrative Officer, Hidalgo County Health Department, Texas, commented that there is a public health window of opportunity to contain TB at the border and to educate the community.

Regarding legal issues, how do jurisdictional residencies affect laws?

Deliana Garcia, Director of International Projects Research and Development, Migrant Clinicians Network, mentioned that her TB Net program has been able to assist and refer patients to 60 countries and elaborated that by using strategies focused on the patients, they have been able to navigate barriers.

How to socialize the topic of tuberculosis, DOT, and treatment through the media?

- Dr. Jesús Gonzalo Crespo Solis, Director of the Mycobacteriosis Program, Tamaulipas State Health Services, answered that he has only seen two TB spots produced by PAHO and stated that the impact of massive immunization campaigns should be examined.
- P. Talboy stated that educating decision-makers, utilizing the press, and making them advocates is needed.
- Dr. Charles Wallace, TB Control Program Manager, Infection Disease Intervention and Control Branch, Texas Department of State Health Services, invited the audience to reflect on the HIV lessons. He mentioned that few advocates exist for TB and that the prevalence of this disease is still part of society.
- Dr. Rigoberto Isarraraz, Director of Health Services, ISESALUD Baja California, mentioned that one successful example is how H1N1 reached the public. Dr. Isarraraz mentioned that it is necessary to invest in campaigns that teach people how to identify coughing and TB as a health issue. Dr. Isarraraz mentioned that resources and programs respond to political priorities and that TB should become one that uses media communications.
- Dr. Maria Zepeda, Director of Prevention and Disease Control, Secretaría de Salud de Sonora, shared that recent radio and TV messages on TB were broadcasted in Sonora and have received favorable comments. Dr. Zepeda stated that some of these messages should be replicated.
- Richard Kiy, President and CEO of the International Community Foundation, said that it may be helpful to create a blog to further discuss this topic.
Has the TB binational card been effective?

Dr. Kathleen Moser, Chief of Tuberculosis Control & Refugee Health, County of San Diego Health and Human Services Agency, responded that the binational TB card is used as part of the San Diego TB program as a tool for patients crossing the border. Deliana Garcia, Director of International Projects Research and Development, Migrant Clinicians Network, added that the card is just a tool and that the most important part of the program is the communication network.

What is the safety network? How are people deported to México? When are the providers/departments notified?

Dr. Kathleen Moser, Chief of Tuberculosis Control & Refugee Health, County of San Diego Health and Human Services Agency, mentioned that people who are detained are supposed to receive X-rays within the first four hours of detection. Some cases are identified but many cases are identified while being deported with TB. This is part of the challenges and work needed along the border.

What impact has the new Arizona law had in the United States?

- Robert Guerrero, Chief of the Office of Border Health, Arizona Department of Health Services, said that ICE is not always consistent with their reporting. He commented that this kind of legislation is not helping them and they have to deal with the unintended consequences.

- Dr. Larry Kline, California BHC Member, noted that public officials have said that, in general, people are not concerned about TB or do not see it as a public health issue. Dr. Kline invited the group to develop a strategic plan to determine what message should be shared and recommended working on a series of messages. He also recommended partnering with experts on diabetes and HIV.

- Dr. James P. Watt, Chief of the TB Control Branch, Division of Communicable Disease Control, Center for Infectious Diseases, California Department of Public Health, mentioned that it is essential that people receive care without fear of legal repercussions. Dr. Watt also recommended partnering with local clinics and looking for new venues of care.

What prevention strategies are needed to prevent infection?

- Dr. Hector Perez, Binational MDR Coordinator of the Puentes de Esperanza Project, San Diego TB Control Program, mentioned that the United States has developed an effective system of case studies or contact investigations for patients with latent TB infection (LTBI) or needing prophylaxis. Dr. Perez recommended using effective case studies as a strategy. Dr. Perez explained that in México, the system contemplates five contacts and that there is a need to develop policies that facilitate the identification of cases and LTBI. He also acknowledged that the tuberculin test (PPD) has its limitations in terms of its interaction with Bacille Calmette Guerin (BCG) but that other testing should be contemplated. He argued that contact investigations could help to promote awareness in schools, households, or work places.

- Dr. Rafael Laniado-Laborín, Pulmonologist of the Tijuana General Hospital and Professor of the Faculty of Medicine, Universidad Autónoma de Baja California, mentioned that early diagnosis and effective treatment are needed. He argued that the system is waiting for the patient to passively come to the health centers. He recommended looking for high-risk patients.
• Dr. Hector Perez, Binational MDR Coordinator of the Puentes de Esperanza Project, San Diego TB Control Program, also highlighted the need to establish good infectious control programs in México.

• Dr. Blanca Lomeli recommended that the TB Consortium start collaborating with diabetes and HIV organizations and programs.

• Dr. Kathleen Moser, Chief of Tuberculosis Control and Refugee Health, County of San Diego Health and Human Services Agency, mentioned the barriers faced while conducting contact investigations at work or schools and stated that businesses are often barriers; for instance, some do not allow release time for DOT. However, she mentioned that it was important to make businesses advocates and encourage them to pass sensitive TB policies.

Should we consider client-centered DOT?

• Dr. Blanca Lomeli strongly argued for a person/client centered approach.

• Dr. Marcos Burgos, Medical Director of the Tuberculosis Program, New Mexico Department of Health, stressed the impact of personnel rotation and commitment and gave the example of Peru. He mentioned that Peru used to have one of the best DOT programs in the world until the leadership and commitment changed.

• Dr. Rafael Laniado-Laborín, Pulmonologist of the Tijuana General Hospital and Professor of the Faculty of Medicine, Universidad Autónoma de Baja California, spoke about how the DOT strategy in Baja California relies on the patient visiting the health center. He mentioned a study conducted in Tijuana that showed the high costs for the patients and said it was essential to start developing a DOT patient-centered system.

• Dr. Paris Cerecer, Coordinator of the Mycobacteriosis Program Jurisdiction 2, ISESALUD Tijuana, mentioned that correctional facilities and rehabilitation centers have been major challenges but that lately they have been able to assign dedicated health department staff to address the specific needs of inmates. Dr. Cerecer mentioned that the rest of the population has other problems that also need to be addressed.

What communication can we develop to share information/data across the border?

• Dr. Miguel Escobedo, Medical Officer, Division of Global Migration and Quarantine, CDC, answered that a need exists to address specific issues with the border population.

• Eduardo Olivarez, Chief Administrative Officer, Hidalgo County Health Department, Texas, explained that the Early Warning Infectious Disease Surveillance (EWIDS) program has been extremely successful in sharing data across states for all infectious diseases. However, he warned the audience that in 2011 EWIDS funding was ending and that many problems will result if this program disappears.

• Mauricio Leiva mentioned that the California Department of Public Health is collecting, developing, and compiling data on infectious diseases across the border.

• Dr. Rigoberto Isarraraz, Director of Health Services, ISESALUD Baja California, spoke of the need to share resources and information across programs and gave two examples of resources that have not been adequately utilized for patients in México: 1) the nutrition, temporary employment, and economic resources from the program Desarrollo Integral de la Familia (DIF) for people below the poverty level and 2) the psychological support or counseling that HIV programs offer.
Dr. Isarraraz recommended utilizing these and other resources for patients with TB (cross-referral).

*How can we mobilize additional resources and can we advocate for resources and mobilization?*

- Dr. Richard Garfein said that donors need to know what the needs are and what they need to do.
- Dr. Miguel Escobedo, Medical Officer, Division of Global Migration and Quarantine, CDC, mentioned that the programs he collaborates with have been receiving funding from local clubs like the Lions Club and other local academic institutions.
- Dr. Escobedo said that it is important to identify the “low hanging fruit” and target it first.
- Dr. Kathleen Moser, Chief of Tuberculosis Control & Refugee Health, County of San Diego Health and Human Services Agency, recommended taking advantage of the BHC leadership and working on the following themes or areas: MDR projects, infectious disease, infectious control measures, and social services. She also specifically recommended the BHC facilitate learning from each other and moving forward as a group for funding.
- Dr. Hector Perez, Binational MDR Coordinator of the *Puentes de Esperanza* Project, San Diego TB Control Program, recommended studying the barriers for developing susceptibilities in México states and also the barriers of specimen transportation across the border.
- Dr. Maria Nuñez, Director of Nursing, Yuma County Health Services, stressed the need to develop policies to transport specimens.
- Dr. Larry Kline, California BHC Member, responded to Dr. Perez and Dr. Nuñez’s comments that the BHC has been addressing this issue but the challenge is how local authorities interpret these laws. Dr. Kline said the BHC will continue to work on this topic of specimen transportation across the border.

The following questions were also presented to participants to generate conclusions and follow-up actions:

1. What actions are needed by the BHC and others?
2. What partners to include?
3. How do we integrate the private sector?
4. How do we get our message across?
5. How do we structure next meeting?

Dr. Miguel Ángel Lezana started with the question: *How can we include the private sector?*

- Dr. Jesús Gonzalo Crespo Solis, Director of the Mycobacteriosis Program, Tamaulipas State Health Services, said that universities and the business sector should be included.
- Dr. Maria de los Ángeles Paz, responsible for the TB DOT Network, Health Department of Nuevo León, mentioned that on May 25th, her department was able to establish or strengthen some alliances. These alliances are already in writing and include 23 institutions, 22 of these 23 institutions are nursing schools. Dr. Paz also suggested monitoring the contributions or results of these partnerships in Nuevo León.
- Deliana Garcia, Director of International Projects Research and Development, Migrant Clinicians Network, spoke of the need to include small and private partnerships such as the migrant providers and health centers. She mentioned that this network is growing with federal funds.
• Richard Kiy, President and CEO of the International Community Foundation, also recommended developing models of DOT at the workplace by engaging a very important business sector that employs a lot of people on the Mexican side of the border.

• Dr. Paris Cerecer, Coordinator of the Mycobacteriosis Program Jurisdiction 2, ISESALUD Tijuana, suggested distributing a recent World Health Organization document that includes recommendations on potential partners or collaborators and includes international standards and indicators of treatment.

• Dr. Michelle MacDonald, Chief Medical Officer, Pima County Health Department Arizona, suggested including and partnering with substance abuse and HIV/AIDS advocates, as well as diabetes associations.

How do we get our message across?

• Richard Kiy, President and CEO of the International Community Foundation, mentioned that it was essential to effectively engage individual funders by showing them problems with solutions and data and by making them part of the solutions. He also recommended focusing on the “low-hanging fruit” that can allow for early successes.

• Dr. Brian Smith, Regional Medical Director, Texas Department of State Health Services, recommended focusing on decreasing medical errors in the treatment of TB.

• Dr. Miguel Escobedo, Medical Officer, Division of Global Migration and Quarantine, CDC, recommended reaching out to maquiladoras, meat processors, and the international panel of physicians.

• Dr. Marcos Burgos, Medical Director of the Tuberculosis Program, New Mexico Department of Health, suggested starting with one or two projects across the border. For instance the MDR projects and specific HIV/TB programs. He also recommended identifying a famous border resident or is familiar with this region that could champion the message of TB control. Dr. Burgos gave as an example the campaigns that Angelina Jolie has done with UNICEF and the cyclist Lance Armstrong in promoting prostate cancer prevention.

How do we structure the next meeting? Do you agree to be part of this TB Consortium?

• Dr. James P. Watt, Chief of the TB Control Branch, Division of Communicable Disease Control, Center for Infectious Diseases, California Department of Public Health, liked the idea of creating a blog and coming up with a set of priorities. He suggested completing some strategic planning during the next meeting of this TB Consortium.

• Eduardo Olivarez, Chief Administrative Officer, Hidalgo County Health Department, Texas, recommended organizing a forum focusing on legal aspects of TB control.

• Carol Wetland, Director of Nursing, Cochise County Health Department, Arizona, spoke about the need to discuss immigration and legal issues such as the recent controversial law in Arizona.

• Robert Guerrero, Chief of the Office of Border Health, Arizona Department of Health Services, recommended developing a long-term vision with action items every sixth months.

• Dr. Miguel Escobedo, Medical Officer, Division of Global Migration and Quarantine, CDC, suggested creating technical work groups on different aspects of TB control, for instance clinical/medical, advocacy, and social outreach.
• Dr. Larry Kline, California BHC Member, recommended creating a database of people that need to be included in the TB Consortium.

• Dr. Rigoberto Isarraraz, Director of Health Services, ISESALUD Baja California, recommended that the next meeting be structured with workshops and/or work groups.

Closing Remarks

Dr. Gudelia Rangel thanked the speakers and audience for their participation and suggested organizing the following meeting in México.

Dr. Larry Kline also thanked the audience, reminded them to complete the evaluation, and adjourned the meeting.

SUMMARY OF PRIORITY ISSUES AND OBJECTIVES

The following is a list of the most common issues or problems identified and highlighted during the meeting:

• Low coverage or availability of DOT strategies, including lack of patient-centered models
• Inadequate laboratory access and capacity
• Inefficient local and cross-border reporting of binational or cross-border cases
• Lack of continuity of care for deported individuals
• Delays in recognizing TB symptoms and lack of public awareness of TB
• Delays in reporting TB tests and starting treatment
• Insufficient and inadequate strategies and resources to address and prevent drug-resistant TB, including MDR
• Insufficient and inadequate strategies and resources to address comorbidities with TB such as HIV and diabetes
• Inadequate infectious control measures in hospitals and health units
• Lack of integration or participation of the private, philanthropic, and business sectors in TB control efforts
• Need to educate and involve authorities, policy-makers, and decision-makers on border TB control efforts as a means of ensuring strong political support
• Need to invite other partners to the TB Consortium including academic institutions
• Need to address and resolve legal aspects of TB control, including collaboration with immigration authorities and transport of specimens across and along the border

The specific objectives of the TB Consortium were presented as follows:

• Identifying and bringing together a core of professionals vested in the initiation and implementation of the TB Consortium
• Creating a venue for dialogue on TB education and prevention efforts in the border region
• Continuing the binational collaborative efforts to reduce incidence rates of TB homologating binational actions for its best control and treatment
• Unifying binational TB education efforts
• Enhancing communication networks among stakeholders on both sides of the U.S.-México border
SUMMARY OF RECOMMENDATIONS

The following recommendations were identified for action and follow-up:

1. Create and strengthen public and private partnerships.
3. Improve DOT coverage facilitating more dedicated staff and collaboration models.
4. Facilitate and improve surveillance and reporting of binational cases.
5. Work with immigration authorities to address challenges of binational cases.
6. Support and facilitate the sharing of binational expertise to effectively treat MDR cases.
7. Address the special needs of patients diagnosed with multiple diseases (e.g. TB-HIV, TB-diabetes) by collaborating with other organizations and experts and developing joint protocols, trainings, and strategies.
8. Develop advocacy and social mobilization campaigns to increase TB awareness and support for border and binational TB control by learning from other successful models and engaging non-traditional partners.
9. Increase laboratory capacity along the border and address delays in reporting lab results to providers by facilitating transportation of specimens by acquiring culture, digital, molecular-testing technology, and by studying barriers.
10. Promote, establish, and monitor infection control measures in hospitals and health centers.
11. Study and address the social determinants of health of TB by creating or working with experts in this area.
12. Facilitate the sharing of information and best practices.
13. Promote or strengthen prevention strategies and policies for conducting contact investigations for and high-risk patients.
14. Partner with social institutions or organizations to provide comprehensive resources that address the multiple needs of the patients with TB.
15. Look for funding opportunities through the TB Consortium members and partnerships.
16. Consider starting with one or a few realistic projects with potential for early success.
17. Consider the specific suggestions collected for the next TB Consortium meeting in terms of topics and structure.

Create and strengthen public and private partnerships.

- Dr. Miguel Ángel Lezana, General Director, National Center of Epidemiological Surveillance and Disease Control in México, encouraged the TB Consortium to create a public-private alliance. Dr. Lezana emphasized the need for non-governmental organizations (NGOs) and private providers to become more interested and involved in TB control efforts.
- Dr. Maria Zepeda Berkowitz, Director of Prevention and Disease Control, Secretaría de Salud de Sonora, recommended including the leadership of local border hospitals and health centers in meetings and training on the control of TB.
• Dr. Irma Gigli, Board Member of the International Community Foundation and Former Director of the Center for Immunology & Autoimmune Diseases, University of Texas Health Science Center, advocated for greater involvement in TB binational programs from academic institutions. She mentioned that academic institutions can bring funding and other expertise.

• Dr. Jesús Gonzalo Crespo Solis, Director of the Mycobacteriosis Program, Tamaulipas State Health Services, said that there should be a relationship with academic institutions and encouraged the CSFMEU to facilitate their participation.

• Dr. Larry Kline, California BHC Member, and Dr. Miguel Ángel Lezana, General Director, National Center of Epidemiological Surveillance and Disease Control in México, recommended partnering with experts and institutions on diabetes and HIV.

• Dr. Kathleen Moser, Chief of Tuberculosis Control & Refugee Health, County of San Diego Health and Human Services Agency, said that businesses are often barriers, for instance some do not allow release time for DOT. However, she mentioned that it was important to make them advocates and encourage them to pass sensitive TB policies.

• Dr. Jesús Gonzalo Crespo Solis, Director of the Mycobacteriosis Program, Tamaulipas State Health Services, said that universities and the business sector should be included.

• Deliana Garcia, Director of International Projects Research and Development, Migrant Clinicians Network, also spoke of the need to include small and private partnerships such as the migrant providers and health centers. She mentioned that this network is growing with federal funds.

• Dr. Michelle MacDonald, Chief Medical Officer, Pima County Health Department Arizona, suggested including and partnering with substance abuse and HIV/AIDS advocates, as well as diabetes associations.

• Dr. Miguel Escobedo, Medical Officer, Division of Global Migration and Quarantine, CDC, suggested reaching out to maquiladoras, meat processors, and an international panel of physicians.


• Dr. Hector Perez, Binational MDR Coordinator of the Puentes de Esperanza Project, San Diego TB Control Program, stated that lack of resources for developing good DOT strategies was a major challenge. He mentioned that he had observed that in Baja California, DOT is centralized, and people are expected to travel to the clinic. He proposed that DOT services be provided near the patients’ home or work.

• Dr. Rafael Laniado-Laborín, Pulmonologist of the Tijuana General Hospital and Professor of the Faculty of Medicine, Universidad Autónoma de Baja California, argued that the system is passively waiting for the patient to come to the health centers and recommended instead looking for high-risk patients. He mentioned a study conducted in Tijuana that showed the high costs for the patients to visit health centers. Dr. Laniado said that it is essential to start developing a DOT patient-centered system.

• Dr. Maria Zepeda Berkowitz, Director of Prevention and Disease Control, Secretaría de Salud de Sonora, identified the need to address the multiple emotional needs of binational patients. To accomplish this, Dr. Zepeda recommended incorporating psychologists or mental health/social specialists in TB control teams.
Dr. Patricia del Carmen Arredondo, Chief of the Nuevo León Preventive Medicine Department, Secretaría de Salud de Nuevo León, recommended using “coaching strategies” to motivate patients to continue treatment.

**Improve DOT coverage with more dedicated staff and collaboration models.**

- Dr. Blanca Lomeli stated that one of the main barriers is the lack of dedicated TB workers. She described that most programs were understaffed.
- Dr. Patricia del Carmen Arredondo, Chief of the Nuevo León Preventive Medicine Department, Secretaría de Salud de Nuevo León, also highlighted that in Nuevo León they needed dedicated and permanent TB staff for DOT. Dr. Arredondo recommended working with nursing schools to obtain staff support.
- Dr. Rigoberto Isarraraz, Director of Health Services, ISESALUD Baja California, recommended a geo-mapping system to identify the health units and where the patients live or work. He also mentioned that they need to be able to hire and train dedicated staff (a cadre of promotoras) to conduct DOT.
- Richard Kiy, President and CEO of the International Community Foundation, also recommended developing models of DOT at the workplace by engaging important business sectors that employ large numbers of people on the border.
- Dr. Paris Cerecer, Coordinator of the Mycobacteriosis Program Jurisdiction 2, ISESALUD Tijuana, mentioned that correctional facilities and rehabilitation centers have been the major challenges and that lately they have been able to assign dedicated health staff from the few health department personnel.

**Continue and improve surveillance and reporting of binational cases.**

- Dr. James P. Watt, Chief of the TB Control Branch, Division of Communicable Disease Control, Center for Infectious Diseases, California Department of Public Health, concluded his presentation by saying that it is critical to understand how to report and follow our patients along and across the border. Dr. Watt listed as key recommendations: identification of cases, understanding what cases are binational and having good systems of communication.

**Work with immigration authorities to address challenges of binational cases.**

- Dr. Charles Wallace, TB Control Program Manager, Infection Disease Intervention and Control Branch, Texas Department of State Health Services, talked about two major challenges: 1) that immigration officials are not concerned about where a person will go after deportation, and 2) that these patients often return with TB and they do not find out until they are at the hospital. He encouraged the audience to change national federal law to let providers treat patients with TB in the United States.
- Dr. Wallace emphasized the need to put together a binational regimen/protocol for binational patients. He clarified that this protocol should not interfere with U.S. or Mexican protocols but strengthen them in order to treat special needs and challenges of the binational patients.
- Richard Kiy, President and CEO of the International Community Foundation, recommended engaging the Department of Homeland Security in these discussions since they are in charge of the movement of people.
• Carol Wetland, Director of Nursing, Cochise County Health Department, Arizona, spoke about the need to discuss immigration and legal issues and TB such as the recent controversial law in Arizona.

**Treating multidrug-resistance (MDR) cases and support and facilitate the sharing of binational expertise to effectively treat MDR cases.**

• Dr. Kathleen Moser, Chief of Tuberculosis Control & Refugee Health, County of San Diego Health and Human Services Agency, said that there is no national review of outcomes for MDR cases and strongly recommended the creation of a U.S. review of outcomes for these cases.

• Dr. Rafael Laniado-Laborín, Pulmonologist of the Tijuana General Hospital and Professor of the Faculty of Medicine, Universidad Autónoma de Baja California, spoke of the need to support models for sharing binational expertise to discuss and treat difficult MDR cases, such as the *Puentes de Esperanza* Project.

**Address the special needs of patients diagnosed with multiple diseases (e.g. TB-HIV, TB-Diabetes) by collaborating with other organizations and experts and developing joint protocols, trainings and strategies.**

• Dr. Patricia del Carmen Arredondo, Chief of the Nuevo León Preventive Medicine Department, Secretaría de Salud de Nuevo León, recommended paying special attention to those considered high risk, for instance, patients with diabetes and AIDS.

• Dr. Miguel Ángel Lezana, General Director, National Center of Epidemiological Surveillance and Disease Control in México, recommended revising and developing strategic plans for the cases with multiple illnesses such as the combinations or “binomials” of TB, HIV, diabetes and obesity. Dr. Lezana described this as an opportunity to raise funds by looking for new alliances and adding new elements to this TB Consortium.

**Develop advocacy and social mobilization campaigns to increase TB awareness and support for border and binational TB control by learning from other successful models and engaging non-traditional partners.**

• Dr. Jesús Gonzalo Crespo Solis, Director of the Mycobacteriosis Program, Tamaulipas State Health Services, recommended short and long term media communication campaigns to educate the public on TB.

• Dr. Miguel Ángel Lezana, General Director, National Center of Epidemiological Surveillance and Disease Control in México, emphasized the public health promotion work by better communicating the risks and symptoms to the population. He stated that one third of the population has been in contact with the TB bacteria and could at some point develop the disease and that therefore it was essential for people to recognize the risks and symptoms of TB.

• Dr. Miguel Ángel Lezana, General Director, National Center of Epidemiological Surveillance and Disease Control in México, spoke on the topic of advocacy and social mobilization. He stated that an evaluation concluded that social mobilization has a very important impact on the incidence, adherence and cure rates of patients with TB.
• Dr. Larry Kline, California BHC Member told the group that public officials said that people do not worry about TB or do not see it as a public health issue. Dr. Kline invited the group to develop a strategic plan to determine what message should be shared and recommended working on a series of messages.

• Richard Kiy, President and CEO of the International Community Foundation, explained that, outside the border area, there are not a lot of people talking about TB. R. Kiy stated that we have a challenge right here in our own backyard: educating the many businesses that have maquiladoras along the border.

• Dr. Jesús Gonzalo Crespo Solís, Director of the Mycobacteriosis Program, Tamaulipas State Health Services, recommended that we should learn from the successes of the massive immunization campaigns.

• Phillip M. Talboy, Deputy Director, Division of Tuberculosis Elimination, Centers for Disease Control and Prevention, stated that we need to educate decision-makers, utilize the press and make them your advocates.

• Dr. Charles Wallace, TB Control Program Manager, Infection Disease Intervention and Control Branch, Texas Department of State Health Services, invited the audience to reflect on the HIV lessons. He mentioned that in TB, we have very few advocates and that we need to speak out about this disease as still being part of our society.

• Dr. Rigoberto Isarraraz, Director of Health Services, ISESALUD Baja California, mentioned that one successful example is how the H1N1 campaign was able to reach out to the public. Dr. Isarraraz mentioned that it is necessary to invest in campaigns that teach people how to identify cough and TB as a health issue they need to address.

• Dr. Marcos Burgos, Medical Director of the Tuberculosis Program, New Mexico Department of Health, also recommended identifying a famous person that grew up at the border and that could champion the message of TB, or a person that is familiar with the U.S.-México border. Dr. Burgos gave as example the campaigns that Angelina Jolie has done with UNICEF and the cyclist Lance Armstrong in promoting Prostate Cancer prevention.

Increase laboratory capacity along the border and address delays in reporting lab results to providers by facilitating transportation of specimens; by acquiring culture, digital, molecular-testing technology; and by studying barriers.

• Dr. Jesús Gonzalo Crespo Solís, Director of the Mycobacteriosis Program, Tamaulipas State Health Services, spoke of the need to shorten the reporting time. He also recommended the need to use better testing such as cultures, digital radiographies, molecular testing such as QuantiFERON® or T spot.

• Dr. Hector Perez, Binational MDR Coordinator of the Puentes de Esperanza Project, San Diego TB Control Program, recommended studying the barriers for developing susceptibilities in many states of México and also the barriers for crossing specimens across the border.

• Dr. Maria Nuñez, Director of Nursing, Yuma County Health Services, stressed the need to develop policies to transport specimens.
Promote, establish and monitor infection control measures in hospitals and health centers.

- Dr. Mirna Florencia Beltrán Arzaga, Responsible for the Mycobacteriosis Program of Chihuahua, Secretaría de Salud de Chihuahua, recommended establishing control measures for infections in hospitals and health centers through training, via diagnosing health facilities and by preparing local plans for infection control as they are doing in Chihuahua.

Study and address the social determinants of health of tuberculosis by creating or working with groups of experts in this area.

- Dr. Cecilia Rosales, Arizona BHC Member, explained that the BHC has been trying to integrate social determinants of health such as poverty as part of the Healthy Border 2020 plan. She invited the audience to think about how they could integrate a technical group to work on this topic. Likewise, Dr. Miguel Ángel Lezana said that there is already a group in México working in this area at the federal level.
- Dr. Irma Gigli, Board Member of the International Community Foundation and Former Director of the Center for Immunology & Autoimmune Diseases, University of Texas Health Science Center, recommended studying and addressing poverty and TB.

Facilitate the sharing of information and best practices.

- Richard Kiy, President and CEO of the International Community Foundation, said that one great value and function of the TB Consortium was to share information and best practices. R. Kiy invited the participants to share their best practices from the patient side to the community and policy. He also said that it may be helpful to create a blog to further discuss this topic.

Promote or strengthen prevention strategies or policies for conducting contact investigations for and high-risk patients.

- Dr. Hector Perez, Binational MDR Coordinator of the Puentes de Esperanza Project, San Diego TB Control Program, recommended using effective case studies (contact investigations). Dr. Perez explained that in México there is a need to develop policies that facilitate the identification of cases and Latent Tuberculosis Infection (LTBI). He also acknowledged that the Purified Protein Derivative test (PPD, otherwise known as TB skin test, has its limitations in terms of its interaction with BCG but that other testing can be contemplated. Dr. Perez argued that contact investigations could help to promote awareness or socialization in schools, households or work places.

To partner with social institutions or organizations to provide comprehensive resources that address the multiple needs of the patients with tuberculosis.

- Dr. Rigoberto Isarraraz, Director of Health Services, ISESALUD Baja California, spoke of the need to share resources and information across programs and gave two examples of resources that have not been adequately utilized for patients in México: 1) the nutrition and temporary employment and economic program DIF offers to people below poverty levels and 2) the psychological support or counseling HIV programs offer. Dr. Isarraraz recommended utilizing these and other resources for patients with TB (cross-referral).
Look for funding opportunities through the TB Consortium and partnerships.

- Dr. Miguel Ángel Lezana, General Director, National Center of Epidemiological Surveillance and Disease Control in México, said that we have a unique opportunity to raise funds by looking for new alliances and adding new elements to this TB Consortium, for instance partnering with diabetes and HIV programs, advocates and experts.

- Dr. Kathleen Moser, Chief of Tuberculosis Control & Refugee Health, County of San Diego Health and Human Services Agency, specifically recommended that the commission facilitate learning from each other and moving forward as a group for funding.

- Dr. Paris Cerecer, Coordinator of the Mycobacteriosis Program Jurisdiction 2, ISESALUD Tijuana, suggested distributing and studying a recent World Health Organization document that includes recommendations of potential partners/collaborators and sources of funding. Dr. Cerecer stated that this report also includes the international standards and indicators of treatment.

Next Steps—Start with one or few, realistic projects with potential for early success.

- Dr. Marcos Burgos, Medical Director of the Tuberculosis Program, New Mexico Department of Health, suggested starting with one or two projects across the border. For instance the MDR projects, specific HIV/TB programs.

- Dr. Kathleen Moser, Chief of Tuberculosis Control & Refugee Health, County of San Diego Health and Human Services Agency, recommended taking advantage of the commission leadership and working on the following topics: MDR, infectious diseases, infectious control measures and social services.

- Richard Kiy, President and CEO of the International Community Foundation, recommended focusing on the “low-hanging fruit” that can allow for early successes so that we can share these with others.

- Robert Guerrero, Chief of the Office of Border Health, Arizona Department of Health Services, recommended developing a long-term vision with actionable items every sixth months.

Suggestions for next TB Consortium meeting, topics and structure.

- Dr. James P. Watt, Chief of the TB Control Branch, Division of Communicable Disease Control, Center for Infectious Diseases, California Department of Public Health, liked the idea of creating a blog and coming up with a set of priorities. Dr. Watt suggested finishing some strategic planning during the next meeting.

- Eduardo Olivarez, Chief Administrative Officer, Hidalgo County Health Department, Texas, recommended organizing a forum focusing on legal aspects of TB control. Likewise, Carol Wetland, Director of Nursing, Cochise County Health Department, Arizona, recommended discussing immigration and legal issues such as the recent controversial law in Arizona.

- Dr. Miguel Escobedo, Medical Officer, Division of Global Migration and Quarantine, CDC, suggested creating technical workgroups on different aspects of TB Control, for instance clinical/medical and advocacy and social outreach.

- Dr. Rigoberto Isarraraz, Director of Health Services, ISESALUD Baja California, recommended for next meeting to be structured with workshops and/or work groups.
Dr. Larry Kline, California BHC Member, recommended creating a database of people that need to be included in the TB Consortium.

**DISCUSSION AND NEXT STEPS**

Richard Kiy, President and CEO of the International Community Foundation, and Dr. Miguel Ángel Lezana led the discussion of conclusions and follow-up actions. Participants and speakers articulated a series of roles the BHC and the TB Consortium could facilitate in order to improve TB control along the U.S.-México border. These roles included:

- Facilitating ongoing communication and mutual learning among institutions and all TB Consortium members
- Facilitating transport of specimens across the U.S.-México border
- Promoting diverse partnerships
- Facilitating communications with immigration authorities in the United States
- Soliciting funding for specific issues or projects as a group
- Addressing the needs of patients with TB and HIV or diabetes
- Investing in social mobilization campaigns on TB
- Increasing resources to improve DOT coverage, laboratory capacity, and early diagnosis
- Supporting the development of sustainable actions to control the challenge of multidrug resistance
- Maintaining and improving local and cross-border surveillance efforts

One common discussion topic was the need to engage academic institutions, philanthropic organizations, and the business community, such as the *maquiladora* industry along the border. Participants also recommended working on advocacy and marketing strategies to educate the public and to increase interest in TB from businesses, institutions, foundations and other potential donors or partners.

Participants also shared ideas for the next TB Consortium meeting. These ideas included:

- Creating a blog to establish ongoing communication among TB Consortium members
- Including topics or in depth discussions on legal aspects of TB control such as transport of specimens and the impact of immigration policies
- Prioritizing the next actions of the TB Consortium based on the recommendations presented at this meeting
- Structuring the next meeting with technical workgroups that would review different aspects of TB control, for example, clinical/medical, advocacy, and social outreach

A common theme during the meeting was the need to unify efforts and to learn from each other’s TB efforts and initiatives. The event was effective in creating a venue for dialogue on TB among health authorities, researchers, and program administrators. Participants were able to express their concerns and make recommendations on how to best address the challenge of controlling TB along the U.S.-México border.
APPENDICES

To view an appendix, click on the appendix title, highlighted in blue, below:

Appendix A: Meeting Agenda
Appendix B: U.S.-México Border Health Commission Presentations
Appendix C: Prepared Questions for U.S. and Mexican Panels
Appendix D: Panelists Biographies
Appendix E: U.S. Panel Presentations
Appendix F: México Panel Presentations
Appendix G: Phillip Talboy’s Presentation
Appendix H: Dr. Miguel Ángel Lezana’s Presentation
Appendix I: Participant List