

2nd Annual Consortium Meeting
Emerging MDR Tuberculosis across the US/Mexico border: NIAID R21 A1056207
Holiday Inn Express - Reynosa, Tamaulipas
Thursday and Friday, November 4-5, 2004
Meeting Minutes

Attendees

Institution:

Name:

UTHSPH-Brownsville

Joseph McCormick
Blanca Restrepo
Susan Fisher-Hoch
Adriana Pérez
Armando Salinas
Belinda Reininger
Christina Villarreal
Jaymie Estrella
Diana Gomez
Erin Whitney
Patrick Ireland
Izelda A. Zárate
Jose Luis Arjona
Francisco Diaz

DSHS Region 11

Brian Smith
Amber Mayne

South Texas Health Care System

Aurora Martinez
José Aguilera
Enrique Escobedo
Denise Dunbar
Teresa Quitugua
Edward Graviss
Waldo Lopez
Luis Castillo

Cameron County Health Department
Department of State and Health Services- Austin
Univ. of Texas Health Sci. Ctr. San Antonio
Baylor College of Medicine, Houston
City of Laredo Health Dept.

Francisco López-Leal
Jesús Gonzalo Crespo
Socorro Hernandez
Regina Brusollo
Francisco Mora
Olga Rivera
Rosario Lopez
Herminia Fuentes
Magín Pereda

Secretaría de Salud de Tamaulipas - Cd. Victoria

Jurisdicción Sanitaria – Cd. Victoria

Viridiana Cervantes
Víctor Javier Solalinde
Jose Manuel Sanchez
Angeles del Bosque
Juan Felipe Hernandez

Jurisdicción Sanitaria III-Matamoros

Jurisdicción Sanitaria IV-Reynosa

Jurisdicción Sanitaria V – Nuevo Laredo

Lab Estatal de Nuevo León-Monterrey

Apologies:

Our guest of honor, the Secretario de Salud de Tamaulipas
UTHSPH-Brownsville
Binational TB-DSHS

South Texas Health Care System

Department of State and Health Services -Austin

Cameron County Health Dept.
City of Laredo Health Dept.
Hidalgo County Health Dept.

Universidad Autónoma de Nuevo León

Jurisdicción Sanitaria V-Nuevo Laredo

Dr. Gerardo García Salinas
Mary Mireles
Cynthia Tafolla
Richard Wing
Ernestina Lopez
Elva Munoz
Ken Jost
Susan Neill
Susan Penfield
Yvette Salinas
Hector Gonzalez
Rosa Morales
Lydia Serna
Melva Flores
Hugo Barrera
Adrian Rendon
Bernardo Ramirez Mante

Thursday, November 4, 2004

Registration: 3:00 p.m. – 5:00 p.m.

Social Hour: 6:00 p.m. – 7:00 p.m.

Dr. Joseph McCormick, School of Public Health welcomed everyone and thanked them for attending our second annual consortium meeting. He explained that the purpose of the meeting was to review the work and data generated by the different members of the consortium throughout the past year and to make plans for the year to come.

Dr. Gonzalo-Crespo, Secretaria de Salud en Cd. Victoria reiterated the welcome given by Dr. McCormick and stated that he was glad to be part of this research team. He expressed the importance of conducting research but their lack of time and resources to carry it out. They are pleased to be sharing the data collected, participate in the data analysis, and move forward into year two of the project.

A name for the consortium was proposed: Tuberculosis Trackers of Nuevo Santander (NSTT), o Cazadores de Tuberculosis del Nuevo Santander, and approved.

Friday, November 5, 2004

Dr. Joseph McCormick, School of Public Health, thanked those that organized this meeting. Each member introduced him or herself individually to the participants.

Dr. Blanca Restrepo, School of Public Health, presented “Tracking MDR-TB across the US/Mexico Border: Activities of the Consortium 2003-2004”, in which she reviewed the aims of the studies and redefined the study site. She then listed our achievements in the creation of the consortium and the strategies we have adopted to work together as a consortium. She presented the major advances of the past year, which

have been in geocoding and data analysis. Though many major obstacles have been overcome our genotyping efforts are a little behind, but we hope to catch up in that area in the coming year..

Dr. Jesus Gonzalo Crespo, Secretaria de Salud en Cd. Victoria, presented “Panoramic View of TB Epidemiology”. Dr. Crespo reported the efforts in the state of TB Tamaulipas. His state has one of the highest prevalences of TB in Mexico, with highest state incidences recorded in Laredo, Matamoros and Reynosa. Difficulties with tracking and treating cases include migration between states. There is difficulty in reporting cases that come from the private sector because not all cases are reported to the Jurisdicción Sanitaria. Then he presented a summary of the state of diabetes in Tamaulipas, where the rate of diabetes is higher than the national average. Despite the high percentage of diabetics among the tuberculosis cases, he considers there is underreporting of diabetes and many undiagnosed cases.

Discussion Points:

The decision was made to focus on the molecular microbiology of the Mexican strains from the state of Tamaulipas. **Teresa Quitugua, University of Texas Health Science Center- San Antonio, is currently working with Blanca Restrepo, Mary Mireles and Diana Gomez, School of Public Health** to identify and classify strains. Diana Gomez is working with Regina Brusollo and Socorro Hernández from Ciudad Victoria to ensure that all sites are using the same method of classification and identification.

Strain genotyping and geocoding should confirm the theory that most strains of TB are not exclusive to the border but come from the interior of Mexico and are being carried by those who travel to the different regions. With the assistance of geocoding we will be able to see the migration patterns of a particular strain of TB (ie. From Veracruz to California or Chiapas to Chicago). The suggestion was made to modify the social interview for a more extensive picture of the amount of time that an individual with TB spends in a certain location.

Dr. Graviss pointed out that 50% of the cases in Houston are from Mexico, and from those cases 90% are from the border region and 10% are from San Luis Potosi. It has been discovered that the particular strain from San Luis Potosi only exists in Houston and does not exist along the border region. Apparently travelers from San Luis Potosi do not stop long enough along the border region to spread the strain to the inhabitants of the area.

Dr. Blanca Restrepo, School of Public Health then presented the summary of data analysis from Tamaulipas. Jurisdicciones III, IV, & V. The major findings presented were:

- i) Tamaulipas has fewer reports of extra-pulmonary TB as compared with Texas. This may be because vaccination with BCG which limits dissemination of the bacterium actually reducing the number of cases. On the other hand detection based on smear alone is insensitive, particularly with extrapulmonary tuberculosis, making diagnosis very difficult, so many cases may be missed.
- ii) diabetes is the most common medical risk factor (co-morbidity) for TB both sides of the border,
- iii) The mean age of diabetics with TB is higher than non-diabetic TB patients.
- iv) Patients with MDR-TB take longer to become direct smear negative. A few do not become smear-negative by 6 months of treatment.
- v) Diabetes is highly associated with MDR-TB.

These data are highly significant and of major importance in both Mexico and the United States and will be pursued in our continuing studies.

Discussion Points:

On the Mexican side of the border homelessness is not reported.

It is important to determine the prevalence of diabetes in the population, to determine if DB is a risk factor for TB or simply a reflection of the prevalence of this disease.

Dr. Francisco Mora, Jurisdicción Sanitaria III de Matamoros presented data from Matamoros.

Results were similar to those presented for Tamaulipas. He also presented the new maps produced by the consortium showing geocoding for the Matamoros area from 1998-2003. Dr. Mora gave a demonstration of the differences that can be shown on a map such as location and distribution of pulmonary and extra pulmonary cases, drug resistant and multi-drug resistant. The maps are able to show places within Matamoros with high concentrations of TB cases, and can be used to overlay information and call up details on individual cases.

Discussion:

The reason for high rates of positive smears demonstrated in the fifth and sixth month of treatment of MDR-TB patients is intriguing, and could be due to problems with treatment. Sometimes there is a delay in drug delivery to the centers.

Funding must be sought so that every site has access to the GIS software and training. This will allow each site to follow tuberculosis cases in real-time. Gathering the geographical location on each case has been a challenge due to the fact that there are no maps with longitude and latitude coordinates for Mexico, but this problem has now been overcome with the creation of our new maps.

Suggestions were made to gather information on the origin of patients and to follow-up migration patterns. It would be ideal if the database were to be expanded for this purpose. The genotyping data would illustrate migration of different types of strains across the US/Mexico border. It was also suggested that patients with both pulmonary and extra pulmonary TB are classified as pulmonary. The needs articulated in this discussion emphasize the need to make these kind of data available in real time both for public health and for research..

Dr. Lopez from Laredo mentioned that in Laredo they are currently using syndromic surveillance called ARGUS ONE, which helps them to track TB cases in real-time. He also mentioned that he works in conjunction with the school districts and certain physicians who help to map current TB cases. Dr. Lopez suggested that perhaps the syndromic surveillance system be included as part of the real-time tracking of TB cases.

Dr. Magin Pereda, Jurisdicción Sanitaria IV de Reynosa, presented data from Jurisdicción IV – Reynosa. In Reynosa a greater percentage of MDR-TB cases have HIV and/or are drug addicts. The geocoded maps of Reynosa were also presented for 1999 and 2002. Geocoding needs to be completed for the years 1998, 2000, 2001 and 2003.

Dr. Victor Solalinde, Jurisdicción V de Nuevo Laredo, presented data from Jurisdicción V – Nuevo Laredo. Data was similar to the overall results for Tamaulipas -3-5. It was found that TB patients with diabetes, drug addiction and alcoholism make up a large percentage of the cases that end up being DR or MDR-TB. It was suggested that most patients suffer from malnutrition but the database does not allow for more than 1 co-morbidity, so malnutrition may not be reported. It would be ideal if the database can be expanded to enter more co-morbidities.

Discussion Points:

The problem is that not every sputum specimen is cultured each month. Failure to identify MDR early by culture leads to the likelihood of transmission for longer periods of time.

It would be very helpful for the Mexican jurisdicciones to record the birth state of each patient so that we can further identify migration patterns of particular TB strains. The importance of recording the residential history

of each patient was again discussed. These data will be incorporated into the social network analysis questionnaire.

The growing number of genotyped Texas MTB strains facilitates identification of migration patterns of the strains within the US and Mexico. Dr. Lopez from Laredo mentioned that the Border Patrol captures undocumented individuals and tends to deport them through Laredo to Nuevo Laredo and not to their country of origin. This creates a problem in that new strains of TB are being discovered due to migrants from other counties and states outside of Tamaulipas and Texas. It was also pointed out that certain large cities have a tendency to deport their homeless population into Laredo/Nuevo Laredo which creates additional problems of new TB cases hard to treat and track due to the fact that these people have no definite residence.

Dr. Brian Smith, Region 11, presented data on Texas-Region 11. He pointed out that extra-pulmonary TB has increased across the US in large portion due to the increase of HIV. South Texas has stayed behind in numbers of extra-pulmonary TB cases, possibly due to the lower rates of HIV infections. The rate of extra-pulmonary tuberculosis is higher in the Texas data than the Mexican data. Similarly pediatric tuberculosis is more common in Texas. Possible reasons for this are:

- i) More effective clinical diagnosis in Texas, using culture rather than the high dependence on positive smear for diagnosis practiced in Mexico, Physicians in the US also rely heavily on epidemiologic data as well as invasive procedures such as gastric lavage, pleurocentesis, spinal tap, etc. to diagnose pediatric and extrapulmonary tuberculosis. These are costly procedures.
- ii) BCG vaccination in Mexico, which may protect against extra-pulmonary TB scenario, occurs with pediatric TB.

Data shows DR-TB patients tend to take longer to become smear negative. These data makes clear that TB patients contrary to popular belief among doctors and patients, are not safe within three days of treatment to be in the public again.

Data also show that 30% of TB patients are diabetic. Within DR-TB patients the % increases to 35.8% and to 59% for MDR-TB cases. Transformation to direct smear negative takes longer in diabetics than non-diabetics.

Dr. Adriana Perez, School of Public Health, presented on overview on “Why are we geocoding?” She went over key terms and demonstrated the type of data that can be gathered and displayed once patient’s addresses are geo-referenced. The output can be maps that help visualize clusters, but the ultimate analysis is “spatial analysis” to identify clusters and trends in the distribution of patients, genotypes, etc.

Discussion Points: It was emphasized again that we need to search for additional funding so that all consortium sites will have access to the GIS system and software such that sites will be able to use information in real-time and share it with those who need it.

Dr. Belinda Reininger, School of Public Health, presented a summary of the TB Social Network. She mentioned that 18 individuals had participated and that interviews are currently being conducted in Hidalgo County and Matamoros. The value of social networking analysis is to identify patterns of not only physical address, but also of commonly frequented locations that will help in tracking the spread of the disease. Difficulties that have been encountered include patient recall over the six months period covered by the questionnaires. The team is currently working on the 13th version of the questionnaire and plans to implement this shortly.

Discussion Points: There was a desire to use questionnaire at all the study sites so that the same information is being gathered. This would create more uniformity.

Dr. Sue Fisher-Hoch, School of Public Health, presented on “The Purpose of our Training”. The purpose was to strengthen the laboratory and research capacity amongst the consortium members. Specific goals are to enable mycobacterial culture and sensitivity testing in Matamoros, and genotyping in Ciudad Victoria. Currently training has been given by Diana Gomez to Regina Brussolo and Ma Socorro Hernández. In the near future Diana Gomez will visit Teresa Quitugua’s laboratory in San Antonio, and Herminia Fuentes will begin training in the South Texas Laboratory.

Discussion Points: Possible participation by the State Laboratory from Nuevo León was discussed. Plans for a visit to set this up were established.

Regina Brussolo and Ma Socorro Hernández, Laboratorio Estatal de Tamaulipas en Cd. Victoria, presented their experience with learning the basic principles of polymerase chain reaction used for genotyping that they had learned when they worked with Diana Gomez at the School of Public Health.

Dr. Joseph McCormick, School of Public Health presented an overview of the major ideas. He then opened the discussion to focus on the future of the group. It was agreed that dissemination and publication of data will be done once the leaders in Mexico and Texas have agreed on its content. The group then discussed continued data creation & analysis, publication of data and areas of new research. Areas of new research would focus on exploring the association between tuberculosis and diabetes. Other studies include early diagnosis of TB through molecular methods, GIS spatial analysis of TB cases and molecular patterns of MDR TB.

FINAL COMMENTS:

Dr. Lopez Leal, Secretaria de Salud de Cd. Victoria, congratulated the team for the advances in database analysis during this past year. He mentioned that keeping lines of communication amongst the study sites is crucial to the continuation and progress of the study. The next aspect of the study which is social networking is an integral part of the overall study and any help that he could provide to move the study forward will be provided. There may be a change in government soon, but they will still be around to help move our project forward. The study of Tuberculosis is a public health issue that concerns all the citizens of Tamaulipas and Region 11.

Dr. Brian Smith, Region 11, mentioned that the focus of this project has taken all those involved to the core where everyday public health happens. It is great to have such friends and contacts on both sides of the border. The work being done puts this project in the perfect place to receive additional funding for further and future study.

Dr. Joseph McCormick, School of Public Health, thanked all the members for attending and sharing their information and a special thanks to Christina Villarreal for organizing the travel and other arrangements and making the meeting possible.

The meeting ended at 4: PM.