A Binational Assessment of the Disease Burden of Tuberculosis in Mexican Indigenous Migrant Communities in Sonora and Arizona

Un estudio binacional de la Carga de Enfermedad por Tuberculosis en Comunidades Mexicanas de Indígenas Migrantes en Sonora y Arizona

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Executive Summary

Undocumented workers and their families often slip through the cracks of underfunded public health programs that are ill prepared to find TB patients who do not want to be found for fear of deportation. This binational study examines tuberculosis among migrant workers on the US—Mexico border in Arizona and Sonora. We review the social, cultural, epidemiological, economic, and political factors that underlie diagnosis and treatment that contribute to high rates of this disease. The goal of this pilot study is to develop binational collaboration and contribute to the reduction of the burden of tuberculosis in this population by recommending policies that address TB screening, treatment and education in indigenous Mexican migrant communities in Sonora and Arizona. This multi-disciplinary research between academic institutions in both these Border States brings together the fields of public health, epidemiology, and medical anthropology to address this important problem.

The Problem

TB is transmitted by the airborne spread of *Mycobacterium tuberculosis*. Of those infected, called latent TB, 5 and 10 percent latent TB cases develop into the active form, generally within two years. The disease typically affects the lungs, presenting with symptoms such as persistent coughing, blood expectoration, fever, night sweats, and chest pain. In severe cases it leads to injuries of the brain, kidneys, and spine (Weil 2009). Latent TB, in those who have not received the BCG vaccine, is identified with QuantiFeron-TB Gold skin test. Latent TB, judging from our interviews with public health officials, does not seem to be of great concern, although some physicians recommend treating it. Growing concern, however, over the development of multi-drug resistant strains of TB (MDR-TB) heightens the need for public health action. MDR-TB often emerges when, due to economic or cultural factors, patients stop taking their TB medications. Failure to complete TB treatment increases the likelihood of it turning into the highly pathogenic MDR-TB and XMDR-TB. MDR-TB in patients can also be primary, when individuals are initially infected with an MDR-TB strain. Ordinary TB treatment costs $2000 per patient, and requires 6 months care. By contrast, MDR-TB treatment takes 24 months and the cost ranges from US $1979 to US $8196 per patient. For those with XDR-TB, a more virulent and infectious form, treatment cost estimates range from US $6843 to US $14,479 per patient (WHO 2007-2008). Even if “cured” as a recent study of the transmission of MDR-TB among

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1 Tuberculosis can affect other organs; infections of the lungs are the most prevalent form.
treated patients in China has shown, re-infection is possible because patients return to the same living conditions (Xia Li et al 2007:864-869).

Susceptibility to TB is influenced by interactions of host and environmental factors, including a person’s history of previous exposure. The state of a person’s health—infected with HIV/AIDS, chronic conditions such as diabetes etc. -- are also factors as are work and living conditions. Other indirect factors include the availability of services, transportation problems, poverty, limited education, and isolation. For Mexican migrants these are further complicated by their high mobility and social barriers of language and culture including fear of deportation. Still other barriers include cost barriers, misunderstandings, or rules that led health providers to deny services. These conditions both raise the probability of late diagnosis, and the likelihood TB spreading and developing into MDR-TB.

In recent decades economic forces in Mexico have eroded livelihoods in rural communities, compelling migrants to travel further from their communities to find work. Dense satellite settlements migrants from other states have developed in Sonora and Baja California as platforms for outmigration to the north, transplanting entire families to small agricultural communities across the US border. Many of these migrants are from southern Mexico, especially from Oaxaca, and include large numbers from indigenous municipios. The largest indigenous groups on the west coast from California to Washington are Mixtec, Zapotec, Trique, (Cook and Borah 1968; Kearney 1986; Butterworth 1962), because of their numbers, migration history, and established risk management strategies to cope with exploitation in both Mexico and the United States; we decided to explore their place in Arizona and Sonora. More generally, we decided to focus on TB among indigenous migrants to the borderlands, including Tarahumara, Chatino, and many others. To date, no formal study of TB among indigenous workers on the U.S. Mexico border has been done. So, little is known about their perceptions of disease, barriers to care, marginalization, migration history, household economy, or they react to treatment or coping with tuberculosis.

Tuberculosis is an opportunistic disease of poverty that finds its foothold where people are under stress, and have their immune systems compromised. It respects no borders, and has no nationality. Infection spreads as easily south as it does north, and so is of equal concern for both US and Mexico. Consequently research and the statistics reviewed on TB must be carefully considered. Because migrants may as easily contract the disease in the stressful living conditions they encounter in the USA as in Mexico, we find no support for a directionality of flow, and we reject any attempts to use our statistics or this research to support the anti-migration lobby and to the prejudicial climate against Mexicans and migrants.

**Epidemiology of TB in the US and Arizona**

Rates of tuberculosis in the United States have steadily declined since a resurgence peak in the early 1990s. This decline is likely driven by a complex interplay of improved surveillance and treatment of active TB cases as well as by changes in environmental conditions facilitating transmission. In 1992, most TB cases were among persons born in the US, since then the burden has shifted to foreign-born persons. A large disparity persists in TB rates in U.S. born persons (1.7 per 100,000) and foreign-born (18.1 per 100,000). One study revealed Mexican-born persons in the Border States were 5 times more likely to have TB than persons born in the United
States (Schneider et al 2004). In Arizona, the percentage of TB cases in foreign-born persons has increased from less than 40 percent in 1995 to nearly 60 percent in 2006, and still stood at to 59 percent in 2009. For foreign-born tuberculosis cases, Mexico heads the list of countries of origin (CDC 2010; ADHS 2006 TB report). Mexican-born patients were also more likely to have MDR-TB than their U.S. born counterparts and were more likely to move or be lost to follow-up treatment (Schneider et al. 2004; ADHS 2006 TB report).

**TB on the Border.** The US-Mexican border region is a staging area for migrants heading to the US and for those returning to communities in Mexico. Closely linked border communities constitute a single zone of infection and re-infection. TB is likely to spread among immigrants and their families due to their high mobility and resistance to the treatment regimen that requires six months of therapy with side effects of nausea and dizziness. Each person with TB may infect 10 to 30 others depending on crowding, contact, and living conditions. The prevalence of ordinary TB and rising rates of MDR-TB on the US-Mexico border is a major public health issue for both countries (Weaver 2001a). The rate of incidence in the Mexican Border States in 2007 (22.03/100,000) was far above the national average (13.4/100,000). The data that puzzles is the reported large number of TB among migrants on the US-Mexico border accounting for 34 percent of the US incidence and 74 percent of Mexican origin that registered a dramatic decline in the past half century (Weier 2005; Schneider et al 2004; Warner and Jahnke 2003:11).

**Epidemiología de la TB en México y Sonora**

En el año 2000, la OMS (Oficina de Salud Mexicana) categorizó al país como de “morbilidad intermedia” (tasa de incidencia ≥ 25, pero ≤ de 49/100,000), aunque para el año 2009 las cifras oficiales sólo aceptaban una incidencia de 16.7/100,000 (18,011 casos de todas las formas de TB, 82.4% de ellos de la forma pulmonar) y se señalaba que la tendencia del problema era descendente. En ese mismo año, se registraron 2,308 defunciones por TB (2.2/100,000) y de igual modo se enfatizaba que la mortalidad había descendido considerablemente en el país (SSA, 2007). Tales datos, son algo diferentes a los publicados por la OMS en su reporte global 2010. En ellos, la incidencia nacional en 2009 fue de 19.0/100,000, aunque la tasa de mortalidad fue semejante (2.2/100,000). En cualquier caso y no obstante la discrepancia de cifras, México ocupa en América Latina, el lugar 19 y 20 de 41, en mortalidad e incidencia, respectivamente. Para el gobierno federal, la prevención y control de la TB constituye una estrategia sustantiva para “reducir los rezagos en salud que afectan a los pobres” (SSA, 2007).

**Tuberculosis y migracion en Sonora**

La Tuberculosis pulmonar constituye un serio problema de salud pública en Sonora. A pesar de los esfuerzos realizados, el impacto alcanzado ha sido insuficiente para abatir la transmisión y letalidad del padecimiento, lo que ha contribuido a mantener una estabilidad epidemiológica poco satisfactoria; por ejemplo, la incidencia de 2009 (23.9/100,000) fue superior a la de 1990 (20.7/100,000), lo que en términos absolutos significa un incremento de 61%, al pasar de 377 a

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2 Two concepts used by epidemiologists are useful in cross-border co-operation and prevention. “Contact investigation” identifies potential persons infected by the first patient identified in disease history. The second is “concentric circles” which refers to first examining high risk contacts of the patient identified, then lower risk contacts until the expanded circle of contacts approximates a demographically similar population not recently exposed to TB.
609 casos nuevos registrados (SSA-Sonora, 2009). De los casos registrados, 70% corresponde a personas que carecen de seguridad social, y que son socialmente vulnerables. Aunque la TB se distribuye básicamente en 31 de los 72 municipios del estado, la mayor carga de morbilidad (55%) se registra en residentes de 3 municipios: Hermosillo, Cajeme y Nogales, que parádóxicamente son municipios considerados como de buen nivel de desarrollo social. Poco se ha publicado respecto al comportamiento de la enfermedad a nivel de localidades predominantemente agrícolas como el Poblado Miguel Alemán, en el municipio de Hermosillo, y Estación Pesqueira, en el municipio de San Miguel de Horcasitas, que suelen ser las dos localidades del estado que reciben el mayor volumen de migrantes agrícolas procedentes del sur del país. Por otra parte, la tasa de mortalidad estatal en el año 2009 (2.7/100,000) se encontraba por abajo del promedio nacional (3.4/100,000), aunque el municipio de Hermosillo (3.6/100,000) tenía una tasa por arriba de la estatal.

En el caso de los migrantes que llegan a Sonora y eventualmente migran a Arizona, diríamos que esencialmente se desplazan buscando empleo que les permite superar dificultades económicas y mejorar las condiciones de vida que tienen en sus lugares de origen. Esta es la típica situación de los migrantes indígenas, particularmente de Triquis y Mixtecos que se mueven desde el sur del país –a largo del “corredor del Pacífico” para laborar en los campos de cultivo de Sinaloa, Sonora y Baja California. Las familias que migran al norte de México son básicamente de tradición campesina y se estima que aproximadamente 70% de ellas proceden de municipios indígenas, predominantemente de la Mixteca Oaxaqueña, valles centrales y de la sierra de Guerrero (Vera J, 2007: 21-23). No hay precisión acerca del volumen de migrantes que llega anualmente a Sonora; el INEGI estima que arriban 69,000 trabajadores, mientras el Programa Nacional de Jornaleros Agrícolas ³ en año el 2003 ubicaba esa cifra en poco más de 71,000, ubicándole en el 2º lugar nacional, sólo detrás de Sinaloa y por delante de Baja California en ese “corredor del Pacífico” que hemos señalado. De acuerdo a la Encuesta Nacional de Jornaleros 2009 ⁴ que llevó a cabo la Secretaría de Desarrollo Social, 18.2% de los migrantes son indígenas. La mayor proporción de los jornaleros se asienta en las regiones de Guaymas-Empalme, la Costa de Hermosillo (Poblado Miguel Alemán), Caborca y la micro-región de Estación Pesquera-Zamora.

Los migrantes constituyen una de las fuerzas laborales más productivas del país y poseen características sociales y culturales muy heterogéneas, y con condiciones sociales muy inestables, y los convierte en grupo humano con elevado grado de exclusión social. En ese sentido, la pobreza acentuada a la deficiente educación, convierte a los migrantes indígenas en individuos más vulnerables a la TB. Esa vulnerabilidad resulta de la acción conjunta de factores biológicos, socioeconómicos y ambientales, que no sólo pone a esos individuos y comunidades en mayor riesgo, sino que limita sus capacidades para resolver sus necesidades de salud. (The Equi-TB Knowledge Programme 2010).

Los migrantes que arriban a Sonora son particularmente vulnerables a la TB debido a que trabajan en ambientes poco saludables, viven en hacinamiento, en viviendas cominales

³ Este programa es instrumentado por la Secretaría de Desarrollo Social del Gobierno Federal, a través de la Dirección General de Atención a Grupos Prioritarios.
construidas con materiales precarios y mal ventilados; tienen pobre nutrición y sus estilos de vida no son cabalmente entendidos en las comunidades que son elegidas como puntos de destino. Hay además barreras culturales y lingüísticas que les dificultan el acceso a la atención médica y otros servicios de salud, muy especialmente las mujeres y sus hijos. (Álvarez 2009: 45-46). En general, lo que sabemos de las condiciones de salud de los migrantes en Sonora es más resultado del interés académico que gubernamental por definir un perfil de daños en esta población. Los esfuerzos institucionales para atender la salud de los migrantes, se dirigen esencialmente a la migración binacional, la que tiene como punto de destino final los Estados Unidos, y aún falta mucho para registrar eficientemente los daños a la salud de los migrantes indígenas.

Research Design and Methodology

The multi-disciplinary nature of the research team and the small size of the research population were deemed too small to provide a valid random and statistically valid sample as required for quantitative research. This dictated that we use qualitative methods and analyses. Snowball sampling was utilized; after interviewing a subject one asks who else is knowledgeable in the topic and proceeds to interview the person suggested. Work group meetings, telephone, and email communication occurred periodically among Co-PIs, team members, and consultants. Two meetings were held with the Sonora team in Tucson. Funding and time limitations did not permit return trips to Hermosillo. Drs. Weaver, Álvarez, and Rosaldo, the latter being a project consultant, held discussions when they attended the Guanajuato, Mexico Health and Migration conference on November 2-5, 2010. The team collected articles related to TB on the border. We reviewed available data from treatment and processing clinics and agencies, specifically of patient location, treatment history, and follow-up, and to determine if indigenous Mexican groups can be identified from current data sources. We assessed whether medical records can be used to determine stage of illness at first treatment, duration of follow-up, adherence to therapy, completion of treatment, co-infections, treatment protocols and development of drug resistance.

Métodos en Sonora.

Mediante un estudio transversal se examinó la incidencia de tuberculosis del período 1° de Enero de 2005 al 31 de Agosto de 2010, en una población de jornaleros migrantes de cualquier edad y sexo, con residencia temporal o definitiva en tres localidades agrícolas del estado de Sonora [Poblado Miguel Alemán (31,025 hab.), Bahía de Kino (5,240 hab.) y Estación Pesqueira (6,275 hab.)], caracterizadas por una intensa migración procedente del sur del país. El interés se centró en aquellos migrantes que se reconocieran así mismos como indígenas. Todos los procedimientos de investigación fueron aprobados por el Comité de Bioética del Departamento de Medicina y Ciencias de la Salud de la Universidad de Sonora.

Todas las formas clínicas de tuberculosis fueron incluidas; un caso de TB fue considerado como tal, si estaba registrado en la base de datos del Programa de Prevención y Control de la TB de la Secretaría de Salud del Estado de Sonora. Se estimó la incidencia de la enfermedad y se describieron las características clínicas y epidemiológicas básicas de los pacientes. Mediante un abordaje cualitativo (entrevista con guía semi-estructurada) se exploraron las percepciones de cuatro pacientes indígenas y personal de salud (4 médicos y 3 enfermeras) directamente involucrados con el problema, se puso especial interés en indagar acerca de las condiciones sociales, historia de enfermedad y tratamiento, así como de la historia de migración.
Adicionalmente, se aplicó un cuestionario rápido a una muestra no probabilística de 1200 sujetos para búsqueda de síntomas respiratorios sospechosos de TB.

**Arizona Findings**

Since the focus of the project included all of Arizona, we focused on southern Arizona and mostly Pima County, but with limited observations in Maricopa, Pinal, and Santa Cruz County Health Departments and private health service dispensaries. We interviewed *Promotoras* – or community health workers (CHWs) in Tucson to identify TB patients of Mexican origin, and their household and community members (Honeyman 2009). As intermediaries between the community and local health care providers, CHWs are community members who are an integral part of networks striving to improve the health of their clients (Eng et al 1992; Reinschmidt et al 2006). The literature on CHWs reflects their success in education (Meister, et al 1999), preventive health screenings (Hunter et al 2004; Margolis et al 1998), and chronic disease prevention and management interventions (Balcázar et al 2007; Norris et al 2006). The CHWs and other intermediaries who serve this multiethnic concentration of migrants helped identify the indigenous composition of patients in this region.

In Santa Cruz County, Arizona primary care and community-based education are provided through multiple county clinics in Nogales, Patagonia, Sonoita, and Rio Rico. In previous years bi-national cooperation and communication had coordinated treatments for patients and managed risk and infection rates in the border area, however, these meetings have stopped, due to less staff and the difficulty and time it takes to cross the border. The Mariposa Clinic does, on occasion, receive sputum samples from Sonora to test in their lab, especially for difficult cases where MDR-TB is suspected. The majority of cases has a positive skin test for tuberculosis but a negative chest x-ray, indicating latent TB or vaccination and is not always treated with preventative therapy. There is increasing concern over losing cooperation among Arizona and Sonoran counterparts. One interviewee, a member of a voluntary association in Nogales, Sonora that promotes health, well-being, culture, and sense of place of Tohono O’Odham people and other groups in the region, claims that healthcare needs have been affected by the tightening of border security and overlooked in light of the fear and hysteria over immigration (10A, Personal Communication, June 22nd, 2010).

Unfortunately, the Arizona team was unable to interview indigenous TB patients from Mexico. We had some reports of UWs who had passed through the system, such as at homeless shelters, the health department, and border patrol stations. However, we faced additional difficulty in identifying indigenous patients because TB patients from out of the US are not routinely identified by state and town of origin in admitting questionnaires. Reporting this information would make it easy for a knowledgeable anthropologist to identify ethnicity. A few indigenous patients were identified in Sonora but none were found in the Arizona study. We believe that they are even more vulnerable to TB since they are marginalized among non-indigenous Mexican immigrants and the poorest of the poor who often live and work in appalling conditions. For this reason and taking a comprehensive overview of the burden of TB on migrants we provide general information on the structure of the health care system.

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5 The high number of positive skin tests is probably an artifact of the use of the BCG vaccine in Mexico (9A, 9B, Personal Interviews, September 4th 2009)
The small number of indigenous Mexican migrants identified in the health system raises a number of important questions: where are they found, are they hiding from the Border Patrol for fear of being deported? Are they lost in the prison system? Because of shame or ignorance of the disease, are they afraid to come forward? Are they simply passing through Arizona on their way to other places in the US and Canada? Because of the small numbers of indigenous migrants found, we focused on how public and private agencies handle TB cases, and acquired a good overall picture of facilities, diagnosis, and treatment of TB in the southeast corner of Arizona. The recent downturn in migrants in the US should be reflected in the low number of cases of TB reported (Fisher 2009a; Dougherty and Jordon 2009; 2009). Cross-border communication in some areas is considered highly successful while in others it has been ineffective in finding patients who had been deported or relocated (1A, Personal Interview, April 3rd, 2010). Late in the project we found that we may have been able to interview undocumented workers held in detention by the Border Patrol or at deportee stations in Nogales, Sonora, but time and money ran out.

**Interviews in Oaxaca in Sending Communities.** Because many migrants to northwest Mexico and the southwest US come from Oaxaca, Dr. Greenberg, with separate support, led a team during the summer of 2010 that examined health services and the understanding of TB in sending communities in Oaxaca, focusing on the District of Juquila. According to the statistics provided by Servicios de Salud de Oaxaca (SSO), the rate of active cases in Oaxaca is 22 per 100,000. In 2009, there were 822 new active cases in the state, of which roughly 85 percent were pulmonary TB. About 20 percent of these cases present with diabetes, and about 4 percent involve co-infections with HIV. The distribution, however, is not uniform across the state. Of the 570 municipios (counties) in the state, TB is reported in 215 of them. The Departamento de Prevención y Control de Enfermedades Transmisibles, within Servicios de Salud de Oaxaca (SSO) is charged with the responsibilities for prevention and control of TB. Their program is focusing on early detection-- if a person is over 15 yrs old and has had a cough for more than two weeks-- they should be tested. To allocate their scarce resources where they are most needed SSO has devised a risk index based on the TB rate per 100,000; the size of the population at risk of infection; an index of marginalization used the Mexican government; and indicators of the quality health care and food security. Municipios scoring high on this index are targeted, and prevention efforts then expand outward from these places. Although TB is reported in 221 municipios, their prevention campaign only has resources to target six of them.

The district of Juquila, at the center of the SSO’s Costa region, has a population of 149,938, of which approximately 48,500 are Chatino speakers. Migration to the USA from this region is high, and nearly all enter the US through Arizona. Many of these migrants go to the Los Angeles, New York, Atlanta, Pennsylvania, New Jersey, and Missouri. While the newly reported cases of TB of 18 per 100,000 in the district of Juquila is below that of the state, the rates in San Pedro Mixtepec (41.7 per 100,000) and San Pedro Juchatengo are alarmingly high (61.8 of 100,000). The prevalence of TB in the district is certainly higher than is reported by Servicios de Salud de Oaxaca.

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6 Dr Greenberg lead a team that included: graduate students in public health: Elea Crockett, Nicole Thurlow, and Soni Elizabeth Stake. Dr. Cecelia Rosales, Professor of Public Health at the University of Arizona, and Dr. Mercedes Gameros, Hospital General in Nogales, Sonora also assisted during the fieldwork in Juquila.
Several factors contribute to underreporting. Not all TB patients who come to government clinics are recorded. Similarly, TB patients going to private doctors may not be captured in official statistics. Another factor contributing to underreporting is that there is very little knowledge about the symptoms of TB even among many educated people, so TB tends to be reported only when people become ill with full-blown symptoms. Chatino TB patients are said to have *tu’la*, a fierce cough that places it in the same category with pneumonia. The general lack of knowledge about TB also means mortality statistics for TB are unreliable. In most localities there are no doctors, so causes of death are folk categories, meaning TB deaths may often go unrecognized. General knowledge about TB even among Spanish speakers appears very poor and the problem is even more pronounced for speakers of indigenous languages. The contagious nature of TB seems a hard concept for many people to grasp, especially as those who are exposed may not become sick immediately. Providing information about TB to speakers of indigenous languages is challenging. TB may not be recognized as a distinctive disease, and may be linguistically lumped with similar appearing diseases—such as pneumonia TB. The TAES protocol imposes a great burden on many patients, and does not fit well into livelihood constraints. Many need to continue to work as soon as they are able. For many small farmers this may mean long periods away tending their fields.

**Public and Private Facilities in Tucson**

In Southern Arizona Mexico’s indigenous migrant’s access to healthcare may be affected not just by English-language barriers, but also by Spanish-language fluency. It is also affected by workplace distance to care facilities, and by their often continual work-related relocations. Patients without insurance or who are undocumented because of their fear of deportation do not have access health facilities. If they do, they may have little access to preventive care, elective surgeries, and prescription medications. Education and access to care are important components to addressing, diagnosing, and treating tuberculosis (8C, personal communication, 9.18.10). Migrant populations are particularly vulnerable to tuberculosis and weak immunity, crowded living conditions, and malnutrition put them at risk (Ho 2003). For these reasons we investigated health services in Tucson to develop a sense of communication networks, treatment regimens, patient retention rates, and issues and challenges related to migrant healthcare. Interviews included the following:

<table>
<thead>
<tr>
<th>Location</th>
<th>Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pima County Tuberculosis Clinic</td>
<td>2 Nurses, 1 Manager</td>
</tr>
<tr>
<td>Pima County District Nurses</td>
<td>2 Nurses</td>
</tr>
<tr>
<td>Patients of Tuberculosis Clinic</td>
<td>2 Patients</td>
</tr>
<tr>
<td>Migrant Service Center</td>
<td>2 Medical Professionals, 1 Administrator</td>
</tr>
<tr>
<td>Free Clinic</td>
<td>1 Administrator</td>
</tr>
<tr>
<td>Primavera Foundation</td>
<td>1 Director, 1 Shelter Administrator</td>
</tr>
</tbody>
</table>
The Pima County Tuberculosis Clinic. Personnel from the Pima County Health Department Tuberculosis Clinic were interviewed in addition to two patients of the clinic who were being treated for tuberculosis. The Tuberculosis Clinic offers skin tests as well as diagnosis and follow-up treatment of Tuberculosis patients. Their Health Department statistics have documented the following diagnoses of Tuberculosis in Tucson in the past five years as displayed in the following chart:

<table>
<thead>
<tr>
<th>Year</th>
<th>Cases</th>
<th>Deaths</th>
<th>Deported</th>
<th>Moved/Lost</th>
<th>Completed Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>32</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>24 (96%)</td>
</tr>
<tr>
<td>2006</td>
<td>35</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>29 (87%)</td>
</tr>
<tr>
<td>2007</td>
<td>40</td>
<td>9</td>
<td>0</td>
<td>2</td>
<td>29 (94%)</td>
</tr>
<tr>
<td>2008</td>
<td>26</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>18 (90%)</td>
</tr>
<tr>
<td>2009</td>
<td>26</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>pending</td>
</tr>
</tbody>
</table>

(Pima County Health Department 2010)

Breakdown by country of origin is as follows with the largest number of cases being of U.S. origin, with the second of Mexican origin:
The Pima County Tuberculosis Clinic is service-oriented and treats patients who walk in or are referred from hospitals and private physicians. The only active surveillance regarding TB testing is that provided at homeless shelters and by mobile health clinics (see below). Nearly half of the TB patients treated are U.S. citizens. About a quarter is of Mexican origin; the remainder is largely foreign-born refugees (1B, 1C, Personal Interviews, April 3\textsuperscript{rd}, 2010). The nurses who administer medication note that any patient treated who is an immigrant from Latin America and speaks Spanish cannot be identified as indigenous based solely on language spoken (1B, 1C, Personal interviews, September 28\textsuperscript{th}, 2009, April 3\textsuperscript{rd}, 2010). As suggested earlier documenting place or state or origin would be useful epidemiological information to obtain as well as status as seasonal or settled migrants. The TB clinic follows the World Health Organization’s DOTS (Directly Observed Treatment, Short-course) program of treatment of Tuberculosis. WHO outlines five necessary components for DOTS effectiveness including: sustained funding, detection through quality-assured testing, standardized treatment and supervision, effective drug supply and an impact monitoring and evaluation system (World Health Organization 2010).

The most important component of this treatment model at the TB clinic involves patient supervision; including visits to the clinic once a month and home visits once a week from a Community Health Worker (1A, 1B, 1C, Personal Interviews, April 3\textsuperscript{rd}, 2010). Two interviewees were contacted through the CHW. One was a U.S. born 80-year-old homeless man with recurrent bouts and treatment for many years and now under supervised treatment through the clinic. The other was a 48-year-old Mexican born man (3A, personal interview, 11.2.09 and 3B, personal interview, 2.4.10). The CHWs deliver medication once a week; also making sure those patients are provided food when they bring them their medication to ease side effects of

\textsuperscript{7}The numbers by county were United States 78, Mexico 38, Philippines 7, Vietnam 6, Somalia 4, and Other 27, the latter coming from Latin America, Africa, and Southeast Asia with 1-3 cases per country.
nausea. Reduction in state budgets had cut the amount of food provided to patients (1B, September 28th, 2010). Better education of patients regarding treatment needs to be emphasized. If patients are told that medication is ineffective if they drink alcohol for example, they might, after a single drink, stop taking medication even though a single alcoholic drink does not prevent a patient from continuing treatment (An Arizona professor, Personal Communication, September 24th, 2010).

The Bacille Calmette-Guerin vaccine and mobility of TB patients presents challenges to treatment. Many countries with high rates of TB use BCG vaccine to protect against childhood tuberculosis meningitis. While this vaccine is effective for a few years, those vaccinated will present a false positive for TB (CDC 2010). We found some medical professionals lack specific knowledge of the consequences of this vaccine. Doctors and medical specialists we spoke with were also not sure how to proceed with this issue aside from using chest x-rays and sputum tests as a precaution (2A, 6.29.10, 7A 7.22.10, 7B 8.10.10). Migrant mobility also presents challenges for treatment. An immigrant who works temporary jobs may find work in other locations as often as every three to four weeks. The problem is how to tailor TB medical services to this highly mobile population. In Tucson undocumented immigrants being treated for tuberculosis are given an TB identification card that they can present to other clinics to receive treatment, and to Border Patrol should they be picked up (1B, 1C, Personal Interviews, April 3rd, 2010; a University professor, September 24th, 2010).

Other Healthcare Options. The Mexican consulate in Tucson provides a medical referral service, but it is unclear how easy it is to access, or how often Mexican nationals utilize this service (8A, Personal Interview, June 21st, 2010). Free or low-cost clinics run at health centers, homeless shelters, soup kitchens and churches are an important resources for uninsured and migrant populations. Interviews were conducted with health care professionals, staff, and volunteers working for such agencies. Because all these clinics are all limited by funding, (one runs on only $1,000 a month), the services they can provide are limited in the scope, and often limited to diagnosis or aid with the cost of prescriptions (4A, 4B, 4C, Personal Interviews, August 10th, 2010, August 21st, 2010; 5A, Personal Interview, July 28th, 2010; 7B, Personal Interview, August 10th, 2010).

Most of the health care providers in agencies interviewed said that the most common problems they encounter are diabetes and hypertension, but reported a handful of TB cases among homeless populations and drug users. There appears to be a communication network among them that allows patients to see a doctor at one clinic on Wednesday evening, for example, and follow up with that same volunteer doctor at another free clinic on Saturday (4A, 4B, 4C, Personal Interviews, August 10th, 2010, August 21st, 2010; 5A, Personal Interview, July 28th, 2010; 7B, Personal Interview, August 10th, 2010). 8

A walk-in clinic run by a health nurse at a drug rehab center, and at men’s and women’s homeless shelters is typical. The nurse sees many patients who had untreated medical conditions. She noted that there is a medically equipped RV clinic run by a private hospital to provide

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8 Overall, we see these free clinics as potential contacts for future work in locating migrant populations who may be at risk.
medical care to the homeless (7B, Personal Interview, August 10th, 2010). The health center also gives bus passes for patients to make appointments and visits to the pharmacy. The health center provides patient access to PCAP (Pima Community Access Program), a program that works on a sliding scale and covers them for a period of time until covered by AHCCCS. It assists patients to apply for AHCCS (Arizona Health Care Cost Containment System) which provides a shuttle pick-up for medical appointments if they call 24 hours in advance (7A, 7B, Personal Interview, August 10th, 2010).

The Primavera Foundation is another typical example. It is a community service organization that provides innovative programs and services to help people transition from poverty to greater well-being and security (Primavera 2010). The director noted that their mission involves survival: in the form of emergency services like shelters and food and clothing, stability: in the form of workforce development and affordable and transitional housing, security and sustainability: in the form of homeownership, neighborhood revitalization and community engagement. Primavera relies on federal, state, and city funding as well as corporate and private grants and donations. Every year it goes into the community to count homeless people. Primavera serves between 7,000 and 10,000 clients, a population that increases as people come from the colder climates. A TB identification card certifying a negative skin test is required before they can enter a shelter. The Primavera Men’s Shelter recalls having seen five cases of suspected tuberculosis that were sent to the TB clinic, two of which were undocumented immigrants (6A, 6B, Personal Interviews, August 5th, 2010).

**TB, Homeland Security, and Prisons**

How the United States Department of Homeland Security handles TB among migrants is an important part of this study. Findings in this section were not written into the project proposal but they emerged as important during the course of the study. Responsibilities for border enforcement and immigration is divided between Customs and Border Protection (the Border Patrol) and Immigration and Customs Enforcement (ICE). The latter is the largest investigative agency in Homeland Security and is responsible for identifying and shutting down vulnerabilities to the nation’s borders. The former is responsible for border protection, keeping out terrorists and illegal entrants and facilitating the entrance of legitimate trade and travel. In fulfilling this responsibility they incarcerate many persons for entrance violations. The US general prison population is one of the largest in the world and the Border Patrol’s Tucson Sector stretching from Tucson to Yuma has registered the most arrests along the US border since 1998, diminishing each year since then. The 226,000 arrests in 2009 accounted for 45 percent of arrests on the US border. ICE and the Border Patrol use private and public prisons to house deportees in Florence and Eloy, as well as temporary holding units in Tucson.

Only the detention center in Florence Arizona, where those facing criminal prosecution are sent, has medical facilities to screen for TB. Although ICE and Border Patrol agents are trained to isolate suspected TB cases, those in other holding units awaiting immediate deportation are not screened for TB, and occasionally infectious TB patients may be incarcerated with them. The release of deportees may present a danger of the possibility of untreated infectious diseases. Detainees are deported to Mexico where infected persons present a health problem particularly in view of budgetary problems that prevent timely service. The Border Patrol is supposed to notify
A community nurse practitioner who works at a drug rehab center told us that she has treated individuals with positive tuberculosis skin tests. One patient was in prison, but had not been given a TB identification card. He had a positive skin test when released and needed preventive treatment since he had been exposed a second time to someone with active tuberculosis. The nurse attempted to recover his records from the prison system, but they could not locate them. She claimed that this was not the only such case. The number of prisoners is an especially relevant concern regarding migrant populations and potential tuberculosis cases at detention centers. Several of the medical professionals interviewed have knowledge of abuses at detention centers in Arizona including lack of medical care of seriously ill detainees. If one detainee has contagious tuberculosis because of the conditions under which they have been traveling or working, all those exposed to this individual are at risk of infection. This includes not only migrants who are deported, but those who are held for longer periods of time, and the law enforcement and Border Patrol officers who come into contact with them (4A, 4B, Personal Interviews, August 21st, 2010). Treatment of identified TB patients is initiated but may be discontinued at release prior to completion of treatment increasing the risk of MDR-TB.

Another nurse who works in Ajo was not concerned that active tuberculosis was a major health issue in that area, but did observe that many Border Patrol agents have positive TB skin tests, showing that they have been exposed to someone with active tuberculosis. It is unclear how many of these agents may have received the BCG vaccine, or how many are U.S. born individuals. This nurse was aware of some cases of active tuberculosis, such as one involving an infant who was detained by Border Patrol and brought in to be tested at the clinic in Ajo. We do not have specific numbers of cases in these instances (2A, Personal Interview, June 14th, 2010). The prison system is certainly deserves further investigation as numbers and percentage rates of tuberculosis infection in Arizona prisons have risen drastically from 1999 to 2008 according to the 2008 Tuberculosis Surveillance Report (see graph below) (7B, Personal Interview, August 10th, 2010).
Arizona Contributions

This bi-national research is timely and significant, and addresses questions related to knowledge of migration and health. It addresses PIMSA Research Priority Areas, including TB (Infectious Disease), indigenous populations (The Health of Special Vulnerable Populations), and promotora outreach programs related to TB (Access to Services). This research by creating links between the fields of public health, epidemiology, and medical anthropology in both Arizona and Sonora contributes significantly to scientific knowledge to address issues of health and migration. Its usage of epidemiological and socio-cultural data, it is hoped will help inform policy decisions crucial to bi-national efforts to prevent and treat TB, and help both state and local health centers to more effectively reduce the human, social and economic burden of TB among indigenous Mexican migrants and the populations they come in contact with. Using PIMSA funds we supported two Graduate Research Assistants successively. We were also joined by a volunteer Latin American Studies intern. Furthering this research we obtained two small grants for research in Oaxaca and Yuma. One of our research assistants resigned from the project to pursue dissertation research on a related topic of migration on the border town of Yuma.

This study is largely based on key-informant interviews, and persons contacted or interviewed were sent IRB approved explanations. Because of limited funds available, this study was constrained in a number of ways. For example, while we identified other potential sites, we were unable to investigate them more fully. One such site near Tucson is the Tohono O’odham reservation, still in Pima County that is a major corridor for migrants and drug smuggling. Smuggling follows the migrant corridor through the reservation and into Pinal County and points west (McCombs 2009a; Fisher 2009b). Border Patrol agents stationed within the reservation revealed a close cooperation with reservation deputies. We had interesting interviews with the Pinal County TB officer and a lawyer from an NGO that supports undocumented workers. Florence and nearby Eloy have private and public prisons housing migrants in the process of being deported or those indicted for criminal activity. The farming region of Cochise County in southeastern Arizona is another important future site deserving of more research on TB. An epidemiological study conducted there identified the placement of Border Patrol check points
that act as deterrents to seeking health care. The Border Patrol transports illegal entrants and undocumented workers seized at the Douglas and other checkpoints in Cochise County to Tucson using a private contractor (Trimmer 2008; Sorenson 2009).

We have made presentations on the project to several organizations including the Arizona-Sonora Health Commission in Scottsdale in 2009, the annual meetings of the Society for Applied Anthropology (SfAA) in Merida, Mexico in March, 2010, and the meeting of the American Anthropological Association in New Orleans in November, 2010. Another presentation was on ethics and methodology in the project at a US-Mexico Border meeting at the U of Az. A report was given at the annual conference of Migration and Health in Guanajuato, Mexico on November 3, 2010. A session is planned for the 2011 March meetings of the SfAA in Seattle.

This pilot project we believe also lays the groundwork for future research proposals and collaborations that could include researchers from the University of Arizona, Arizona State University, the University of Sonora, and universities in California. Such future projects it suggests would include a cross-sectional community-based prevalence and risk factor survey in identified indigenous communities, expansion of our research sites to other communities along the migrant pathways, research examining the role of household and community economy in tuberculosis, by creating social network analysis and disease histories of TB and tracing patients via genealogies to prior communities.

**Resultados en Sonora**

La muestra final del estudio incluyó a 318 sujetos. La incidencia de TB más elevada (121.2/100,000) se encontró en Estación Pesqueira (EP), esta incidencia es cuatro veces superior al promedio de la Jurisdicción Sanitaria de Hermosillo (30.2/100,000), mientras que la del PMA es 3.5 veces mayor. La incidencia de Bahía de Kino (BDK) es semejante a la media jurisdiccional. Tabla 1.

<table>
<thead>
<tr>
<th>Localidad</th>
<th>Casos</th>
<th>%</th>
<th>Incidencia 1/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estación Pesqueira</td>
<td>40</td>
<td>12.6</td>
<td>121.2</td>
</tr>
<tr>
<td>Poblado Miguel Alemán</td>
<td>214</td>
<td>67.3</td>
<td>104.5</td>
</tr>
<tr>
<td>Bahía de Kino</td>
<td>15</td>
<td>4.7</td>
<td>37.5</td>
</tr>
<tr>
<td>Otra localidad rural de la JSH</td>
<td>49</td>
<td>15.4</td>
<td>—</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>318</strong></td>
<td><strong>100.0</strong></td>
<td>—</td>
</tr>
</tbody>
</table>

Prueba multinomial de chi cuadrada=33.45, P <.001
1/ Mediana 2005-2010 de la incidencia acumulada por 100,000 habitantes
* 1o. de Enero de 2005 al 31 de agosto de 2010
Aunque la incidencia encontrada es inferior a la de comunidades pobres de Chiapas (276.9/100,000) (Sánchez-Pérez 2001), o de los municipios indígenas de Oaxaca (236.0/100,000) y Veracruz (153.0/100,000), tres de los estados con mayor cantidad de migrantes llegados a Sonora, es por mucho, superior al promedio nacional (16.7/100,000) (Castellanos-Joya 2010). Por lo que respecta a la tendencia de la TB, se observó que en general hay una estabilidad ($R^2=0.0083$), con una mediana anual de 49.5 casos. Pesqueira es la única comunidad con tendencia discretamente ascendente. Fig. 1.

Respecto a la distribución geográfica, se observó que el 54.1% de los pacientes vivía en las cabeceras de las localidades, mientras el restante 45.9% residía en pequeños campos agrícolas. No fue posible hacer análisis espacial por limitaciones de la calidad de los datos, pero la figura 2 despliega la distribución observada. Por otra parte, cuando se examinó la distribución de los casos de acuerdo a la entidad de nacimiento, se observó que migrantes de 20 estados del país contribuyeron a la carga de morbilidad por TB. Del total de casos, 47.5% (151) nació en un estado distinto a Sonora. La figura 3 muestra esta situación. Los detalles numéricos se encontrarán en la figura 1 y tabla 1-A y 2-A del apéndice estadístico.

Adicionalmente, se revisaron 1530 formatos de “Estudio Epidemiológico de Caso de Tuberculosis”, 125 expedientes médicos aleatoriamente seleccionados, 150 “Tarjetas de seguimiento de tratamiento de pacientes con TB” y la base de datos digital del Programa Jurisdiccional de Prevención y Control de la TB,” y en ninguna de esas fuentes se registra rutinariamente la pertenencia a grupo étnico, un hecho que corrobora los señalamientos acerca de que las poblaciones indígenas son “invisibles a los informes epidemiológicos” (Almaguer, 2007). No obstante lo anterior, se efectuó una búsqueda retrospectiva, intencionada de la condición
ética de los casos de TB y fue posible identificar a 32 pacientes indígenas, es decir, 10.2% de los casos de TB del periodo estudiado (Fig. 3).
Los hallazgos sugieren que de registrarse rutinariamente la condición étnica, la carga de morbilidad por TB en los indígenas podría ser adecuadamente estimada; por ejemplo, durante el periodo 2005-2007 sólo fue posible identificar a 4 pacientes, mientras que las actividades generadas por este proyecto permitieron que durante el periodo 2008-2010 se encontraría a 28 pacientes migrantes indígenas con TB. (Fig. 4)

Por lo que respecta a las características clínicas y epidemiológicas de los casos identificados, se encontraron diferencias significativas en dos variables: el nivel de atención en el que son detectados y en la tasa de curación del padecimiento. En el primer factor, 60% de los casos indígenas fueron diagnosticados en un centro de salud de atención primaria, mientras únicamente 46% de los pacientes no indígenas fueron detectados en este nivel de atención (p=0.0003). En cuanto a la tasa de curación, sólo en uno de cada cuatro pacientes indígenas fue posible documentar la curación (con baciloscopía negativa), mientras que en los no indígenas esta proporción se incrementó a 31.7% (p=0.0001). Aun cuando idealmente la cohorte de pacientes que se encontraban en tratamiento, curara, la tasa de curación alcanzaría 57.5% en los indígenas y 54.3% en los no indígenas, aún por debajo de lo recomendado por la OMS. Los detalles de las dos variables descritas se observarán en la tabla 4.

Finalmente, entre los indígenas con TB encontramos pacientes de ocho diferentes grupos étnicos, la mayor proporción (34.4%) correspondió a Mixtecos, seguido por pacientes Triquis (28.1%). La distribución porcentual se muestra en la figura 5.
La búsqueda activa de pacientes sospechosos de TB

Se encuestó a 1201 sujetos y se identificó a 4 sujetos que ya estaban en tratamiento de TB. Al total de personas que tenían síntomas respiratorios se les envió al centro de salud para su estudio de TB. Del total de la muestra, 46.6% (560 individuos) se reconocieron como indígenas. Dentro de los indígenas encontramos personas de 22 distintos grupos étnicos, un hallazgo muy interesante que ejemplificaba la diversidad cultural de los migrantes que llegan a Sonora y que supone un desafío formidable para la atención del problema. Los grupos con mayor representación en esta encuesta fueron los Mixtecos (33.1%), seguidos por los Zapotecs.
(31.2%) y los Triquis (23.4%). Otros tres grupos también tuvieron proporciones importantes: Náhuatl, Tarahumara y Tzetzal.

Por otro lado, 11.3% de los sujetos indígenas reportó haber tenido tos de más de 2 semanas de evolución –un síntoma cardinal para la sospecha de TB, pero sólo se le hizo estudio baciloscópico al 3.8% de los encuestados.

**Las percepciones de pacientes y personal de salud acerca de la tuberculosis**

La población indígena migrante asentada en comunidades del estado de Sonora, padece una serie de problemas de salud vinculados a múltiples factores socioeconómicos. Una de las enfermedades infecciosas es la TB y el posible surgimiento de la TB-MDR. En las siguientes líneas anotamos algunas interpretaciones surgidas a raíz de las entrevistas cualitativas realizadas a pacientes indígenas TB, enfermeras y médicos que entran en contacto con estos pacientes.

**Pacientes Indígenas**

Se hicieron 4 entrevistas a hombres jóvenes de los grupos étnicos Triqui (2) y Mixteco (2). En ellas se advierte que las condiciones de pobreza y marginación social en sus comunidades de origen les obligan a migrar en busca de mejores condiciones económicas; pudimos apreciar que en sus comunidades de origen, la violencia intracomunitaria es un problema grave que afecta a la convivencia armónica de sus miembros. Si a esto se le suma el uso de drogas y alcohol, el problema se complica.

En relación a la TB, los pacientes relatan su acercamiento a las clínicas u hospitales, pero cuando la enfermedad ya está avanzada, lo que es una señal de la poca oportunidad que existe para atenderse en las fases iniciales del padecimiento; ellos expresan algunos de los síntomas que manifiestan:

“Tenía sudoraciones en la noche, sudaba mucho de repente, así sin tener calor, sin nada, así sudaba, y yo sentía que mi sudor olía feo (E2, p. 24) […] Toseo mucho (E3, p. 42) […] Y luego el estómago… todo adolorido, tosea uno mucho, saca uno fuerza para toser. Se te acaba la
fuerza. Hasta la espalda te duele cuando toses. Cada rato, el pecho, la panza, brazo, piernas, como si estuvieras trabajando un trabajo pesado (E3, p. 51).

Todo indica que no se tiene una relación efectiva entre médico y paciente, basada en la confianza y en el conocimiento de su entorno, necesaria para un diagnóstico y tratamiento adecuado no sólo de la enfermedad sino también de las condiciones sociales y culturales de la población indígena. Otro de los aspectos encontrados en las entrevistas tiene que ver con la relación laboral y comunitaria respecto a la TB, que guardan los pacientes con sus compañeros en los campos agrícolas. Si uno de los requisitos para evitar la diseminación de la enfermedad es el uso de utensilios domésticos de forma individual (vasos, platos, entre otros), parece muy difícil que sus compañeros perciban de igual manera esta situación.

Los obstáculos pueden deberse a que entre las comunidades indígenas es mal visto el no compartir objetos, bebidas, comidas, entre otras cosas. La higiene es relegada a segundo plano, pues lo que importa es compartir lo que se posee. Esto forma parte de su sentido de comunidad⁹. Por lo mismo, estos sentidos socioculturales de la convivencia y del compartir entre iguales, pueden impedir el adecuado tratamiento individual de la enfermedad, y sin duda ocasionan la transmisión acelerada de ella. El aspecto que conviene destacar, es el hecho de que las percepciones culturales que poseen respecto a la enfermedad difieren de las de la práctica biomédica que les atiende. Es fundamental que el personal de salud trabaje para vencer los obstáculos impuestos por “barreras culturales del sistema, de los espacios, de los prestadores y los usuarios” (Almaguer JA 2007: E85).

**El Personal de Salud**

Cuatro de los entrevistados fueron médicos y 3 enfermeras, este personal fue considerado como clave en la atención de pacientes indígenas con TB. Un hecho fundamental que se advierte es que el personal de salud no cuenta con una estructura formal ni procedimientos sistematizados para registrar la condición étnica de pacientes con TB, y desconoce elementos mínimos acerca del entorno cultural propio de estos pacientes. Aunque la mayoría de enfermeras y médicos

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⁹ “Si fueran y les explicaran, “no tomen del mismo vaso, no se pasen el cigarrillo” ¿crees que bajarían los que tienen TB? No, pues quien sabe, a lo mejor, pero no, no se cuidan casi. O sea, ellos no creen que es una enfermedad que contagia, pues. Como la otra vez que venía una enfermedad, el virus de la Influenza, decían “son puras mentiras eso, nos quieren matar a la gente, por eso nos quieren vacunar, no se dejen que los vacunen”; no, ellos así son” (entrevista a paciente indígena).
entrevistados expresa comprensión y respeto hacia el paciente TB, también refleja un desconocimiento total de lo que es ser un indígena.

– ¿Conoce cuáles son los grupos de migrantes indígenas que llegan a este lugar (Sonora)?
– “Bueno, sí he visto pero de manera muy general, (...) en verdad no sé si los que vienen pertenecen a una etnia. Lo que sí he visto (...) es que vienen muchos del país, de localidades de muy alta marginación y que sin duda vienen con la idea de mejorar” (E1, p. 5)
– “Sí me ha tocado atender indígenas, a gente de Oaxaca, principalmente por manejo de tuberculosis. Pero no sé de qué etnias son porque no les preguntamos. Dentro de lo que son los estudios epidemiológicos, en el caso de la TB, no hemos constatado que pertenezca a determinada etnia, aunque se note que sean…” (E2, p. 54)
– Por otro lado, el miedo al despido laboral es probablemente el principal factor del estigma de TB; también se percibe que el estigma puede aumentar el retraso diagnóstico de la tuberculosis y el incumplimiento del tratamiento:
– ¿Es la TB una enfermedad estigmatizante en esta localidad?
– Sí, existe mucho estigma, con el hecho de ver que alguien entrará a consulta a la puerta del epidemiológico. Aunque la mayoría de la gente sabe que la TB es curable.
– Y ¿en el trabajo?
– En campos sí, en campos es terrible. Porque cuando va uno a hacer el trabajo, la sensibilización de explicarles todo el procedimiento, no te ponen atención porque están preocupados porque se les va a pasar la hora de la comida, 25 minutos les dan, llegan, se bajan, comen, descansan 5 minutos y salen disparados...
– ¿Por qué cree que no terminan su tratamiento los que vienen de otros estados?
– Dejan el tratamiento porque prefieren abandonarlo que perder un día de trabajo. Por eso a los pacientes que trabajan les dejo el tratamiento ahí en urgencias para que se los den en la tarde. De que se lleven contagiando más gente o que lo abandonen, prefiero dejárselos. (E3, p. 78)

Desconocer éste y otros aspectos de los grupos étnicos (como su movilidad laboral, sus hábitos alimenticios y de higiene que practican, entre otros), sólo ayuda a fomentar una estrategia paternalista en la atención médica, pues no se reconocen en los indígenas conocimientos útiles (saberes médicos) ni situaciones laborales que les impiden el seguimiento oportuno de su tratamiento.
Arizona Policy Recommendations

The collaboration between different bi-national public and private health and academic units to address the burdens of TB among indigenous Mexican migrants, and produced the following policy recommendations.

1. We should look at the TB problem as a scientific one with reference to Mexican migrants. TB is a problem of the poor and their living and work conditions.

2. It is important to point out the importance of the co-infectious diseases diabetes, hepatitis, AIDs and others. Patients should be guided towards TB treatment when seeking medical attention for these co-morbid conditions.

3. TB should receive more media, public health education, and policy attention. Other diseases including cancer receive more media and policy attention than does TB.

4. Public health should take a proactive approach in seeking TB patients and providing treatment in the community. Homeless agencies are a good proactive model for this. One approach that has been tried in Africa through the use of a “defaulter finder” for finding
AIDS patients, who like TB patients, often disappear without completing treatment (Tuller 2010).

5. Public health documents should include town and state of origin to help identify indigenous migrants. At the present they merely indicate nation.

6. There is much discussion about the need to cross-train clinicians in the US and Mexico problem of bi-national medical service. We recommend that communication with patients must be in a language they understand by using their grammar, vocabulary, mode of discussion, and not cast in scientific terms. Investigators from California (Alberto Colorado) and El Paso (Eva Moya) have designed brochures that address this issue.

7. The Trimmer (2008) study found that Border Patrol checkpoints prevent undocumented workers from seeking health care for fear of being apprehended and deported. This problem conflicts with Borderland Security issues; we recommend discussion with appropriate officials that could identify the future danger of preventing early detection of TB.

8. The Border Patrol and ICE do not have sufficient health services to diagnose, treat, or deal with TB patients either at the border or in detention centers, except at the Florence Arizona detention center. Our recommendation is that Homeland Security implements ideas that are present in their organization under various names to assure that patients are looked after at the earliest possible date.

9. These recommended policies should be distributed widely to policy-makers of all sorts—local and public agencies, public health, universities, congressmen, etc. Our report needs to be read by others than academics in order to have an impact on health services to the people of our concern.

Recomendaciones para las Políticas de Salud en Sonora

1. Es pertinente que se diseñe e implemente un modelo intercultural de servicios de salud, que permita la detección oportuna de los determinantes que actúan como barreras para la atención de la TB en jornaleros migrantes indígenas que periódicamente llegan a Sonora, y eventualmente viajan a los Estados Unidos.

2. Es conveniente fortalecer los vínculos entre las instituciones de salud, específicamente con las áreas encargadas de generar la información epidemiológica, para incorporar variables de etnicidad en los diversos registros médicos que operan en el sistema de salud. De manera concreta, un primer paso es incluir estas variables en dos de los formatos que se usan rutinariamente en los casos de TB, a saber, el “Estudio Epidemiológico de Caso de TB” y la “Tarjeta de Registro y Seguimiento de Casos de TB”, mismos que conviene sean integrados a la base de datos digital del Programa de Prevención y Control de la TB.

3. La capacitación y actualización del personal de salud involucrado con el problema, debe extenderse más allá de aspectos técnicos biomédicos, e incorporar nuevos constructos
teóricos y operativos que mejoren el entendimiento del papel que juegan los determinantes sociales, el contexto migratorio y los comportamientos colectivos e individuales de los migrantes indígenas, a fin de por un lado, fortalecer la eficacia de las intervenciones hasta hoy implementadas, y por el otro, disminuir el desaliento que causa entre el personal de salud, la presencia de barreras culturales que no son fáciles de superar sin adiestramiento adecuado.

4. La baja tasa de curación que se detectó puede ser efecto de deficiencias en el registro de la información, pero constituye una llamada de alerta para mejorar las intervenciones que se realizan para tratar a los migrantes con TB en esta región.

5. La tuberculosis en migrantes, sean estos indígenas o no, debe ser abordada bajo un genuino interés científico, sin otro afán que ganar entendimiento que soporte el diseño de intervenciones y la toma de decisiones que se hacen para abatir la carga de morbilidad y mortalidad por este padecimiento. Es crucial el apoyo político para futuras investigaciones de la problemática, y debe incluir el estudio antropológico, epidemiológico, clínico, de biología molecular, sociológico, entre muchos otros, para generar información que beneficie a estos grupos humanos vulnerables.

6. Los Servicios de Salud de Sonora y otras instancias gubernamentales y académicas, pueden impulsar las alianzas binacionales para fomentar la investigación sistemática del tema, y construir puentes que incrementen la eficacia de las intervenciones para controlar el problema en ambos lados de la frontera Sonora-Arizona.

Arizona Research Team

Dr. Thomas Weaver (Medical Anthropology), Dr. James Greenberg (Anthropology), Dr. Kacey Ernst (College of Public Health), Dr. William Alexander (University of North Carolina, Wilmington, Anthropology), Dr. Kerstin M. Reinschmidt (Medical Anthropology, Public Health); Dr. Soni Stake (Public Health), and Graduate Research Assistants, Derek Honeyman (2009-10) Lauren A. Hayes (2010), and Latin American Studies intern Jamie Hutchins (2010). **Consultants:** Dr. Mark Nichter (Medical Anthropology), Dr. Cecilia Rosales (Public Health), Dr. Scott Whiteford (Anthropology, Latin American Studies Center), Jill de Zapien (Public Health).

Sonora Research Team

Dr. Gerardo Alvarez (Epidemiologist), Colegio de Medicina, Dr. Maria del Carmen Candia (Biochemical Scientist), MPH Maria Elena Reguera (Public Health), Maria Belem Rivera (Head of The Jurisdictional Program of Control and Prevention of Tuberculosis). **Consultantes:** Aníbal Álvarez (Anthropology), Pablo Alejandro Reyes Castro (Geographic Information Systems), Betina Minjarez Sosa (Sociology).
Acknowledgements

We thank PIMSA, Programa de Migración y Salud de la Universidad de California-Berkeley and the Vice President for Research for a supplemental grant. We also thank those participants who shared their experiences and time and agreed to be interviewed for this project. They include: employees and patients of the Pima County Health Department and the Tuberculosis Clinic in Tucson; Pima County District Nurses; Volunteers and Medical Specialists at a Migrant Service Center and Free Clinic; Employees of the Primavera Foundation; Employees of El Rio Community Health Center; and Faculty at the University of Arizona.

Agradecimientos

Este proyecto no habría sido posible sin el apoyo y financiamiento del Agradecemos la colaboración de la Secretaría de Salud Pública del Estado de Sonora, a través del Programa de Prevención y Control de la Tuberculosis, quien amablemente nos proporcionó acceso a sus fuentes de datos. Igualmente agradecemos a los participantes de agencias como del campo por su ayuda. Gracias también al incansable apoyo de los Drs. Héctor Manuel Preciado (Poblado Miguel Alemán), Alfredo Flores (Estación Pesqueira) y Lauro Armenta (Hospital General del Estado) así como a sus colaboradores, por el trabajo de campo tan minucioso que hicieron.

Arizona Interview Database:

1A: Pima County Tuberculosis Clinic, Manager, Personal Interview, August 3rd, 2009, April 3rd, 2010
1B: Pima County Tuberculosis Clinic, Community Health Worker, Personal Interview, September 28th, 2009
1C: Pima County Tuberculosis Clinic, Community Health Worker, Personal Interview, September 28th, 2009
2A: Pima County Health Dept., District Nurse, Personal Interview, June 14th, 2010
2B: Pima County Health Dept., District Nurse, Personal Interview, June 29th, 2010
3A: Tuberculosis Patient, Tucson, November 2nd, 2009
3B: Tuberculosis Patient Tucson, February 4th, 2010
4A: Migrant Service Center, Medical Professional, Personal Interview, August 21st, 2010
4B: Migrant Service Center, Medical Professional, Personal Interview, August 21st, 2010
4C: Migrant Service Center, Director, Personal Interview, August 10th, 2010
5A: Free Clinic, Administrator, Personal Interview, July 28th, 2010
6A: Primavera Foundation, Executive Director, Personal Interview, August 5th, 2010
6B: Primavera Foundation, Supervisor, Personal Interview, August 5th, 2010.
7A: El Rio Community Health Center, Certified Nurse Practitioner, August 10th, 2010
7B: El Rio Community Health Center, Physician, July 22nd, 2010
8A: University of Arizona, Professor, Mexican-American and Raza Studies Dept., Personal Interview, June 21st, 2010
8B: University of Arizona, Professor, Mexican-American and Raza Studies Dept., Personal Interview, July 2nd, 2010
8C: University of Arizona, Professor, Anthropology Dept., Personal Communication, Unpublished, September 24th, 2010
9A: Mariposa Community Health Center, Nogales, Arizona, Nursing Director, September 4th 2009
9B: Mariposa Community Health Center, Nogales, Arizona, TB Clinic Nurse, September 4th 2009

Works Cited


http://www.cdc.gov/pcd/issues/2005/jul/04_0130.htm


Primavera Foundation (2010). primavera.org


Apéndice Estadístico
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* 10. de Enero de 2005 al 81 de agosto de 2010

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2/ Incidencia acumulada sin ajustar, por 100,000 habitantes
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