

Albergue Las Memorias TB: A shelter to care for and cure marginalized TB patients in Baja California



Background

Albergue Las Memorias, Asociacion Civil, was created in 1999 as a project to help reduce HIV-AIDS mortality and morbidity in the city of Tijuana, Baja California, Mexico. The slogan of Las Memorias is "Live with Dignity". This shelter is located in La Morita, one of the poorest neighborhoods in the eastern part of Tijuana. Services initially focused on the HIV population with drug addiction, but subsequently broadened to include any HIV-infected person, regardless of other conditions, who needed help to regain and maintain their health, regardless of age, religion, sexual preference, or nationality. A few patients are not HIV positive, but enter based on extreme need and drug addiction. Most residents are Mexican-born, though most were born outside of Baja California; approximately 5% are immigrants from other countries including the United States. A 2016 survey of 186 Las Memorias residents found that 20% were able to cross legally to the US. Another 41% reported having been in the US without legal status, and of these two thirds said they had been deported.

At the "House", as Las Memorias is known to its residents, services are provided to support individuals in an integrated manner. The approach prioritizes vital medical care, but maintains a broader focus to improve chances for long-term stabilization and success of the residents. The services offered at the House cover basic life needs, education, medical services and addiction recovery.

Basic life needs:

- Shelter
- Food
- Clothing
- Jobs



Las Memorias provides shelter, food and clothing to patients. As part of recovery, patients are encouraged to give service to others, which can be through performing a designated activity at the House such as driving, cooking, or house maintenance. The average length of stay is one and a half years. Some patients stay after they are stabilized, to gain full functionality before they return to the community, and may work offsite. A small offering from their salary, a “media luz”, may be contributed to Las Memorias.

Education Services:

Tutoring for elementary through high school

Provide access to professional/technical courses

Assistance for attaining professional education



Las Memorias has a partnership with local school districts and adult school programs. Patients are able to take classes onsite to complete elementary, middle and high school diplomas. Some patients have completed professional education in local universities. Technical and vocational programs are also available onsite to teach patients skills that will enable them to get jobs. Examples include carpentry, mechanics and construction.

Medical Services:

Directly Observed Treatment (DOT) for TB and HIV

Transportation to medical appointments

Medications and limited diagnostic testing

Mental health services

Infectious disease specialty care

STD`s prevention classes onsite to residents and visiting students



Las Memorias provides DOT by trained personnel to patients under TB and HIV treatment using medications provided by the Tijuana health department. As available, prescriptions for other medications are filled with donated medications by an onsite pharmacy. All patients get transportation to scheduled medical appointments including general, specialty and emergency care. Limited clinical tests are covered by the Tijuana`s General Hospital and the Autonomous University of Baja California (UABC, Tijuana Public University) Research Laboratory through institutional agreements. A team of volunteer providers provide services for Las Memorias: a US infectious disease specialist provides urgent care on a biweekly basis, a group of UABC psychologists provide onsite consultation, and a psychiatrist from Tijuana`s Psychiatric Hospital gives regular offsite attention.

Addiction Recovery:

12 step program

Recovery group meetings

Anniversaries



Eighty percent of the residents are addicted to illegal drugs at entry and 85% of them recover while at the house. Twice a year, Las Memorias celebrates its residents staying clean from drugs.

Since 1999, Las Memorias has provided support to over 2,500 people. At any one time, 120- 130 individuals reside at the House. All HIV-infected residents receive anti-retroviral treatment and over 80% continue after they leave through services at the government HIV (CAPASITS) clinic. While getting HIV care for residents has been successful, significant challenges remain in the diagnosis and treatment of tuberculosis (TB). Based on intake registries collected since 2014, it was found that up to 16% of the incoming residents have TB disease (positive sputum for acid-fast bacilli) at the time of entry. On average, there are from 15 to 25 patients with tuberculosis at Las Memorias at any given time. Unfortunately, a significant number of these patients have advanced disease. During the 2016, a quarter of the residents diagnosed with TB died before treatment was initiated. In addition, facility registries showed that 10% of the patients that initiated TB treatment abandoned care due to mental or addiction illnesses.

Once the TB situation was recognized, efforts began to add the diagnosis and treatment of TB illness to the core services of Las Memorias. TB diagnosis by sputum smear, done at the health department TB clinic, can take several days. Since the 2014, the UABC Research Laboratory performs tuberculosis smears for all Las Memorias patients and results take 1 day. However, there is a universal lack of confirmatory testing throughout Baja California to verify the TB diagnosis, as well as to identify drug resistant TB strains. These critical gaps causes some patients to undergo TB treatment unnecessarily, while many others receive inadequate treatment for unrecognized drug resistant TB disease, leading to continued infectiousness, amplification of drug resistance, and death.

TB is an airborne communicable disease and the facilities at Las Memorias feature common sleeping, eating and socializing spaces. Clearly, individuals with infectious TB pose a risk for other residents at Las Memorias, but also to the public if they remain in the community. There is an urgent need for an outpatient facility equipped with adequate infectious control standards for unstably housed TB patients in this border region. There is no such infrastructure available for the proper isolation of infectious TB patients outside of the acute hospital setting, including for those with drug resistant disease. Moreover, even once rendered non-infectious, unstably housed TB patients, especially those with substance abuse or mental health conditions, almost universally require supportive housing to be successful with their TB treatment.

Goals of the proposal

- Extend the integrative approach for assisting vulnerable HIV population in Las Memorias to those who

have TB in Tijuana:

- Provide laboratory diagnostic testing for early initiation of appropriate treatment for residents and general Tijuana population.
- Creating a separate 40-bed shelter for marginalized TB patients with or without HIV/AIDS : include 5 isolation rooms for the care of patients with TB in the infectious stage.
- Increasing and strengthening partnerships with Universities and governmental TB programs to support prevention, advanced diagnostics and ongoing treatment.

Status of TB in Baja California Norte

TB is an airborne infectious disease, transmitted person to person, which disproportionately affects populations in the US-Mexico border region. Over the last decade, the state of Baja California Norte has consistently had the most TB cases and the highest incidence rate of all Mexican states. In 2015, Baja California had a rate of 57.1 per 100,000 inhabitants¹ (all forms of TB), four times higher than the national average in Mexico (17 per 100, 000). It also led Mexico in the death rate for TB; 7.6 per 100,000 (1.9 for Mexico overall).

Tijuana, Baja California is one of the fastest growing cities in Latin America, with an estimated average annual growth of nearly 3%.² In Tijuana, a 2016 cohort analysis revealed that of 1,181 smear positive pulmonary cases diagnosed in Tijuana, 17% did not start therapy. Completion rates of TB treatment are suboptimal, with only 50%³ of patients diagnosed with pulmonary disease having a confirmed cure. Baja California has the highest number of multi-drug resistant TB patients of all 32 Mexican states.

It's estimated that at least 10% of TB patients in Baja California are at high risk to abandon treatment due to homelessness, drug addiction, or mental health conditions. Among this high-risk population, treatment completion rates are lower than for the general population due to limited health, mental health and social systems to address their specific needs. An analysis of Baja California patients who started treatment in 2016, showed bacteriologic cure rates of 33% for those with a co-morbidity of alcoholism, 19% for those with IV drug use, and 13% for patients with HIV infection. Beyond the personal risk for poor TB outcomes, this group also poses a risk for the community due to their prolonged periods of infectiousness. In addition, many of the most marginalized patients with TB in Tijuana are never diagnosed due to lack of access to services, though this number is not clearly known. As noted previously, there are no housing facilities in the state that serve homeless or unstably housed TB patients. In order to end the cycle of TB transmission and reduce the burden of morbidity and mortality due to this disease, there is an urgent need to develop effective services to diagnose, house and treat high-risk TB patients within Baja California.

TB housing availability in the US-Mexico region

There are no programs specifically focused on providing housing for TB patients on the Mexican side of the US-Mexico border. There is a shelter in Hermosillo, Sonora, approximately 3 hours south of the Arizona border, which provides short-term housing for Sonora residents, but will not admit those with substance abuse problems. In Ciudad Juarez, Chihuahua, across the border from El Paso, Texas, there is a private organization that occasionally accommodates TB patients returning from the US, but it only provides minimal supportive services. The State of

Texas supports binational treatment programs between four US-Mexico sister cities, but housing is not provided. Thus, there is no model for supporting diagnosis and treatment of high-risk, unstably housed TB patients in Mexico in any location along the border. However, on the US side, every jurisdiction has developed solutions to assist homeless patients with TB, and rapid diagnosis, drug susceptibility testing, and access to curative treatment is universally available. San Diego County provides single room occupancy units in the community, Imperial County works with hotels, as does Yuma and other areas in Arizona. Texas has a variety of options including a hospital-based unit.

Effect on TB control in San Diego County

In San Diego County in 2016, of the 258 individuals newly diagnosed with TB, 114 (44%) were Hispanic and 62 were born in Mexico. Overall risk factors included 12% with drug use, 6% HIV infected, and 7%, who were homeless. Many patients with these social risk factors spend time on both sides of the border. A review of San Diego TB cases in previous years has showed that 25-30% were classified as binational, meaning that they had crossed the border during diagnosis or treatment, exposed someone on the other side of the border, or could have been infected in Mexico. Genotyping of TB isolates, which has been standard in the US for almost a decade, reveals linkages between strains on both sides of the border. Reducing TB among Tijuana's marginalized populations is expected to reduce TB in San Diego, both by limiting TB transmission within Tijuana's high-risk communities and reducing the number who become ill and then seek care in San Diego.

In addition, some individuals who return to Baja California after being diagnosed with TB in San Diego or Imperial Counties lack stable housing. The patients often abandon treatment once back in Mexico, sometimes re-entering California with worsening TB illness. The Las Memorias shelter will be a place where these patients could be sheltered to receive TB treatment and supportive services.

Specific Objectives

- Increase the percentage of unstably housed, high-risk TB patients who complete therapy by providing housing, treatment, and supportive services.
 - At least 40 high-risk patients with tuberculosis will be housed and treated at the Las Memorias TB Center facility in the 12 months after the facility is opened.
 - Patients will be started on appropriate TB treatment within 1 week of result notification.
 - At least 80% of the high-risk patients housed at Las Memorias TB Center will have a documented bacteriologic cure.
- Develop capacity to provide diagnostic TB services to unstably housed, high-risk individuals.
 - In the first year of service, provide diagnostic capacity for at least 30 individuals per month referred from Tijuana General Hospital or other partners and all new residents of Las Memorias.
 - Provide rapid turn-around diagnostic testing to identify TB and Rifampin susceptibility within 1 week of specimen submission.
- Within the first 3 months of funding, create an advisory group to analyze data and program performance to proactively strengthen the care model.

Description of Project

Housing

The facility will house 40 high-risk Tuberculosis patients, 5 highly infectious (drug resistant Tuberculosis cases). The center is being built on a 450 m² land owned by Las Memorias AC in Tijuana Baja California Mexico. The facility design adheres to, evidence-based infection control principles using the suggestions made by the World Health Organization⁴ and the help of Engineers without Borders⁵ and Mexican architects and engineers. Isolation areas will have proper air control systems for the containment of infectiousness.

The project is a programmatic extension of the current Las Memorias shelter and will build on the success and multi-partnership collaboration achieved over the last 20 years.

Patients are identified for housing assistance after diagnostic testing shows evidence of active TB. These patients are referred from the Las Memorias HIV shelter and after being detected with Tuberculosis by the internal laboratory. Tijuana General Hospital sends Tuberculosis patients due to long term difficulties in attending Tuberculosis patients since treatment time ranges from 6-12 months. Binational patients arrive the Las Memorias Tuberculosis unit referred by the Cure TB and CDC officials in San Diego (US deportees)

Laboratory

Services include:

- Acid Fast Staining for Tuberculosis.
- Cultures in Lowenstein Jensen media for Tuberculosis detection.
- Drug susceptibility testing and tuberculosis detection by GeneXPert.
- Line Probe Assay for deep detection of drug resistance in Tuberculosis.
- Directly Observed Therapy DOT for Tuberculosis.
- Treatment for co-morbidities.
- General supportive services.

Laboratory services are offered to Baja California residents at affordable price. Services are free to all Las Memorias residents and to general Tijuana population that can't afford to pay. Access to Tuberculosis laboratory services are scarce in the Baja California State and prices are high. As an example: a confirmatory Tuberculosis testing by GeneXpert costs 200 dollars and it is only offered at the city of Mexicali. Line Probe Assay testing for drug resistant Tuberculosis are not available in Baja California and most of Mexican states suffer the same. Cepheid, the maker of the GeneXPert machine offers a low pricing program for the reactive to Non-Governmental Organizations that fight Tuberculosis on High Burden countries around the world. Las Memorias contacted Cepheid officials and received a positive response to enter the low pricing program. Reactive per patient costs 20 dlls and Las Memorias Laboratory will offer the test for 50 dlls to open public, 150 dlls less than the only available laboratory that offers the test in Baja California. The 30 dlls gained by each test will be used to maintain the operational costs of the Las Memorias Laboratory. All of the other tests offered by the laboratory will also be offered at affordable price to Baja California residents.

Budget

Equipment

Laboratory

2 Refrigerators	5,000
sterilizer	5,000
GeneXpert	45,000
GeneXpert cartridges	20 x 200=4,000
Molecular Line Probe Assay (LPA)	40,000
LPA cartridges	30 x 100=3,000

This equipment is not included in the present proposal

Isolation rooms

Air extractors	15,000
Filters	5,000
Beds	8,000
O ₂	3,000

Recovery by cost for services

Tuberculosis detection – Gene Xpert	50
Drug resistance detection – LPA	70

TOTAL Founded/Need to be Founded

\$28,000/90,000

Budget detail

28,000 dollars have been founded for the construction of the Laboratory space and 5 isolation rooms. Laboratory space has been constructed and is already operating with some basic Tuberculosis detection tests (Acid Fast Staining) Isolation rooms are at the initial stages of construction. 90,000 Rotary founds will be used to acquire GeneXpert machine for the tuberculosis detection laboratory and equipment for negative pressure isolation rooms. The requested laboratory equipment will permit same day diagnosis of tuberculosis from respiratory samples using the Genexpert platform. The GeneXpert system also tests for resistance to rifampin, which accurately predicts if a patient has multi-drug resistant TB. Quality assurance modules and testing cartridges must also be purchased. A Line Probe Assay system will permit testing for resistance to other medications should the initial testing indicate drug resistant TB is likely.

Personnel

Housing unit

1. A Coordinator will oversee all operations of the Las Memorias TB housing program to include daily operations, collection of patient data and outcomes, budget review, and Advisory group logistics. Duties will also extend to maximizing donations/other sources to maintain clothing, food, etc. Will also oversee the implementation of established protocols for integral rehabilitation of patients.

2. An Assistant/DOT worker will provide support for the Coordinator in performing tasks such as specimen collection, results follow-up, appointment scheduling, and will also have primary responsibility for performing daily directly observed therapy for tuberculosis.

Tuberculosis detection Laboratory.

1. Laboratory manager will oversee all laboratory processes including implementation of available tests and administration of funds. Duties will extend to research best laboratory practices and implementation of protocols for the overall maintenance of the laboratory along with collaboration with the Ministry of Health and Universities.
2. Laboratory technician will oversee all implementation of tests and coordinate Social Service programs provided by University students.

References.

1. Programa de Accion Especifico, Prevencion y Control de la Tuberculosis, 2013-2018.
2. Projections from 2006 to 2020. Found in http://citymayors.com/statistics/urban_growth1.html
3. PAHO Grandes Ciudades project
4. Natural Ventilation for Infection Control in Health-Care Settings, WHO
5. <https://www.ewb-usa.org/>