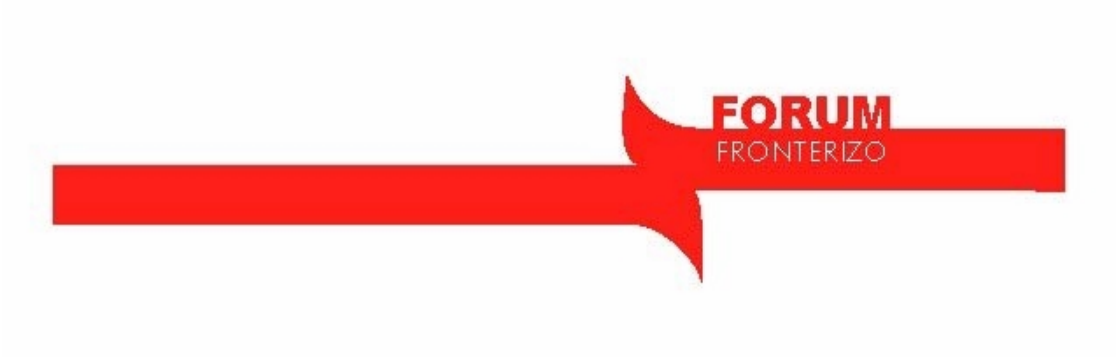

Briefing Paper

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Public Health Preparedness and Emergency Response in our Binational Region

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By

Elizabeth Santillanez Robson, M.P.A.
Executive Manager, Border Health Education Network,
University of California, San Diego

Julio Lampell, M.A.
Cross Border Program Director, San Diego Dialogue

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858 / 534-8638 • FAX: 858 / 622-4842 • www.sandiegodialogue.org

PUBLIC HEALTH PREPAREDNESS AND EMERGENCY RESPONSE IN OUR BINATIONAL REGION

As an essential human need, health care deserves the highest attention in any society. In our binational region it is an area of activity that – like many others – is inevitably and increasingly interdependent on what occurs on either side of the border. Because of its importance and the potentially catastrophic consequences of neglecting it, public health care requires clear public policy decisions and an active and coordinated binational response.

One area of health care that is of particular relevance and concern to our region – especially after 9/11 – is the combat against communicable diseases. Infectious diseases have long been a public health and medical problem on the U.S.-Mexico border. Due to a variety of problems which include high migratory flows, poverty and hazardous environmental conditions, the border region shows rates of incidence of infectious diseases considerably higher than the rest of Mexico and the United States. Furthermore, the tremendous mobility of people across the border (over 4 million northbound crossings a month in the San Diego/Tijuana region alone) makes it impossible to isolate a communicable disease within the country where it may have originated.

The terrorist assaults of 9/11 and the anthrax attacks on the United States that followed have given a new urgency to the fight against infectious diseases and to the need for achieving a heightened state of preparedness on both sides of our border against a possible bioterrorist threat. Infectious diseases and bioterrorism will be the topics of the first part of this paper.

The second section of the paper will address the issue of emergency and trauma services in our region. Within the vast field of health care, emergency and trauma services have taken on a special importance over the past years for a variety of reasons, including the limited access of large groups of population on both sides of the border to other health care options. The great numbers of people who cross the border on a daily basis make it inevitable that emergency and trauma services in San Diego are burdened by cases originating south of the border, while an increasing number of San Diegans are also seeking access to the financially strapped medical system of Baja California.

The second section will identify problems that emergency and trauma health care systems face on both sides of the border and some of the binational efforts underway to try to deal with them.

I. Infectious Diseases and Bioterrorism on the U.S.-Mexico Border[1]

In an age of vaccines, antibiotics and scientific progress, expectations were high a few years ago that infectious diseases would finally be brought under control. However, infectious diseases worldwide currently account for more than 13 million deaths every year. And it is not only emerging diseases, such as hanta virus, HIV/AIDS, Lyme Disease or the West Nile Virus, which

[1] This section benefited greatly from material provided by Dr. Stephen Waterman, Senior Medical Epidemiologist for the U.S. Centers for Disease Control and Prevention (CDC).

are causing the damage, but also “traditional” infectious diseases such as tuberculosis and hepatitis.

Today there is a new category of infectious disease that must be dealt with. It is biological terrorism, the deliberate use of disease as a weapon.

Infectious diseases and the border region

Some of the key factors contributing to the high rate of infectious diseases in the U.S. – Mexico border are population mobility and migration, limited health care access and public health services, and poor environmental conditions.

According to Centers for Disease Control and Prevention (CDC) investigators, the incidence of a wide variety of infectious diseases is significantly higher in U.S. counties bordering Mexico than in the rest of the country. The list of such higher than average incidence infectious diseases includes food and water-borne illnesses such as hepatitis A, shigella and typhoid fever, vaccine preventable diseases such as measles, mumps and diphtheria, and zoonotic diseases such as brucellosis, cysticercosis and rabies.

Tuberculosis (TB), an infectious and chronic disease associated with poverty and limited access to health care, is particularly worrisome. TB rates in U.S. border counties in California and Texas are about double the U.S. average. The TB rate in San Diego County is around 10.3 for every 100,000 people, but among Hispanics of predominately Mexican descent, the rate is 23.5 cases per 100,000. Tuberculosis is also more prevalent in Baja California and other Mexico border states than in the rest of Mexico. In 1999, the overall incidence of pulmonary TB in Mexico was reported to be 17 cases per 100,000 nationally and 27.1 cases per 100,000 along the border.

There is particular concern about the presence of drug-resistant TB strains in the border region, due to inadequately treated cases of the disease. TB among border populations often goes unreported to the health departments of either country, and immigrants without documentation of citizenship or visas are not screened for active TB.

While rates of TB in Mexico are higher than the incidence of TB in the U.S. and its border counties, the reverse situation applies to HIV/AIDS. In San Diego County the incidence of AIDS is in fact considerably higher than the U.S. average (27.5 per 100,000, in 1990, compared to 16.7 per 100,000). Rates of HIV infection among young Latino men who have sex with men are 35% in San Diego and 19% in Tijuana, and many of these men have sexual partners on both sides of the border. And even though they are better off than San Diego in this regard, Tijuana and Baja California have one of the highest rates of HIV/AIDS in Mexico.

To address the medical and public health problem of infectious diseases in the border region, San Diego physicians and community-based organizations are partnering with local, state and federal public health agencies in several new efforts, including the following:

- The Border Infectious Disease Surveillance (BIDS) project is a sentinel disease tracking or surveillance program that has been underway for over a year in San Diego and Tijuana and

three other sister- city regions in other states along the border. Prior to this project, no system was in place to track diseases in a uniform manner on both sides of the border with a view to treating it as a single epidemiological zone. The project also aims to foster strengthened communication between practicing physicians and public health professionals for better community disease prevention.

- With regard to tuberculosis, the San Diego County TB Control Program's CURE-TB project and Project Concern International are teaming to provide referral and case management services for TB cases who cross the border during the course of their 6-12 month long antibiotic treatment. The newly formed U.S. – Mexico Border Health Commission – which includes two members from San Diego, Dr. Rosemarie Johnson of the County Medical Society, and Blair Sadler, CEO of Children's Hospital - is sponsoring border-wide planning for a binational system of TB referral and case management.
- The California Department of Health Services is also working with Project Concern International with new grant funding from the California Healthcare Foundation to track and case-manage binational syphilis cases and their contacts.
- The California Endowment and federal funds are supporting referral services for HIV cases in the San Diego-Tijuana border region, and increased training for physicians working in community and migrant health centers in AIDS care.

These innovative responses to border infectious diseases in San Diego and Imperial counties will hopefully take hold and contribute eventually to a reduced incidence of these serious and sometimes fatal illnesses. To be successful in this effort will require the active help of practicing physicians, increased communication and cooperation between the U.S. and Mexico health systems, and strengthening of public health infrastructure for disease surveillance and prevention.

Dealing with the Bioterrorist Threat

Even though the possibility of a biological attack has long been a concern of the United States and other governments, it has taken on a new sense of urgency after 9/11 and the anthrax attacks that followed. The deliberate use of disease as a weapon is a real threat and steps must be taken to enhance public health preparedness and response capabilities to such threats.

An effective biodefense will require a long-term strategy and significant new investment in the U.S. health care system. This is reflected in the fact that President Bush is proposing to spend $5.9 billion in 2003 for defense against biological terrorism, $4.5 billion more than the 2002 level. This funding will go for:

- Infrastructure to strengthen state and local health systems, including improvement of medical communications and disease surveillance capabilities,
- Improved federal and private response capabilities, including the stockpiling of required pharmaceutical products, and
- Scientific research to develop new vaccines, medicines and diagnostic tests.

State and local medical personnel are a principal line of defense against bioterrorism, and will often be the first to recognize that we are under a biological attack. This means that steps must be taken to make sure that state and local health care providers have the appropriate tools and training to carry out this mission. In fact, federal supplemental funds are already being assigned to the states, and much of this funding will flow to the local level.

Border states – such as California and Baja California – have an additional responsibility in the area of health preparedness, since the border may be particularly vulnerable to a bioterrorist attack. Because of the incubation period of infectious agents and the great number of border crossings (over 130,000 daily at San Ysidro and Otay Mesa alone), it would be easy for a terrorist to release pathogens on either side of the border that would rapidly spread in both countries. In other words, a bioterrorist attack released in Tijuana would likely spread to San Diego before it could be detected. By the same token, an attack on Los Angeles or San Diego could rapidly spread south of the border.

It is clear, then, that California will not be prepared to defend itself from a bioterrorist attack if it does not pay specific attention to its border region with Mexico. And it is also a fact that preparedness and response to such an attack will require a well coordinated and efficient partnership between the civic and health authorities of California and Baja California.

Binational cooperative efforts to fight bioterrorism

Several meetings between San Diego County, State of California, Tijuana and Baja California officials have been held since last fall's East Coast anthrax attack to begin discussing how to respond to a possible biological attack in the region. Information sharing has occurred as to the state of each side's plans and efforts are being made to obtain funding, particularly with regard to epidemiology and surveillance.

These efforts should be intensified in the following months, by working cooperatively in each of the following six focus areas:

- **Planning.** Border aspects should be included in the overall California state plan being developed, and Baja Califonia planning efforts should be supported.
- **Surveillance and epidemiological capacity.** Additional efforts in this field on the U.S. side of the border should be complemented by greater support for disease surveillance and epidemiology in Tijuana and Mexicali.
- **Laboratory capacity.** Given the limited capacity of Baja California laboratories to diagnose pathogens such as anthrax, it would be beneficial for both countries if some of the laboratory specimens obtained in Baja California could be transported and tested in San Diego, instead of having to be taken to Hermosillo or Mexico City. Longer term, San Diego should cooperate with Baja California in improving its laboratory capacity.
- **Health alert network.** Funds are available for analyzing the state of communications infrastructure and for identifying the investments needed in order to guarantee rapid and secure communications in the border region. In the case of Baja California, this will include identifying where more telephone and dedicated fax lines are needed, as well as the feasibility

of expanding high bandwidth internet capacity. Efforts should also be made to develop an internet-based system that can provide a secured database of binational infectious disease cases for viewing and updating.

- **Health risk communication.** This includes the production of bilingual media material to inform the border population of bioterrorist-related issues, as well as to coordinate media responses in case of a biological attack.
- **Education and training.** Building on existing efforts in this field, binational training workshops for clinicians, epidemiologists and emergency personnel can greatly improve the preparedness of our region to a health threat.

Finally, it's important to identify clear and effective mechanisms for sharing resources with Mexico. There is a misconception that U.S. funding cannot be used in Mexico. However, states can use funding on both sides of their border regions if they deem it necessary to protect the U.S. public. In particular, the State of California has legal authority through Public Resources Code 71100-71104 to address public health threats that might arise south of the border. There are also binational or multinational organizations – such as the U.S.-Mexico Border Health Commission and the Pan American Health Organization – that can provide additional mechanisms for sharing funding.

In addition to these valuable venues for cooperation, it seems timely and convenient that a specific health agreement be negotiated between the United States and Mexico in order to optimize the exchange of disease surveillance information and consequence management information between the two countries.

II. Emergency and Trauma Response Services in the California/Baja California Border Region

Trauma is a primary cause of death on both sides of the border. In the United States it kills more people under the age of 44 than cancer, heart disease, AIDS or any other disease and is the number one killer of children[2]. The importance of providing immediate emergency services cannot be understated. Patients who receive appropriate medical care during the "golden hour," the critical 60 minutes following an injury, have three times the chance of survival as those not seen immediately.

The San Diego trauma and emergency healthcare system was once regarded as the finest in the nation. Today, however, this system is in crisis, as the number of hospitals with emergency rooms has decreased while the number of patients treated has increased, placing severe strain upon the services provided.

The population that is serviced in trauma and emergency rooms includes a large percentage of medically underserved, uninsured and under-insured patients. There are approximately 600,000 adults and children in San Diego County without health insurance or any knowledge of other assistance available to them; often the emergency room is their only access to medical care.

[2] Trauma Research & Education Foundation, "Trauma System Facts"

Emergency rooms have increasingly turned from providers of last resort to providers of first resort.

In 320 California hospitals it was found that critically ill and urgent patient emergency department visits rose 59% and 36%, respectively, from 1990 to 1999; while the number of emergency departments in the state declined by 12 % during the same decade. Hospitals have been forced to compensate by raising the ratio of emergency department beds from 14.5 to 15.3 per 100,000 Californians[3].

In Baja California, the medical system is running at over-capacity and emergency room departments at existing hospitals are especially strained. Because of this situation, emergency patients must sometimes wait for services or must be transported to different hospitals by ambulance or other transport.

The concept of "trauma center" is new in Mexico and such centers do not yet exist in Baja California. However, a trauma center is currently being developed at the Hospital General de Tijuana, and plans are in place to have similar facilities in the main public hospitals of Mexicali and Ensenada. At the same time, the *Consejo de Accidentes y Lesiones* is designing a trauma system for the entire State of Baja California.

Cross-border cooperation and training

In order to improve the overall quality of services throughout the border region, binational cooperation among emergency medical and technical specialists must be developed, in collaboration with public health officials, educators, policymakers, business leaders and all other stakeholders capable of improving services. Municipal and state government agencies on both sides of the border are already working with their counterparts to improve information sharing and procedures for the transport of patients across the border during emergencies, and the equivalent of a 911 emergency hotline has been set-up in Baja California.

There remain, however a series of critical challenges that need to be addressed in order to improve emergency preparedness in the region: Among them:

- Emergency response standards and protocols must be coordinated, standardized and enforced.
- A needs assessment is required to determine what infrastructure (including pre-hospital and hospital facilities and equipment) and personnel service investments is required in order to upgrade the overall emergency medical services system.
- Improved telecommunications networks between pre-hospital and hospital service providers is required, especially in Baja California, as well as between Baja California and San Diego.

[3] Lambe S, Washington DL, Fink A, Herbst K, Liu H, Fosse JS, Asch SM. Related Articles Trends in the use and capacity of California's emergency departments, 1990-1999. Ann Emerg Med. 2002 Apr;39(4):389-96.
PMID: 11919525 [PubMed - indexed for MEDLINE].

- There is a critical need for training of emergency medical and pre-hospital response personnel in all agencies, hospitals, and at all level of services.
- Two-way cross-border "mini-residency" or other types of training programs should be intensified for students and doctors from both sides of the border. This will provide opportunities to learn more about how services are provided in both countries and to participate in "hands-on" types of training experiences.

The following section briefly describes one of the most promising cooperation efforts that has been developed in the last few years to train trauma and emergency specialists on both sides of the border.

The Border Health Education Network

The Border Health Education Network (BHEN) was established to provide education and training services for healthcare professionals based in the binational California and Baja California region. The Network is a community-based program managed by the University of California, San Diego (UCSD) in partnership with the Border Health Initiative of Project Concern International, the Universidad Autónoma de Baja California, and a variety of other United States and Mexico community-based organizations, including non-profit organizations, NGOs, hospitals, higher education institutions, public health agencies, and health foundations.

A binational Network Advisory Board meets periodically to develop the BHEN's program agenda, which includes:

- *Trauma and emergency services*
- *Substance abuse prevention*
- *Infectious disease treatment and prevention, including HIV/AIDS and Tuberculosis.*

The BHEN Network has trained over 2,000 professionals from both sides of the border, and has provided them with opportunities to meet their counterparts from throughout the border region. In the area of trauma and emergency services, the Network has organized informational technical training programs, medical update conferences and mini-residency training programs for physicians, nurses, paramedics, fire, police and other pre-hospital and hospital emergency services specialists.

The list of participating institutions includes: UCSD Medical Center, Scripps Mercy Hospital, Sharp Memorial Hospital, Children's Hospital, Scripps La Jolla Hospital, Palomar Hospital, the County EMS offices in San Diego and Imperial Valley, Sharp Grossmont Hospital; the Hospital General de Tijuana, ISESALUD; Hospital General de Mexicali, ISESALUD; the Cruz Roja de Tijuana, the Universidad Autónoma de Baja California; Dirección Estatal de Protección Civil de Baja California, and the Universidad IberoAmericana.

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