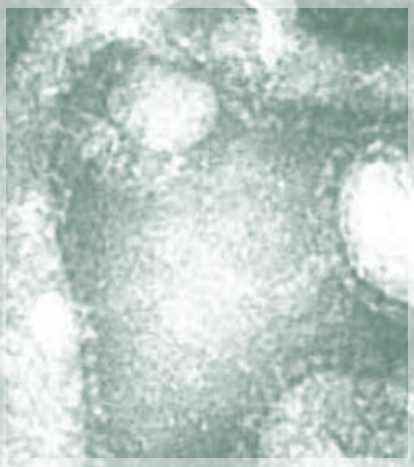

Pandemic Influenza A (H1N1) 2009

Lessons Learned in the United States - Mexico Border

- Pan American Health Organization
- World Health Organization
- United States - Mexico Border Office

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Pan American Health Organization
Regional Office of the World Health Organization

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Preparing for an Emergency:
Lessons Learned from the
H1N1 Pandemic 2009

Influenza Pandémica (H1N1) 2009
Donde estamos hoy?










su trabajo con Disney
FRONTERA
DIARIO INDEPENDIENTE DE TIJUANA
Causa pánico influenza en campus UABC

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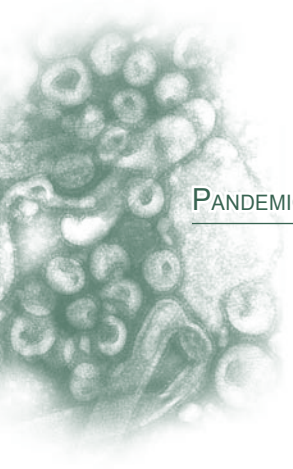


EXECUTIVE **SUMMARY**

On April 2009, a new disease developed in our planet, specifically in our region of the Americas. Originally called Swine Influenza (Swine flu), this pathology produced by the influenza A Virus from the H1N1 strain, quickly became an epidemic, and in less than two months of evolution became a pandemic, affecting the 35 countries and territories of the Americas, as well as in every continent.

In the U.S. – Mexico border (San Diego and Imperial Counties in California) cases appeared from their initial phases, and it has been latent to full extent.

The Pan American Health Organization / World Health Organization (PAHO/WHO) took a series of technical support and sustainability measures for the nations in order to determine the number of cases and their severity, as well as the negative impact it would have in social development. After the pandemic reached level 6, it was useless to count the number of cases anymore, but otherwise concentrate in the qualitative indicators that help determine the behavior of a disease and therefore make the right decisions to distribute resources, focus efforts, and analyze the changing characteristics of the disease, among others. That is, the adequate management of these indicators will generate better decisions and efficiency in the use of resources.

The accumulated experience since the appearance of the outbreak and the qualitative and quantitative data analysis help discern that:

- Most of the cases are ILI type (Influenza Like Illness).
- The clinical spectrum of the A H1N1 Influenza is broad, from mild cases to severe respiratory disease, pneumonia viral type.
- The most common affected groups are young adults and minors. Elderly appear to be immune.
- The most severe cases that have been hospitalized belong to a group of people with preexisting conditions (including obesity) and pregnant women.
- The attack rates in closed environments are significant.

However, it is also important to point out that we still ignore certain issues:

- The moment, severity and scope of dispersion in the following season.
- A significant viral change, such as the appearance of resistance or variation in the clinical expression.

The use of the vaccine is an important element recommended by PAHO/WHO, particularly for vulnerable groups. However, considering the global population, infrastructure, and the resources needed to vaccinate everyone, it is crucial to educate the population on the preventive measures to stop the virus from spreading.

Both Centers for Disease Control (CDC) and WHO suggest the following priority vaccination groups:

SAGE[1] (WHO)

1. Healthcare workers (to maintain the integrity of healthcare services)
2. Pregnant women
3. Children under the age of six months with basic chronic disease
4. Healthy young adults (older than 15 and younger than 49 years old)
5. Healthy children (younger than 15 years old)
6. Healthy adults (older than 49 and younger than 65 years old)
7. Adults older than 65 years old

ACIP[2] (CDC)

1. Pregnant women
2. People who live and/or take care of children under the age of 6 months
3. Healthcare and emergency medical services workers
4. Population between the age of 6 months to 24 (6 months to 4 years old)
5. People between the ages of 25 and 64 with at risk medical conditions (5 to 18 years old)

Community education represents one of the basic foundations to successfully implement any intervention in public health. In our case, the PAHO/WHO U.S. – Mexico Border Office has some technological tools that help in this purpose. The office's webpage (www.fep.paho.org) has a direct hyperlink to the PAHO and WHO influenza site; there's another direct hyperlink to the interactive maps site (http://maps.fep.paho.org/influenza), which is continuously updated with information on the ten border states. Finally, we have a network of virtual libraries gathering information from the web pages of organizations such as PAHO, WHO, CDC, Secretaría de Salud de México (Secretariat of Health in Mexico), etc. (www.borderinfo.org; www.infofrontera.org).

[1]SAGE: Strategic Advisory Group of Experts on Immunization

[2]ACIP: Advisory Committee on Immunization Practices

It is crucial to learn about the actions that were taken during the disease's initial outbreak, in order to take the necessary corrective measures and prevent repeating mistakes, as well as strengthening and encouraging actions that were effective.

For this reason, the PAHO/WHO Office in the U.S. – Mexico Border, along with healthcare organizations, developed three workshops on the lessons learned during the months of August and September 2009. State and local public and private institutions from both sides of the border participated to exchange ideas and experiences in regard to their role during the emergency.

The meetings took place in:

- El Paso, TX (El Paso, Texas and Doña Ana, New Mexico Counties; and Ciudad Juarez, Chihuahua)
- El Centro, CA (Imperial and San Diego Counties in California; and Tijuana and Mexicali in Baja California)
- McAllen, TX (Cameron and Hidalgo Counties in Texas and Health Jurisdictions in Reynosa and Matamoros, Tamaulipas)

The three workshops focused in bi-national collaboration and agreed in many of the positive and negative aspects of the different interventions, although characteristics typical of each region were also introduced.

Among the positive aspects that must be mentioned are:

- The flow of epidemiologic information between the states in both sides of the border.
- The very effective participation of the Mexican Consulate in the U.S. border cities to maintain the Hispanic population informed
- The communication system that kept the population informed.
- The collaboration between the different public organizations: response services, hospitals, school systems, health departments, and other public and private services.
- Training healthcare staff about care service protocols.

The interventions that are required to be reinforced or modified are:

- Improve the manner in which the population is addressed in regard to the locations where they should go to receive timely medical care.
- Increased population education through clear messages provided by the media.
- State the truth in a clear and objective manner to avoid any alarm among the population caused by certain media.
- Improve the use of immediate tests and therefore, saving resources.
- Improve the samples and reagents flow throughout the border, reducing bureaucratic procedures that often have to be carried out in the Mexican capital.
- Enhance the care protocols based on prior experience.

PRESENTATION

María T. Cerqueira[3]

On April 11, 2009, the Secretariat of Health in Mexico confirmed the origin of the first case of a new disease, which was originally called "Swine Influenza"[4] . Almost at the same time, and based on its rapid spread, the World Health Organization declared it as a "public health event of international importance" categorized as a level 4 pandemic, which quickly increased to a category 5, and in June turned into the highest category 6 [5].

The Influenza A H1N1 (current name) quickly spread throughout all regions in the planet, and our border was not the exception. New cases were detected along the entire border area, particularly in and San Diego Counties in California, as well as in Baja California.

The ten border states faced the outbreak following the guidelines of their relevant sanitary and political organizations. The federal governments gave instructions or recommendations (accordingly), but these varied as further experience was obtained in regard to the signs, severity, and deadly degree of the disease.

Human, economic, and material resources were assigned to face the pandemic, although they were never enough, just as it's reasonable to assume before an event of such magnitude.

The learned experiences (positive and negative) during this first outbreak of the A H1N1 Influenza, both in the clinical, epidemiological, communication, social participation, and community education and participation aspects, are crucial to document, in order to create a historical recollection of the events that should be imitated as well as others that should be avoided during the presence of a new outbreak of the pandemic, which started in the fall season (October 2009)[6] .

Under this contextual frame the Pan American Health Organization / World Health Organization – PAHO/WHO – through its office in the U.S. – Mexico Border technically collaborates with both countries, their border states, and their government and non-government agencies, in the effective preparations and mechanisms of response to face the pandemic of the A H1N1 Influenza and the seasonal influenza.

[3]Chief of the PAHO/WHO U.S. – Mexico Border Office.

[4]"Brote de Influenza Humana A H1N1". Dirección General Adjunta de Epidemiología de la Secretaría de Salud de México. Mayo 2009

[5]World Health Organization. Global Alert and Response. Disease outbreak news. http://www.who.int/csr/don/2009_05_04a/en/index.html

[6]Report of the President's Council of Advisors on Science and Technology. August 2009

This commitment is reflected in this report, which is an information compilation – synthesis of a socialization process of actions and omissions– provided by the relevant organizations (both in Mexico and the United States) involved in the response to the first outbreak of A H1N1 Influenza, during three consecutive workshops carried out in El Paso, TX, El Centro, CA, and McAllen TX, in August and September 2009.

The different portions of this document describes in an objective and consistent approach, the positive results and difficulties that were faced during and after the outbreak, and the recommendations to face the new pandemic.

We appreciate the openness, collaboration, and proactive actions of each and every participating institution, as well as their willingness to continue collaborating in the exchange of information and experiences, to preserve and improve the health of the border population.

PAHO/WHO reiterate their commitment of technical collaboration, advocacy, and knowledge promotion among the countries, their states and institutions, in order to ensure continuous improvement in the quality of services provided to the population.

INTRODUCTION

Ricardo Jiménez[7]

The U.S. – Mexico Border is one of the largest borders in the world. It involves 10 states (4 in the United States and 6 in Mexico), 18 counties in the northern border, 80 Mexican municipalities, 14 twin cities, and a population of approximately 14 million people (half in each side of the border); a population growth of 20 million is expected for 2020.

The three most populated metropolitan areas of the border are: San Diego – Tijuana, El Paso – Ciudad Juarez, and McAllen – Reynosa.

The Mexican Border States (called Northern) are characterized for having less poverty and the highest levels of education compared to the rest of the country.

On the other hand, 4 of the 7 poorest cities and 5 of the poorest counties in the United States are located in the Texas – Mexico border. In general, the level of education and the access to health services in the border counties' population of the United States are lower than the rest of the nation.

[7]Officer of Alliances for Healthy Borders in the PAHO/WHO U.S. – Mexico Border Office.

The current most important health topics and challenges in the border are:

- Non-infectious chronic diseases.
- Intentional violence and injuries.
- Mental health and substance abuse.
- Environmental health and climate change.
- Disasters and adverse events.

The PAHO/WHO U.S. – Mexico Border Office cooperates technically with both countries, their border states and the government and non-government agencies in the effective response preparations and mechanisms to face the A H1N1 Influenza pandemic and the seasonal flu. For this purpose and in coordination with the local and state health departments, three workshops were planned and carried out in the cities of El Paso, TX (August 26), El Centro, CA (August 31), and McAllen, TX (September 9).

The objectives of the workshops were:

- Review how communities responded to the H1N1 emergency.
- Identify the key aspects of an effective response to an emergency.
- What do we need to do differently in the future?
- How can PAHO/WHO help?

Both government and non-government healthcare agencies attended the workshops, as well as other sectors including twin-plants, border patrol, political representatives, the security sector, the consulates, among others. The agenda was divided in two parts: during the morning, there were presentations about the actions implemented by institutions to both sides of the border; while in the afternoon, attendees were divided in three work teams, discussing the following subjects:

- Epidemiological surveillance,
- Case management, and
- Communication.

This technical document gathers the main conclusions and recommendations emerged under this work frame and it is expected to serve as reference to continue with the actions that provided positive results and avoid those that didn't.

PREPARING OURSELVES FOR THE FUTURE:
LESSONS LEARNED FROM THE PANDEMIC (H1N1) 2009

Luis G. Castellanos[8]

HISTORY

One hundred and forty five days of history have passed since the start of the pandemic (April 18 – September 09), which are summarized as follows:

- April 18: The United States officially informs of two A H1N1 Swine Influenza cases.
- April 27: WHO announces pandemic level 4 (confirmed person to person infection from an animal virus or a human-animal regrouped virus able to cause "community breakouts")[9] . This alert phase applied to Mexico.
- April 29: Alert increased to a level 5 (virus propagation from person to person in at least two countries on a WHO region).
- April 30: More than 225 cases and 8 deaths in Mexico and the United States, and 26 cases in 7 European countries. The disease spreads rapidly.
- May 19: WHO reports 9,885 cases and 79 deaths in 27 countries in 4 continents. Growth is exponential.
- May `24: 27 countries of the Americas with 95% of the total cases and deaths.
- June 11: WHO increases alert to level 6, after many debates about the intensity of the disease and its mortality, and the impacts this measure could have. The pandemic phase is characterized by the criteria which define phase 5, along with the appearance of community outbreaks in at least a third country of another region.
- June 22: There are more than 52,000 cases in 99 countries in the 5 continents. 41,901 (80%) confirmed cases in 27 countries in the Americas and 226 deaths. As of this moment, individual cases are not counted.
- July 17: It is not possible to keep confirming cases; the disease's monitoring is done based on qualitative indicators.

QUALITATIVE INDICATORS

They help determine how a disease develops in order to make the right decision in the resource distribution, effort scope, and analysis of the disease's changing characteristics, among others. In other words, the management of these indicators will produce better decisions and efficiency in the use of resources.

[8]Epidemiologist of the PAHO/WHO U.S. – Mexico Border Office

[9]For more information about the alert phases, read the document: "WHO pandemic phase descriptions and main actions by Phase". http://www.who.int/csr/disease/influenza/GIPA3AideMemoire.pdf

The qualitative indicators that should be considered are:

Geographic dispersion: Indicates the specific regions within a country where it is necessary to focus resources. It is particularly useful when limited resources are managed. Provides information regarding if the disease is generalized, regionalized, or localized.
Tendency: Analyzes changes in epidemiological behaviors in regard to the previous week (if increasing, decreasing, or with no changes).
Intensity: Identifies how the disease is behaving in regard to the previous season (very high, high, with no changes, low).
Impact: Points out the impact the country has had in the health system and services (severe, moderate, or low).

WHAT DO WE KNOW TO THIS POINT?

- The clinical spectrum is broad, from mild cases to acute respiratory diseases, viral pneumonia type.
- Most of the cases show non complicate ILI type (Influenza-Like Illness) that can be cured without medication or any other type of treatment.
- The groups most frequently affected are young adults and minors. Senior citizens appear to be immune.
- The most severe cases that have been hospitalized belong to a group of people with preexisting conditions (including obesity) and pregnant women. These people have a higher risk of complications; require an Intensive Care Unit; or even die.
- Attack rates in closed environments:
  - ❒ 22-33% in American schools. This means that if one person is sick in a school, up to a third of people attending same, are going to be infected.
  - ❒ Up to 43% in households in Chile. For example, if a member of the family gets sick, half of the people living in that home will show clinical disease.
- The Transmissibility Rate (Ro): Is the number of total cases that will show clinical expression of the disease after being in contact with a sick person.
  - ❒ For the H1N1 Pandemic is from 1.4 to 3.5 (the latter for closed environments).
  - ❒ For the seasonal flu is 1.2 to 1.4.
  - ❒ This means that the H1N1 has a higher possibility of dissemination than the seasonal flu.

WHAT DO WE NOT KNOW?

- The moment, severity, and scope of dispersion in the next season.
- The moment when there is a viral change that is considered significant:
  - ❒ Presence of resistance,
  - ❒ Diagnosis laboratory tests stop being useful,
  - ❒ Vaccines stop working, and
  - ❒ Change in the clinical expression, with a more lethal and more severe virus
- The epidemiologic, clinical, or viral behavior of the epidemic.

RESISTANCE OF THE PANDEMIC VIRUS (H1N1) 2009 TO ANTIVIRAL MEDICATIONS

- Resistance to Amantadine and Rimantadine:
  - ❒ A (H1N1) Seasonal influenza: 10.8%, 2007-2008, CDC[10]
  - ❒ 2009 (H1N1) Pandemic Influenza: 100 % resistant[11]
- Resistance to Oseltamivir:
  - ❒ A (H1N1) Seasonal Influenza: about 100% in some countries, 2008-2009, WHO[12]
  - ❒ A (H5N1) Avian influenza in humans: described
  - ❒ 2009 (H1N1) Pandemic influenza: 0% resistant (April 09)
  - ❒ CDC and WHO recommend this treatment
- Documented mechanism of viral resistance acquisition with complete laboratory data, August 2009:
  - ❒ Mutation in the neuraminidase (H275Y) that does not affect sensibility to zanamivir.
  - ❒ There is no evidence of reorganization between the H1N1 Pandemic Virus and the H1N1 Seasonal Virus, neither with other strains of the Flu Virus.
- Until now, there are 12 documented cases of resistance in the world, 3 of them in North America, 2 in the state of Washington (United States).

[10]Influenza Activity. United States and Worldwide, 2007-08 Season. MMWR, 2008. 57:692-7

[11](MMWR) April 28, 2009 / 58 (Dispatch) 1-3

[12]http://www.who.int/csr/disease/influenza/H1N1webupdate20090318%20ed_ns.pdf

USE OF THE VACCINE AGAINST THE 2009 PANDEMIC INFLUENZA (H1N1)

The objectives of vaccination (may vary based on the situation)**:**

- Protect the integrity of the health system and the critical infrastructure in every country.
- Reduce morbidity and mortality.
- Reduce viral transmission within communities.

Based on these objectives, WHO promotes to reinforce vaccination with the seasonal vaccine and collaborate with nations to introduce the pandemic vaccine.

Each country has the right to decide how to use the vaccine, considering its access, composition, infrastructure, and distribution logistics possibilities.

Recommendations of groups to vaccinate:

SAGE[13] (WHO)	ACIP[14] (CDC)
1. 1Healthcare workers (to maintain the integrity of healthcare services)	1. Pregnant women
2. Pregnant women	2. People who live and/or take care of children under the age of 6 months
3. Children under the age of six months with basic chronic disease	3. Healthcare and emergency medical services workers
4. Healthy young adults (older than 15 and younger than 49 years old)	4. Population between the age of 6 months to 24 (6 months to 4 years old*)
5. Healthy children (younger than 15 years old)	5. People between the ages of 25 and 64 with at risk medical conditions (5 to 18 years old*)
6. Healthy adults (older than 49 and younger than 65 years old)	
7. Adults older than 65 years old	

* Priority groups in case there's insufficient vaccine supply.

[13]SAGE: Strategic Advisory Group of Experts on Immunization

[14]ACIP: Advisory Committee on Immunization Practices

Production Capacity and Availability of Vaccine:

In optimal conditions, 94 million of monovalent doses will be produced per week, which gives 2,400 million doses in 6 months. A large amount of this production (80%) has already been compromised (pre-sale) for developed countries; therefore, the vaccine supply will be considerably limited for countries in the Americas.

According to the priorities established, both by the CDC and WHO (see previous table), there will be approximately 200 million of prioritized people in Latin America. There won't be enough vaccine doses for all of them.

ROLE OF THE INTERNATIONAL HEALTH REGULATION (IHR) (2005)

It represents the first multilateral initiative to create an efficient frame to prevent global spread of the disease. After an extensive revision process, in May 23, 2005, the World Health Assembly adopted the Revised International Health Regulation.

"The purpose and scope of this Regulation is to prevent the international propagation of diseases, control and protect against propagation, as well as provide a public health response according to the risks and threats for public health, and at the same time, avoid any unnecessary interference with international traffic"[15].

Mexico and the United States are signatory nations of this document, therefore and under the current situation, there is a legal basis for the exchange of information.

And according to the notification mechanisms established in the IHR that Mexico announced the evolution of the disease in its territory and WHO could make decisions about the pandemic.

Importance of the National Capacity:

The most effective way to prevent the dissemination of a disease is through an early detection of these threats to public health and to implement effective responses (actions), while the problem is still in its early stages.

Regarding the border, it is important to consider the necessary basic capacities for Relevant Land Border Posts; even more, when it is justified by the volume of International traffic – as it happens in the different international bridges of the U.S.–Mexico border – and demanded by the public health risk, the health administration:

1. Must establish and maintain the appropriate capacity (in border positions) to apply public health measures, particularly those recommended by WHO.
2. Shall designate border posts with the required qualifications for international bridges and airports.

Characteristics of land crossings through the borders are established in the IHR under appendices 1 and 2.

PHEIC in the new IHR 2005:

"Extraordinary event which constitutes (i) a public health risk to other States due to the international spread of a disease and (ii) with the potential of requiring a coordinated international response"[16] .

The criteria to determine a PHEIC are: a serious repercussion for public health; an event of unexpected or unusual nature; risk of international propagation; a significant risk of restrictions to international travel or trade.

[15]International Health Regulations. Pan American Health Organization. http://www.paho.org/english/ad/dpc/cd/eer-ihrs.htm

[16]PHEIC defined according to the IHR 2005 itself, WHA58.3

INFORMATION SYSTEMS OF **PANDEMIC** (H1N1) 2009

Lorely Ambriz[17]

[17]Information and Knowledge Management Advisor/ Librarian. PAHO/WHO U.S. – Mexico Border Office.

WEBPAGE OF THE U.S. – MEXICO BORDER OFFICE OF PAHO/WHO

The border office site where updated information can be found as well as the necessary tools to create interactive maps.

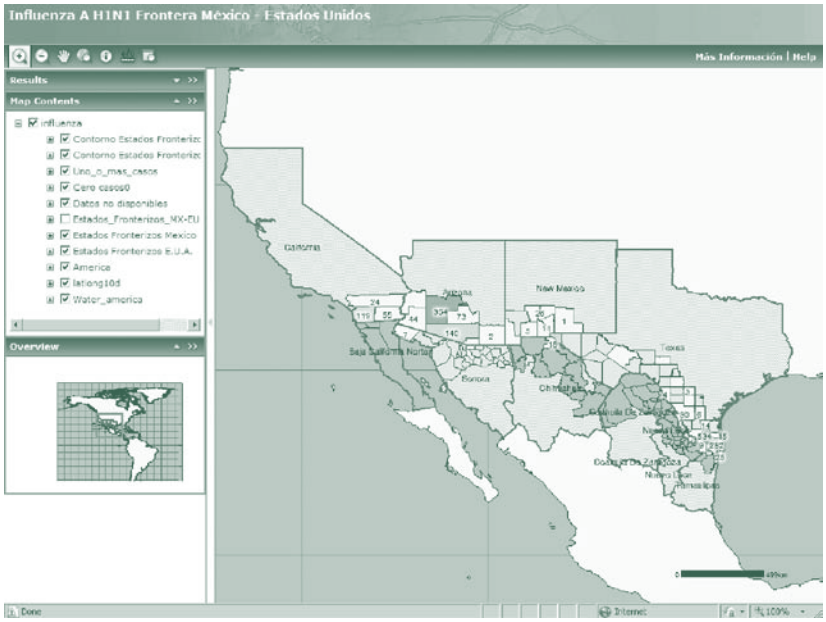
www.fep.paho.org

GEOGRAPHICAL INFORMATION

The purpose to create this site is to provide the border with all available, reliable, and updated information about the A H1N1 Influenza, in an interactive and dynamic map form, in .jpg format, which can be downloaded, enlarged, or disintegrated. Qualitative indicators can be incorporated and they can be as accurate as you like, even to the point of disintegrating at a suburb or neighborhood level..

http://maps.fep.paho.org/influenza

A more detailed and updated version of this map and other tools can be found in the link mentioned in the above paragraph



U.S. – MEXICO BORDER HEALTH VIRTUAL LIBRARY

Virtual library network based on topics collected in the web pages of major organizations such as PAHO, WHO, CDC, Secretaría de Salud de México, etc.

www.borderinfo.org

www.infofrontera.org

A portal has been created exclusively for the A H1N1 influenza with all the required and updated technical information divided in thematic areas.

Information can easily be downloaded to the web pages of other organizations, which prevents from having to manually update data.

The A H1N1 Influenza portal is a technical and scientific information service operated by BIREME/PAHO/WHO in the VHL. The purpose of the portal is to respond to the demand of information in crucial aspects of the disease.

Its function is to complement the actions of PAHO/WHO with technical and scientific information.

Data Collection Sources:

Services and products of significant and updated information, tools to update and train human resources for decision-making with information based on scientific evidence, as well as management, research, education, attention, prevention, and control of the A H1N1 Influenza.

The institutions' social network that produces relevant information on the topic originally includes the international agencies of the United Nations System and exclusive national agencies, such as the Center for Disease Control and Prevention (CDC) in the United States.

Scientific and technical literature in Portuguese, English, and Spanish, identified and selected from the VHL network and supplementary networks.

WORKSHOP IN **EL PASO,** TEXAS - August 26, 2009

PARTICIPATING INSTITUTIONS:

- American Red Cross
- CDC
- Mexican Consulate in El Paso
- Department of State Health Services Texas
- El Paso Department of Public Health
- El Paso Diabetes Association
- Early Warning Infectious Disease Surveillance (EWIDS)
- New Mexico Department of Health
- PAHO/WHO
- United States – Mexico Border Health Association
- Health Services of Chihuahua

STATE OF **TEXAS**

Flor Fuentes[18]

[18]Early Warning Infectious Disease Surveillance Coordinator. Department of State Health Services. Texas

Surveillance: Detection and Monitoring:

Four methods were used to detect and monitor influenza in Texas:

1. Influenza-like Illness Surveillance Network (ILINet)
2. Influenza surveillance program in Laboratory
3. Deaths caused by influenza in children and teenagers (younger than 18 years old)
4. Weekly flu reports by local entities

The data collected by these four methods is currently used to create the weekly flu report in Texas: www.texasflu.org

Report on the Influenza A H1N1 Virus for the 2009-2010 Season:

Texas will expand the influenza surveillance through a death and hospitalization report (hospitalized people for more than 48 hours, without including those seen in the emergency department or those kept in observation during the previous night).

Key Points:

- Texas does not count or report the total number of A H1N1 Influenza cases anymore, instead it is using monitoring and routine detection of proven effectiveness to determine the influenza activity in the state.
- Texas controls A H1N1 influenza deaths and hospitalizations to determine the severity of the disease.

Mitigation in the Community:

- Several community intervention measures were produced to try to contain the disease.
- There is no epidemiologic link between the cases in California and Texas.
- An example of the mitigation measures was the closures of schools. An early guide for school closings by the CDC (April 28, 2009) established that "student withdrawal must be highly considered in schools with a confirmed or potential case epidemiologically linked to a confirmed case".

How were the schools closed?:

- Public school district officials decided to close the schools.
- In practice, most of the officials communicated regularly with the local public health authorities when they were evaluating the possibility of closing a school.
- The school district officials also consulted the CDC and the State to close down a school and during the closing.
- During the Spring of 2009, 893 schools with 506,019 students were closed down due to A H1N1 Influenza.

"CDC does not recommend that communities with a confirmed case of A H1N1 Influenza consider closing down a school or a day care anymore".

May 5, 2009

Revision in the Border:

- A quarantine station referred certain patients that cross the border to the local health department for control and monitoring.
- During the first days of the outbreak there were a large number of referrals, which required the implementation of a revision site in El Paso to help in the evaluation. The site was open for five days (May 5 to May 11), during which only 15 individuals were assisted. A similar site was open in Presidio, but it didn't assist any potential cases.

Bus stations also carried out research and education measures with passengers arriving to El Paso.

Challenges:

- Due to the expansion of the pandemic, there are different action perspectives between the central plant staff, regional offices, and independent local health departments.
- Non-pharmaceutical interventions are extremely complex, that is, at the community level, which had an impact not only in the community, but also affected employers and basic services; this also creates authority conflicts, for example, who determines the closing of schools and related measures.
- Communicating the right messages. It is necessary to find a balance between reporting the news and avoid causing panic.
- The State was informed that it had to report each ILI case, which caused the Regions to overflow with reports of potential cases.
- As surveillance procedures were changing, the local health departments had to fill out an 18 page hospitalization/decease form for each case. This left little time to fulfill other responsibilities.
- Finally, as the epidemic progressed and more information was identified about the behavior of the disease, the case report procedures became more lax, since the State was changing its surveillance activities.

EL PASO
PUBLIC HEALTH DEPARTMENT

Michael Hill[19]

The El Paso Health Department actions, along with other organizations that provide public health in the region, focused in the following areas:

Surveillance and Diagnosis:

- Held an effective surveillance program in several medical offices and clinics (Early Alert System).
- Samples in each potential case were sent to our laboratory for analysis. Each positive case was thoroughly investigated by the epidemiologic staff.
- There is not enough long term capacity worldwide in case of a pandemic.

Prevention and Treatment:

- Wide coverage to schools and businesses to promote health prevention and education measures. There was an excellent response by teachers, students, and parents.
- Establishment of bilingual community forums in Region 19.
- Installation of a call center together with the Paso del Norte Health Foundation.
- Updated messages concerning the state of emergency were sent to the city and county employees

Risk Communication:

- The Incident Command System was activated.
- The Risk communication plan during crisis and emergency was managed as follows:
  - ❒ Consistent messages
  - ❒ Health Education
  - ❒ 211
  - ❒ PIO
  - ❒ Media Education/ Monitoring
  - ❒ CERC equipment

[19]Director of the Department of Public Health of El Paso

Shared Experiences:

- The Department of Public Health developed internal and external "Post Action Reports" to identify the lessons learned to date and determine the necessary actions to effectively mitigate the effects of a continuous H1N1 outbreak in the future.
- Beyond measuring the Department of Public Health's response, external partners were urged to give recommendations in the specific categories such as: an increase in communication and information flow, increase in the public information efforts, and preparedness for future vaccination against H1N1 influenza.

Communication with Key Groups:

- For the media:
  - ❒ Continuous updates in order to inform the public.
  - ❒ Press conferences to inform the public with new and significant data involving interagency cooperation.
  - ❒ Official updates from the Department of Public Health through the media (Risk communication plan during crisis and emergencies).
- For the general public:
  - ❒ Educational presentations for communities that required them.
  - ❒ Call center in the Department of Public Health for help and counseling.
  - ❒ The 211 Information center was strengthened.
  - ❒ Website periodical update.
- For health workers:
  - ❒ Information meetings with the Department of Public Health staff.
  - ❒ Several members of the staff were relocated to support actions against the emergency.
  - ❒ Effective and continuous communication via e-mail.
- The public health authority maintained constant communication with its counterparts in Mexico, Chihuahua, and Ciudad Juarez.
- Dr. Ocaranza was the permanent link with the medical community to promote actions and informational guides.

NEW MEXICO STATE

Patricia Frank[20] y Paul Dulin[21]

EPIDEMIOLOGY, SURVEILLANCE AND LABORATORY

New Mexico registered only one death associated with the A H1N1 influenza throughout the state.

Influenza Surveillance Network in the Border:

- It started as a pilot test in the health services clinic B in the State of Chihuahua, with one doctor for the 2007-2008 Season.
- It was expanded for the influenza season during the 2008-2009 period for a total of 5 surveillance positions in the North of Chihuahua.
- 5 additional surveillance positions were added in West Texas by the State Department of Health Services, Region 9/10.
- There was collaboration from the Mexican side of the USMBHC by sending quick tests and sample collection kits to Ciudad Juarez.

Participating Clinic Requirements:

- Weekly Report of the number of patients with ILI to the New Mexico Health Department (numerator).
- Report the number of patients seen for any reason in the clinic during that week (denominator).
- Conduct quick influenza tests to every patient with ILI and weekly report on the results (only Mexico).
- Carry out and send the influenza culturing to the laboratory during the pre-determined season weeks (applies to the clinics in Juarez only).

H1N1: Communication & Coordination through the border:

- Communication between the health department and the different surveillance sites was carried out in a daily to weekly basis.
- There was coordination between the Juarez Jurisdiction, the Proyecto Juntos, and the CDC for the transfer of samples.
- Once the results were obtained, the Juarez jurisdiction was called immediately to deliver the laboratory reports.
- The reference and counter reference system was activated between Mexico and New Mexico for the diagnosed cases.

[20] Nurse Epidemiologist. Public Health Region 5

[21] Director. Office of Border Health. State of New Mexico

Conclusions:

1. The project had the expected success due to the sharing of data in real time for the border region; transportation of samples through the border was possible; Chihuahua was provided with confirmed laboratory data of circulating flu virus strains (including H1N1).
2. The Juarez and New Mexico influenza virus strains were identical.
3. Binational relations were improved among the different institutions (NMDOH, CSHS, Mexican section of the USMBHC, CDC).
4. There was a coordinated and allied anti pandemic response.
5. The New Mexico State laboratory helped CSHS identify 25% of all H1N1 confirmed cases in the State of Chihuahua.

Next Steps with the Surveillance Network in the Border:

- Assess the 2008-2009 season and the H1N1 Influenza season (September 10, El Paso).
- Meet with the EWIDS staff in the four border states in the United States to develop guides, training, and financing throughout the border.
- Strengthen the laboratory capacity for the CSHS' reach, as applicable.
- Continue informing on a weekly basis and reduce delays in the release of reports.

COMMUNICATION WITH 'DIRECTLY INTERESTED' ORGANIZATIONS AND THE GENERAL PUBLIC & MITIGATION IN THE COMMUNITY

The response time covered from April 21, 2009 (date when the CDC first announced the presence of AH1N1 Influenza cases in the United States) to May 11, 2009 (date when the NNDOH DOC ceased its activities).

Most of the efforts from the New Mexico Health Department were directed towards research to confirm potential H1N1 cases, continue good communication and coordination with the CDC, maintain healthcare staff well informed, work with community representatives, and coordinate the antiviral distribution.

Throughout this experience, we can point out that things that worked well (based on our own measurements and reports) were:

- The epidemiologic surveillance and the cases research and their contacts.
- Respirators' adjustment and control tests.
- Coordinated response in every region
- Several communication activities
- Antiviral distribution per region

The situations that need improvement:

- Limited and sometimes inconsistent communication with our counterparts.
- A limited communication strategy in cultural and linguistic aspects, as well as in the mechanisms and media used to disseminate the message.
- Little knowledge and use of the National Incident Management System / Incident Command System (NIMS/ICS) by the health department staff.
- Poor planning and execution of supply distribution.
- Lack of plans at all public health levels (department, division, region, and even office).
- Obsolete equipment and even lack of implements in some counties.

Recommendations:

- To develop a command and control system that includes:
  - ❒ Joint information system
  - ❒ Communication ability in Spanish
  - ❒ Common operational image
- Incident Command System training within the National System for Incident Management.
- Planning of a large scale immunization campaign in the fall.
- Development and continuity of Operation Plans and Emergency Operational Plans, as applicable.
- Identification and acquisition of required equipment and supplies.

WHAT IS NEW MEXICO DOING?

- NM closely monitors the recommendations set by CDC and WHO.
- NM has received 25% of the SNS antiviral drug reserves, protective equipment for the staff, and respiratory protection devices.
- Local and state public health agencies have been developing, executing, and reviewing their vaccination massive plans since 2001.
- NM is reviewing and updating its response plan.
- Surveillance actions are still being carried out.
- NM is currently working with the local public health organizations and hospitals to identify breakthroughs and weaknesses for preparation and response against the influenza pandemic.
- Participates regularly in work teams and teleconferences about national surveillance, vaccines, and preparations.
- Has established an information hotline about influenza in Spanish.
- Printing and distribution of posters in Spanish in important sites (schools, consulates, health providers, hospitals, emergency management offices, etc.).
- Health alerts translated into Spanish for distribution among all directly interested parties.

HEALTH JURISDICTION OF **CIUDAD JUAREZ**, CHIHUAHUA

Héctor Puertas Rincones y
Roberto Alejandro Suárez Pérez[22]

Background:

Since 2004, efforts have been made at all levels to strengthen the epidemiological surveillance in several major pathologies and as of 2006, added the Avian Influenza, which after mutating with the seasonal virus would produce an extremely lethal pandemic.

Drills to face the pandemic were prepared at a federal level, increasing the information capabilities, social communication, health promotion, and clinical and epidemiologic management.

In 2008, a real scale drill was held in Ciudad Juarez where all institutions, private and civil, participated voluntarily. Their goals were:

- To prove the preparation and response effectiveness of the national and state plans against an Influenza Pandemic.
- Propose recommendations to improve the plans.

Preventive Actions:

- Extra sectorial coordination with all entities involved:
  - ❒ Department of Public Education / Secretaría de Educación Pública (SEP)
  - ❒ Department of National Defense / Secretaría de Defensa Nacional (SEDENA)
  - ❒ Municipalities that integrate the Jurisdiction
  - ❒ Business community
  - ❒ Medical Associations
  - ❒ Religious groups
  - ❒ Universities
  - ❒ Department of Communication and Transportation / Secretaria de Comunicaciones y Transportes
- Maintain close surveillance
- Deal with potential cases and prophylaxis to their contacts.
- Information to the media
- Heath filters in educational institutions and government agencies.

[22]Health Services of Chihuahua. Health Jurisdiction No. 2. Ciudad Juarez, Chihuahua.

Lessons Learned:

Strengths:

- Have a formal Epidemiologic Surveillance System and an epidemiologic command center
- Consistency in intra and inter-institutional communication and coordination
- Integration of the State and Local Safety Committee in regard to Health
- Conduct influenza drills at a real scale in the last 3 years
- Previous awareness to medical and paramedical staff, as well as to participants in the Health State and Local Safety Committee with the previous drills
- Close coordination with the education sector
- Establish school filters
- Unconditional support from teachers
- Have an alliance relationship with Mexico Border Health Commission – United States, BIDS and EWIDS Programs
- Be part of the Surveillance Influenza Network in the New Mexico – Chihuahua – Texas Border Region
- Have "rapid tests" submitted by the State of New Mexico
- Support from the educational sector in the timely detection of cases
- Availability of medical units and hospitals for patient care
- Have the timely strategic reserve for medical care
- Information management via a sole spokeperson: Director of the Health Jurisdiction No. 2, Health Secretary of the State, or State Governor
- Information to the media about preventive measures and operational definition throughout the media

Opportunities:

- Improve timely notification
- Continue communication with the educational sector in reference to potential cases
- Strengthen the communication and coordination lines with every sector and agency

Weaknesses:

- Saturated health units
- Parents with lack of awareness
- Follow-up on preventive measures at an educational and family level
- Insufficient consumables before contingency and supply issues

Threats:

- Virus mutation
- Massive gatherings
- Extreme weather (cold)
- State geography
- Population dynamics in the border and specific groups

MEXICAN CONSULATE IN **EL PASO**

Sandra Barranco[23]

The Consular Network is made up of 146 consular and diplomatic representations all over the world, 49 of these are located in the United States.

The consulates' essential duties are to protect Mexico's interests and its national's rights, pursuant with International Law, and maintain the Ministry of Foreign Affairs informed, specifically in cases that require special protection (Contingencies).

The General Consulate of Mexico in El Paso serves the following communities:

- In New Mexico: Chaves, Doña Ana, Eddy, Grant, Hidalgo, Lea, Luna, Otero, and Sierra
- In Texas: El Paso, Hudspeth

Pandemic monitoring at an International Level:

Mexico's Ministry of Foreign Affairs maintains an information exchange system activated in regards to the pandemic, which includes:

- Consulate's actions
- Measures announced by local authorities
- Actions at a local level
- Civil society actions
- Media reactions
- Number of cases reported

Actions of the General Consulate of Mexico in El Paso:

- Protection and prevention actions in which the General Consulate has participated:
  - ❒ In collaboration with the City's Health Department, during the week of May 1 to May 10, radio commercials were broadcasted with influenza preventive measures.
  - ❒ Distribution of posters and promotional material with preventive measures, including customer service numbers in New Mexico (1-800) and El Paso (2-1-1).

[23]Vice-consul, risk communication. General Consulate of Mexico in El Paso, Texas

- Information and monitoring exchange:
  - ❒ Health Department press conference monitoring.
  - ❒ Press releases with the number of registered cases were requested to the Local Department of Health, Health Jurisdiction No. 2, and to the New Mexico's Department of Health.
  - ❒ Monitoring of emergency levels ordered by El Paso authorities.
  - ❒ Monitoring of press conferences in Las Cruces, NM.
  - ❒ Monitoring of the Influenza pandemic phases and statistics at the international level, as well as WHO's recommendations.
  - ❒ Monitoring of the CDC's recommendations and statistics.
  - ❒ Communication with the CDC quarantine office about the Service Center implemented in Downtown El Paso.
  - ❒ Monitoring measures and recommendations taken by the United States immigration and customs authorities.
  - ❒ Timely attention to media queries, as representatives of the Mexican government in El Paso and New Mexico

Issues to work on:

- Exchange of information with the Department of Health authorities in the State of Texas.
- Have timely information in regard to the measures that will be implemented in the region and recommendations from local authorities to the general population, in order to provide information to the Mexican community living in the district.
- Establish close communication with the emergency preparation departments, considering that the Consulate will develop activities based on recommendations from local authorities regarding the closing of schools, locations, and crowded activities or massive events.
- Appropriate coordination to perform patient repatriation programs in accordance with the "Agreement for a Safe and Organized Repatriation" and the "Visits to Prisons and Detention Centers Program".
- Ensure appropriate consular notification pursuant to Article 36 of the Vienna Convention on the 1963 Consular Relations.

RECOMMENDATIONS FROM WORK GROUPS

Group 1: Case Management and Treatment:

1. Federal money is required for infrastructure and staff needs at a long term basis (not only for single purchases of equipment and materials).
2. Develop an effective educational program (learn from current efforts in New Mexico).
3. Work with health workers labor unions to allow extended shifts and cross training.
4. Seek international aid for supplies and training.
5. Higher investment on equipment, reagents, and staff training.
6. More national and foreign investment, grants, and manufacturer's discounts.
7. Follow strict vaccination priorities, focusing on high risk groups.
8. Promote better communication at a local and state level.

Group 2: Risk Communication, Mitigation Measures:

1. Have just one coordinator in the communication area and exchange information.
2. Border response plan with a committee that builds the binational information base at a state, local, and national level.
3. Health course on Journalism and induction in regard to institutions and health systems.
4. Feed the web sites following the trend.
5. Send information to the CDC.

Group 3: Surveillance and Diagnosis:

1. Maintain a single spokesperson to broadcast epidemiologic data and specify context and its relevance.
2. Maintain diagnostic with PCR due to its high specificity.
3. Increase and improve the surveillance system and strengthen diagnosis capacity by expanding the laboratory network in the region.
4. Immediate treatment based on clinical spectrum and supervised by a doctor.
5. Provide continuity to the unit surveillance operation in the different sites where they are currently established.
6. Create a reserve of viral transportation means, anticipating needs for the next season. Support between border states to complement supply.

7. Continue with customer service telephone lines to provide service to the population in order to reinforce the reference system.
8. The negative network of epidemiologic surveillance applied in Chihuahua should be carried out at every level.
9. Investigate the possibility of implementing a mandatory notification system.
10. The syndromic diagnosis should prevail over the laboratory diagnosis in the general population. The sample gathering must be reserved to surveillance centers, sites, hospitals, and high risk groups.
11. There should be a training program at different levels for the public health staff, including students, so that they can participate in case of a major outbreak.
12. Establish an integrated, safe, and simple system to share information at a binational level.

WORKSHOP IN **EL CENTRO**, CALIFORNIA - August 31, 2009

PARTICIPATING INSTITUTIONS:

- Mexicali City Council
- CDC
- General Consulate of Mexico in San Diego
- EWIDS Program – San Diego, California
- Imperial County Emergency Medical Services
- Imperial County Public Health Department
- Mexican Institute of Social Security / Instituto Mexicano de Seguridad Social (IMSS)
- Institute of Public Health Services of Baja California / Instituto de Servicios de Salud Pública de Baja California
- Institute of Security and Social Services for State Workers / Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado (ISSSTE)
- Office of the State Senator, Denise Moreno Ducheny
- PAHO/WHO
- Pioners Memorial Hospital
- Civil Protection of Baja California
- Secretary of Health of Baja California
- Health Services of Mexicali
- Ventura Company

STATE OF **CALIFORNIA**

Michael Welton[24]

The Office of Binational Border Health in California (COBBH) is responsible of a target population of 6 million residents, involving the states of California and Baja California in its border region.

It manages the following programs:

- Early Warning and Surveillance of Infectious Diseases (EWIDS).
- The Health Commission in the U.S. – Mexico Border, California Section (USMBHC-COO).

Its mission is to provide international leadership to optimize quality of life and health along the United States – Mexico Border.

Early Warning and Surveillance of Infectious Disease – EWIDS:

Its major strategic goals are:

- To increase surveillance and epidemiologic capabilities in both sides of the border.
- To improve detection, report, and research of infectious disease breakouts in the border.
- To promote interoperable communications on health alerts with Canada and Mexico.
- Develop a public health force to undertake these activities

[24]Epidemiologist. California Office of Binational Border Health (COBBH)

H1N1 Spring 2009:

The major actions that were carried out can be summarized in the following points:

- Took part on information dissemination through flyers, posters, and radio commercials.
- Took part on the response with quick test kits and face masks.
- Supplied a forum for the binational discussion on the Influenza A H1N1 breakout response in July 2009.
- Increased and reinforced the existing communication networks, facilitating a binational discussion to improve practices in community mitigation and education.
- Possibility of establishing a standardized binational surveillance system and a report system throughout the U.S. – Mexico border.
- The following actions in community mitigation were established:
  - ❒ Minimize adverse secondary effects in individuals and communities
  - ❒ Reliable communication
  - ❒ Transparent and multidirectional information
  - ❒ Effective use of media
  - ❒ Flexibility and adaptability
  - ❒ Reliability
- In regard with laboratory networks:
  - ❒ Staff with extended working shifts
  - ❒ Improvement in the report systems
  - ❒ More equipment
  - ❒ Improved transportation system
  - ❒ Test standardization
- In epidemiology:
  - ❒ There was coordination in case definition
  - ❒ Increase of influenza surveillance sites
  - ❒ Surveillance evaluation
  - ❒ Establishment of a technical advising committee for the influenza surveillance in the border

H1N1 Fall 2009:

For the following fall season, when a new breakout is expected, EWIDS has planned actions in:

- Surveillance reinforcement of surveillance positions
- Information dissemination
- Promoters' training

COLLABORATION AT A **FEDERAL LEVEL** (**CDC AND NHRC**[25]) – **MEXICO**

Sonia Montiel[26]

Background:

The United States and Mexico have a long and strong binational relationship in different topics, specifically in health. In this area, binational work groups and laboratory networks already exist.

Collaboration:

Collaboration between CDC, NHRC, and Mexico began in October 2007, including:

- Establishment of Agreements: There is formal and informal coordination and communication among the different parties, therefore local groups should establish leadership (with federal support) to determine needs, contact points, epidemiologic information, laboratory information, supplies, and equipment.
- Training programs: Training activities have been developed and currently, there is a training availability in other areas which has taken into consideration the identification of needs, capabilities, and opportunities in the Mexican state laboratories and NHRC, for which a training plan is already under development and implementation.
- Resource availability: There are resources at every level (federal, state, and local) and must be used to secure the availability and prompt distribution of laboratory supplies, reagents, staff, and sample transportation.

The Challenge:

The most important challenge at this time is that the import / export of any item from and to Mexico is a thorny issue, due primarily to:

- The actions that have to be taken into account to cross the border are not consistent in every point of entry
- Procedures are confusing and take too much time
- There are different agencies involved in the issue and not interconnected

[25]Naval Health Research Center

[26]BID laboratory coordinator. Center for Disease Control & Prevention

- Customs agents are required, which do not exist now
- Permits for transportation of goods or supplies are very specific and exclusive for each of them, which means that it is required to get several permits for some products. To make things worse, permits must be requested in Mexico City.

Next Steps:

- Importation procedures reconciliation – exportation and requirements for supplies transportation (reactives, consumable goods), biological samples.
- Develop a proposal to create a regular procedure to expedite trans-border activities.
- Increase bilateral cooperation between U.S. and Mexico's customs authorities.
- Create a high level interagency work group to identify and develop combined tasks for the security and simplification of import of biological samples and laboratory materials.
- Meetings scheduled on a regular basis to understand the limitations of each agency and to address topics of legal authorities and operational resources to reach agreements.

The quarantine stations' main role is to work with public health representatives at a binational, local, and state level, to keep them informed, and to provide sick individuals with treatment and monitoring assistance.

The CDC DGMQ (Division of Global Migration and Quarantine) is working toward a coordinated effort and operation standardization throughout the U.S. – Mexico border, with the integration of the El Paso and San Diego quarantine stations.

IMPERIAL COUNTY

Paula Kriner[27]

Background:

Since 2004, an ILI surveillance procedure has been conducted in Imperial County; but since 2007, this surveillance has been conducted all year long. Two surveillance sites have been created in the Calexico and Brawley clinics.

On March 30, 2009 a sample is taken from a 9-year-old girl who had fever and cough; on April 13, the naval laboratory is unable to identify the type of influenza strain. The sample is sent to CDC, which identifies the A H1N1 influenza Virus on April 17.

On April 18, the investigation of cases and contacts that don't have a recent history of being exposed to the virus nor have traveled to Mexico, is expanded at a local level. By April 20, the local medical community is informed of local cases and the active surveillance procedure is increased.

[27]Imperial County Public Health Department

By April 21, the Emergency Operations Center is activated, which takes control of the communication process with daily bulletins about the health situation. A second case is confirmed on April 22.

On April 26 a third case is confirmed. On the 28th the call center starts operating to serve the community.

The surveillance activities include:

- Data collection about school absenteeism throughout the county.
- Surveillance of health workers getting sick.
- Information meetings were conducted for infection control staff and doctors.
- A farmers' source with ILI was investigated

Epidemic summary:

- Cases to date: 81+
- Age range: From 1 month to 80 years old
- Average age was 13 years old
- 43 cases were female (43% from total)
- 6 patients were hospitalized (7%), of these 2 were in ICU (2%)
- More common underlying conditions: asthma (10 cases, 12%); metabolic disease (5 cases, 6%); heart condition (8 cases, 10%); pregnant women (3 cases, 4%)

Lessons learned: What worked:

- The most relevant: Surveillance. Its procedures and protocols were easily expanded to other locations.
- Staff from new surveillance spots and were trained.
- A transportation system was established to deliver laboratory materials and to pick up samples.
- Communication was essential
  - ❒ The health alerts and advising system were successfully used.
  - ❒ Daily information reports to the public.
  - ❒ Presentation for key groups: clinical doctors, emergency management system, special populations.
  - ❒ Reports from the emergency operations center delivered twice a day.
- A call center and a hotline were established to serve the community.
- Permanent communication with the public health laboratory to coordinate the supply transportation and samples collection.
- Data bases were created in classified files to share the laboratory results and case information.

Next steps:

- Implement a protocol to guarantee the sample collection in severe hospitalized cases.
- Set up reminders for the regular staff for the management of collected samples in the emergency departments.
- Expand the surveillance system to outlying regions (tribal clinic of Fort Yuma).
- Ensure the timely report of potential cases.
- Expand the transportation system for the sample collection in outlying areas.
- Increase the local laboratory capacity in order to identify influenza and other diseases.

STATE OF **BAJA CALIFORNIA**

Angélica Pon[28]

Epidemiologic Alert:

On April 8, an atypical outbreak of 3 people with pneumonia is notified. On April 24 the Federal Health Secretary informs about the circulation of the new swine influenza virus and on April 30, its name changes to influenza A H1N1.

The National Health Council/ Consejo Nacional de Salud declares a health contingency state and WHO warms that the influenza outbreak is a public health emergency and a pandemic.

The H1N1 strain is a subtype of the Type A Influenza Virus of the Flu Virus, with the ability to recombine and infect human beings. The H1N1 has mutated in different subtypes that include the Spanish flu (extinguished in wild life), swine flu, and avian flu.

Specific Actions in Baja California:

Due to the appearance of this new virus and with the uncertainty of its characteristics not yet known, the entire community's reaction was diverse: from affected health condition; social, religious, and cultural changes; and even economic losses due to the change of habits and customs; all of which caused a state of generalized psychosis.

[28]Epidemiologist. Baja California Department of Health

In view of the situation, the State of Baja California, along with its political and health authorities, implemented five priority measures:

1. Epidemiologic surveillance:

Due to the fact that the new disease didn't have clear procedure guidelines and that the guidelines at a federal level were changing, as more information about the disease was obtained, sometimes without any time to inform all the healthcare staff, the State decided to establish its own guidelines.

Quick tests had a social impact since they calmed down the population and many times even the healthcare staff.

Despite the fact that samples were being sent for diagnosis confirmation, treatment was initiated without waiting for results, since the over demand of samples delayed their analysis. Results were useful in epidemiologic classification.

2. Medical attention and hospital network:

Due to the general population's uncertainty, hospitals were overcrowded with the patient flow (the population went even without showing symptoms). This worsened the problems that hospital already had, particularly due to the limited healthcare staff, which was forced to extend their workdays and care for more people; this led to another problem: they spent less time with their family, increasing their stress.

Other problems presented were the lack of protocols, each doctor used his/her own criteria; and little input for case management.

As a result, all health services began to unify criteria and created their own algorithms that were applied in every health establishment in the State.

The following immediate actions were also taken:

- Massive activities and events, including schools, daycares, and large rooms were cancelled.
- Health teams, mobile brigades and surveillance stations were put in place to decrease occupation by demand on health care from main health units. These mobile brigades became filters to avoid excessive work in hospitals and to avoid contact with hospitalized patients.
- Orphanages, nursing homes, and migrant shelters considered as socially vulnerable groups were visited in the area by brigades to review cases and contact was maintained with doctors for notification.

The response structure consisted of:

- 59 Health Motorcades: 182 people
- 120 Health Promoters
- 44 members of the Epidemiologic Team
- 15 Mental Health people
- 21 Health Filter Modules: 252 people
- 126 Sanitary Verifiers
- 10 Members of Social Communication

Media Role:

A problem detected in the state of Baja California was the excessive alarm created by the local media.

For example, 203 cases with 8 deceases have been confirmed in the state (1 in Mexicali, 6 in Tijuana, and 1 in Ensenada). In contrast with other states, such as Chiapas, both the number of cases and deadly rate is low, however the media has been much more aggressive when dealing with the news in Baja California.

Binational Communication:

In general, there was good communication with the California counterparts.

The problem emerges with communication at the federal level. Due to current regulation, the flow in decision-making is sometimes blocked, as well as other logistical aspects, such as the sample transportation across the border (The Federal Commission for the Protection against Sanitary Risk (COFEPRIS [acronym in Spanish] must give permission).

Another problem is that due to legal aspects, the epidemiologic notification cannot be implemented yet.

Accomplishments

In view of this contingency, the healthcare state system was tested, generating several benefits:

Strengthened state laboratory with an investment of 250,000 dollars, which were used for:

- Training
- Equipping facilities
- Biosecurity equipment
- Techniques used to identify the influenza virus:
  - Indirect immunofluorescence
  - Isolation in cell culturing
  - Hemagglutination inhibition
  - RT-PCR
  - RT-PCR in real time

The Epidemiologic Monitoring State Unit is being created, which along with the Control, Command, Communications, and Calculation State Center (C4) is able to inform and detect early warnings and at the same time, contact the necessary actors for their control.

RECOMMENDATIONS FROM WORK GROUPS

Group 1: Case Management and Treatment:

1. Educate population about where to go in order to get the different services.
2. Need of extensive staff training about algorithm – protocol needed for the latter to be successful.
3. Start with the health staff to prevent germs dissemination; work with key leaders such as teachers union; encourage personal responsibility; continuous repetition of messages.
4. Educate, educate, educate. Prevent abuse on the use of quick tests.
5. Follow priorities for test; use the PCR test only when required (treatment is the same whether or not H1N1 diagnosis is confirmed).
6. Look for alternatives to the traditional hospitals; hire private hospitals to have more beds.
7. Use of mobile units in the community. Use of triage stores outside the hospital (weather appropriate).
8. Hospitals and clinics have developed good plans and they are willing to share them with Mexico.

Group 2: Risk Communication, Mitigation Measures:

1. Update meetings for county and state staff; information updating in real time in the internal sites for the healthcare staff; follow guidelines and consultancy at a state and federal level, as appropriate.
2. Binational joint conference, create a committee of binational public information, daily binational teleconferences, continue with communication monitoring.

Group 3: Surveillance and Diagnosis:

1. High level work group (general health council, board of governors, health national council) with the authority to decide the recommended changes in regulations to give the State the ability to solve problems locally. The transportation procedures of supplies, inputs, and samples, among others, must be implemented in an electronic platform, with safe access and electronic signatures, and linked with all the institutions involved.
2. Create of a unique and effective transportation system dedicated exclusively for sanitary transportation.
3. Reinforce the healthcare staff training in the screening of population that must get quick and/or confirmed tests.
4. Improve information provided to the population about the need of samples. Have just one communication channel at all levels. Adapt the influenza platform for the exchange of information at a binational level.
5. At a local level: enhance the protocols already established by prior experience.

WORKSHOP IN **McALLEN**, TEXAS
SEPTEMBER 9, 2009

PARTICIPANT INSTITUTIONS:

- Brownsville Public Health
- Cameron County
- CDC
- City of Harlingen
- City of McAllen
- DHHS – Cameron County
- Donna School District
- DSHS – Texas
- Edinburg Regional Hospital
- Harlingen Fire Department
- Hidalgo County Emergency Management Service
- Hidalgo County Health & Human Services
- Health Jurisdiction 3 – Matamoros
- La Joya School District
- Assembly plants (maquiladoras)
- Mission City School District
- PAHO/WHO
- Pharr San Juan – Alamo School District
- Río Grande Regional Hospital
- Secretary of Health of Tamaulipas
- Texas A&M HSC
- US Customs & Border Patrol
- Valley Regional Medical Center

STATE OF **TEXAS**

Allison Abell Banicki[29]

Surveillance: Detection and Monitoring:

The first case detected in Texas was in the Guadalupe County, soon after the outbreak in California.

As the disease developed, most cases were concentrated in border counties, just like the mortality rate and seriousness.

Control and surveillance covered not only the number of cases but also the hospitalizations and the ILI.

Four methods were used to detect and monitor the Influenza in Texas:

1. **ILI Surveillance Network (ILINet):** Is a national program that gathers data from external patients; it is voluntary and sponsored by the CDC and executed by the health departments. It includes a weekly report of the total number of patients with ILI that visit medical offices. Provides information about seasonal variations and intensity of the disease.
2. **Influenza surveillance program in the laboratory:** Sample Control from clinics, hospitals, public health laboratories, and health departments. Identifies changes in current circulating influenza strains, as well as the beginning and end of the influenza season and antiviral resistance.
3. **Deaths of children and adolescents due to influenza:** Death reports due to influenza in people younger than 18 years old are mandatory in Texas since 2007.
4. **Reports from local counties:** There are several data collection methods at a local level that are compiled at a regional level, and sent to the State to obtain global data. Local sources vary, from school districts to private institutions where an outbreak has been detected.

[29]EWIDS Epidemiologist.

Non-pharmaceutical Interventions:

These are strategies that decrease the risk of a disease transmission. They don't include medical interventions that prevent, treat, or cure diseases (medicines or vaccines).

It is based on two essential strategies: infection control and social distancing.

Their benefits are immediate and available, they are cheap, can be applied to anyone (from an individual, family, community, or at an international level), reduce disease dissemination in a community, decrease stress in health services, and finally, is guided by science.

Within this scheme, the Texas Department of State Health Services provides guidelines based on federal recommendations and science-based evidence. In some cases, it can recommend voluntary isolation and even order quarantine.

Local communities provide specific guidelines based on the local health situation. It also advices decision-makers about school closings or cancellation of public events.

Lessons learned – What was effective?

- Epidemiologic research
- Laboratory tests
- Practical guides for doctors, organizations, and communities
- Antiviral distribution
- Case report through www.texasflu.org
- Binational coordination between the United States and Mexico
- Call center. Approximately 7,500 calls were answered, including almost 2,000 from medical services providers. The staff included 8 nurses (at least 2 of them were bilingual).

What are the challenges?

- The size of the state of Texas is a challenge in itself. The response to disasters is established as a local responsibility, with the State playing a support role.
- The DHSH laboratory network capacity could manage approximately 30,000 samples during the spring season, becoming a diagnosis laboratory instead of a surveillance one.
- Learn more about the virus.
- School closings and cancellation of public events must be thoroughly considered due to the impact on the community, employers, and basic services.
- Communicate the right messages. Report news and avoid creating panic.

CAMERON E HIDALGO COUNTIES

Fidel J. Calvillo[30] y Eddie Olivarez[31]

Initial Response: Epidemiology and Surveillance

- The DSHS guidelines were followed, receiving more than 1,000 reports in the first 5 days in the Cameron and Hidalgo Counties.
- Laboratory samples and reviews followed the protocols according to the G-2ª form.
- Weekly teleconferences were held both with hospitals to review reports and laboratory guidelines, as well as with schools (districts and superintendents).
- Healthcare services providers were informed about the continuous update of protocols.
- Technical support for the medical call center.

Collaboration from other response entities

- Texas Department of State Health Services
- Texas Department of Aging and Disability Services
- Mexican Consulate
- The media
- Federal Agencies
- University of Texas Health Science Center at Houston School of Public Health Brownsville:
  - ❒ Participated in the development of a survey for a research on children and
  - ❒ adult absenteeism
    Provided presentations about current topics in H1N1 to local health departments, medical providers, government employees, school officials,
  - ❒ and health care entities
    They created the ILI case cartography throughout the Cameron and Hidalgo
  - ❒ Counties
    Case investigation
- The CDC quarantine station in El Paso provided information to the counties about the crossing of individuals with ILI
- The health departments in the cities:
  - ❒ Visited every house to follow up potential cases
  - ❒ Worked with health care entities to measure absenteeism rates and information on H1N1

[30]Director of Public Health Response Program. Cameron County Department of Health and Human Services

[31]Chief Administrative Officer. Hidalgo County health & Human Services Department

Antiviral Distribution:

All local pharmacies were notified about the antiviral availability, a stock inventory was made, as well as guidelines for use and distribution. This inventory helped in the distribution of antivirals that came from strategic national reserves.

The Media:

- A joint information center was established for the Cameron and Hidalgo Counties, and the DHSH Region 11
- A single spokesperson was designated for H1N1 press releases
- Daily press conferences were held to inform about the pandemic status

STATE OF TAMAULIPAS

Daniel Carmona[32]

At present, more than 22,000 cases have been confirmed in Mexico with close to 200 deaths. Most active cases are located in Nuevo Leon, Tamaulipas (more than 1,000 cases), Jalisco, and southern states.

At the State level, there are problems in the south (Tampico), where more than 60% of the cases are concentrated. The Reynosa-McAllen area does not have many cases, however, it has proven a high number of deaths, which leads us to believe that the virus is behaving in a different manner than in other locations.

The state intervention plan included the following elements:

- Epidemiologic surveillance with reference laboratory
- Strategic reserve of medication
- Coordination of all social sectors
- Creation of the influenza Health State Board
- Coordination at all levels in the state government
- Effective social communication to provide reliable information to the community
- Community participation

The assistance actions lines in the State were:

- To strengthen epidemiologic surveillance. Currently, patients who are hospitalized due to influenza are under control
- Laboratory diagnosis
- Medical care
- Strategic reserve of Oseltamivir
- Social widespread coverage and mobilization
- Intersectorial coordination

The State Board on Health Security carried out the following actions:

- School closings at the beginning of the health security emergency
- Radio and television commercials to educate population about hygiene rules
- Cancellation of work and public events
- Provided face masks to the general population. Face masks are currently given to sick or risk individuals
- Water hyper bleaching
- School filters (people in schools who identify students with ILI and refer them to healthcare services)
- Protection of high risk population, particularly pregnant women
- Quick epidemiologic block to patients with confirmed disease.

[32]Secretary of Health of Tamaulipas

STATE PLAN OF HOSPITAL CONTINGENCY IN **TAMAULIPAS**

Jacob Rosales[33]

Next, we present preparation and response actions from the hospital system against the influenza A H1N1 outbreak.

The strategic plan for hospitals was based on the following points:

1. Infrastructure: Necessary to determine the functionality of the hospital center to face patient influx, resource availability to assist respiratory complications, and need to avoid leaving patients with other pathologies unattended. It was determined:

- Emergencies and hospitalization
- Triage
- Influenza units
- Isolation rules
- Restriction in the number of visits
- Information module
- Quantity of O2 doses
- Functional ventilators

2. Procedures: To check the hygiene rules followed by healthcare staff as well as care algorithms to patients.

- Hand washing program
- Workers protection
- Medical visit every four hours
- Training about influenza management
- Sample taking
- Restrict regular medical care
- Capacity of resolution from Staff
- Stop use of cafeteria
- Hospital infections Committee
- Management of stage fright

[33]Hospital Care State Coordinator. Secretary of Health of Tamaulipas

3. Hospital Strategic Reserve:

- Supply inventory
- Crystalloid solutions
- Antibiotics
- Antivirals
- Ventilator kits
- Protection material
- Hand washing Supplies
- Ventilation support and hemodynamic
- Laboratory reactives and x-rays

Triage Protocol:

The triage that has to be used in "hospitals' critical areas, such as intensive care units must follow certain requirements that define the patients who are actually candidates for ventilatory support according to an international level agreement in an influenza pandemic, which can also be applied to other pathologies.

1. Intensive care resources must be used equitably and efficiently before the presence of influenza.
2. The SOFA (Sequential, Organ, Failure, and Assessment) measurement system will be used for patients who are candidates for ventilatory support.
3. This system is based in physiological parameters and laboratory tests; it is easy to calculate and valid in a wide range of patients in ICU.

Prioritizing Tool:

Indicates priority of patients who should enter ICU and require mechanical assisted ventilation support. This scheme uses 4 cards in blue, green, yellow, and red colors, commonly used in military areas or refugee camps.

- BLUE: Patients that are not admitted in ICU and their management will only be according to their situation; medical management and palliative care.
- RED: High priority admission to ICU and ventilatory support.
- YELLOW: Those patients who are basically very ill and might or might not benefit from ICU; can receive care without affecting patients in red condition.
- GREEN: Patients who are considered to leave ICU once they don't need ventilatory support.

REYNOSA PUBLIC HEALTH JURISDICTION

Leticia Doria[34]

Background:

The Jurisdictional Committee of Epidemiologic Surveillance meets on April 22, 2009, due to the appearance of atypical pneumonia cases in the nation. The next day an epidemiologic alert is declared at a Federal and State level; the alert is informed to the first and second level healthcare units receiving guidelines from federal and state levels.

Actions:

In view of the emergency, the health jurisdiction applied a series of measures:

- Activation of the State, Jurisdictional, and Local Committees on Health Security
- Training to all healthcare staff in the jurisdiction
- Promotion of preventive measures to general population
- Activation of the Influenza Epidemiologic Surveillance System Program (SISVEFLU, for its acronym in Spanish)
- Epidemiologic surveillance brigades with active search of cases and acquaintances
- Class cancellation and social distancing measures
- Coordination with local and educational authorities to disseminate information
- Establishment of Surveillance Sites (8 sites total)
- Actions of the State Commission for Protection against Health Risks / Comisión Estatal para la Protección contra Riesgos Sanitarios, in human congestion, such as public transportation, restaurants, bars, etc.
- Availability of quick tests and antiviral treatments
- Information about epidemiologic situation in the country and around the world
- Knowledge of confirmed cases in Texas and the United States
- Communication through the Mexican Consulate in Mc Allen
- Electronic and telephone communication of binational cases to the Hidalgo County Department of Health and Human Services

[34]Epidemiólogist. Sanitary Jurisdiction IV - Reynosa

Lessons learned:

- Coordination and communication between the local, state, and federal levels
- State's ability to respond is tested
- Effective measures to mitigate and reduce the virus transmission capability
- Patients with severe clinic situations and quick evolution, and co-morbidity
- Low sensibility on quick tests
- Delivery of information must be timely and high quality
- Preparation is essential
- Permanent training of healthcare staff
- Involve every sector of the population

Future Actions:

- Strengthen mitigation actions
- Guarantee a quality medical attention for all sick population
- Identify vulnerable population
- Strengthen the response ability for the management of cases with serious symptoms
- Guarantee the follow up and infection network in hospital centers
- Provide antiviral treatment to people with ILIs and ARIs
- Establish school filters when students return to school
- Continue filters in work areas
- Maintain hygiene measures information campaign (hand-washing, appropriate techniques for coughing or sneezing, etc.)
- Social distancing measures

RECOMMENDATIONS FROM WORK GROUPS

Group 1: Case Management and Treatment

1. Educational campaigns for population about places to go if symptoms are present.
2. Reference system among the health units and hospitals.
3. Care algorithms for sick people with ILI.
4. Establish treatment algorithms for potential cases crossing the border.
5. Educate population about quick tests usefulness.

Group 2: Risk Communication, Mitigation Measures:

1. The health department authorities must introduce themselves to the media and specify how to deal with the situation.
2. Implement a joint information center.
3. Implement an incident command system and teach the media about it.
4. Assign a single spokesperson and classify information delivered to the public.
5. Urge the delivery of appropriate and unison information at a local level.
6. WEB EOC and EM Systems are instant messaging systems, capable of announcing actions being taken in that moment.
7. Give the most updated and timely local information

Group 3: Surveillance and Diagnostic:

1. Use several information mechanisms accessible `to those involved in surveillance, including the internet (www.texasflu.org).
2. Use new clinical and epidemiologic guides for the H1N1 diagnosis and surveillance, including surveillance of high risk groups.
3. Develop educational campaigns for the public in order to have a more reasonable use of available resources under medical responsibility.
4. Improve the timely exchange of information among health authorities.

FINAL CONSIDERATIONS

"Influenza A H1N1 is a disease that came to stay". This phrase repeated in various scientific forums shows that our conduct should be being prepared for it and the best way is to know and determine the most effective ways to counteract it.

The series of meetings – workshops held during August and September 2009 along the United States – Mexico border, were directed to accomplish this goal. Through these, we were able to expose what went right and what needs to be done, what needs improving and what mechanisms should be implemented and / or modify.

This report reflects the experiences and recommendations of major health actors on both sides of the border, state and local agencies, public and private, technical and political, who together with PAHO/WHO as a technical cooperation agency, established the following points that must be taken into account:

The evidence from many places affected by the outbreak, shows that the H1N1 pandemic virus has taken root quickly and now is the dominant strain of influenza virus in most parts of the world. The pandemic will persist in the coming months, as the virus continues to spread through vulnerable populations.

PAHO/WHO advises countries of the Northern Hemisphere to be ready for a second wave of spread of the pandemic.

Age groups most commonly affected by H1N1 are generally younger, both when considering the frequency of infection and, above all, the number of serious or fatal cases. To date, most serious and fatal cases have occurred in adults under 50 years, and deaths of elderly have been relatively rare. This age distribution contrasts sharply with the profile of seasonal influenza, in which about 90% of fatal and serious cases are in people over 65 years.

Preparedness against new outbreaks of the pandemic requires equipment, materials, infrastructure and human resources available permanently.

Equipment and materials need to cross the border easily; inter-agency communication should keep maintaining levels of effectiveness already achieved in critical stages; continuous training in attention protocols is required in health servers. In infrastructure, the resources obtained by the emergency, were used in improving laboratories and adequate space for handling cases of ILI.

Education is important to the community; a prepared community responds better to an adverse event. Community must know that prevention is the best tool to fight this disease. Best preventive measures are: constantly hand washing with water and soap, coughing and sneezing standards, proper use of masks and isolation of suspected and confirmed cases.

People should not base their hopes on a vaccine against influenza A H1N1. Although it is an effective form of prevention, due to the limited time and resources, it is impossible that all people can access it. Health agencies should follow the recommendations set by their countries regarding the administration of vaccines to priority groups.

Communication must be effective and accurate. Agencies should establish a single spokesperson to deliver updated information on the evolution of the disease. The community has the right to be well informed. The fluid communication between institutions should also be the same at country level and across the border, so that it has the correct information.

Finally, this report is the result of openness, collaboration and proactivity of each and every one of the participating institutions, as well as their willingness to further cooperate in the exchange of information and experience to preserve and improve the health of the border residents.

PAHO/WHO reaffirms its commitment to technical cooperation, advocacy and dissemination of knowledge with developing countries, their states and institutions to ensure continuous improvement in the quality of services rendered to the population.










INFLUENZA HUMANA