



2009 Pandemic H1N1 Influenza A Case Study in Border Response

A Workshop for U.S. & Mexico Border States

**July 30-31, 2009
San Diego, CA**

Summary Report

August 20, 2009

**Early Warning Infectious Disease Surveillance Program (EWIDS)
California Office of Binational Border Health**

California Department of Public Health

EXECUTIVE SUMMARY

PLANNING

The 2009 Pandemic H1N1 Influenza workshop was a result of strong collaboration and teamwork on the part of several different agencies. The Early Warning Infectious Diseases Surveillance Program (EWIDS) team in San Diego, CA, worked with public health officials from the California Department of Public Health (CDPH), Centers for Disease Control and Prevention (CDC) and San Diego State University Research Foundation Institute of Public Health (IPH) to conceptualize and plan the meeting purpose, objective and agenda content.

PARTICIPATION

The workshop had binational representation from Mexico and the U.S. Approximately 80 participants assembled, representing over 30 agencies, from Mexico and the U.S. at the federal, state and local levels.

PLENARY SESSIONS

The workshop consisted of 14 presentations illustrating the responses to the spring 2009 H1N1 outbreak, and focused on the epidemiology, laboratory, and community mitigation aspects of the response along the U.S. / Mexico Border.

WORK GROUPS/BREAKOUT SESSION

Participants gathered in groups of their respective focus (epidemiology, laboratory, and community mitigation) in order to discuss successes and obstacles in response to the outbreak, and to help in the preparation for the upcoming influenza season and the probable reemergence of H1N1. The outcomes of these sessions are categorized by the focus of the groups.

Laboratory

Laboratories across the border were forced to manage the sudden increase in work load due to the H1N1 outbreak on top of their normal tasks. Laboratories were faced with the task of handling hundreds of samples over normal capacity. Laboratories responded by, but not limited to, working extended shifts, creating 24 hour work schedules, reassigning and training staff, borrowing supplies, acquiring new equipment, and selective specimen testing. There was comprehensive agreement that the following issues needed to be addressed: *staffing, improved reporting processes, equipment, transportation, testing and testing standardization.*

Epidemiology

Throughout the U.S.-Mexico Border States there are more similarities than differences regarding influenza surveillance and responses to the H1N1 outbreak. Influenza surveillance included case based reporting, sentinel surveillance, syndromic ILI surveillance, case investigation, contact investigation, cross jurisdictional information sharing, and coordinated responses regarding public communication. In reaction to the outbreak, enhanced surveillance activities included emergency operation center activation, institutional based surveillance (schools, prisons, and nursing homes), year round surveillance, increased communication frequency, and expanded sentinel networks. Gaps in surveillance and identified areas for improvement were as follows: *harmonization of cases definitions, binational and cross state information sharing, increase influenza surveillance sites, surveillance evaluation, and technical advisory group.*

Community Mitigation

The goal of community mitigation during a public health emergency is to reduce illness and death while minimizing social disruption. In the case of H1N1, successful community mitigation targeted sanitary behaviors and implementing social distancing. During the H1N1 outbreak successful community mitigation took place in all states on both sides of the border. Some of the responses were school closures, voluntary quarantine, radio and television messages, print materials, and community health educators. The priority areas identified were: *minimizing*

adverse secondary effects on individuals and communities, reliable communication, transparent and multidirectional information, effective use of media, being flexible and trust.

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I. INTRODUCTION

In preparation for the 2009-2010 influenza season and following the out break of H1N1 influenza in spring 2009, the Early Warning Infectious Disease Surveillance Program (EWIDS) in San Diego California hosted '*2009 Pandemic H1N1 Influenza – A Case Study in Border Response: A Workshop for U.S. & Mexico Border States*'. The workshop was held for 2 days (July 30-31) in San Diego, California.

Approximately 80 participants assembled, representing over 30 agencies, from Mexico and the U.S. at the federal, state and local levels. The workshop consisted of 14 presentations illustrating the responses to the spring 2009 H1N1 outbreak, and focused on the epidemiology, laboratory, and community mitigation aspects of the response. During breakout sessions participants gathered in groups by area of discipline (epidemiology, laboratory, and community mitigation) in order to discuss successes and obstacles in response to the outbreak and to help in the preparation for the upcoming influenza season and the probable re-emergence of H1N1.

The following report summarizes the workshop's components: background, logistics, plenary sessions and outcomes of the group breakout sessions. The report is followed by an appendix containing all documents produced in preparation for the workshop.

II. BACKGROUND

GOALS AND OBJECTIVES

The overall mission of EWIDS is to improve cross-border activities in the early detection, identification and reporting of infectious disease events associated with potential bio-terrorism agents or other major threats to public health. EWIDS fosters collaboration between federal, state and local public health officials in Mexico and the U.S., as it pertains to epidemiological surveillance, laboratory capacity, community mitigation, communication and response. As such, one of the EWIDS goals is to provide forums for the exchange of bi-national/cross-border information, to enhance preparedness and strengthen cross-border communication.

The occurrence of the recent H1N1 influenza pandemic gave rise to the need for a U.S.-Mexico cross-border meeting where public health officials would have the opportunity to exchange information on lessons learned during the pandemic and to strengthen existing cross-border collaboration networks. Thus the purpose of the workshop was to foster collaboration and exchange of information regarding epidemiological surveillance, laboratory capacity, public health preparedness and response, as it relates to influenza outbreaks from a national, state, and local perspective in both Mexico and the United States. Participants, representing federal, state and local agencies, were invited from each border state in both U.S. and Mexico. The workshop objectives were as follows:

- **Provide a forum for binational discussion on the response to the 2009 Pandemic Influenza A (H1N1) outbreak as it relates to the following:**
 - Lessons learned at the national, state and local levels
 - Systemic gaps in ability to respond
 - Strategies for improving response to future outbreaks
- **Enhance and strengthen existing communication networks among the following partners:**
 - Mexico & U.S. health officials
 - Border health epidemiologists, laboratory scientists, program managers and directors of border health Offices
- **Facilitate a binational discussion for best practices regarding community mitigation, education and outreach.**
- **Discuss feasibility of establishing a standardized binational surveillance and reporting system along the entire U.S.-Mexico Border.**

LOGISTICS DEBRIEF

Planning Team

The 2009 Pandemic H1N1 Influenza workshop was a result of strong collaboration and teamwork on the part of several different agencies. The Early Warning Infectious Diseases Surveillance Program (EWIDS) team in San Diego, CA, worked closely with public health officials from the California Department of Public Health (CDPH), Centers for Disease Control and Prevention (CDC) and San Diego State University Research Foundation Institute of Public Health (IPH) to conceptualize and plan the meeting purpose, objective and agenda content. Throughout the planning phase the EWID in-house planning committee held periodic meetings to provide updates on conference planning progress. There were also frequent phone and email communications between the EWIDS team and the CDPH and CDC officials. EWIDS also subcontracted with the California Long Distance Learning Health Network (CDLHN) to assist with conference planning and the production and distribution of the DVD.

Plenary and Breakout Sessions

There was speaker representation from both the U.S. & Mexico at the federal, state and local level. Opening ceremony speeches were given by a state representative from Baja California and from California as well as by a representative from the local San Diego County Health and Human Services Agency. Federal, state and local representatives presented the national and local perspective for the recent H1N1 outbreak during the plenary session of the first day. The afternoon breakout sessions of the first day were facilitated by experts in the areas of surveillance and epidemiology, laboratory and community mitigation. Among the topics discussed during the first day of breakout sessions were 1) Current Status and Lessons Learned from the Novel Influenza Response – Border State Reports, and 2) Gaps & Next Steps. For the second day a representative from California led the opening ceremony. The plenary sessions were focused on 1) Laboratory Capacity and Its Impact on Early Detection and Surveillance, and 2) Community Mitigation, Education & Outreach. Like the first workshop day, plenary session speakers for the second day consisted of federal, state and local representative from both the U.S. & Mexico. During the afternoon of the second workshop day, breakout sessions were dedicated to a discussion of Gaps & Next Steps from an epidemiological, laboratory and community mitigation perspective. All plenary sessions were followed by a question answer period.

Facilitators, Master of Ceremonies and Breakout Session Guidance

In collaboration with CDLHN, CDPH, CDC and IPH guidelines were developed for masters of ceremony, facilitators and note-takers. An internal itinerary was developed outlining the order and times allotted for each of the guest speakers to facilitate the flow of the schedule. These internal itineraries were given to each of the masters of ceremonies and to EWIDS staff. Specific guidelines were developed and given to the masters of ceremonies on both days. These guidelines included information that needed to be conveyed to participants such as housekeep issues (e.g., bathroom locations, internet access), translation services information, videotaping announcements, and workshop evaluation announcements. A similar guidance was created for breakout session facilitators. This guidance explained the goal and format of the breakout sessions. All breakout session note-takers were provided with a laptop and a preset form to take notes throughout the session. Please see the Appendix IV and V for copies of the guidance for the masters of ceremonies, facilitators and breakout session note takers.

Translation, Website & A/V

CDLHN worked closely with EWIDS to design a webpage for the workshop, the site can be found at <http://www.cdlhn.com/ewids.html>. Website contained information on the host hotel, conference purpose and goals, speaker information, conference agenda and other logistical information. The website will be available to conference participants until August 31st, 2009. CDLHN was responsible for arranging professional translation services for the plenary sessions and outbreak sessions. The translation company provided simultaneous translation during the plenary session and consecutive translation during the breakout sessions. Audio visual assistance was provided by the Translation Company as well as EWIDS.

Travel & Transportation

All hotel accommodations arrangements for workshop participants were made by the EWIDS administrative assistant. Travel arrangements were also made by the EWIDS administrative assistant for some but not all the participants. Shuttle services to and from the hotel was arranged for some participants. These travel and accommodation arrangements were made for U.S. & Mexico participants.

Evaluation

In order to assess the workshop an evaluation was developed and translated by EWIDS and CDLHN staff. The evaluation was designed to capture the participants' opinions regarding: 1) Plenary sessions, 2) Breakout sessions, 3) Overall workshop, and 4) Amenities. The survey requested open ended and categorized responses. The full evaluation report is attached in the Appendix.

III. MASTERS OF CEREMONY, SPEAKERS, AND FACILITATORS

MASTERS OF CEREMONY

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Division of Communicable Disease Control

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IV. PARTICIPATING AGENCIES (FEDERAL, STATE & LOCAL)

The workshop had binational representation from Mexico and the U.S. at the federal, state and local levels. Participants included epidemiologist, laboratorians and other health officials from the following organizations:

Federal Agencies

Centers for Disease Control & Prevention (CDC) – U.S.
General Direction of Epidemiology (DEG) – Mexico
Intelligence Unite for Health Emergencies – DGE -- Mexico
U.S. Department of Health and Human Services – U.S.
U.S.-Mexico Border Health Commission – U.S. & Mexico
U.S. Naval Health Research Center – San Diego, CA
Border Infectious Disease Surveillance Program (BIDS) - U.S.

State Agencies

Arizona Department of Health Services
California Department of Public Health (CDPH)
California Rural Indian Health Board – California
Health Promotion Department, Baja California
Instituto de Servicios de Salud Pública (ISESALUD), Baja California
Institute of Public Health, San Diego State University – California
New Mexico Department of Public Health
Pan American Health Organization – El Paso, Texas
Secretaria de Salud – Tamaulipas, Mexico
Public Health Services – Chihuahua, Mexico
Public Health Services – Nuevo Leon, Mexico
Public Health Services – Sonora, Mexico
Public Health Laboratory – Baja California
Texas State Laboratory
Viral & Rickettsial Disease Laboratory - Richmond
San Diego State University – Graduate School of Public Health
Texas Department of Public Health
California Office of Binational Border Health (COBBH) – San Diego, CA
Early Warning Infectious Disease Surveillance (EWIDS) – CA, TX, NM, Arizona

Local Agencies

Imperial County Public Health Department – El Centro, CA
San Diego County Health & Human Services

International Agencies

Pan American Health Organization (PAHO)

V. PLENARY SESSIONS

PLENARY SESSION I: PANDEMIC H1N1 INFLUENZA – NATIONAL PERSPECTIVE

*'Cross- Border Surveillance Communication Strategies in North America'
Mr. Raul Sotomayor -U.S. Department of Health and Human Services*

Raul Sotomayor presented a brief overview of the U.S. Health and Human Services, Office of the Assistant Secretary for Preparedness and Response and a summary of the U.S. Border States Early Warning Infectious Disease Surveillance Project. The main strategic objectives of EWIDS are to enhance surveillance and epidemiological capabilities at both northern and southern borders of the U.S., improve cross-border detection, reporting and investigation of infectious disease outbreaks, foster interoperable health alert communications with Canada and Mexico, and develop public health workforce to undertake these activities. The next steps for the North America Cross-Border Communication Strategies are completing current legislative and executive review of draft information and data-sharing guidelines and agreements, establishing working groups to develop and maintain systematic processes and implement plans and protocols, and conducting planning meetings to test concept of operations, exercise plans, and evaluate preparedness processes.

*'Influenza Pandémica Humana A (H1N1) en México:
Cronología, Respuesta y Lecciones Aprendidas'
Dr. Ethel Palacios Zavala – Secretaria de Salud*

Dr. Palacios presented an overview of the H1N1 outbreak in Mexico, including a chronological account, the responses to the outbreak, and lessons learned. The strategy to control the epidemic included epidemiologic and laboratory surveillance, medical attention, health education, logistic coordination, and international coordination. In order to continue to handle the epidemic and to manage future waves of infectious disease outbreaks, links between sectors, states and countries need to be consolidated, begin to build human capital, identify opportunities for cross-sector and cross-border collaboration, reinforce preparation for the normal influenza season, and expand the national influenza surveillance system.

PLENARY SESSION II: PANDEMIC H1N1 INFLUENZA – STATE & LOCAL PERSPECTIVES

*'Pandemic H1N1 Influenza: The California Experience'
Dr. Gilberto Chávez –California Department of Public Health*

Dr. Chavez stressed that there is no indication that the epidemic is over and in order to prepare for the 2nd wave of H1N1 there are many questions regarding

the epidemiology and laboratory process associated with it that need to be addressed. Targeted vaccinations will be crucial in the management of the re-emergence of H1N1. Pregnant women, people who live with or care for children, health care and emergency services personnel with direct patient contact, children 6 months through 4 years of age, and children 5 through 18 years of age who have chronic medical conditions should be the initial priority groups for vaccination. Though the reaction to the initial outbreak of H1N1 was excellent, we are faced with a potentially more intense wave of H1N1 and we need to be ready for it.

'Pandemia de Influenza H1N1'

Dr. Leticia Wong-Secretaría de Salud del Estado de Baja California

In the beginning of 2009, Baja California was presented with an outbreak of rickettsia, which was soon followed by the H1N1 outbreak. Baja California confirmed 134 cases of H1N1 from the beginning of the outbreak until July 25, 2009. In part, Baja California utilized 56 mobilized health centers in 4 jurisdictions to manage the outbreak. Additionally, private medical providers, hospitals, funeral homes, and pharmacies had a sanitary control program in place prior to the outbreak in order to verify the sanitary conditions of the facility. This was very useful to control the viral spread of H1N1.

'Novel Influenza A H1N1 Outbreak: Lessons Learned'

Dr. Karla Lopez-Imperial County Public Health Department

Dr. Lopez presented how the H1N1 outbreak was handled in Imperial County, CA and the lessons learned. The first H1N1 specimen was collected from a 9-year old girl in Imperial County on March 30, 2009. On April 18, 2009 enhanced surveillance activities began including, case and contact investigations, addition of sentinel clinic sites, school absentee data collection, health care worker surveillance, and specimen collection kits distributed. Among other successes during the outbreak, existing surveillance procedures and protocol were very effective in Imperial County and were easily expanded. For future waves or re-emergence, the timeliness of reporting suspected cases, local laboratory capacity, and expansion of the specimen courier system need to be addressed.

'Pandemic H1N1 San Diego County'

Dr. Michelle Ginsberg- San Diego County Department of Public Health

Dr Ginsberg provided a detailed account of San Diego County Department of Public Health's activities immediately following the H1N1 outbreak, continued efforts to keep up with the local situation, and planning efforts for the possible re-emergence in the fall. Ongoing influenza surveillance in San Diego County is comprised of school absenteeism, pre-hospital transport data, laboratory surveillance, 911 calls, sentinel surveillance, ER visits, etc. Additionally for the

H1N1 outbreak, surveillance was recorded for gastro-intestinal symptoms as well. Throughout the outbreak constant communication was maintained with state and federal partners, along with regular communications with the media. Since the outbreak, though there has been fluctuation in the stream of cases, there has not been and there is not expected to be a break coming into the new influenza season. Dr. Ginsberg emphasized that, “We are all in this together and we need to share our strengths”.

PLENARY SESSION III: LABORATORY CAPACITY AND ITS IMPACT ON EARLY DETECTION AND SURVEILLANCE

*‘Pandemic H1 Influenza Virus Impact on a Local Public Health Laboratory’
Dr. Patricia McVay- San Diego County Public Health Laboratory*

Dr. McVay gave an account of the impact of the H1N1 outbreak on the San Diego Public Health Laboratory. In San Diego, the outbreak occurred at the end of a manageable flu season. In late April 2009 an influx of nasopharyngeal swabs for laboratory analysis surpassed the lab’s maximum testing capacity. Issues that arose included staff shortages, the reception and organization of an overload of specimens, handling hundreds of phone calls and requests, reporting results in a timely manner, and visits from the media. In order to manage future outbreaks and epidemics more staff needs to be trained and limits must be set on the number of hours staff can work. Additionally, preparation needs to include communication standards for within the lab, lab personnel must be familiar with the roles of all departments within the lab, and organizational tools need to be utilized for requests and reporting, and a strategy should be developed to address the media.

*‘Influenza H1N1: Capacidad Diagnostica del Laboratorio’
Q. Verónica Bejarano- Laboratorio de Salud Pública de Baja California*

The management of the H1N1 outbreak and other outbreaks directly depend on the capacity of the public health laboratories. Laboratory capacity in Baja California is supported through 3 sources: EWIDS, BIDS, and the state government. Additionally, there is collaboration with the San Diego Naval Health Laboratory.

*‘Laboratory Capacity and Impact on Early Detection and Surveillance’
Dr. Edwin Ades-CDC Emergency Operation Center*

Dr. Ades gave a federal level account of the H1N1 outbreak with regards to laboratory capacity and testing throughout the United States. Part of the CDC-EOC’s effort was focused on tracking the efforts of clinical teams, infection control, vaccination development, and animal investigation. Additional focus was

centered on laboratory testing, equipping U.S. labs with the appropriate equipment and supplies, and receiving specimens from Mexico for confirmation. Preparation for a re-emergence of H1N1 will focus on what was learned during the first outbreak.

'Influenza Pandémica A (H1N1) 2009 en México: Experiencia en el Laboratorio'
M.C. Rita Flores Leon- Dirección General de Epidemiología
Instituto de Diagnostico y Referencia Epidemiológicos

Ms. Flores's presentation gave a chronological account of the response to the H1N1 epidemic and the laboratory experience in Mexico at the federal level. Immediate communication was established and specimen transportation was arranged between Mexico, United States, and Canada. In general, activation of emergency protocols during the outbreak were very successful. Evaluation of the process did reveal some areas of improvement regarding diagnosis, data management, coordination and logistics, and coordination with the U.S.

*'Influenza Surveillance: Laboratory Capacity and
Early Detection of Novel Influenza in CA'*
Dr. David Schnurr-Viral and Rickettsial Disease Laboratory

The California Influenza Surveillance Project (CISP) is a joint project conducted by the Viral and Rickettsial Disease Laboratories (VDRL), CA Public Health Laboratories (CAPHL), military, university, and private labs. As of July 16, 2009, the majority of Californian counties had reported cases of H1N1 and it is speculated H1N1 had reached the remaining counties but surveillance has not detected them. The state VRDL has not found any resistance to Oseltamivir (Tamiflu).

PLENARY SESSION IV: COMMUNITY MITIGATION, EDUCATION, & OUTREACH

'Community Mitigation Measures for Influenza A (H1N1) Pandemic in Texas'
Dr. Allison Banicki – Texas Department of State Health Services

Dr. Banicki provided an overview of the outbreak in Texas; the types of community mitigation utilized, and community mitigation measures utilized in Texas. Examples of social distancing strategies used were closing schools, canceling public gatherings, planning for liberal work leave policies, tele-working strategies, isolation of cases (voluntary), and quarantine of household contacts (voluntary). In a survey done of residents in Guadalupe County (N=2030), it was found that over half reported more frequent hand washing, about 1/5 reported avoidance of ill persons, and less than 10 percent reported avoidance of crowds.

Respondents reported in order to protect others from becoming ill, about 1/3 reported staying home, about 1/3 reported self isolation, and about 1/5 reported washing their hands. Some of the challenges that were faced in Texas were different perspectives between headquarters staff, regional offices, and independent local health departments, determining legal authority for implementing school closures and related measures, and finding the balance between reporting the news and not creating panic.

*'Community Mitigation: Facing the Challenges of Effective
Communication to Implement Social Distancing'*
Dr. Harvey Kayman – California Department of Public Health

The objectives of Dr. Kayman's presentation were to: 1) review social distancing aspects of public health community mitigation planning, 2) focus on the central role of communication in implementing community mitigation and the costs it would take, and 3) review potential risks and benefits of taking action or waiting. Community mitigation strategies need to balance taking action to mitigate illness and the disruption action may cause to day to day social, educational and economic activities. These goals and strategies will only be met through collaboration and communication with essential stake holders at all levels and by addressing the challenges of different needs, cultures, languages, values, and governance and contractual processes.

'2009 Pandemic Novel Influenza A (H1N1): Community Mitigation'
Dr. Martin Cetron- Centers for Disease Control and Prevention

The overarching goal of community mitigation during the 2009 H1N1 outbreak was to reduce illness and death, and to minimize social disruption. Examples of adverse secondary effects on individuals and communities are income loss due to absenteeism, continuity of education, access to essential goods and services, business continuity, and supporting vulnerable populations. Managing school response is an important key to social distancing during an outbreak because of the very dense human setting. Throughout any community mitigation effort there needs to be a balance between social disruption and effectiveness. Throughout all mitigation it is necessary to be flexible and poised to learn from experiences.

*'Pandemia de Influenza A H1N1:
Intervención Comunitaria, Educación y Alcances'*
Dr. Rosa Alicia Luna V. Gomez – Secretaria de Salud de Baja California

The Secretary of Health's response plan included being an official voice, providing leadership to the health sector, and joining the public health sector (epidemiology, health services, and health promotion). A significant part of their planned response to the public, private, social, and economic sectors involved

community education. By utilizing television, radio, print materials, and cooperation of employers, over 5,000 health classes were held and over 2 million materials were distributed.

VI. WORK GROUP / BREAKOUT SESSIONS

The breakout sessions were divided into three groups: 1) Community mitigation, 2) Epidemiology, and 3) Laboratory. In each group there were participants representing states from Mexico and the United States. Each work group was asked to reflect on experiences and lessons learned during the onset of the influenza H1N1 outbreak. The groups identified gaps and priorities necessary to continue to manage the outbreak and to control a H1N1 re-emergence.

Laboratory

Laboratories on both sides of the border were forced to manage the sudden increase in work load due to the H1N1 outbreak on top of their normal tasks. Laboratories were faced with the task of handling hundreds of samples over normal capacity. Laboratories responded by, but not limited to, working extended shifts, creating 24 hour work schedules, reassigning and training staff, borrowing supplies, acquiring new equipment, and selective specimen testing. Every aspect of laboratory process was strained to maximum capacity.

There was comprehensive agreement that the following issues needed to be addressed: *Staffing, reporting, equipment, transportation, standardization.*

Qualified Staff Shortages

In order to meet the demands of the onset of H1N1, laboratory staff was forced to work extremely long shifts at all hours of the night and day; they worked 6 and 7 day weeks, and operated under tremendous duress.

In order to prepare for the re-emergence of H1N1, another influenza strain, or an entirely new communicable disease outbreak, issues with staffing must be addressed. By administering training in a top down fashion, in which federal laboratorians train state laboratorians, and state laboratorians train local laboratorians, efficiency and uniformity is maintained. Additionally current staff can be cross-trained in other aspects, so that in the case of an emergency there can be a seamless transfer of staff to the appropriate positions.

Standardization of Laboratory Process

Standardization of laboratory process, such as, testing criteria, testing reagents, and reporting format will help to minimize disparities in result interpretation.

Overarching authority (CDC, WHO, or federal governments) need to establish guidelines regarding what testing should take place and the criteria of who to test and when to test them. Additionally, laboratory quality control can be established through a set of standards that all laboratories follow.

Lab Supplies and Equipment

During a public health emergency it is essential that all resources necessary for handling the situation are accounted for and allocated appropriately. Communication, within the border region and beyond, is critical in order to ensure that all stakeholders and counterparts are facilitated with the necessary supplies. Shortages in supplies and equipment present terminal difficulties in the face of an outbreak/epidemic/pandemic, resulting in inadequate timeliness of reporting, delay in detection of spread, identifying at risk populations, etc.

In order for public health laboratories to satisfy the obligations of an outbreak, preparation should include stockpiling supplies and identifying quality assured vendors. Additionally, a database of all laboratories serving the border region should be created in order to illustrate what testing they perform and what supplies they have. Any evaluation of laboratory preparedness needs to include an assessment of their equipment limitations and what they need in order to address their needs.

Transportation

In the case of Imperial County, CA specimens must be transported over 100 miles to be analyzed by a lab in San Diego. In addition to viral transport medium, dry ice, and freezers, trained specimen couriers must be identified and organized to respond to a sudden outbreak.

For specimen transportation that involved airlines or crossing international borders, it is essential that all laws are clearly understood and interpretable to authorities who may interfere with timely delivery. All involved agencies should maintain the appropriate import/export permits and documentation.

Test Result Reporting

Timely, accurate, and uniform reporting is critical and depends on a variety of interconnected aspects. In order to disseminate results in the timeliest manner an electronic reporting system should be established which disseminates the results with no delay to clinical staff, physicians, and policy makers. Additionally, laboratories receiving phone calls was reported to cause confusion and interruption. A laboratory hotline could streamline the information request.

Additionally, standardization of case definitions, testing criteria, testing reagents, and reporting format will help to minimize disparities in result interpretation throughout the border region.

Epidemiology

Throughout the U.S. and Mexico border states there are more similarities than differences regarding influenza surveillance and reactions to the H1N1 outbreak. Baseline influenza surveillance included case based reporting, sentinel surveillance, syndromic ILI surveillance, case investigation, contact investigation, cross jurisdictional information sharing, and coordinated responses regarding public communication. In reaction to the outbreak enhanced surveillance included emergency operation center activation, institutional based surveillance (schools, prisons, and nursing homes), institution of year round surveillance, increased communication frequency, and expanded sentinel networks. These similarities allow for possible synchronization of surveillance systems.

In order to manage and address future waves and re-emergences of influenza H1N1 shortcomings were addressed in monitoring the burden of disease (distribution, resource allocation, and impact of disease) and surveying the severity of disease. Gaps in surveillance and areas of improvement were identified as: *harmonization of cases definitions, binational and cross state information sharing, increase influenza surveillance sites, surveillance evaluation, and technical advisory group.*

Case definitions

Case definitions, including confirmed cases, suspected cases, and probable cases differ throughout the border states in Mexico and the U.S. Additionally, definitions for activity level (sporadic, localized, widespread, etc.) need to be interpretable across borders. In order to effectively share information and unite the regions, case definitions need to be standardized.

The U.S.-Mexico Border Influenza Surveillance Network in New Mexico, Texas and Chihuahua currently uses the World Health Organization's case definitions for reporting in the binational network, while adhering to local case definitions for domestic reporting. California uses the Centers for Disease Control's case definitions while Baja California utilizes the World Health Organization's case definitions.

Information Sharing

It is clear that there is data and information that is currently being shared back and forth across the border. Unfortunately, the information being shared does not give a complete picture, often does not represent the most current data, and

the consistency of data sharing is not standardized. Implementation of data sharing protocols, recognized by the local, state, and federal governments, will promote more complete data sharing. Data sharing protocols should include documentation of binational morbidity

Binational teams for field surveillance should be utilized for certain binational cases. By utilizing binational teams, it will be insured that each county's surveillance system will get the information required by their respective system. Binational teams will also increase cooperation among investigation teams from each side of the border.

Increased Influenza Surveillance Sites in Border Regions

It is not known whether or not the current influenza surveillance is representative of the border region. In order to ensure representativeness, it is possible that additional sentinel surveillance sites be established. Following an evaluation of the current surveillance, gaps should be identified and sentinel sites should be added.

Evaluation of binational surveillance

Including, but not limited to including simplicity, flexibility, data quality, acceptability, accuracy, representativeness, timeliness, and stability, characteristics of the current influenza surveillance must be evaluated. Any evaluation of surveillance should be sure to address geographic and population gaps. By following results of a surveillance evaluation, efforts to improve surveillance in the border region will correspond to the needs.

Technical Advisory Committee

In order to facilitate and accelerate efforts aimed at binational influenza surveillance a technical advisory committee (TAC) should be formed and convened on a regular schedule. The goal of the TAC should be to facilitate and expedite border wide surveillance. The TAC will place efforts towards improving the border network's need to be more representative and comprehensive.

Community Mitigation

During a public health emergency, such as the H1N1 outbreak, communicating effectively and in some cases intervening in day-to-day activities is necessary. Essentially the goal of community mitigation during a public health emergency is to reduce illness and death while minimizing social disruption. In the case of

H1N1, successful community mitigation targeted sanitary behaviors and implementing social distancing. In the border region it is obligatory to use the principles of social marketing, create a culturally sensitive systematic approach to communicate across a multitude of boundaries in all 10 Border States and with tribal nations in all Border States in the U.S. and Mexico. By working together with other border partners we will be able to, “harness the wisdom, creativity, and vigor of cross border public and private sectors to promote successful community mitigation through multi-directional communication; recognizing that all cultures have something to offer to their partners and something to learn.”

During the H1N1 outbreak successful community mitigation took place in all states on both sides of the border. Some of the responses were school closures, voluntary quarantine, radio and television messages, print materials, and community health educators. The priority areas identified were: *to minimize adverse secondary effects on individuals and communities, to communicate reliable, transparent and multidirectional information, use media effectively, flexibility, and maintaining the trust of the public.*

Minimize adverse secondary effects on individuals and communities

Community mitigation measures need to be balanced in order to: 1) Protect individuals income/job security related to absenteeism due to school closure and child minding, 2) Protect children from exposure, 3) Minimize fear, worry and stigma, 4) Maintain access to essential goods and services, and 5) Sustain critical infrastructure and key resources.

Reliable, transparent and multi-directional communication is vital

Using the principles of social marketing, culturally sensitive systematic approach to communicate across a multitude of boundaries in all 10 Border States and with tribal nations in Border States. In order for complete transparency, information exchange must take place in both directions.

Use media effectively

Media can be used as a very powerful tool during a public health emergency. It is necessary to prepare adequately in order to use media outlets effectively and to ensure that messages are not misinterpreted or misconstrued.

Flexibility

Effectiveness of measures is hard to discern in real-time. Prepare systems and feedback loops, evaluations, and be adaptable to making changes at a pace which society will tolerate. In a public health emergency, situation messages, target audiences, and routes of dissemination may change daily, or hourly.

Trust

Maintaining the trust of the public is essential and transcends all aspects of community mitigation. A trusting relationship with the public often take a long

time to establish and can deteriorate easily. Frequent and accurate communication with the public helps to build this relationship.