2009 H1N1 FLU RESPONSE
07/10/09 – 12/01/09
AFTER ACTION REPORT / IMPROVEMENT PLAN
March 2010
ADMINISTRATIVE HANDLING INSTRUCTIONS

1. The title of this document is: 2009 H1N1 Flu Response - After Action Report/Improvement Plan

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2009 H1N1 Flu Response

Executive Summary

The probable dominance of the novel H1N1 influenza strain during the fall and winter of 2009 prompted federal, state, and local governments to develop new strategies while the national vaccine stockpile was developed. Pima County Health Department started its planning to respond to a H1N1 flu pandemic months in advance, but implementation did not begin until early October 2009, the anticipated delivery date of the H1N1 vaccine.

In July 2009, Pima County Health Department (PCHD) convened an Executive Planning Committee to prepare for the upcoming flu season. As part of the planning process for the public health response, PCHD began communicating with essential community partners and stakeholders, and identifying Incident Command System (ICS) leadership.

Starting in October 2009, PCHD held H1N1 vaccination clinics at Public Health Nursing (PHN) offices, child care centers, and WIC clinics. There were a total of 5,266 vaccines administered at these clinics. PCHD conducted its mass vaccination campaign from the Novelty Shop at Tucson Electric Park (TEP). A total of 21,499 vaccines were administered over the duration of 13 clinics at TEP, with 2,923 vaccinations administered on the busiest day.

In total, there were 288,200 doses of H1N1 vaccine allocated across Pima County. Of that 86 percent (n=246,380 doses) were allocated to community providers. The PCHD allocation was 41,820 doses with 64 percent (n=26,765) administered by PCHD.

In addition to medical countermeasures distribution, PCHD opened up a Flu information line and subsequently a Call Center in order to assist with answering questions and disseminating information to the public. PCHD received Strategic National Stockpile (SNS) assets on two separate occasions and distributed those assets to local hospitals, community health centers, and Indian Health Service clinical facilities which requested those assets. Additionally, many forms (print, web, TV, radio, etc.) of risk communication were created to assist with messaging during this incident. For example, concerns about how to inform consumers about cough etiquette prompted PCHD to develop and distribute bilingual posters to businesses and agencies.

The duration of the 2009 H1N1 Flu Incident was a total of 143 days with 13,348 staff hours at a cost of $422,684. PCHD Volunteers spent 10,000 hours working this incident. The total cost including personnel, contracts and supplies is estimated to be $722,284. This cost to Pima County is offset by Public Health Emergency Response (PHER) funding provided by the Federal Government.

This outbreak tested many of Pima County Health Department’s emergency response capabilities and helped identify areas for improvement. Surveillance and communication efforts were strengthened; mass vaccination, community containment, and pandemic influenza plans were tested on a full scale capacity; human resource capacity was increased; and Incident Command System was made operational in a real event.
SECTION 1: INCIDENT OVERVIEW

Mission
To reduce the prevalence and incidence of infection from novel H1N1 influenza

Incident Name
2009 H1N1 Flu Response

Type of Incident
Pandemic Influenza outbreak due to novel Influenza A Virus (H1N1)

Incident Start Date
Friday, July 10, 2009

Incident End Date
Tuesday, December 01, 2009

Duration
143 days

Locations
- Pima County Health Department Public Health Nursing Offices: North, South, East, Green Valley, and Ajo
- Child care centers
- WIC offices
- Tucson Electric Park (Mass vaccination site)

Funding
Funding was provided by the Federal Government using Public Health Emergency Response (PHER) money. The funding was divided into three phases, with the first two phases dedicated to planning and epidemiology, and the third dedicated solely to implementation.

- Phase I and II funding: $939,983
- Phase III funding: $2,015,000
Costs

The total costs as of December 31, 2009 were $722,284. Below is the breakdown of the costs.

Personnel:

- Pima County = $422,684 (13,348 Hrs)
- Sheriff’s Office = $5,600 (140 Hrs)
- Security = $10,000
- Uncompensated staff time = $20,277 (not calculated in total costs)
- Volunteers = nearly 10,000 hrs

Contracts/Supplies:

- Contract LPN/RN = ~$123,000
- Maxim = ~$61,000
- Supplies = ~$30,000
- Media = ~$70,000

(Bilingual radio and television advertisements, print media and fliers, posters in bus shelters and inside buses, movie theaters, and web banners. See Appendix F: Media Example)

Vaccination Information

- 288,200 doses allocated to Pima County
- 85.5% (n=246,380 doses) allocated to community providers
- 41,820 doses allocated to Pima County Health Department (administered 26,765)

PCHD Administered Vaccine

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<tr>
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<td>5 – 18 yrs</td>
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<td>50 – 64 yrs</td>
<td>2,197</td>
</tr>
<tr>
<td>&gt; 64 yrs</td>
<td>161</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>26,765</td>
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</tbody>
</table>
Incident Command System Organization

See Appendix A: Organizational Chart
SECTION 2: INCIDENT DETAILS

Overview

In July 2009, Pima County Health Department (PCHD) convened an Executive Planning Committee to prepare for the upcoming flu season. Based on the Executive Planning Committee deliberations, the following objectives were developed:

- **Objective 1:** Develop tools and channels of communication to provide timely information to community partners and stakeholders, as well as educate the public.
- **Objective 2:** Build out the ICS structure as needed.
  - Identify appropriate personnel for each position
  - Planning Section needed immediately
- **Objective 3:** Develop systems to vaccinate priority populations and assure distribution of vaccine to appropriate community providers.

The makeup of this committee was:

- Director: Sherry Daniels, PCHD
- Chief Medical Officer (CMO): Michelle McDonald, PCHD
- Chief Medical Director: Fred Miller, Pima Health System
- Medical Examiner: Bruce Parks, Office of the Medical Examiner (OME)
- Community Relations Manager (PIO): Patti Woodcock, PCHD
- Public Health Services Division Manager Brad McKinney, PCHD
- Public Health Nursing Division Manager, Isela Luna, PCHD
- Public Health Preparedness Manager: Louie Valenzuela, PCHD
- Epidemiology Program Manager: Francelli Lugo, PCHD
- Compliance and Laboratory Program: Karin Merritt, PCHD
- Communicable Disease and Prevention Manager: Edmee Botwright, PCHD, Vaccine Preventable Disease (VPD)
- Planning Coordinator: Mike Honeycutt, PCHD, Public Health Preparedness
- Pima County Office of Emergency Management and Homeland Security (PCOEM&HS): Jeff Guthrie

Community Stakeholders and Partners Communication

Starting in early August, PCHD organized meetings with community partners and stakeholders (schools, hospitals, corrections, law enforcement, fire, media, and County department heads and elected officials) to stimulate dialogue and coordinate elements of the 2009 H1N1 Flu response. PCHD updated participants of these meetings on the latest information about the virus, infection control practices, communications, absenteeism guidance, medical countermeasures and organizational challenges. PCHD also solicited questions and concerns from the stakeholders. The information exchanged at these meetings helped PCHD keep informed of what issues needed to be addressed and track those issues for the duration of the response. For example;
Section 2: Incident Details Incident

concerns about how to inform consumers about cough etiquette prompted PCHD to develop and distribute bilingual posters to businesses and agencies.

Stakeholders and partners were also provided with email addresses for them to send requests for information and facilitate communication with the Incident Command structure. Guidance@pima.gov was established for general questions and assistance. HealthEOC@pima.gov was established to address requests for materials, including but not limited to vaccine.

To keep stakeholders informed throughout the incident, they were invited to participate on a daily conference call to address immediate questions and answers as well as receive updates. These calls (conducted by the PIO and Liaison Officer) started on October 16, 2009 @ 1330 hours daily (Monday through Friday) and ended on December 1, 2009.

**Incident Command System**

By proactively activating elements of the ICS, PCHD was in a better position to address current and potential challenges during the duration of the incident. The first step, activating and building out the Planning Section in mid August, was fundamental to the success of the response.

With internal ICS communication identified as a priority, email addresses for each Command Staff and Section Chief role, was created. This facilitated seamless access, expedited answers and better communication within each position as multiple people (a deputy or backup) had access to each email address.

**Planning**

The Planning Section was responsible for gathering and disseminating information and intelligence critical to the incident and incident management personnel. This Section then prepared status reports, displayed situation information, maintained the status of resources assigned to the incident, and prepared the IAP, based on Operations Section input and guidance from the Incident Commander. The IAP included the overall incident objectives and strategies established by Incident Command. The IAP also addressed tactics and support activities required for the planned operational period. During the 2009 H1N1 Flu Response, PCHD started with weekly operational periods on September 25, 2009 and moved to 24 hour operational periods on October 14, 2009. Once PCHD moved to 24 hour operational periods, the only exception to this was weekends when the operational period went from Friday 0800hrs to Monday 0800hrs.

A lesson learned from previous incidents was that the documentation unit needed to be created immediately and be organized so that it aided those using it. This prompted one of the most significant pieces of the planning section created for this incident. A documentation unit was mobilized and the unit leader started the task of capturing, organizing, filing, and organizing all documentation. A folder was created on the Health Department share drive to start capturing any and all documentation for this incident. All relevant documentation and email traffic was forwarded to fludocuments@pima.gov and subsequently filed into the appropriate folder. The documentation unit leader was responsible for distributing all documents sent to the above email
address, into the appropriate folder, on the share drive. This facilitated better recordkeeping, a more complete timeline and ease of access for all command and general staff to find and share documents, etc.

**Operations**

The Operations Section was opened to directly manage all tactical response activities and implement the Incident Action Plan as developed by the Planning Section. With the Section being responsible for all tactical response activities the following branches were established to divide responsibilities according to functional area; Health Information/Intelligence Branch, Mass Clinic Branch, Communications Branch, Mortality Management Branch, and Pharmacy Branch. Operational period briefings were conducted at the beginning of each operational period to present and identify key strategies for the Incident Action Plan and included Branch Directors listed in Appendix A.

The PCHD Executive Planning Committee and the Planning Section made every effort to anticipate the response activities and resources required to carry out operational activities for the duration of the response. This planning resulted in the establishment of the following Operational Branches;

**Health Information/Intelligence Branch**

This Branch encompassed the primary epidemiologic response for the H1N1 outbreak. Principal work focused on establishing patterns of disease activity in the community through PCHD surveillance systems and disease investigation when required. This branch was the point of contact for reporting healthcare agencies and in turn the management of healthcare data associated with the H1N1 response. Community surveillance reports were generated out of this Branch, and provided to healthcare partners as part of normal epidemiologic updates. See *Appendix H: Hospital Surge Report*

**Mass Clinic Branch**

The Mass Clinic Branch was by far the busiest and most labor intensive Branch from the operational response. This Branch carried out the PCHD mass vaccination strategy as identified by the PCHD Executive Planning Committee. The Branch was further divided into seven Groups under the Mass Clinic Branch Director, they included; School Based Clinics Group, WIC Sites Group, Child Care Clinics Group, Tucson Electric Park Clinic Group, Data Entry Group, Vaccine Inventory and Control Group, and Vaccine Provider Representative Group.

The Data Entry Group, Vaccine Inventory and Control Group, and the Vaccine Provider Representative Group were established as support for the overall mass vaccination campaign and conducted on and off-site client encounter form data entry, managed incoming and outgoing vaccine allocations, and served as a liaison with healthcare providers requesting vaccine, respectively. Further detail with regards to the Mass Clinic Branch of the Operation Section is incorporated into the report below under the section “Operations”.
Communications Branch

Communications Branch oversaw the administration and development of PCHD communications both internally and externally in the form of the PCHD Flu Information Line and Call Center. Recorded messages and call scripts for call center agents and PCHD staff were both developed out of this Branch with guidance from internal H1N1 subject matter experts, material developed by Centers for Disease Control and Prevention, and PCHD Chief Medical Officer.

The PCHD Public Information Officer worked with the Communications Branch and a contractor for the development and wide dissemination of radio and television advertisements, and print and internet media. See Appendix F: Media Example.

Mortality Management Branch

This Branch was established with a consideration that a mortality management operation may be needed in the duration of the response. Although it was not needed, it did benefit in situational awareness, brought Office of the Medical Examiner subject matter expertise to the response, and allowed for an accurate look at hospital morgue capacity limitations.

As a result of this Branch’s involvement, PCHD Pandemic Influenza Mass Fatality Management plans will be updated with information of Pima County Office of the Medical Examiner and local hospital morgue capacity information by August 2010.

Pharmacy Branch

This Branch was the last to be established and was in response to potential community shortages in availability of antiviral medications. The Branch Director and Operations Chief began a liaison relationship with Pharmacy leadership in the community to assess local stockpiles of Tamiflu, in particular. Additionally, this Branch facilitated information flow from Arizona Department of Health Services to local Pharmacies with regards to dispensing Tamiflu from Strategic National Stockpile caches distributed in May 2009.

No further actions were needed from this Branch as local caches were adequate for the duration of the H1N1 response. However PCHD will incorporate the Pharmacy Branch in future public health responses as a best practice.

In addition to the response activities discussed above, the Operations Section was responsible for the receipt, storage, and redistribution of Personal Protective Equipment from the Strategic
National Stockpile (SNS) and Arizona Department of Health Services state cache. These materials (N-95 respirators, surgical masks, gloves, gowns, face shields and hand-sanitizer) were received from federal and state agencies and tagged for use in direct patient care settings, and distributed to local hospitals, community health centers, and Indian Health Service clinical facilities that requested these assets. These caches were received on October 23, 2009 and December 29, 2009, with redistribution beginning the week after their delivery, inventory, and repackaging.

**Logistics**

The Logistics Section was responsible for all service support requirements needed to facilitate effective and efficient incident management, including ordering resources from off-incident locations. This Section also provided facilities, security (of the incident command facilities and personnel), transportation, supplies, equipment maintenance and fuel, food services, information technology support, and emergency responder medical services, including vaccine, as required.

Logistics worked closely with Finance to ensure that contracts were followed and money was spent using the appropriate funding source.

**Finance**

Because this incident required incident-specific financial tracking and grant management, the Finance/Administration Section was established. Functions that fell within the scope of this Section were recording personnel time, maintaining vendor contracts, administering compensation and claims, and conducting an overall cost analysis for the incident. Close coordination with the Planning Section and Logistics Section were also essential so that operational records can be reconciled with financial documents. In addition to monitoring multiple sources of funds, the Section tracked and reported to Incident Command the accrued cost as the incident progressed. This allowed the command staff to forecast the need for additional funds before operations were negatively affected.

The ICS became fully operational on September 25, 2009, with weekly operational periods. Daily operational periods began October 14, 2009 when the need for daily information gathering and dissemination increased. Incident Command decided on December 1, 2009 that there would be a “soft” demobilization of the ICS and only the necessary sections, branches and command staff would remain operational.

**Community Information**

On October 5, 2009, an automated Flu Information Line was opened, available for the members of the public to call and get current information on the virus and vaccine availability. The recorded messages, available in both English and Spanish, were updated as new information became available. The week of November 2, 2009 – November 9, 2009 recorded the highest volume of calls, at just over 4,500 calls.
As the call volume increased and the response grew more complex, PCHD opened up its Call Center, staffed by as many as 6 people daily to allow the public access to live operators to answer questions about the virus and vaccine. Hours of operation were 0830 -1630 daily (Monday – Friday). Staff from Consumer Health and Food Safety (CHFS), Pima Health Systems, Pima County Medical Directors’ office and Health Department Volunteers worked the call center during the incident. The highest volume day was 593 calls on October 26, 2009. The highest volume week was 1,640 calls during the week of October 19, 2009 – October 23, 2009. The call center was closed on December 3, 2009. A total of 5,817 calls were answered and approximately 875 staff and volunteer hours were spent working the call center.

Many forms of bilingual advertising were utilized throughout the incident, including radio and television advertisements, print media and fliers, posters in bus shelters and inside buses, movie theaters, and web banners. Advertising included how to stop the spread of flu, vaccine information, clinic locations, etc. See Appendix F: Media Example.

Mass Vaccination Strategy/Allocation, Operations and Costs

Strategy/Allocation

The Pima County Health Department mass vaccination and allocation strategies were based on guidelines from the CDC and ADHS. Guidelines were modified under the direction of the Department’s Chief Medical Officer in concert with the Health Director. Due to limited vaccine the first priority groups for H1N1 vaccine eligibility were as follows:

- pregnant women;
- persons who live with or provide care for infants aged <6 months (e.g., parents, siblings, and daycare providers);
- health-care and emergency medical services personnel who have direct contact with patients or infectious material;
- children aged 6 months to 4 years; and
- children and adolescents aged 5 to 18 years who have medical conditions that put them at higher risk for influenza-related complications.
The preliminary plan was to prioritize delivery of initial doses of vaccine for the high risk population. Unfortunately, the first vaccine available in large quantities was FluMist, a live attenuated virus in a nasal spray that was contraindicated for most of the target groups. To maximize the reach of the vaccine, PCHD extended the target groups to include healthy children and youth from age 2 through 24 years. PCHD also made the vaccine available to healthy frontline healthcare workers.

As injectable vaccine formulations became available, PCHD allocated preferentially to hospitals and occupational medicine providers (for front line healthcare workers), obstetricians (for pregnant women) and to pediatricians. PCHD also allocated to community health clinics, including itself, to vaccinate members of the priority groups and make access easier for this population.

On November 10, 2009, PCHD opened up eligibility to adults aged 25-64 with chronic health conditions and by November 19, 2009 the supply of vaccine became sufficient to support broader vaccination efforts. Increasingly robust allocations of vaccine to Pima County in late November permitted PCHD to set aside a supply of vaccine for school-based clinics which began in December.

As the supply and variety of vaccine increased, PCHD expanded the populations eligible to receive the vaccine. On December 1, 2009, the eligible populations included a broader range of healthcare workers in addition to the original priority groups. In response to the expanded eligibility, more vaccine was allocated to family physicians and internists to meet the public demand. On December 8, 2009 PCHD opened up eligibility to the entire community.

By early December PCHD began allocating vaccine to occupational medicine providers to vaccinate groups at significant risk and/or those considered part of the community critical infrastructure such as correction officers, police officers, and utility workers. By December 14, 2009, PCHD began to allocate additional vaccine to commercial vaccinators when supply of vaccine was sufficient to make it available to the general public.

As of December 31, 2009, Pima County received 288,200 doses of H1N1 vaccine; 86 percent (n=246,380 doses) were allocated to community providers. Of the 41,820 doses allocated to Pima County Health Department, 64 percent (n=26,765) doses were administered.

**Operations**

In addition to managing the allocations of vaccine to providers in Pima County, PCHD also held clinics to vaccinate members of the eligible populations. The first PCHD clinics were held at regular vaccination clinic sites but it became clear that those locations were inadequate because...
of limited parking, small clinical facilities, accessibility, and the complexity of mobilizing and operating multiple sites. After reviewing several options, PCHD decided to utilize vacant space (the Novelty Shop) at Tucson Electric Park (TEP), part of the County’s Stadium District, due to its rather central location, ample parking, and proximity to major freeways and bus routes.

The first clinic at TEP was held Tuesday October 20, 2009 with hours of operation of 1000 to 1800. After two clinics, the operational hours changed to 1300 to 1900, to better accommodate public demand and better manage staffing. A total of 13 clinics were held at TEP with 21,499 vaccines administered. The most vaccine administered in one clinic was 2,923. Both the Operations and Planning Section Chiefs became facility liaisons for the Pima County Stadium District, throughout the operation.

There were special clinics held at Ajo and Green Valley, Public Health Nursing (PHN) offices, throughout the incident in order to reach the outlying populations. Vaccination clinics continued at all of the PHN offices in Pima County after the mass vaccination clinics at TEP were closed. The PHN offices of North, South, East, Green Valley and Ajo administered 4,252 vaccines. Additionally there were a total of 1,014 administered at child care centers and WIC clinics.

Below is a breakdown by age of the vaccines administered by PCHD.

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<thead>
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<th>Vaccine Administered</th>
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<td>161</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>26,765</strong></td>
</tr>
</tbody>
</table>

**Costs**

The costs associated with this incident were covered by funding received by Arizona Department of Health Services via the Centers for Disease Control and Prevention (CDC). PCHD received funding under the Public Health Emergency Response (PHER) H1N1 grant. Phase I funding was
for planning, Phase II for epidemiology and surveillance, and Phase III for implementation. Phase I and II funding equaled $939,983 and Phase III funding equaled $2,015,000.

The total 2009 H1N1 Flu Response costs as of December 31, 2009 was $722,284.

Personnel:

- Pima County = $422,684 (13,348 Hrs)
- Sheriff’s Office = $5,600 (140 Hrs)
- Security = $10,000
- Uncompensated staff time = $20,277 (not calculated in total costs)
- Volunteers = nearly 10,000 hrs (not calculated in total costs)

Contracts/Supplies:

- Contract LPN/RN = $123,000
- Maxim = $61,000
- Supplies = $30,000
- Media = $70,000

(Bilingual radio and television advertisements, print media and fliers, posters in bus shelters and inside buses, movie theaters, and web banners) See Appendix E: Participating Organizations

**Major Strengths**

The major strengths identified during this incident are as follows:

- The ICS developed by PCHD was able to quickly and efficiently identify and deal with major issues as they arose.
- The Call Center and Flu Information Line were beneficial tools in helping to keep the community informed.
- The response was adequately staffed with the help of a variety of County departments in addition to PCHD, volunteers, and contract nursing providers in the community.
- PCHD demonstrated its ability to build and sustain a mass community vaccination effort

**Primary Areas for Improvement**

Throughout the incident, several opportunities for improvement were identified.

Although internal and external communication improved in this incident over previous ones, there are areas that need attention. Internal communication with PCHD staff not actively engaged with the response needs to be addressed. Ensuring that staff from WIC, Vital Records, CHFS etc, are updated daily is a starting point. Providing these staff members with information pertinent to the incident before it is sent out to the community will help tremendously.
Due to the day to day operational components, complexity and length of incident, and limited available personnel, the Command and General staff needed to integrate into the daily operations of the clinics, SNS/RSS activities, etc. This is not ideal to have the aforementioned staff working as the “boots on the ground”. Steps need to taken for identifying and training key personnel to be the eyes and ears at the operations site so the Command and General staff can run the incident from the Incident Command Post (ICP).

The site for the mass immunization clinic was not ideal. Although TEP was the best of the immediately available options it presented several challenges. The weather was an issue for both the staff and clients. The vaccination area was too small and created flow and Health Insurance Portability and Accounting Act (HIPAA) issues. A place that can house a majority of clients in line and allow for plenty of space between clients when questions are being asked should be identified in advance. The last issue was limiting our mass vaccination efforts to one location.

Limiting the mass vaccination effort to one location can create transportation issues for people that do not live nearby, causes overcrowding as that is the only site available, and limits the ability of Pima County to reach its entire population in a short period of time if needed. There are many complexities and challenges created by a large population base in Pima County (over 1 million) and the need for rapid distribution of countermeasures to the entire population within 48-72 hours.

Continued planning for the Push Partner/POD Program with regard to broader countermeasure distribution to the community is ongoing with a workshop scheduled for summer 2010. The purpose of Push Partner/POD Program is to distribute countermeasures to community providers such as hospitals, clinics, educational institutions, and large industries for their staff, families, and catchment areas surrounding their facilities, thus easing the impact on the Health Department and creating ownership amongst public health partners in our community. Thus allowing for broader and more rapid distribution in settings where clients are more familiar and comfortable.
SECTION 3: IMPROVEMENT RECOMMENDATIONS

This section of the report reviews the performance of specific capabilities, activities, and tasks. In this section, observations are organized by capability and associated activities. The capabilities linked to the Incident objectives of 2009 H1N1 Flu are listed below, followed by corresponding activities. Each activity is followed by related observations, which includes analysis, and recommendations.

CAPABILITY 1: PLANNING

Capability Summary:

Planning is the mechanism through which Federal, State, local and tribal governments, non-governmental organizations (NGOs), and the private sector develop, validate, and maintain plans, policies, and procedures describing how they will prioritize, coordinate, manage, and support personnel, information, equipment, and resources to prevent, protect and mitigate against, respond to, and recover from catastrophic events.

Preparedness plans are drafted by a litany of organizations, agencies, and/or departments at all levels of government and within the private sector. Preparedness plans are not limited to those plans drafted by emergency management planners. The planning capability sets forth many of the activities and tasks undertaken by an Emergency Management planner when drafting (or updating) emergency management (preparedness) plans.

The focus of the Planning Capability is on successful achievement of a plan’s concept of operations using target capabilities and not the ability to plan as an end unto itself. Plans should be updated following major incidents and exercises to include lessons learned.

Observation 1:

Area for improvement

Additional Pre-Planning necessary to identify better Job Action Sheets, Job Aides and Plan Updating if necessary.

Analysis:

Although plans were in place for a pandemic, these plans need additional work in order to address the area for improvement listed above. Job Action Sheets need to be included with all plans. Included in these Job Action Sheets should be Job Aides that allow each individual to do the job easier and more efficiently.

Recommendations:

Identify key personnel with appropriate experience to create and update Job Action Sheets and Job Aides. Additionally these identified individuals need to work with the person
updata

Appendix B: Improvement Plan.

CAPABILITY 2: COMMUNICATION

Capability Summary:

Communications is the fundamental capability within disciplines and jurisdictions that practitioners need to perform the most routine and basic elements of their job functions. Agencies must be operable, meaning they must have sufficient wireless communications to meet their everyday internal and emergency communication requirements before they place value on being interoperable, i.e., able to work with other agencies.

Communications interoperability is the ability of public safety agencies (police, fire, Emergency Medical Services - EMS) and service agencies (public works, transportation, hospitals, etc.) to talk within and across agencies and jurisdictions via radio and associated communications systems, exchanging voice, data and/or video with one another on demand, in real time, when needed, and when authorized. It is essential that public safety has the intra-agency operability it needs, and that it builds its systems toward interoperability.

Observation 1:

Area for improvement

Identify the best way to communicate to internal PCHD employees regarding response during an incident.

Analysis:

Internal PCHD communication is not addressed in depth in the plan. The need for this grows as each incident occurs. The ability for all PCHD employees to receive information pertinent to the incident in real time will improve information dissemination if they have direct contact with the public and facilitates personal and family planning.

Recommendations:

Before an incident happens identify who will send out updates to PCHD staff. This individual then should ensure they have access to email and phone communication tools in order to quickly and efficiently update staff.

CAPABILITY 3: INCIDENT COMMAND SYSTEM

Capability Summary:

Onsite Incident Management is the capability to effectively direct and control incident activities by using the Incident Command System (ICS) consistent with the National Incident
Management System (NIMS). The event is managed safely, effectively and efficiently through the common framework of the Incident Command System.

Observation 1: Area for improvement

Command and General staff needed to integrate into the daily operations of the clinics, SNS/RSS activities, etc.

Analysis:

The plans and training need to help ensure that all who are involved in an Incident in the Command and General staff roles stay at the (ICP) unless a visual update is needed. Due to the day to day operational components, complexity and length of incident, and limited available personnel, the Command and General staff needed to assist with the operations of the clinics and SNS/RSS activities during the 2009 H1N1 Flu Response.

Recommendations:

Identify and train key personnel to be the eyes and ears at the operations site so the Command and General staff can run the incident from the Incident Command Post (ICP).
SECTION 4: CONCLUSION

The response to the H1N1 novel influenza outbreak required a broad comprehensive effort by Pima County employees, volunteers, and local subject matter experts to control and contain. This outbreak tested many of Pima County Health Department’s emergency response capabilities and helped identify areas for improvement. Surveillance and communication efforts were strengthened; mass vaccination, community containment, and pandemic influenza plans were tested on a full scale capacity; human resource capacity was increased; and Incident Command System was made operational in a real event.

Ultimately in excess of 26,750 community members were immunized against Novel H1N1 influenza by Pima County Health Department. Numerous vaccinations were given by private provider partners and community mass immunization. More than 288,000 doses were allocated to Pima County, with 86 percent going to community providers. PCHD administered over 26,000 doses.

Although medical countermeasure distribution was the primary operational focus, PCHD accomplished many important tasks during the 2009 H1N1 Flu Response. PCHD opened up a Flu information line and subsequently a Call Center in order to assist with answering questions and disseminating information to the public. PCHD received Strategic National Stockpile (SNS) assets on two separate occasions and successfully distributed those assets to local hospitals, community health centers, and Indian Health Service clinical facilities which requested those assets. Additionally, many forms (print, web, TV, radio, etc.) of risk communication were created to assist with messaging during this incident.

A quick and coordinated response was paramount to Pima County Health Department’s successful management of this incident. Planning ahead of time, as much as possible, created a seamless transition into Incident Management, thus allowing for better oversight of all facets of the incident. The ability of PCHD to respond to future incidents was strengthened and influenza plans were updated as a result of the lessons learned.
Appendix A: Organizational Chart
APPENDIX B: IMPROVEMENT PLAN

This IP has been developed specifically for Pima County Health Department as a result of the 2009 H1N1 Flu Incident. These recommendations draw on both the After Action Report and the Hot Wash.

Table A.1 Improvement Plan Matrix

<table>
<thead>
<tr>
<th>Capability</th>
<th>Recommendation</th>
<th>Corrective Action Description</th>
<th>Primary Responsible Agency</th>
<th>Agency POC</th>
<th>Start Date</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Identify key personnel with appropriate experience to create and update job action sheets and job aides. Additionally these identified individuals need to work with the person updating each plan to incorporate the created documents and ensure completion.</td>
<td>Update Plans</td>
<td>PCHD Public Health Preparedness</td>
<td>Mike Honeycutt</td>
<td>May 01, 2010</td>
<td>December 31, 2010</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td>Create Job action Sheets and Job Aides.</td>
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</tr>
<tr>
<td>Communication</td>
<td>Before an incident happens identify who will send out updates to PCHD staff. This individual then should ensure they have access to email and phone communication tools in order to quickly and efficiently update staff.</td>
<td>Identify someone and a back-up</td>
<td>Pima County Health Department</td>
<td>PIO</td>
<td>May 01, 2010</td>
<td>December 31, 2010</td>
</tr>
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</tr>
<tr>
<td>Incident Command System</td>
<td>Identify key personnel with appropriate skills to be the eyes and ears at the incident site. Trust their abilities and allow them to do what you have requested. This is often the most difficult of tasks.</td>
<td>Identify someone and a back-up</td>
<td>Pima County Health Department</td>
<td>N/A</td>
<td>Date of Incident</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>
APPENDIX C: HOTWASH SUMMARY

2009 H1N1 FLU RESPONSE HOTWASH DECEMBER 7, 2009 0900HRS

On December 7, 2009 at 0900hrs, PCHD held a hotwash with the command and general staff, branch directors, unit leaders and several other invitees. A hotwash is an incident debriefing that allows for the participants in the incident to provide feedback about what worked well, what needs improved and improvement recommendations. On the next few pages you will find a bulleted summary. The summary was comprised from the actual hotwash and the provided forms which allowed for each person to write down their comments prior to the date of the hotwash.

Many of the process improvements identified during the spring 2009 H1N1 Flu Response helped form a more efficient, collaborative and measured response by Pima County Health Department and its community partners.

ICS Structure

Positive

- Advanced Planning and prepositioning people into the structure
- Seemed/appeared smooth
- The hierarchy made communication paths known
- Regular meeting and updates allowed for immediate issue addressed quickly
- Better communication horizontally and vertically
- Brought the planning staff together who needed to be gathered in the initial period
- Progress has been made and learned from previous responses
- More engaged in planning versus reacting to events/issues/needs
- Maintaining a set daily planning meeting helped to keep the organization of the response and stay on top of current action items
- Keeping daily Incident Action Plans (IAP’s) accessible for all staff

Opportunity for improvement

- Better Mobilization and De-Mobilization Plans
- Illness and events that affected our IC structure
- Better forecasting/anticipation of the first four clinics held at the clinical sites, we learned and mobilized and changed the venue to meet the public need
- Overextended daily responsibilities of staff running the event, better backfill
- Things that didn’t get done with the daily operational needs of the Health Department
- Not all section chiefs were part of the planning stage and struggled with having a clear understanding of the responsibilities that were part of which role/section
- Insufficient training for the command staff
- Command staff were too involved in the running of the clinics and not good delegators
• Identify at least three deep for support staff, and train a larger pool of staff to the various responsibility
• Took too long to open the call center as events were increasing
• Training for responders as to how to handle crisis communication for dealing with the public
• Better debriefing after the first couple of clinics
• To be able to fall into ‘business as usual’ following a vaccine clinic
• Better decompression for staff
  o Crisis Response – Training – Critical Incident Stress Management (CISM)

Communication

Positive
• Weekly meeting was extremely important
• Office staff would go to the website daily for update and current information
• Did better getting the IAP’s out, but not all who needed it got it in a timely basis
• Weekly updates went out to Pima County Directors and Elected Officials
• Call Center function went well and was well organized

Improvement
• Didn’t get daily communication (non-command and general staff)
• Need to be communicated with early on for information with the public
• Develop a very clear communication plan for the next response
• Unclear what the different email routing of Health Emergency Operations Center (EOC), versus Guidance and how to use it
• Have a cheat sheet for the emails that were added on and how to use them
• Consider establishing an interactive electronic filing mechanism for section chiefs and IC staff
• Evaluate the use of the email addresses for the IC structure and how to receive the information and how to make it user friendly in the response
• Assign electronic devices to the staff responding and provide temporary devices as needed
• Daily reminders for ICS 214 activity report to all responders to just send back a quick couple of lines of what they did that day in the response
• Include surge in calls at Public Health Nursing (PHN) satellite and the Abrams locations explore the technology to help with call volume

Clinical/Operational Response

Positive
• Identifying a single location of adequate size for immunization clinics
• Pima County Human Resources (HR) and Board of Supervisors (BOS) responded quickly to parts of the response other departments lacked the understanding of the process and response

Improvement
• Bring in the contracts sooner for the staffing, space and stuff earlier
• Non medical lead had a challenge with communication among the non medical staff at clinics, need regular daily debriefings
• Pima County Centralized Procurement and Finance are not well versed in what unique circumstances are involved in a response
• Pre position with central Pima County management and elected officials a process for expediting the process
• Identify a site that can function as a mass clinic/response for mass immunization and other types of similar events
• Find a way for quicker and easier scheduling
• Earlier notice for layout changes

Effectiveness for Pre-planning/Executive Planning

Positive
• Covered in the earlier discussion and feedback

Improvement
• Didn’t use Volunteer Coordinator as often as we should have
• Safety Officer

Additional feedback not covered
• Working with our partners to help get the word out
• Maxim nurses were great to work with
• Thanks to Operations and Planning for their support and great organization skill
• Mass clinic feedback, trying to help maintain privacy of individual disclosure of personal illness by writing it versus verbalization
• Grateful for the Kelly staff to help with the inventory and process encounter forms and important pieces of documentation were captured
• It was hard to give up staff for last minute requests and having staff that did go not do anything when they were there
• Scheduling piece was disjointed and difficult, consider how to do the scheduling better, perhaps a centralized location
• Mass fatality considerations for future events:
  • securing refrigeration for bodies,
  • collecting bodies,
  • vital records for death certification,
  • messaging support media calls,
  • call center triage calls from the public wanting information about the deaths related to the incident and grief counseling for families
• Maricopa approach was different from ours, the numbers affected did not appear to be different
• Didn’t tap into the community identified early enough, didn’t resource in the community well enough
• Pull finance in sooner
## Table 1: Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAR/IP</td>
<td>After Action Report/Improvement Plan</td>
</tr>
<tr>
<td>ADHS</td>
<td>Arizona Department of Health Services</td>
</tr>
<tr>
<td>BOS</td>
<td>Board of Supervisors</td>
</tr>
<tr>
<td>CDC</td>
<td>Centers for Disease Control and Prevention</td>
</tr>
<tr>
<td>CHFS</td>
<td>Consumer Health and Food Safety</td>
</tr>
<tr>
<td>CISM</td>
<td>Critical Incident Stress Management</td>
</tr>
<tr>
<td>CMO</td>
<td>Chief Medical Officer</td>
</tr>
<tr>
<td>EOC</td>
<td>Emergency Operations Center</td>
</tr>
<tr>
<td>ER</td>
<td>Emergency Room</td>
</tr>
<tr>
<td>FOUO</td>
<td>For Official Use Only</td>
</tr>
<tr>
<td>HIPAA</td>
<td>Health Insurance Portability and Accountability Act</td>
</tr>
<tr>
<td>HR</td>
<td>Human Resources</td>
</tr>
<tr>
<td>HSEEP</td>
<td>Homeland Security Exercise Evaluation and Improvement Plan</td>
</tr>
<tr>
<td>IAP</td>
<td>Incident Action Plan</td>
</tr>
<tr>
<td>IC</td>
<td>Incident Commander</td>
</tr>
<tr>
<td>ICP</td>
<td>Incident Command Post</td>
</tr>
<tr>
<td>ICS</td>
<td>Incident Command System</td>
</tr>
<tr>
<td>LPN</td>
<td>Licensed Practical Nurse</td>
</tr>
<tr>
<td>MRC</td>
<td>Medical Reserve Corps</td>
</tr>
<tr>
<td>PCHD</td>
<td>Pima County Health Department</td>
</tr>
<tr>
<td>PCOEM&amp;HS</td>
<td>Pima County Office of Emergency Management and Homeland Security</td>
</tr>
<tr>
<td>PHN</td>
<td>Public Health Nursing</td>
</tr>
<tr>
<td>POD</td>
<td>Point of Dispensing</td>
</tr>
<tr>
<td>PIO</td>
<td>Public Information Officer</td>
</tr>
<tr>
<td>PSC</td>
<td>Planning Section Chief</td>
</tr>
<tr>
<td>OME</td>
<td>Office of the Medical Examiner</td>
</tr>
<tr>
<td>RN</td>
<td>Registered Nurse</td>
</tr>
<tr>
<td>TEP</td>
<td>Tucson Electric Park</td>
</tr>
<tr>
<td>VOAAD</td>
<td>Volunteer Organizations Active in Disaster</td>
</tr>
<tr>
<td>VPD</td>
<td>Vaccine Preventable Disease</td>
</tr>
<tr>
<td>WIC</td>
<td>Women Infants and Children</td>
</tr>
</tbody>
</table>
**APPENDIX E: PARTICIPATING ORGANIZATIONS**

- Pima County Health Department (Lead agency for response)
- Pima County Office of Emergency Management and Homeland Security
- Pima County Public Library
- Pima County Sheriff’s Department
- Pima County Stadium District (Tucson Electric Park)
- Pima County Student Medical Reserve Corps
- Advance Nursing
- American Ice
- Citizen Corps Councils
  - City of Tucson
  - Three Points
  - N.W. Fire
  - Green Valley
  - Pantano
- Favorite Nurses
- Grand Canyon University Students
- Kelly Services
- Maxim Health Care
- Medical Reserve Corps of Southern Arizona
- Parties Plus
- Pima Community College Respiratory Therapy
- Pima Health Services
- Professional Hospital Supply
- Securitas
- Sparkletts (Water)
- Staples
- University of Arizona
  - College of Nursing
  - College of Public Health
  - College of Pharmacy
- Volunteer Center of Southern Arizona
- Waxie Sanitary Supply
APPENDIX F: MEDIA EXAMPLE

Webpage dedicated to H1N1 Educational Information

Posters Placed Inside Sun Tran Buses
Appendix G: Clinic Layout - Outside

- Screening Tables
- Vaccination Tables
- Barricades
- Storage Area
Appendix H: Hospital Surge Report

The Pima County Health Department began collecting reports of from five local Hospital Emergency Departments (ER’s) in mid-October, 2009, to capture area flu activity. These reports include figures for all ED visits, as well as all Influenza-Like Illness (ILI) visits to the ED. The following charts summarize reported ED visits and ILI visits; both have decreased since peaking in mid-October.

![Total ER visits, 2009](image-url)
Appendix H: Hospital Surge Report: Continued

Total ILI Visits to the ER, 2009
For Five Pima County Hospitals

Number of ILI ER Visits

Date

Total ILI Visits
Weekly Average