SOLANO PUBLIC HEALTH

AFTER ACTION REPORT / IMPROVEMENT PLAN

2009/2010 Pandemic Influenza

Prepared in July 2010

HANDLING INSTRUCTIONS

There are no special handling instructions related to this document. Any questions should be directed to Ted Selby, Emergency Medical Services Administrator. He can be reached at Tselby@solanocounty.com.

Table of Contents

Handling Instructions ii
Contents iii
Executive Summary 1
Incident Overview 3
Incident Details 3
Response Partners 4
Analysis of Capabilites 5
Objective 1-Establish ICS Based Emergency Operations 5
Capability A-ICS Based DOC Management 8
Capability B-Critical Resource Logistics and Distribution 8
Capability G-Volunteer Management 10
Objective 2-Track Spread of Disease 12
Capability E-Epidemiology and Surveillance 12
Capability D-Laboratory Testing 15
Objective 3-Implement Protective Actions 17
Capability F-Mass Prophylaxis-Medication Dispensing and Mass Vaccination 17
Objective 4-Public Cooperation and Participation 21
Capability C-Public Information and Warning 21
Conclusion 25
Attachments and Appendix 26
Attachment 1-H1N1 Vaccination Clinic Schedule 27
Attachment 2-Vaccination Clinic Operations 29
Appendix A: Improvement Plan 34

EXECUTIVE SUMMARY

On April 21, 2009, Solano Public Health hosted a cross-sector pandemic influenza tabletop exercise. Representatives attending this event included individuals from hospitals, public and private schools, clinics, long term and skilled nursing facilities, businesses, public safety, and federal, state, and local government. The timing of this exercise was fortuitous since a California Department of Public Health (CDPH) representative announced at the end of the day that the first case of swine flu (H1N1) had just been confirmed in Imperial County.

In response to the disease outbreak Solano County activated the Solano County Public Health Pandemic Influenza Emergency Response Plan (draft). The overarching goal of the emergency response was to mitigate the impact of H1N1 on the health of the public in Solano County. The objectives were:

1. To establish an incident command system (ICS) based emergency operations structure that facilitated resource management, sharing of information, and coordination of operations among response partners. Included herein is the involvement of volunteer organizations.
2. To increase epidemiology and surveillance activities to detect and track the spread of the disease, including participation in state and federal coordination calls, and case reporting,
3. To develop and implement protective actions including closure of public venues, distribution of antiviral medications, and operation of mass vaccination clinics, and
4. To prepare and distribute information to the public on the nature of the event and the need for public cooperation and participation in protective actions.

Solano County Public Health met each of these objectives thereby achieving the goal of protecting the health of the public.

Major Strengths

The major strengths identified during this response were:

- Strong and effective overarching leadership by members of the Public Health Emergency Planning Group[1], a group of high level managers that provide management oversight during emergencies.
- Fast and efficient distribution of antiviral medications and administration of vaccines.
- Excellent involvement and cooperation of volunteers and response partners.
- Strong public education through a Call Center and website updates, via clinic handouts, and through the media in providing status updates and information on the location of vaccination clinics.

[1] Refer to the Public Health Emergency Response Plan, Concept of Operations.

Primary Areas for Improvement

The primary areas of improvement are:

- Stronger coordination with CDPH in the allocation and timely delivery of vaccine and other medical supplies
- Identification of more back-up staff to work in the departmental operations center
- Development of Job Action Sheets and Just in Time training for all emergency operations positions
- Development of public educational materials in more languages

INCIDENT OVERVIEW

Over twelve months, Solano County Public Health engaged in a comprehensive pandemic influenza emergency response that included activation of the Health and Social Services Departmental Operations Center (DOC), elevated epidemiology and surveillance, distribution of antiviral medications, closure of schools, an extensive vaccination program, and operation of a multifaceted public education and information campaign.

Incident Details

Incident Name

2009/2010 Pandemic Influenza Response

Duration

The pandemic began in spring 2009.

Emergency operations terminated with the final vaccination clinics held on July 24, 2010. Some recovery efforts continue at the writing of this report (July 2010). They include continuing inventory of emergency response supplies and return of unused resources to CDPH.

Program

Funds to support preparedness and response were provided by the 2009/2010 CDC[2] and General Fund Pandemic Influenza Cooperative Agreements. Additional funds were provided by the CDC Public Health Emergency Response (PHER) Phases I, II and III grants.

Mission

There were two missions, as defined by the National Preparedness Guidelines: to Prevent and to Respond. These missions were intertwined and included mitigation of the spread of the disease through public announcements encouraging infection avoidance behavior, through closure of schools to limit exposures, through encouragement of effective treatment of active infections, and through implementation of a strong vaccination program.

Capabilities

Seven Capabilities were tested during this operation:

- Departmental Operations Center Management
- Resource Logistics and Supply Management
- Emergency Public Information and Warning
- Public Health Laboratory Testing
- Epidemiology and Surveillance,
- Mass Prophylaxis, and
- Volunteer Management.

[2] Center for Disease Control and Prevention

Response Partners

Response Partners included Solano County Health and Social Services Department, including Public Health and Emergency Medical Services, Touro University, NorthBay Healthcare, Solano Community College, Pacific Union College, CSI Community College, CERT members, local police and fire, the Solano County Sheriff, local ambulances that were on standby at clinics in the event of adverse reactions, and community churches that hosted clinics and provided staff.

ANALYSIS OF RESPONSE CAPABILITIES

The following Capabilities, Activities, and Tasks[3] under each objective provide a platform for accessing the response to an emergency. Each Capability is followed by Recommendations for improvement of the emergency response, thereby ensuring Solano County Public Health continues to strengthen its emergency capabilities.

Objective 1: To establish an ICS based emergency operations structure that facilitated resource management, sharing of information, and coordination of operations among response partners. Included herein is the involvement of volunteer organizations as a training forum to ensure their readiness for other types of emergencies.

CAPABILITY A: ICS Based Departmental Operations Center Management

Capability Summary: On April 24, 2009[4] the Solano County Health and Social Services Department (including Public Health) activated the Departmental Operations Center (DOC) as described in the DOC Standard Operating Procedure (SOP). The operational area EOC was not activated. The DOC organization was SEMS compliant and critical SEMS structure positions were filled. As evidenced in the Incident Action Plans, staff were rotated through several positions, representing a shift change concept. There was no rotation of the staff in the DOC Director position. The Health Officer and Deputy Health Officer functioned jointly in that position.

DOC staff received a Just-in-Time orientation to their function. Voice and data communications were activated.

The PHEPG included the Health Officer, the Deputy Health Officer, the Public Health Emergency Preparedness and Response Manager, and the Director of Nursing. The Public Health Educator, functioning in the role of Public Information Officer, and Public Health Nurses frequently participated in PHEPG deliberations. This group provided the overarching management of the emergency response including developing recommendations for school closure, directing issuance of public health information, and approving the recommendations for use of antiviral medications. They also approved the county-wide vaccination plan.

In the initial stages of DOC activation, briefings were held at least daily to ensure all staff were up to date on the status of the event and the operational objectives for the day. Shortly after activation, when it was determined that there was low H1N1 morbidity and mortality in Solano County, DOC staff operated primarily from their regular work stations, coming together for daily briefings and de-briefings..

[3] The capabilities, activities and tasks were developed to assess the ability to perform during an exercise. The same framework is used in the AAR to access performance during an actual event.
[4] This foresighted action preceded the Governor's Proclamation of Emergency (April 28, 2009) and the declaration of a pandemic by the WHO (June 11, 2009).

With the implementation of mass vaccination in October the DOC was again fully activated and briefings were conducted daily. Staff returned to limited DOC operations as the mass vaccination program progressed and many of the initial coordination issues were resolved. The PHEPG continued to meet frequently to assess the extent of infection in Solano County and to identify any additional actions that may be necessary to protect the health of the public.

Throughout the response, staff gathered information on the state and federal situation from the CDPH statewide conference calls. Critical information, such as changes in case definitions, recommended treatment protocols, and changes in reporting requirements were communicated county wide to clinicians and healthcare settings using CAHAN and via faxes of Public Health Alerts.

Resource management was initially handled by the Logistics Section in the DOC. As needed, they inventoried available antiviral medications, arranged distribution of antivirals to clinics and participating pharmacies, determined the need for N-95 respirators and filled shortfalls, and arranged for additional computers for staff.

As the vaccination program became the primary response and the DOC moved to limited operations, resource management was handled by Public Health Emergency Preparedness staff. A Public Health Nurse was assigned the role of Vaccine Coordinator. She was the contact with CDPH in determining the amount and type of vaccine (and vaccination supplies) needed, delivery dates, and all other aspects of vaccine management.

The Vaccination Clinic Coordinator, an operational title for the person responsible for arranging all aspects of clinic scheduling and supplies, identified and managed volunteer staff resources for the vaccination clinics.

During the current recovery phase, a third individual, with the operational title of Resource Manager, is responsible for all aspects of inventorying existing resources and determining and arranging final disposition. This includes return of N-95 respirators and excess antiviral medications.

Objective 1/Capability A-Associated Activities and Tasks

Activity 1*-Activate the DOC.*

Task 1-Activate, alert, and request response from DOC personnel.
Task 2-Activate DOC
Task 3-Brief incoming personnel.

***Activity 2**-Direct DOC Tactical Operations*

Task 1-Establish organization of DOC. *Sections, branches, divisions, and groups are identified and implemented as appropriate* *Situational reporting requirements established and implemented* *Logs of actions and messages maintained*
Task 2-All emergency support functions are staffed.

***Activity 3**-Gather and Provide Information*

Task 1-Activate DOC communications, voice, data, and radio as needed.
Task 2-Notify response staff and partners
Task 3-Coordinate emergency management efforts at all levels *Participate in state wide conference calls*
Task 4-Coordinate with non-governmental agencies and/or private sector *Notify private sector partners, gather and disseminate information*
Task 5-Collect, analyze, and disseminate information. *Develop daily action plan and share with response partners*

***Activity 7**-Support and Coordinate Response*

Task 1-Provide direction, information, and support to DOC staff and PHEPG decision makers. *Determine protective actions such as school closures, provision of antiviral medications, and vaccination* *Coordinate information Call Center, Public Health Website, and in clinic handouts.*
Task 2-Support incident response operations by identifying and providing resources. *Activate local resources including volunteers* *Inventory local resources such as available hospital beds, on-hand antiviral medications, N-95 respirators, vaccine* *Participate in statewide MACCs regarding allocation of additional resources*
Task 3-Coordinate resource logistics and distribution. *Coordinate transport and storage and return of resource assets* *Track and inventory resources*

Analysis: DOC operations were successful and supported emergency response operations. All of the above Tasks under each Activity were completed in a timely manner.

The DOC was activated according to the DOC written procedures and Job Action Sheets (JAS), and staff were assigned and briefed, action reports were written, and resources were identified, transported, stored, inventoried, and returned, as appropriate. A DOC e-mail alias was created to allow the DOC to email among staff assigned to the DOC. This was a tremendous support to the virtual DOC operations. The DOC participated in the CDPH generated CD-HOM drill using the CD-HOM communications format.

There was a shortage in backup staff for the DOC. Although there was some rotation of staff from regular assignments to DOC operations, it is necessary to identify and train additional backup staff to ensure critical day to day public health activities, such as identification and management of active Tuberculosis cases, are not stopped.

Resource management, as related to tracking/dispensing antiviral medications, obtaining and administering vaccine, and inventorying and returning N-95 respirators, are discussed in greater depth in Capability B. Involvement of volunteers is discussed in Capability G.

Recommendations:

1. Purchase additional laptop computers for the DOC. Shortfalls in computers caused the staff in the office to work without computers until others could be found.
2. Memorialize the Just-in-Time orientation in a procedure.
3. Finalize the JAS for each DOC position. Some staff needed clarification on the breadth of their roles. This would be resolved by JASs.
4. Identify and train additional back-up staff in order to allow public health staff to return to their regular critical daily activities. This is particularly important in order to respond to an event with greater morbidity and mortality.
5. Rewrite the DOC procedures to include completion of DOC forms that will facilitate DOC communications.
6. Establish and provide CD-HOM training to everyone with DOC responsibilities.

References: Solano County Public Health Pandemic Influenza Emergency Response Plan, Prophylaxis, Mass Vaccination and Tracking Procedure**.**

CAPABILITY B: Critical Resource Logistics and Distribution

Capability Summary: Critical resources were determined to be antiviral medications, N95 respirators, vaccine, acute care beds, and laboratory test kits, reagents and testing capacity (as limited by trained laboratory staff). Trained vaccinators were also considered to be a critical resource.

Objective 1/Capability B-Associated Activities and Tasks

Activity 1*-Direct Critical Resource Logistics and Distribution*

Upon activation of the DOC, critical resources (and potential shortfalls) were identified. Mask availability was evaluated on a daily basis by conference calls to the Health and Safety Officers of the local hospitals. When a small shortfall was identified prior to the distribution of respirators from CDPH, the DOC Manager arranged to obtain 500 respirators from David Grant Hospital, Travis Air Force Base.

Antiviral shortfalls were also anticipated. The DOC Manager requested allocation of 25% of the CDPH antiviral cache maintained on behalf of Solano County.

Acute care beds in healthcare facilities were inventoried using Reddinet.

Vaccine inventories were requested, received, and monitored by a designated Vaccine Coordinator. This individual was the point of contact with the CDPH vaccine management staff. She ordered and tracked vaccine receipt and usage. There were shortages and inequities in the vaccine distribution program. Solano County Public Health "loaned" vaccine to those hospitals with inadequate supplies to vaccinate their medical staff..

There was a shortage of trained vaccinators. Retired public health nurses and nursing students were used to address this issue. See Capability G, Volunteer Management.

On two occasions, November 4, 2009 and November 13, 2009, DOC staff participated in a CD-HOM compliant SitRep request from the CDPH JEOC (Joint Emergency Response Center). Although no resources were specifically requested during this test, it provided an opportunity for staff to familiarize themselves with the process.

Task 1-Establish communications between the DOC and the incident management team *Establish a process for tracking resources*
Task 2-Identify existing internal, jurisdiction-specific resources available to support response and recovery operations.
Task 3-Determine the need for additional external resources and implement a critical resource logistics and distribution plan.

***Activity 3**-Respond to Needs Assessment and Inventory*

Task 1-Identify and inventory all resources available to support emergency operations, including facilities, equipment, personnel, and systems.
Task 2-Determine additional human and material resources needed to support response and request needed resources from DOC or CDPH (as required for vaccine, laboratory reagents and N-95 respirators).

***Activity 5**-Transport, Track, and Manage Antivirals and N95 Respirators*

Task-Mobilize and dispatch human and material resource needs.

***Activity 6**-Return Antiviral/Other Resources (or arrange for storage).*

Task-Identify equipment that is no longer needed and return to supplier.

Analysis: All resource management issues, with exception of the vaccine program, were addressed in a complete and timely manner. Resource shortfalls were quickly identified and additional resources were either identified within the county or requested using the protocols and formats designated by CDPH.

Public Health staff had demonstrated great foresight in preparing for resource shortfalls. Homeland Security grant funds from prior years had been used to stockpile vaccination supplies (syringes) and laboratory supplies and general reagents. These items were used during the pandemic response. Additional, flu specific reagents and vaccination clinic supplies were purchased during the pandemic response using CDC PHER Phase II and III funds.

There were problems with both the allocation and distribution of the H1N1 vaccine. The CDC placed the vaccine under CDPH control for allocation and distribution to the operational areas and to local clinicians. The allocation process was outside the normal CD-HOM approach and provided an opportunity for the state (and counties) to experience the pitfalls of having to allocate a scarce resource. Although statewide conference calls (representing a MACC environment) were held daily, the actually decision making process for allocation of the vaccine was not transparent and appeared arbitrary. Some counties reported receiving their complete allocation while other counties, including Solano County, did not receive vaccine by the promised dates.

The distribution problems included late and incomplete shipments, no delivery of vaccination support supplies, and in at least two instances, the vaccine was just dropped off at the wrong address.

It was not possible to determine how much vaccine had been provided to the private healthcare providers thus preventing Public Health from being able to gauge the level of public protection within the County. In the event of a pandemic with greater morbidity and mortality, these errors of the nature discussed herein would have a significant impact on the health of the public.

It is highly likely that CDPH will someday again be required to allocate and distribute a unique commodity like vaccine. Solano County Public Health, as a participant, will use the MACC process to ensure transparency to the allocation process.

Shortfalls in nursing staff and others needed to operate the vaccination clinics were met by use of volunteers or contract nursing students (See Capability G).

Recommendations:

1. Develop an automated resource tracking capability. Implementation of CD-HOM in future events will require a more detailed tracking capability.
2. Memorialize via written procedure the daily conference calls with the Health and Safety Officers at the hospitals. This proved to be an excellent forum for identifying resource issues.
3. Coordinate with CDPH in the refinement of the MACC process for allocation of scarce resources.

References: Solano County Public Health Pandemic Influenza Emergency Response Plan, Prophylaxis, Mass Vaccination and Tracking Procedure

Capability G: Volunteer Management

Capability Summary: Volunteers were critically necessary for the operation of the vaccination clinics. Solano County Public Health engaged the CHP Cadets, local CERT, Pacific Union College, CSI College, Touro University and the Solano County Community College nursing students in the operation of the clinics. The faith based community participated in the clinic operations by providing locations for clinics, notifying parishioners of clinic operations, and providing translators as demonstrated in the use of the Sikh Temple where handouts were provided in English and Punjabi.

Objective 1/Capability G-Associated Activities and Tasks

Activity 4- *Integrate Volunteers Based on Skills*

Task-Support response operations using volunteer resources and volunteered technical capabilities. *Volunteers are deployed based on skills*

Analysis: Volunteers were integrated into the response in an effective and timely manner. The specific volunteers or volunteer organizations varied from clinic to clinic. Orientation/training was given at each clinic. All volunteers were sworn in as a Disaster Service Workers (DSW)[5] by the Public Health Emergency Preparedness and Response Manager, who had been delegated this authority by the Solano County Emergency Operations Manager.

Touro University conducted vaccination clinics on Mare Island. A large portion of the clinic operations were staffed by Touro medical, pharmacy and Masters in Public Health student volunteers. This was a very effect use of volunteers/community resources.

Many of the student nurses from the schools and colleges were not experienced in vaccinating infants or small children. In future operations it will be necessary to make a more refined match of skills and abilities to the needs of the emergency operations.

North Bay conducted drive through vaccination clinics for the general public. Like Touro, this was an excellent use of community resources.

[5] Some confusion arose over the ability to use DSWs in a clinical setting. CalEMA initially suggested that it was not appropriate to use DSWs in some instances.

Recommendations:

1. Memorialize the Just-In-Time orientation for future events. This was very effective training and memorializing the training will be beneficial for future clinic staff.
2. Conduct a more thorough review of the skills of the volunteers and assign volunteers based on their skill set.
3. Coordinate with CDPH in obtaining clarification on the use of Disaster Service Workers. Review and update the plans and policies on the use of DSWs, as needed.

References: **Solano County Public Health Pandemic Influenza Emergency Response Plan,** Prophylaxis, Mass Vaccination and Tracking Procedure

Objective 2: To increase epidemiology and surveillance activities to detect and track the spread of the disease, including participation in state and federal coordination calls, and case reporting

Capability E: Epidemiology and Surveillance

Solano County gathered local surveillance information from four distinct sources.

From Clinicians. In April 2009 Solano County Public Health began advising local clinicians and healthcare facilities to monitor, report, and test suspect cases. The reporting format was a modification of the CDPH form developed for H5N1 reporting. The reports were faxed to Solano County Public Health and reviewed for completeness. Nursing staff contacted the reporting clinician/healthcare facility to confirm the report and to gather any missing information. When medically necessary (or when directed by CDPH) clinical samples that were collected from suspect cases were transported to the CDPH Viral and Rickettsial Disease Laboratory (VRDL) in Richmond for analysis. Five suspect cases were immediately reported for April.

Solano County, Public Health staff contacted the reporting clinician/healthcare facility to track the status of the case and determine the possible source of infection[6]. This information was entered in an Access-based database (registry) developed for tracking H1N1 cases. The populated database was used throughout the pandemic to generate analyses identifying/confirming At-Risk populations, geographic pockets of disease activity (such as a high incidence of cases from schools or summer camp venues), and other similar reports.

From Schools. In April 2009, Solano Public Health established a school absenteeism tracking program which would result in syndromic surveillance information indicating that influenza like illness was on the rise in a specific school district (all absences for influenza-like-illness were presumed to be H1N1).

From Reddinet. Use of Intensive Care Unit (ICU) beds for respiratory related cases (reported via Reddinet) was gathered as an indicator of the severity H1N1 cases in Solano County.

From Vaccination Clinics. IS2BE, a software development and support company, worked with Solano Public Health to create forms for use with digital pens in tracking patient demographics data to be submitted to CDPH in accordance with requirements established by the CDC. These pens and specialized forms were also used by the Emergency Medical Services program to collect pre-hospital care data.

[6] As the pandemic progressed, source case investigations were halted since it was assumed that the virus had become endemic.

Public Health staff also participated in statewide CDPH conference calls to monitor disease incidents throughout California. These calls were used to identify At-Risk populations, discuss treatment protocols and the appropriateness of public protective actions (containment), such as closure of schools. Any changes in At-Risk population definitions, clinical sample collection, laboratory analysis, or treatment protocols were communicated via faxed or emailed Health Officer Health Alerts to the clinicians and healthcare facilities within Solano County.

In October, 2009, the Public Health Emergency Preparedness and Response Manager (PHEPRM) conducted an inventory of critical response assets, including N-95 respirators and antiviral medications. Refer to Objective1/Capability B-Critical Resource Logistics and Distribution.

Throughout the pandemic the Health Officer recommended a number of protective actions and treatment protocols including voluntary isolation of suspect or confirmed cases, use of antiviral medications, increased personal hygiene, vaccination, and closure of public venues.

Objective 2/Capability E-Associated Activities and Tasks

Activity 1*- Direct Epidemiological and Surveillance Operations*

Task 4-Coordinate resources needed to respond to public health concern *Identify sufficient equipment (e.g., personal protective equipment, information technology, communication, clinical sampling equipment, specimen collection material) to conduct investigations and report findings*
Task 5-Lead public health investigations to determine source of disease
Task 6-Make public health recommendations for prophylaxis and other interventions

Activity 2*-Surveillance and Detection*

Task 1-Facilitate public health reporting consistent with disease reporting laws or regulations *Advise physicians, healthcare facilities, and laboratories of reporting requirements.*
Task 2-Compile and analyze surveillance data

Activity 3*-Conduct Epidemiological Investigation*

Task 1-Confirm the outbreak using lab data and disease tracking data *Review lab results and correlate with disease tracking data.*
Task 2-Define case characteristics
Task 3-Actively search for cases (identifying cases) *Guidance provided to facilitate identifying cases based on case definition* *Case definition criteria disseminated to health care providers* *Records and new admissions for cases reviewed by treatment facilities* *Rough case count generated*
Task 4-Create registries of ill, exposed, and potentially exposed persons
Task 5-Conduct contact tracing of known and suspected cases

Task 6-Recommend control measures for outbreak including closure of schools, use of antivirals and vaccination.
Task 7-Report of results of epidemiological investigation *Report provided to healthcare providers, labs, and Federal, State, and local public health officials in the affected area*

***Activity 4**-Monitor Containment*

Task-Monitor the course and population characteristics of a recognized outbreak

Analysis: Solano County Public Health instituted and maintained a highly effective surveillance and containment program the cornerstone of which was public cooperation.

Source case investigations were conducted on a limited basis in the very early stages of the event but the subsequent highly endemic nature of the virus generally precluded later investigations. Two exceptions are the source case investigation involving county jail inmates which resulted in quarantine, and the necessity to identify any instances of Tamiflu resistant. As of this writing, no Tamiflu resistant cases were identified in Solano County.

Public Health staff worked to collect (and enter into the database/registry) information on school and public venue exposures, such as summer camps, that might indicate the need to take a large scale protective action, like school closure. Hospitalization data, healthcare worker status and patient descriptors for pregnancy and obesity were collected and used to refine assumptions related to At-Risk populations.

Public protective actions (containment) were effective and usually mutually agreed upon. The Health Officer recommended a brief closure of Brown's School subsequent to the death of a young student that was confirmed to have died of H1N1. Following consultation with the Health Officer, other schools decided to remain open, but chose to close public venues, such as volleyball and soccer games, and increase school decontamination/sanitation efforts.

The decision to close Vacaville Christian schools was made independently by the school administrator when 43 of 1200 students reported absent due to illness. The school administration indicated that 43 absences was very unusual and wanted to do everything possible to protect the students. Stronger coordination with Public Health might have resulted in a different decision by the school administrator.

The Health Officer also provided protective action recommendations to clinicians and the public on use of antivirals and vaccinations as well as voluntary isolation and increased personal hygiene. Although the effectiveness of these recommendations can never be full determined, the fact that over 17,000 residents sought vaccination at the free clinics (and others were vaccinated by their regular healthcare providers) is indicative of the public acceptance and cooperation in this effort. Cooperation in isolation was demonstrated very early when the entire family of the first suspect case in Solano County voluntarily chose to remain in isolation. The suspect case was later determined to be negative for H1N1.

The cooperation that was demonstrated by the school officials and members of the public is a direct result of the effective public education and information programs instituted by the Public Health Officer very early in the incident. This is discussed in more depth in Objective 4, Capability C.

Recommendations:

1. Review the data fields in the database to determine if additional fields would provide a stronger analytical support to protective actions.
2. Establish a more effective way of engaging the Health Officer in protective action decisions made by the school administrations.
3. Review and update epidemiology and surveillance emergency response plans, as needed.

References: Solano County Public Health Pandemic Influenza Emergency Response Plan, Prophylaxis, Mass Vaccination and Tracking Procedure

Capability D: Laboratory Testing

Solano County Public Health Laboratory (SCPHL) provides laboratory services to Napa County under a join powers agreement. All of the comments provided herein apply to samples received from both Solano County and Napa County.

The greatest problem experienced by the public health lab was the shortage of assay reagents which caused a backlog of 200 to 300 clinical samples. The limited capacity of the Lightcycler, the requirement to complete other time sensitive analyses, and a sudden increase in staff illness unrelated to H1N1, resulted in analysis of only 40 H1N1 samples per day once additional reagents were received. Clinicians were waiting approximately a month to receive H1N1 diagnostic results. Although CDPH was recommending antiviral treatment without a confirming diagnosis, concerned clinicians were repeatedly calling SCPHL to inquire about the status of their assay requests. Responding to the high volume of calls represented an additional workload for SCPHL.

Solano County made every effort to obtain additional reagents. Calls were made to the CDPH laboratory in Richmond as well as daily calls to the supplier, Roche.

Objective 1/Capability A-Associated Activities and Tasks

Activity 1*- Laboratory Testing*

Task-Function as Laboratory Response Network (LRN) Sentinel laboratories. *Coordinate with CDPH on resource needs and training*

Activity 2*-Sample and Specimen Management (2.4 Communicate Requirements)*

Task-Maintain a transport system to assure timely receipt of samples or specimens for laboratory testing.

***Activity 4**-Confirmatory Testing*

Task-Use standardized, validated Laboratory Response Network (LRN) protocols

***Activity 6**-Laboratory Reporting*

Task 1-Identify unusual findings or test results
Task 2-Report results through the secure LRN website.
Task 3-Report confirmed laboratory results to all submitters in a timely manner using PHIN-compliant Laboratory Information Management Systems (LIMS).

Analysis: Solano County Public Health Laboratory experienced an analytical "perfect storm" in terms of the ability to analyze clinical samples in a timely manner and provide results back to treating physicians to support therapeutic decisions. The low morbidity and mortality of the H1N1 virus, combined with the CDC recommendation to provide antiviral therapy without a confirming diagnosis, prevented the situation from becoming a diagnostic nightmare.

Additional laboratory capability is needed. Since the H1N1 event was a pandemic, the normal mutual aid resources provided by the Laboratory Response Network (LRN) were not available. The highly technical nature of laboratory analysis prevents hiring additional technicians from just any employment pool. Contract laboratories with the appropriate skills and training have not been identified.

Recommendations:

1. Work with CDPH LRN to identify solutions to maintaining stockpiles of reagents, sources of additional trained laboratory staff, or contractors capable of performing technical analyses.
2. Participate in county wide resource management drills and exercises to become more familiar with resource management during disasters.

References: **Solano County Public Health Pandemic Influenza Emergency Response Plan**

Objective 3: To develop and implement protective actions including closure of public venues[7], distribution of antiviral medications, and operation of mass vaccination clinics[8].

Capability F: Mass Prophylaxis-Medication Dispensing and Mass Vaccination
Capability Summary: The mass prophylaxis program included recommending when to use antivirals, providing antiviral medications to populations without healthcare as well as providing vaccinations to populations that fit the CDPH criteria of "at risk" (or priority population), and subsequently to anyone as more vaccine became available.

Antiviral Distribution: Solano County has a number of residents that have limited or no healthcare. They receive some health care services through Community Clinics and Family Health Services Clinics (6 clinics in total). To ensure availability of antiviral medications, caches of antiviral medications were provided to the Community and Family Health Services Clinics that served these populations. Antivirals were also provided to every Raley's Pharmacy in Solano County and Delta Drug in Rio Vista, ensuring a dispensing point in each city. The pharmacies agreed to fill prescriptions for individuals that had no, or very limited, healthcare insurance.

Vaccination: Solano County Public Health coordinated with CDPH in obtaining, distributing, and administering H1N1 vaccine to priority populations that had been recommended by the Centers for Disease Control and Prevention (and subsequently adopted by CDPH). This process included establishing mass vaccination clinic times and locations, creating vaccination teams including an incident command structure, medically evaluating the recipients of the vaccine, and reporting epidemiological related information to CDPH and/or federal authorities as required.

Beginning with the first clinic on October 28. 2009, and ending with the last clinic on July 24, 2010, Solano County Public Health scheduled 55 clinics in the seven major population centers, Benicia, Dixon, Fairfield, Rio Vista, Suisun City, Vacaville, and Vallejo. Seven clinics were cancelled because of vaccine shortages or missed vaccine delivery dates. The remaining 48 clinics vaccinated over 17,999 people (refer to Attachment 1).

Clinic operations were assisted by a broad range of response partners including CERT (Community Emergency Response Teams), faith based community members, County Office of Emergency Services, local police and fire, CHP Explorers, Touro University students and staff, North Bay Healthcare, local ambulance services, and nursing students from Solano Community College, Pacific Union College, and CSI Career College. All clinic staff were given "Just-in-Time" training/orientation.

[7] The decision making process related to the closure of schools is discussed in Objective 2, Capability E.
[8] It is important to note that Solano County was considering a public protective action that does not fit into the reporting Capabilities identified by CDPH. Solano County was evaluating the usefulness/impact of issuing N-95 respirators in the schools. The fit test requirements/training were to be the responsibility of the schools. The program was not implemented due to the issues related to the appropriateness of the N-95 respirators that were subsequently returned to CDPH.

Clinic set-up followed the Clinic Operations Procedure (Attachment 2). Clinic operations were effective, provided fast flow-through, ensured confidentiality, screened clients prior to vaccination, and provided medical consultation by appropriate medical staff, as needed.

Each clinic was preceded by an advertising campaign provided to the print and electronic media. Announcements of clinic availability were provided to families through school bulletins. Solano County Public Health also provided vaccination information through a county operated pandemic information Call Center and on through the Public Health website. Bilingual handouts were distributed at the clinics.

Solano County Public Health ensured that vaccinations be available to qualifying members of non-English speaking communities through use of Spanish language announcements and through scheduling two clinics at the Sikh Temple in Fairfield, to reach the Punjabi community. The elderly population was targeted at the Dixon Senior Center and the Rio Vista Veterans Hall as well as through use of many church venues, a common gathering place for many elderly.

Many clinics were held during the weekends to assist families that worked, or had children in school.

Objective 3/Capability F-Associated Activities and Tasks

Activity 1*- Mass Prophylaxis Dispensing Operations*

Task 1-Coordinate distribution/administration of mass prophylaxis per plans.
Task 2-Coordinate public information regarding point of distribution (POD) locations.

Activity 2*- Establish Points of Dispensing*

Task 2-Assemble needed supplies and equipment for POD operations including materials to prepare oral suspension.
Task 4-Prepare informative materials for POD staff, patients, and media.

Activity 4*- Conduct Medical Screening*

Task 1-Provide information to each individual seeking treatment.
Task 2-Identify appropriate prophylaxis based on medical history and exposure.
Task 3-Ensure sufficient staffing at the POD site screening station to prevent initial bottlenecks.

Activity 5*-Conduct Mass Dispensing*

Task 1-Implement dispensing plan in accordance with local plans.
Task 2-Maintain a system for inventory management to ensure availability of critical prophylaxis medicines and medical supplies.

Activity 6- *Monitor Adverse Events,*

Task 1-Track outcomes and adverse events following mass distribution of prophylaxis.
Task 2-Inform patients about follow-up requirements (e.g., vaccine take assessment.)
Task 3-Adverse events documented and reported to the appropriate entity as described in the State/local plan.

Analysis: All Tasks were completed in a timely and effective manner.

Location, date, and time of the vaccination clinics was advertised through paper and electronic media, and given out at schools. In one case the electronic media reported on the day of the clinic that the clinic had been cancelled. Public Health staff quickly contacted a local radio station and arranged for immediate issuance of the correct information. Public Health staff contacted the school district and requested school officials give the correct information to students to take home to their families. Public Health staff contacted the local Chamber of Commerce, City Hall, local newspaper and local businesses to advise them of the clinic. Residents soon began arriving for vaccination.

Public education documents were given to each vaccine recipient. The documents were in English and Spanish[9]. The recipients were required to sign consent forms and fill out vaccination history cards for their own records. Clinic staff confirmed the documents were completed and signed before the recipient was allowed to enter the clinic.

Inside the vaccination clinic recipients were directed to the Registration/Screening tables that were staffed by nurses. The nurses discussed possible vaccination contraindications and inquired as the desired vaccination type (nasal or interdermal). Nurses advised recipients of the need for follow-up. Individuals that were currently ill were not allowed vaccination and were directed to a local health care facility. Individuals with other underlying medical conditions were evaluated by the on-site clinician. Spanish speaking medical staff were available at the site.

Clinical staff within the Vaccination Area monitored each recipient for vaccination reaction. Emergency medical services were available if needed. No adverse reactions occurred.

Clinic through-put was very efficient. Citizens arriving at the clinics were sometimes polled to determine how long they waited in line. With exception of those that arrived hours before the clinic opened, most reported their wait time appeared to be brief (less than 20 minutes). Records indicate that approximately 300 vaccinations were administered per hour.

Vaccine inventories were accurately maintained. The appointment of the Clinic Vaccine Manager (referred to as the Vaccine Czar) and the identification of the only individuals with the authority to approve release of the vaccine to the vaccinators provided strong control of the vaccine.

[9] Educational materials were translated to Punjabi for the clinic at the Sikh Temple.

Just-in-Time Training/orientation of staff occurred just prior to opening each clinic. This was an informal presentation without handouts or electronic materials.

Use of volunteers was very effective. However, nursing students functioning as vaccinators were sometimes inexperienced in vaccinating infants and small children. To prevent trauma to both the client and the nursing student, infants and small children were directed to more seasoned vaccinators.

Vaccine was in short supply during the early months of the clinic operations. As a consequence clinics were sometimes closed before all of the citizens were vaccinated. In each case, the citizens were told the date of the next scheduled clinic and location of the public health website where they could confirm clinic dates.

Recommendations:

1. Strengthen coordination between CDPH and Solano County Public Health in order to avoid, as much as is reasonably possible, vaccine shortages. Statewide inequities in vaccine allocations and missed vaccine delivery dates were very disruptive to the vaccination program.
2. Memorialize the Just-In-Time orientation for future events. This was very effective training and memorializing the training will be beneficial for future clinic staff.
3. Conduct an initial inquiry regarding the skills of nursing students. Less experienced students can be directed away from vaccinating infants and small children.

References: **Solano County Public Health Pandemic Influenza Emergency Response Plan,** Prophylaxis, Mass Vaccination and Tracking Procedure**.**

Objective 4: To prepare and distribute information to the public on the nature of the event and the need for public cooperation and participation in protective actions.

Capability C: Emergency Public Information and Warning

Solano County Public Health took a very proactive approach to the development and release of coordinated public information.

Solano County Public Health activated the operational area PIN (Public Information Network[10]). The PIN itself functioned as a mechanism of disseminating critical information to its members and their employees. Members received information from Solano Public Health's Public Information Officer (PIO) and in turn provided the information to their employees via health and safety bulletins, substantially increasing the reach of the messages through their employers.

The first press release was issued by the Health Officer on April 24, 2009. It explained the nature of the event and directed residents to use precautionary measures such as increased personal hygiene and to avoid public venues, including school and work, if they become ill with a flu-like illness.

On April 30, 2009, the first suspect case was reported in Solano County. In addition to advising the media of the situation, the Health Officer also ordered the schools to provide influenza related questions and answers to students to take home their families. He also announced the activation of the Health and Social Services DOC.

On May 5, 2009, following a briefing by the Health Officer, the Board of Supervisors declared a local emergency. The subsequent press release directed the public to the county website for up to date H1N1 information.

The Health Officer continued to update the public with press releases and provided regular briefings to the Solano County Board of Supervisors. The Health Officer released to the media information on the nature of the disease, things the public could do to protect themselves, and the number of known, hospitalized, and fatal cases. The Health Officer also provided information on closure of schools, as needed. The Health Officer provided interviews to the TFC Filipino channel and the Spanish speaking radio stations as part of outreach to "special populations-non English speaking."

Just prior to the inception of the vaccination program on October 2, 2009, the Solano County Public Health PIO, Health Officer, and Deputy Health Officer conducted a joint Public Health and local healthcare agency partner press conference. The press conference was well attended by local print press and local city cable television crews, as well as five schools districts, the Solano County Office of Education, local police departments and city staff.

[10] The PIN is a consortium of public information officers from public offices and private industry, including hospitals and other health care entities.

Participating with Public Health in delivering the messages during the press conference were numerous healthcare personnel representing their respective 11 local health clinics, medical groups, and hospitals. The goal of the joint press conference with the healthcare partners was to "together speak with one voice" to the public, through the local media, in advance of the first vaccines being available and to offer timely, consistent, and up-to-date information about the priority groups for vaccination and which formulations of vaccine (injectable and mist) were recommended for which priority groups. This proactive approach was chosen as the most effective way to get in front of, and therefore prevent, potential confusion, and to ensure that all Solano healthcare partners were giving out consistent information. For example, pregnant women were clearly a vaccination priority group, but would not be eligible to receive the nasal flu mist formulation which was anticipated to be the first formulation available. The healthcare partners also identified the actions they would be taking to provide vaccination to their clientele and/or their participation in sponsoring public clinics.

On October 26, 2009, Solano County Public Health also activated a Call Center/Hot Line. A Call Center Manager was designated. This individual was responsible for monitoring the questions received, developing responses and coordinating the responses with the 211 information line administered by United Way. He was also responsible for creating FAQs (Frequently Asked Questions) based on the questions received by the Call Center. The Call Center Manager conferred with Solano County IT staff and the Public Health PIO in updating the H1N1 portion of the Public Health website. The information on the website was coordinated with the information given out over the Call Center, the information passed out at the vaccination clinics, and the press releases that were being issued. Some Call Center staff were bilingual, speaking both Spanish and English.

Spanish and English public information/educational materials were passed out at the vaccination clinics. Bilingual clinical staff were available to answer and questions and respond to rumors. In the rare case when a non-English/non-Spanish speaking person arrived for vaccination, they often brought a translator with them, usually a family member. Clinic staff allowed the translator to accompany the client through the clinic.

Two clinics were held at the Sikh Temple in Fairfield. Punjabi translations were provided by Temple members.

Objective 4/Capability C-Associated Activities and Tasks

Activity 2*- Emergency Public Information Plans*

Task-Identify spokesperson(s).

***Activity 4**-Public Information Alerts*

Task 2-Ensure accurate and timely dissemination of proactive and protective action messages to general public and emergency personnel.
Task 3-Disseminate prompt, accurate information to the public in languages and formats that take into account demographics and special needs/disabilities.

***Activity 5**-Media Relations*

Task1-Track media contacts and public inquiries, listing contact, date, time, query, and outcome.
Task 6.1-Provide rumor control

Analysis: In Solano County, media relations and public information and education were very effective. Rumors were identified and correct information was provided. A very salient example of this is given in Capability F, when the media reported that a vaccination clinic had been cancelled. Staff immediately responded with correct information and the clinic went forward as scheduled.

United Way Bay Area provided the 211/HELPLINK as a source of information for the public. HELPLINK call volume was 421, 1064, and 784 calls for October, November and December, respectively.

The Health Officer continuously stressed the actions the public could take to protect themselves, beginning with increased personal hygiene and avoidance of public venues if ill, and ultimately culminating in encouraging vaccination. The messages were consistent, timely, and effective.

The Health Education Manager that functioned as the Public Health Information Officer was very diligent in coordinating press releases with neighboring health departments. This individual maintained contact with public health PIOs in other counties, advised them of pending press releases, and made every attempt to ensure the release of timely, accurate, and coordinated information.

The issue of providing translations in multiple languages, including sign language, exists for all public gatherings and public announcements. Solano County Public Health maintains a list of translator resources that can be used if needed.

Solano County Public Health specifically reached out to the Filipino, Spanish speaking and Punjabi speaking communities through cultural radio stations and targeted clinics. Staging of clinics in the Veterans Hospital and the Dixon Senior Center targeted the senior community.

Outreach, in terms of language specific materials, did not occur for other non-English speaking groups beyond those discussed above. It has always been assumed the Solano County Public Health would be able to obtain basic public health information in multiple languages from CDPH. That was not the case. The materials were either not available, or were significantly delayed in their release.

Recommendations:

1. Develop basic public health information bulletins in multiple languages.
2. Identify specific resources to be used in providing translations of public health bulletins to the public at the time of the incident. Although Solano Public Health has identified translators that can assist in clinics, providing translation of official documents requires a more professional approach.
3. Review and update the CERC Plan as needed.

References: **Solano County Public Health Pandemic Influenza Emergency Response Plan,** Prophylaxis, Mass Vaccination and Tracking Procedure and the Public Health **CERC (Crisis, Emergency and Risk Communication) Plan**

CONCLUSION

The H1N1 pandemic, while disrupting many lives and tragically causing a number of deaths worldwide, particularly among pregnant women and children, was an event of very limited morbidity and mortality. Sick and dying individuals did not flood and overrun healthcare facilities. Clinicians were not forced to make life determining decisions about which patients would receive a respirator/ventilator. Alternate care sites were not established and mass fatality emergency plans were not activated. There were no mass graves, no civil insurrection caused by food or medical supply shortages, and no concerns about continuity of government. Consequently, the H1N1 pandemic can be considered to have been a large scale, world wide test of the ability of the public health community to recognize a pathological event, identify the pathogen, communicate at all levels of government, and institute protective actions.

Solano County Health and Social Services (Public Health) was highly successful in identifying and responding to the event. The county met the goal of protecting the health of the public. As the recommendations (often referred to as corrective actions) are implemented, Solano County will be even more prepared to respond to a large scale public health emergency, such as a pandemic.

ATTACHMENTS AND APPENDIX

Attachment 1- H1N1 Vaccination Clinic Schedule

Date	Day	City	Location	Time	Count
10/28/2009	Wednesday	Vacaville	Church of Christ	1:00pm - 6:00pm	665
10/29/2009	Thursday	Suisun City	West Wind Church	1:00pm - 6:00pm	1,140
10/30/2009	Friday	Benicia	First Baptist Church	12:30pm - 6:00pm	1,245
11/3/2009	Tuesday	Vacaville	Church of Christ	1:00pm - 6:00pm	0
11/5/2009	Thursday	Rio Vista	Rio Vista Veterans Hall	1:00pm - 6:00pm	954
11/6/2009	Friday	Dixon	Dixon Senior Center	1:00pm - 6:00pm	0
11/6/2009	Friday	Vallejo	250 Georgia Street	1:30pm - 5:30pm	1,258
11/10/2009	Tuesday	Dixon	Dixon Fair Grounds	1:30pm - 5:30pm	1,097
11/12/2009	Thursday	Vallejo	Touro University Mare Island	1:00pm - 6:00 pm	900
11/20/2009	Friday	Dixon	Dixon Senior Center	1:00pm - 6:00pm	0
11/22/2009	Sunday	Vallejo	250 Georgia Street	12:00pm - 4:00pm	750
11/25/2009	Wednesday	Fairfield	North Bay	8:00am - 2:00pm	1500
12/1/2009	Tuesday	Vacaville	Church of Christ	1:00pm - 6:00 pm	0
12/3/2009	Thursday	Rio Vista	Rio Vista Veterans Hall	1:00pm - 6:00 pm	0
12/4/2009	Friday	Dixon	Dixon Senior Center	1:00pm - 6:00 pm	0
12/10/2009	Thursday	Suisun City	West Wind Church	1:00pm - 6:00 pm	0
12/13/2009	Sunday	Vallejo	250 Georgia Street	12:00pm - 4:00pm	500
12/14/2009	Monday	Fairfield	North Bay	8:00pm - 1:00pm	1,000
12/15/2009	Tuesday	Fairfield	North Bay	8:00pm - 1:00pm	1,000
12/17/2009	Thursday	Rio Vista	Rio Vista Library	2:00pm - 5:00pm	230
12/18/2009	Friday	Fairfield	North Bay	8:00am - 2:00pm	1000
12/20/2009	Sunday	Vallejo	250 Georgia Street	12:00pm - 4:00pm	340
12/23/2009	Wednesday	Fairfield	North Bay	8:00pm - 1:00pm	1000
1/10/2010	Sunday	Vallejo	250 Georgia Street	12:00pm - 4:00pm	200
1/17/2010	Sunday	Vallejo	250 Georgia Street	12:00pm - 4:00pm	100
1/21/2010	Thursday	Dixon	Dixon Senior Center	9:00am -12:00pm	50
1/24/2010	Sunday	Vallejo	250 Georgia Street	12:00pm - 4:00pm	62
1/31/2010	Sunday	Vallejo	250 Georgia Street	12:00pm - 4:00pm	195
1/31/2010	Sunday	Fairfield	Sikh Temple	1:00pm - 4 :00 pm	253
2/7/2010	Sunday	Vallejo	250 Georgia Street	12:00pm - 3:00pm	125
2/14/2010	Sunday	Vallejo	250 Georgia Street	12:00pm - 3:00pm	45
2/21/2010	Sunday	Vallejo	250 Georgia Street	12:00pm - 3:00pm	220
2/21/2010	Sunday	Fairfield	Sikh Temple	12:00pm - 4:00pm	167
2/26/2010	Friday	Vacaville	Home and Garden	12:00pm - 6:00pm	109
2/27/2010	Saturday	Vacaville	Home and Garden	10:00am - 5:00pm	226
2/28/2010	Sunday	Vacaville	Home and Garden	10:00am - 5:00pm	257
2/28/2010	Sunday	Vallejo	250 Georgia Street	12:00pm - 3:00pm	250

03/06/10	Saturday	Vallejo	250 Georgia Street	9:00am - 1:00 pm	98
03/13/10	Saturday	Vallejo	250 Georgia Street	9:00am - 1:00 pm	95
03/20/10	Saturday	Vallejo	250 Georgia Street	9:00am - 1:00 pm	52
03/27/10	Saturday	Vallejo	250 Georgia Street	9:00am - 1:00 pm	80
04/16/10	Friday	Vacaville	Nut Tree Complex	12:00am - 6:00 pm	57
04/17/10	Saturday	Vacaville	Nut Tree Complex	10:00 am - 6:00 pm	150
04/18/10	Sunday	Vacaville	Nut Tree Complex	10:00 am - 5:00 pm	133
05/18/10	Tuesday	Vallejo	Wiedeman	2 hours	21
06/19/10	Saturday	Dixon			25
06/19/10	Saturday	Vallejo			60
06/26/10	Saturday	Benicia			26
07/10/10	Saturday	Vallejo	Widenmann Elem		30
07/10/10	Saturday	Vacaville	Foxboro Elem School		110
07/17/10	Saturday	Fairfield	Child Start		26
07/17/10	Saturday	Vacaville	Child Start		18
07/17/10	Saturday	Rio Vista	Rio Vista High School		8
07/24/10	Saturday	Vallejo	Mare Island		24
07/24/10	Saturday	Vacaville	Markham Elem School		130
			Total Vaccinated		**17,999**

ATTACHMENT 2-VACCINATION CLINIC OPERATIONS[11]

(Attachment 11 to the Pandemic Influenza Emergency Response Plan-Prophylaxis, Mass Vaccination and Tracking)

Procedure Title: Prophylaxis, Mass Vaccination and Tracking
Responsible Entity:

- The PHO is responsible for ordering the implementation of this procedure.
- The Public Health Emergency Preparedness and Response Manager (PHEPRM) is responsible for maintaining this procedure.

Annual Updates:

- This procedure will be reviewed and updated annually by July 1.

I. Introduction

The demand for influenza antiviral medications and vaccines will likely exceed the supply.

- Local retail supplies of influenza antiviral medications will be the first resource used particularly by patients with healthcare coverage
- Some influenza antiviral medications may become available from the Strategic National Stockpile (SNS) or the State cache.
- The PHO will issue medical recommendations related to the use of antiviral medications.
- The PHO will advise local practitioners of changes in antiviral susceptibility and resistance exhibited by the pandemic influenza strain, and will modify recommendations for use of antivirals accordingly.

The nature of the pandemic organism and a number of other parameters will impact the distribution and recommended administration of vaccine.

1. The CDC will promulgate a vaccination distribution policy.
2. The PHO will recommend to the Board of Supervisors that Solano County adopt CDC and CDPH policies related to administration of vaccines particularly as relates to designation of priority groups.
3. The PHO will advise local providers of the priority groups.
4. The PHO will advise local providers of the types of information to be collected from vaccinated individuals, and the process for reporting that information.

[11] This procedure is extracted from the Pandemic Influenza Emergency Response Plan.

II. Procedure-Antiviral Medications.

1. At the onset of a pandemic, when a threat to California residents has been identified, the PHO/designee will order a local inventory of specific medications necessary for prophylaxis or treatment[12]. Public Health staff will contact hospitals, other healthcare facilities, pharmacies and other entities to identify inventories.
2. The PHO/designee will direct the PHEPRM to purchase additional medications.
3. The PHEPRM will contact CDPH and request allocations from the SNS and from CDPH managed stockpiles. [13].
4. The PHO/designee will oversee fair and equitable distribution based on need and federal and state policies.
5. Mass dispensing will follow the PHEOP, Part 3, Section 10: (SNS), Mass Dispensing / Strategic National Stockpile Plan.
6. The PHO will advise local clinicians on the use of antiviral medications. The Health Officer will consider:
    - Any guidance issued by the CDC and CDPH.
    - Evolving information on the efficacy of antiviral medications for treatment and prophylaxis of the pandemic strain.
    - Evolving information on those individuals who are most likely to experience serious complications from infection with the pandemic influenza strain.
    - Changes in the supply of influenza antivirals.
7. Directives will be communicated to healthcare providers by means of Physician Alerts sent by rapid fax / blast fax and posted on the SCPH website.
8. The PHO/designee will implement any data collection required by CDPH or CDC. The data will be reported on an interval required by CDPH or CDC. The actual data elements to be collected will be determined at the time by the government entity requesting the data.
9. *Unlicensed Antiviral Drugs Used as Investigational New Drugs*. It is possible that unlicensed influenza antiviral medications might be distributed under the FDA's Investigational New Drug (IND) provisions, with the approval of a national or "central" Institutional Review Board (IRB). If this happens, the SCPH will work with federal and state officials to make these unlicensed medications available for use by healthcare providers in Solano County.

[12] Health and Safety Code Section 120176 gives the Public Health Officer the authority to inventory critical medical supplies, equipment, pharmaceuticals, and vaccines used for prevention of transmission of a communicable disease.

[13] The procedure for making this request is described in the PHEOP, Part 3, Section 10: (SNS), Mass Dispensing / Strategic National Stockpile Plan and the State cache.

III. Procedure-Use of Vaccine

- The PHO will direct implementation of a vaccination distribution and administration program that meets the vaccination distribution policies established by the CDC/CDPH.
- The PHO/designee will advise the Board of Supervisors of the CDC/CDPH distribution, priority group determinations.
- The PHO will collect and pass on vaccination related data as required by CDC/CDPH.
    - The PHO will alert practitioners, via Physicians Alert, blast fax, phone and e-mail, of changes in the CDC/CDPH vaccination policies and reporting requirements.

- MASS VACCINATION BY PRIVATE PROVIDERS*: IN SOLANO COUNTY, KAISER PROVIDES HEALTHCARE FOR APPROXIMATELY 50% OF THE POPULATION. THE REMAINING 50% HAVE OTHER PROVIDERS OR ARE UNINSURED.*
    - The PHO/designee will contact CDPH to determine the process by which the vaccine is to be distributed (by provider registration to the state or through the health department to providers). The PHO will advise providers of the availability of the vaccine.
    - If the vaccine is to be distributed through the LHD, the PHO will require reporting of critical data as defined by CDPH.

- *County Operated Mass Vaccination sites:* The Public Health Department may operate mass vaccination sites.
    - PHEPRM will request local hospitals to volunteer to run drive through vaccination clinics. The clinics will concurrently screen for active disease. Individuals with active disease will be directed to a healthcare facility as determined by the policy of the PHO (if GAACS' have been activated, they may be used to medically assess and treat individuals forwarded from the mass vaccination sites).
    - Solano County operated mass vaccination sites will be set up as described in Attachment 11a, Mass Vaccination Set Up.
    - The PHEPRM will seek vaccinators from healthcare facilities, local medical and nursing schools and universities, as well as registered volunteers and EMT sources.
    - The PHEPRM will identify all local vaccinators that engage in the annual flu vaccination program and activate them for pandemic influenza vaccination activities. They will assist at the mass vaccination sites.

IV. Approval Signatures

Health Officer_____date_____

County Administrative Officer _____date_____

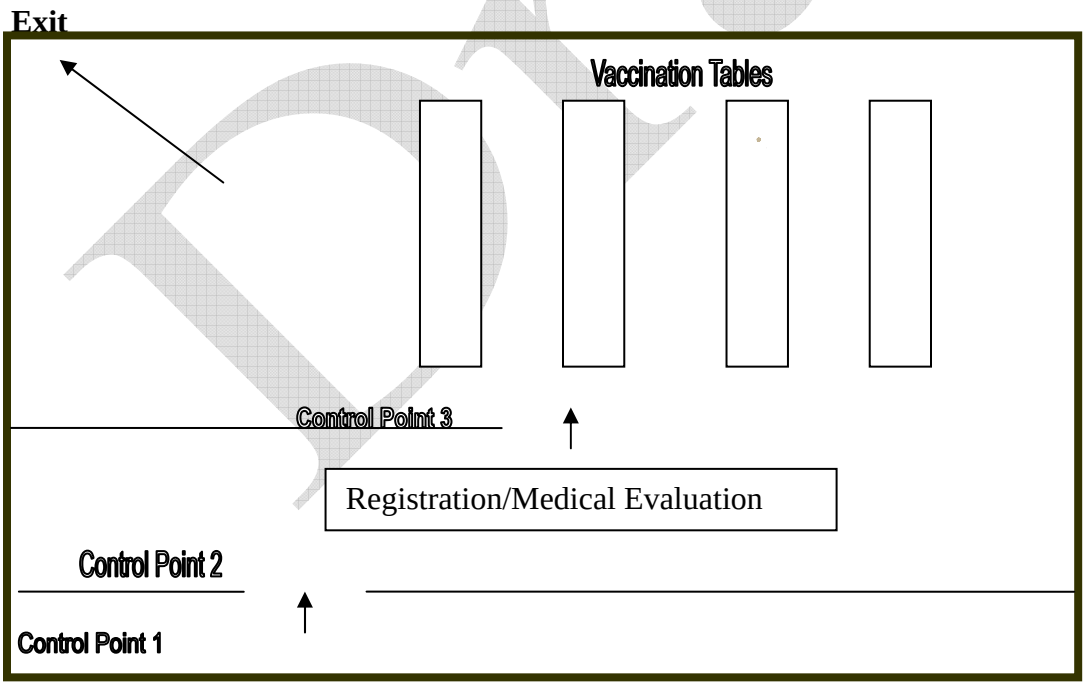
Attachment 11a-Set up and Operation of Mass Vaccination Site

Location of Mass Vaccination Clinics
At a minimum, Solano County will attempt to locate at least one Mass Vaccination Clinic in each of the 5 major population centers in the county, Vacaville, Fairfield, Benicia, Rio Vista and Dixon.

Mass Vaccination sites should have the following physical attributes;

- Local parking able to handle a large volume of vehicles.
- Kitchen with adequate running water and reliable refrigeration.
- A supply control area near or in the kitchen.
- A secure area for vaccine storage.
- Separate, multiple stall bathrooms for men and women. The bathrooms must be physically separate from the registration and vaccination areas in order to allow access by individuals that are still waiting to enter the registration area.
- Sufficient square footage to allow at least 6 registration stations and 12 vaccination stations. The registration stations and vaccinations stations must be separated by a door or other hard security control method.

Possible Vaccination Clinic Layout



Entry
It is recommended that each point indicated as a Control Point be an actual wall and doorway. This will support crowd control.

Management of the Vaccination Clinic
The PHO will designate a Clinic Manager. Clinic management will be based on incident command.

- The PHEPRM will identify the staff for the site. This may include use of volunteers.
- The Clinic Manager will appoint a Vaccine Manager who will be responsible for controlling release and handling of vaccine. The Vaccine Manager will maintain a vaccine inventory. The Vaccine Manager will require signature for anyone to whom the vaccine is released.
- The Clinic Manager and one other designee will be the only individuals that can authorize release of the vaccine from the custody of the Vaccine Manager.
- The Clinic Manager will ensure all staff receive training relating to their role in the Vaccination Clinic.

Movement Into and Through the Clinic
All forms will be available in English and Spanish, printed on different color paper to allow quick identification. Other languages may also be used based on the population to be served by the clinic.

1. Staff will distribute registration forms and vaccination cards, stamped with the vaccination date, to the people standing in line for vaccination. The forms will be on clipboards.[14]
2. Patients will be directed to fill out forms as they stand in line. They will turn in the clipboards to staff managing entry at Control Point 1.
3. Staff at Control Point 1 will not allow a patient to proceed to Control Point 2 until the forms are correctly filled out and the staff at Control Point 2 request Patients.
4. Staff at Control Point 2 will watch for available staff at the Registration/Medical Evaluation Stations. As staff is available, Control Point 2 will send a patient (or family) to that station.
5. Staff at Control Point 2 will specifically send Spanish speaking only patients to Spanish speaking nurses.
6. Registration/Medical Evaluation staff will determine if the patient can receive vaccination, determine the preferred type of vaccination, make a notation on the vaccination papers, and forward the patient/family to Control Point 3.
7. Staff at Control Point 3 will send the patient/family to the appropriate vaccination station based on type of vaccination to be received.
8. Following vaccination, patients will be directed to the exit. Patients will not be allowed to exit through the Control Points.

Advising the Public of Clinic Operations
Information on the location and hours of operation of the mass vaccination sites will be via local news with back up information on the Public Health website. Information on Priority Groups (if they are required) will be released the same way.

[14] As staff move along the line passing out forms, they will look for individuals with special needs. Staff will bring special needs persons forward for priority evaluation and vaccination.

APPENDIX A: IMPROVEMENT PLAN

This IP has been developed as a result of 2009/2010 pandemic response. The Recommendations are drawn from Section 3, Analysis of Capabilities, above. The Capabilities in the Table are reported in alphabetical order whereas throughout the AAR they are reported in order of the Objective they address.

Table-*Improvement Plan Matrix*

Capability	*Recommendation/ Corrective Action*	*Responsible Party*	*Date Begin Corrective Action*	*Date Complete Corrective Action*
CAPABILITY A: Emergency Operations Center Management	1. Purchase additional laptop computers for the DOC.			
	2. Finalize the JAS for each DOC position.			
	3. Identify and train additional back-up staff			
	4. Rewrite the DOC procedures to include completion of DOC forms.			
	5. Provide CD-HOM training to everyone with DOC responsibilities.			
CAPABILITY B: Critical Resource Logistics and Distribution	1. Develop an automated resource tracking capability.			
	2. Write a procedure for the daily conference calls with the Health and Safety Officers at the hospitals.			
	3. Coordinate with CDPH in the refinement of the MACC process for allocation of scarce resources.			
Capability C: Emergency Public Information and Warning	1. Develop basic public health information bulletins in multiple languages.			
	2. Identify specific resources to be used in providing translations of public health bulletins to the public at the time of the incident.			
	3. Review and update the CERC Plan as needed.			

Capability D: Laboratory Testing				
Capability E: Epidemiology and Surveillance	1. Review the data fields to determine if additional fields would provide a stronger analytical support to protective actions.			
	2. Establish a more effective way of engaging the Health Officer in protective action decisions made by the school administrations.			
	3. Update epidemiology and surveillance emergency response plans.			
Capability F: Mass Prophylaxis	1. Strengthen coordination with CDPH regarding vaccine supplies			
	2. Memorialize the Just-In-Time orientation.			
	3. Conduct an initial inquiry regarding the skills of nursing students.			
Capability G: Volunteer Management	1. Memorialize the Just-In-Time orientation for future events.			
	2. Conduct a more thorough review of the skills of the volunteers.			
	3. Review and update the plans a policies on the use of DSWs.			