# 2009 H1N1 Influenza Fall Outbreak Response
# After Action Report

## September to December
## 2009

## Emergency Support Function – 8
Health, Medical, and Mortuary Services

Public Health
Seattle & King County

KING COUNTY
Healthcare
Coalition
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## September to December 2009

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## EXECUTIVE SUMMARY

The second wave of H1N1 flu struck in early September 2009. Emergency department visits for influenza-like illness had steadily increased and exceeded levels seen in the spring. The Health and Medical Area Command (HMAC) and healthcare organizations mobilized to meet a variety of challenges. Response activities were largely focused on disease surveillance, vaccine distribution, patient care, and information sharing. This was a challenging event for the healthcare community and was the longest activation of HMAC in the history of Public Health - Seattle & King County (PHSKC). The Fall 2009 activation lasted over 100 consecutive days.

Limited vaccine supplies and differences in vaccine distribution strategies across county lines created numerous challenges during the response. PHSKC, healthcare providers, and pharmacies were inundated with calls from people trying to find vaccine. Following national guidelines, we prioritized groups with the highest risk of severe illness (i.e. pregnant women, adults with underlying health conditions and children) including those who were not insured or had no medical home. Healthcare workers were also prioritized because of their close contact with people in the high-risk groups. Sharing and exchanging information with healthcare partners and with the public was very demanding. Nevertheless, outreach to healthcare partners and the public through a variety of methods was one of the most valuable accomplishments in the response.

Response efforts for healthcare providers as well as PHSKC HMAC focused on:

- Protecting the public's health by minimizing illness and death from H1N1 in the community
- Providing patient care
- Vaccine distribution and continuous communication and technical support to healthcare providers administering vaccine
- Providing guidance to healthcare system on medical management and treatment of infected persons
- Monitoring impacts to the healthcare system
- Public messaging
- Communications to providers
- Call center services for the public and healthcare providers
- Coordination of healthcare system strategies for management of scare medical resources
- Coordination and dissemination of information and situation updates

Several Target Capabilities were addressed during the response to this event, primarily: Emergency Operations Center Management, Mass Prophylaxis (which includes vaccination strategies), Epidemiological Surveillance and Investigation; Medical Surge; Medical Supplies Management and Distribution; Critical Infrastructure Protection, Volunteer Management and Donations, and Emergency Public Information and Warning.

The capacity of the healthcare system was taxed but not exceeded. Gaps in preparedness were exposed that could compromise the response in a more severe outbreak. The events of this epidemic provided several learning, growth and collaboration opportunities for the healthcare community as a whole, as well as HMAC including the following:

- The Communicable Disease, Epidemiology & Immunizations Section (CD-EPI) and the healthcare sector worked together to implement a vaccine distribution strategy that was consistent with the Advisory Committee on Immunization Practices (ACIP) guidelines, and ensured that 95% of vaccine orders were processed within one business day.
- Hospitals worked together to develop regional visitor guidelines which offered a staged framework for hospitals to use in restricting public access during H1N1 influenza.

- The healthcare community provided input into resource conservation strategies
- Medical Directors for Intensive Care Units shared information on the status of their patients and impacts to bed and equipment use;
- The Multi-Agency Coordinating Group (MAC Group) got the opportunity to deliberate on policy level decisions, such as mask distribution;
- HMAC had the chance to implement lessons learned from the Flu Hotline activated in the spring, which proved valuable for the entire community;
- PHSKC was able to call on Public Health Reserve Corps (PHRC) volunteers and provide them with real-world response experience;
- Weekly conference calls with community partners were well received and provided valuable information;
- Significant collaboration occurred with school districts, including implementing a new automated system for collecting and analyzing school absenteeism data
- With participation from hospitals and healthcare organizations, a weekly healthcare impacts report was produced
- Partnering with pharmacies launched a new relationship between PHSKC and pharmacies that will continue beyond this response;
- Liaisons with HMAC proved invaluable to delivering timely, effective communications to a variety of community partners.

HMAC deactivated on December 18, 2009 when surveillance found that H1N1 activity was at a manageable level for normal operations. However, response operations associated with H1N1 continued through the month of January 2010, with after action review and assessment continuing into the summer of 2010. Overall, the response to this event achieved the goals of providing available vaccine rapidly to those who needed it most, and maintaining consistent information flow with the public and healthcare community. Over 743,000 doses of vaccine have been administered to date and several healthcare organizations had an extremely high rate of vaccination among staff. Public education materials were translated into 13 different languages, and the PHSKC website had over 775,000 visits. The Public Information Call Center (PICC) activated and managed by PHSKC received over 24,000 calls, with a peak of 1,400 calls in one day.

Major Strengths:

- The fall H1N1 flu response built on successes and lessons learned from the spring H1N1 response and the Pandemonium Full Scale Exercise in 2008. Coordination with external stakeholders and within PHSKC cross-divisional programs was greatly improved.
    - PHSKC will continue to use after-action reports from exercises and responses to inform future planning. ESF 8 Plans, including the Pandemic Flu Plan and ESF 8 Response Plan, will be evaluated and updated based on experiences from the H1N1 response.

- The fall response created an opportunity to build and strengthen relationships that will be beneficial in future emergencies. This was especially true with healthcare partners, including new relationships with pharmacies. The MAC Group met multiple times to advise PHSKC on decisions involving resource management and other key considerations. The Communicable Disease, Epidemiology & Immunization Section held weekly conference calls with K-12 school representatives, which reduced the number of calls to the Section.

    - PHSKC is hosting a Pharmacy Summit in May 2010 to develop best practices for engaging with pharmacies for vaccine distribution. Quarterly calls with schools are also being considered to maintain relationships with nursing supervisor staff in K-12 schools. The Healthcare Coalition will continue to work with healthcare providers on critical planning gaps and the Executive Council/MAC Group will continue to be consulted on issues concerning regional medical policy.

- Full-time surge staff and volunteers provided needed additional capacity primarily for vaccine distribution -- especially in the Communicable Disease, Epidemiology & Immunization Section. PHRC volunteers served in numerous capacities during the H1N1 flu response. Twenty-five PHRC volunteers, for example, helped with vaccinating 988 homeless individuals at homeless shelters.
    - PHSKC will coordinate internally to develop processes for identifying necessary response staff. The PHRC program will continue to recruit licensed medical professionals and other volunteers for the program, ensuring that they are trained and credentialed for emergency response.

- HMAC was an effective source of key information for healthcare providers, response partners and the public. HMAC responded to a high volume of public queries about the H1N1 flu and vaccine, including almost 24,000 phone calls and 775,000 total website visits. HMAC also produced a weekly Healthcare Impacts Report, which documented emergency room and hospital admissions data, to provide situational awareness of the flu's impact to area hospitals and providers. Health alerts, broadcast faxes to providers, weekly influenza and school absenteeism reports were also issued. Regular situation reports also provided key information on the activities for each HMAC Section, thus facilitating both internal and external communication.
    - Successful methods of information sharing will be utilized in future responses.

- Planning for community outreach and vaccine distribution incorporated equity considerations. Vaccinations were held for the homeless and incarcerated individuals, and free clinics were held at Public Health Centers that were geographically distributed across the County. Free vaccinations were also offered at Sea Mar and Healthpoint community health clinics and at community-based organizations. Flyers advertising the clinics were translated into different languages, and health educators with ties to community members were brought on to spread the word about the clinics.
    - Equity in distribution of vaccine and lessons learned for effective community outreach will be incorporated into ongoing emergency response planning and be added to ESF8 response plans where appropriate.

Primary Areas for Improvement:

- During the fall H1N1 response, the lack of consistency between jurisdictions in the Puget Sound region became especially challenging. Each county had different strategies for distributing vaccine. These inconsistencies created confusion for the public (who often live and work across county borders) and for health care providers who have offices in multiple counties. Informing and educating the public about vaccine availability, access, and the priority groups was difficult in an environment where the public was hearing about different strategies in neighboring jurisdictions. Since the disease was not showing high rates of mortality, a decision was made at the national level to not vaccinate critical infrastructure personnel (such as law enforcement), even though these sectors had been involved in the planning process and prioritized in guidance for more severe pandemics.

While King County communicated this change effectively to our partners, sectors in other parts of the region were not fully briefed with this change.

For the healthcare sector, differences between counties also meant that organizations had to learn more than one system for ordering vaccine and reporting utilization. There was also inconsistency in how healthcare organizations prioritized vaccine within their organizations, especially when balancing the need to vaccinate staff as well as high-risk patients.

- Coordination between jurisdictions needs to be addressed at the state and federal level—PHSKC will advocate for more leadership from the Washington State Department of Health (DOH) so that counties in Washington State, especially whose residents regularly cross county lines, develop consistent messaging and work together in future responses.

- Collecting and communicating data also presented a new challenge during the H1N1 response. Many data points such as vaccine allocation numbers, requests for resources, and information requests from the public changed daily-- sometimes hourly--and ensuring that key partners in the health and medical response had access to the most current data was difficult. Collecting data from hospitals and community clinics to help inform situational awareness involved clearing institutional hurdles.
    - PHSKC will use the lesson learned from this after-action exercise to improve plans for collecting and disseminating data sets internally and with partners. The Communicable Disease, Epidemiology & Immunization Section will work with officials at DOH to resolve issues surrounding double data entry into the communicable disease and PHIMS databases and flexibility with reporting forms.

- Health care providers (including pharmacies) encountered challenges in providing immunizations to age groups they were not familiar with. The federal children immunization program, Vaccines for Children (VFC), provided the backbone for distributing H1N1 influenza vaccine to children during the response. PHSKC asked providers who were enrolled in the program to distribute vaccine since they had experience ordering, receiving, and storing vaccine, or vaccinating children. Difficulties arose, however, in finding clinicians to vaccinate high-risk patients—since there was no existing infrastructure for adult vaccinations. Pharmacies, on the other hand, were reluctant to vaccinate young children. When pharmacies were initially contacted about H1N1 influenza vaccinations, only a small handful of pharmacies in King County were willing to accept children, and it was especially difficult to find pharmacies that were able and comfortable inoculating infants from six months to two years of age.
    - CD-EPI will evaluate the policy for deciding which providers will be allocated vaccine. PHSKC will advocate at the state and the federal level for the development of systems to vaccinate adults. PHSKC is already working with area pharmacies to address the issue of vaccinating children—at a pharmacy summit held in May 2010, pharmacy representatives said that the lack of experience vaccinating children—including setting up vaccination stations and techniques for distracting children who are anxious about injections—often leads to a reluctance to vaccinate children. PHSKC will continue to work on building relationships with pharmacies, and to address this issue.

- Part-time and full-time surge staff and volunteers proved to be valuable additions to regular response staff and helped relieve the pressure, but finding time to train surge staff and incorporate them into their respective division was a challenge. Managers in divisions that were not directly affected by the response were less willing to relinquish

their staff. In addition, several Sections had difficulty hiring surge staff for their Sections due to delays in the hiring process.

- PHSKC will work with internal management to facilitate awareness and understanding of the impact to regular PHSKC operations during a response, and the need for surge staff within the department to assist during emergencies. PHSKC will also work with the department's Human Resources division to identify possible ways to streamline the hiring of surge staff during a health emergency. PHSKC's Preparedness Section will develop a training plan for future surge staff.

## SECTION 1: EVENT OVERVIEW

### Event Details

Event Name: 2009 H1N1 Influenza Fall Outbreak Response
Event Start Date: September 30, 2009

Event End Date: January 29, 2010

Duration: 122 days

Location: King County, Washington

Mission: Response

Capabilities: Critical Infrastructure Protection; Community Preparedness and Participation; Epidemiological Surveillance and Investigation; Emergency Operations Center Management; Mass Prophylaxis; Emergency Public Information and Warning; Medical Resource Management

Event Type: Communicable disease – pandemic influenza

As the lead agency for Emergency Support Function 8 – Health, Medical and Mortuary Services, PHSKC provided leadership and coordination of information and medical resources throughout the response. PHSKC operated the Health and Medical Area Command (HMAC) Center from September 30th to December 18th, 2009, the longest activation in the history of PHSKC. After the Center closed, response operations continued through the month of January 2010. A mission number was assigned to H1N1 in the spring 2009, and was carried over as the event continued throughout the fall and winter. The spring and fall response combined totaled over 140 days of activation.

The HMAC supported healthcare partners and health response in King County, Washington State, and coordinated regularly with the DOH and other local emergency operations centers. The Preparedness Section of PHSKC staffed the Area Command Center throughout this response. The CD-EPI, Contracts, Procurement and Real Estate Services, the Office of the Director, and the Communications Section also staffed critical response functions.

Healthcare organizations were essential partners in the response to 2009 H1N1 influenza. HMAC frequently interacted with all hospitals in King County, including infection control, employee health, ICU medical directors, executive leadership, and materials managers. In addition, HMAC coordinated closely with pharmacies, ambulatory care providers, community health centers, home health and home care providers, behavioral health providers, long term care providers, community based organizations, specialty providers, such as dialysis providers

and the Puget Sound Blood Center, local emergency managers, schools and daycares, and elected officials.

HMAC utilized the Incident Command System to coordinate this response. All command and general staff positions were activated. The MAC Group was also utilized to assist with policy level decisions related to the allocation of limited supplies of personal protective equipment to healthcare facilities. The MAC Group is comprised of the Local Health Officer, the King County and Seattle Medical Directors for EMS, the Medical Examiner, and the Executive Council for the King County Healthcare Coalition.

HMAC utilized a variety of methods to ensure regular, two-way communications with regional partners. Regular conference calls were held with numerous organizations including pharmacies, K-12 schools, hospitals, ambulatory care facilities, local emergency management, infection control officers, ICU medical directors, EMS providers, elected officials, and the MAC Group. HMAC also utilized the Command Center function of WATrac to communicate daily with hospital partners, and the Planning Section used a variety of tools to survey partners weekly to capture situational awareness. Health Alerts and Advisories regarding 2009 H1N1 diagnosis, treatment, and infection control were issued to healthcare providers by the Communicable Disease Epidemiology & Immunization Section and archived on the Department's H1N1 web site. Situation reports were issued twice a week and included information from all response activities, including: emergency proclamations and declarations, response goals, situation updates, disease surveillance data, vaccine distribution information, resource management information (primarily antivirals and masks), call center data, and major actions about the response. The last situation report was issued on December 18, 2009. Although HMAC is no longer activated, CD-EPI continues to track H1N1 influenza activity and healthcare partners continue to see patients presenting with influenza like illness.

## SECTION 2: EVENT SUMMARY

### *Health and Medical Area Command*

**Objectives:**

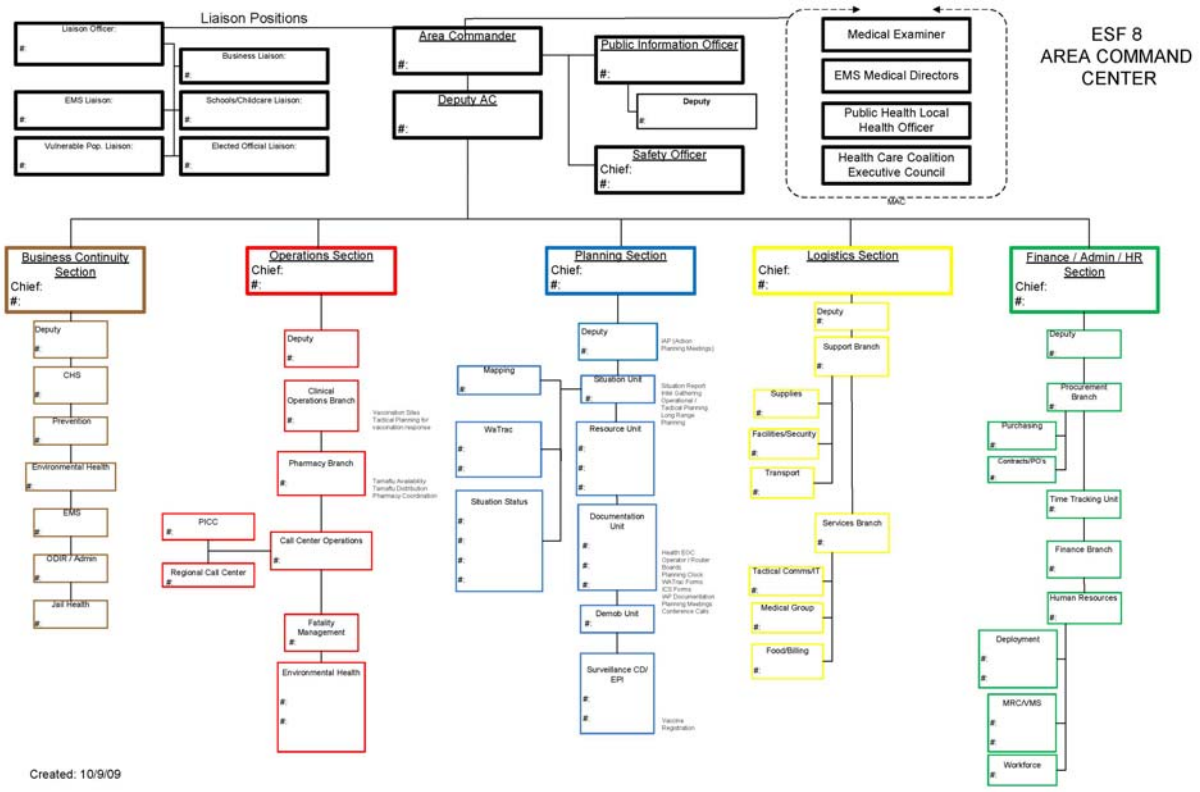
1. Maintain situational awareness regarding influenza activity in King County and impacts on the healthcare system and the broader community
2. Mobilize PHSKC, PH Reserve Corps, and contracted staff to support H1N1 vaccine distribution program, data management, and distribution needs of the response

**Capability:** Emergency Operations Center Management

**Activities:** Develop and maintain plans, procedures, programs and systems; Direct Emergency Operations Center tactical operations; Activate EOC/MACC/IOF; Gather and provide information; Identify and address issues; Provide EOC/MACC/IOF connectivity; Support and coordinate response

**Scenario Summary:**

HMAC activated on September 30th, 2009 in response to the second wave of the H1N1 pandemic. All Command and General staff positions were activated, including Area Commander; Public Information Officer (PIO); multiple liaison officers, serving schools, childcare organizations, government officials, and vulnerable populations; Operations section; Planning Section; Logistics Section; and the Finance & Administration Section.




The Area Commander kept staff updated on changing status in vaccine availability, updated guidelines, and new policies that came out from CDC or Occupational Safety and Health Administration (OSHA). The Area Commander worked to keep incident objectives in sync with the changing circumstances, yet still provide the highest level of service to the community. Area Command also utilized the MAC Group to assist with policy level decisions.

The PIO position had significant responsibilities in this event, and was therefore augmented with multiple staff. Their lessons can be reviewed under “Communications” in this report. Liaison officers primarily were tasked with keeping their constituents informed of recent events or changing circumstances. They worked very closely with the Communications Section to ensure messaging was consistent and available in multiple languages.

The Operations Section was activated and led the distribution of vaccine, call center operations, and coordination with pharmacies. The Operations Section coordinated antiviral and H1N1 vaccine distribution with healthcare providers including pharmacies. Section staff developed and finalized plans for H1N1 vaccine distribution, including engaging with pharmacies and commercial vaccinators, as well as maintaining distribution systems and evaluating re-supply needs. Timely H1N1 messaging to providers, partners and the public was accomplished through regular conference calls with participating providers and pharmacies, broadcast faxes and updates, weekly bulletins and a website with details on where and how the public could access vaccine.

The Logistics Section worked very closely with the Operations Section and facilitated the distribution of antivirals and masks from the King County stockpile to healthcare partners throughout the county, as well as supporting the distribution of H1N1 vaccine to providers with orders of less than 100 doses. Logistics was assisted by the Resources Status Unit in the

Planning Section in tracking those resources. The Logistics Section also coordinated with the DOH on receipt of the Strategic National Stockpile (SNS).

The Planning Section coordinated daily with healthcare partners and CD-EPI to maintain situational awareness. Hospitals were able to log in to WATrac and use a Command Center room (chat room that archives discussions) to discuss challenges or experiences with each other, as well as with area command staff. Healthcare partners also filled out a weekly survey on resource management issues, status of their EOC, and supply chain issues. This information, along with data collected weekly from ICU Medical Directors, helped create a Healthcare Impact Report. This report was utilized to inform healthcare partners and the Situation Status Unit of the Planning Section about the severity of cases being seen in hospitals, and the status of resources in the community. The production of this report was a direct request of the King County Healthcare Coalition Executive Council, and proved invaluable in the level of detail it provided on the situation.

The Finance & Administration Section tracked the cost of the event, staff and volunteer management, and any contracts related to the response. 322 staff were mobilized in response to this event, including 25 PHRC volunteers. The PHRC volunteers were called up to work in the Public Information Call Center (PICC), worked in vaccination clinics and assisted the Healthcare for the Homeless Network team in clinics to vaccinate the Homeless population**.**

## *Business Continuity*

**Objectives:**

1. Facilitate communication between PH Divisions and Area Command regarding the response
2. Assess impacts of event on PHSKC mission-critical services and report impacts to Area Command
3. Coordinate with Workforce Deployment team to minimize the impact of deployment on PHSKC mission-critical services

**Capability:** Critical Infrastructure Protection

**Activities:** Coordinate and Manage Critical Infrastructure Protection; Identify Critical Infrastructure/Key Resources; Assess Risk; Prioritize; Protect

**Scenario Summary:**

The Business Continuity Operations (BC Ops) Section activated on Tuesday, October 13, 2009, and remained activated for the duration of the response. Highlights of BC Ops Section activities during the response included:

- Identifying impacts of the H1N1 outbreak and H1N1 response on PHSKC services, functions, and programs.
- Providing the Finance & Administration Section Deployment Unit with lists of deployable staff, whose participation in response operations would not adversely impact the continuity of Priority 1 or 2 services within PHSKC.
- Contributing to the development of employee communications regarding flu.
- Supporting divisions with internal surge operations.
- Training BC Ops team to use WATrac system for team communications and documentation.

- Partnering with Finance & Administration Section Deployment Unit to implement a manual process for workforce call out.
- Elevating Business Continuity policy issues to the Area Commander (renegotiating contract deliverables, suspending Priority 4 services, sending symptomatic staff home, easing internal finance and administration deadlines).

The department elected not to suspend delivery of any non-mission critical (Priority 3 or 4) services during the H1N1 response, stressing the capacity of PHSKC staff to continue delivering regular services while supporting the H1N1 response. Anecdotal reports of elevated stress levels and burnout among employees during the H1N1 response were received, and may possibly be attributed to this decision. Many Priority 3 and 4 services are grant-funded, and suspension of these activities would need to be coordinated with funders. It was discovered during the response that PHSKC currently lacks a coordinated process to work with funders to seek extensions or renegotiations of contract scopes during an emergency. These issues merit further exploration to improve the department's overall Continuity of Operations capability.

## *Disease Surveillance*

**Objectives:**

1. Conduct surveillance for laboratory-confirmed influenza deaths and hospitalizations per DOH reporting requirements
2. Conduct surveillance for suspected influenza deaths and intensive care unit admissions, even if not laboratory-confirmed
3. Monitor emergency department and outpatient facility visits for influenza-like illness and track trends in disease activity by age group (syndromic surveillance)
4. Monitor absenteeism levels at King County schools and produce school absenteeism reports for PHSKC and school district authorities.
5. Describe the affected population, characteristics of the outbreak, and course of the epidemic by analyzing surveillance data (including severity, demographics, and predisposing conditions)
6. Produce a surveillance report for healthcare and community partners twice a week during periods of high influenza activity
7. Respond to inquiries and provide healthcare providers and the public with information on clinical signs and symptoms, diagnosis, treatment, and infection control measures
8. Work with interested hospitals to devise a means to report laboratory-confirmed influenza deaths and hospitalizations by electronic spreadsheet
9. Implement a new automated system for collecting and analyzing school absenteeism data
10. Provide technical support and consultation to the Communications Section, the school-health team, and other operational units of HMAC.

**Capability:** Epidemiological Surveillance and Investigation
**Activities:** Direct Epidemiological Surveillance and Investigation Operations; Surveillance and Detection; Conduct Epidemiological Investigation

**Scenario Summary:**
After the spring 2009 influenza A H1N1 outbreak, CD-EPI continued influenza surveillance throughout the summer of 2009. The PHSKC Laboratory cultured specimens from sentinel provider clinics; the syndromic surveillance system monitored emergency department (ED) visits for influenza like illness (ILI), laboratories reported numbers of positive influenza rapid antigen

tests; and King County Vital Statistics reported the weekly number of deaths due to pneumonia and influenza. The Section also gave input to the DOH on reporting guidelines for the fall.

School absenteeism surveillance began with the start of the K-8 academic year, and transitioned from a manual web-based reporting system to an automatic electronic reporting system that provided much more complete data. During times of influenza activity CD-EPI participated in weekly conference calls for school districts hosted by HMAC to answer questions and inform school leadership.

On September 15, 2009, CD-EPI sent a health advisory to healthcare providers and facilities in King County with instructions to report within one business day all hospitalized patients with laboratory-confirmed influenza, deceased patients with laboratory-confirmed influenza, deceased and critically ill patients suspected of having influenza, and institutional outbreaks of influenza-like illness. An article on influenza testing and reporting was also published in the CD-EPI newsletter for healthcare providers. DOH filed an emergency rule on September 18, 2009 requiring hospitals and healthcare providers to report all-laboratory-confirmed influenza-associated hospitalizations and deaths. CD-EPI offered to receive electronic reports from hospitals, but only two hospitals attempted electronic reporting and no hospitals were successful at fully implementing it.

Influenza surveillance indicators showed an increase in flu activity begining in early September through October, reaching a peak the week of October 25 2009. Surveillance reports were published twice a week on the PHSKC website. On October 14, 2009, updated infection control guidance from CDC was sent to healthcare facilities in a health alert. CD-EPI also sent a health advisory on October 19, 2009 with updated antiviral treatment guidelines from CDC, and issued another alert two days later announcing dispensing sites in the community where persons unable to access or pay for antiviral medications such as oseltamivir and zanamivir could obtain prescribed antiviral medications at no cost. Antiviral treatment guidelines with illustrative cases emphasizing empiric treatment of severe cases and patients with high-risk conditions were also published in CD-EPI's newsletter. On October 29, 2009 CD-EPI sent a health advisory informing healthcare providers of a CDC support line for physicians caring for pregnant women critically ill with suspected or confirmed influenza.

Influenza activity decreased in November and by early December, most surveillance indicators were at or below the levels observed in mid-September. Between October 5, 2009 and December 19, 2009, there were 350 hospitalizations due to laboratory-confirmed influenza (of which 73% were confirmed to be from 2009 H1N1), plus 16 deaths due to laboratory-confirmed 2009 H1N1. Though not all flu cases were tested to determine the subtype, the vast majority of influenza hospitalizations were likely due to 2009 H1N1 because very low levels of other influenza types were circulating at this time.

## *Vaccine*

**Objectives:**

1. Provide leadership and technical support for the planning and implementing the H1N1 vaccination program including planning, distribution to health care providers in King County and allocation, administration and tracking of vaccine.
2. Coordinate ordering, distribution and re-supply process with DOH, health care providers and the Distribution Center.
3. Provide regular distribution reports and information for internal and external use.
4. Monitor usage reports and analyze data.

5. Respond to adverse events related to H1N1 vaccination.
6. Provide technical support to healthcare providers regarding vaccine formulations and administration.
7. Assure optimal and equitable access of H1N1 vaccine to priority groups.
8. Develop strategy for pharmacies and commercial vaccinators to become providers for H1N1 vaccine.
9. Develop strategy for Public Health Centers and community health centers to provide vaccine free of charge to priority populations who can not afford administration fees.
10. Maintain timely and accurate H1N1 messaging and communications to providers, partners, and the public.

**Capability:** Mass Prophylaxis

**Activities:** Direct Mass Prophylaxis Tactical Operations; Activate Mass Prophylaxis; Conduct Medical Screening; Conduct Mass Dispensing; Adverse Events Monitoring

**Scenario Summary:**

The CDC's ACIP met on July 29, 2009 to make recommendations on who should receive the 2009 H1N1 vaccine. Once the recommended target groups were announced, HMAC held a Vaccine Workshop to discuss the priority groups with local healthcare providers and infection control experts. The workshop, held September 14, 2009, provided the platform for HMAC to make strategic decisions around vaccinating people in the priority categories; strategies for reaching the uninsured or those with no medical home; public messaging and communication strategies; and allocation strategies for vulnerable populations. The allocation amounts to each state were determined by the CDC based on a pro-rata basis. The DOH followed the same strategy in allocating vaccine throughout Washington State, using current population information to determine allocation numbers.

Providers had to pre-register through a statewide database to indicate their interest in being an H1N1 vaccine provider. Providers who were currently with the Vaccines For Children (VFC) program were automatically loaded into the system. Non-VFC providers had to sign up on their own. Information about the process was faxed in a letter to potential providers in various specialties, using existing fax lists in the CD-EPI. The information was also posted on PHSKC's website and included in the VacScene and EpiLog newsletters. Pre-registered providers were sent the provider agreement and H1N1 vaccine order form in late September 2009.

HMAC received the first allocation of H1N1 vaccine during the last week of September. The first shipment, which arrived the first week of October, contained 20,000 doses of intranasal FluMist®, 42% less than the CDC had originally projected. The next shipment of vaccine that arrived in King County provided only 27% of what was initially anticipated. The CDC announced that national delays in vaccine production were causing significant delays in vaccine delivery. The delay in vaccine production caused significant stress and confusion for providers, the public, and HMAC personnel. Mass vaccination plans that were developed throughout the summer and ready to activate had to be shelved, and a rapid planning process was initiated for rationing scarce amounts of vaccine.

The vaccine that arrived in the county was allocated and distributed to registered providers according to ACIP guidance, targeting priority populations and emphasizing those at greatest risk of severe illness (pregnant women and adults with underlying health conditions). Healthcare providers were instructed to adhere to vaccination of ACIP target populations and furthermore, to prioritize limited vaccine for use in patients at greatest risk of severe illness (pregnant women and adults with underlying health conditions) within their patient populations.

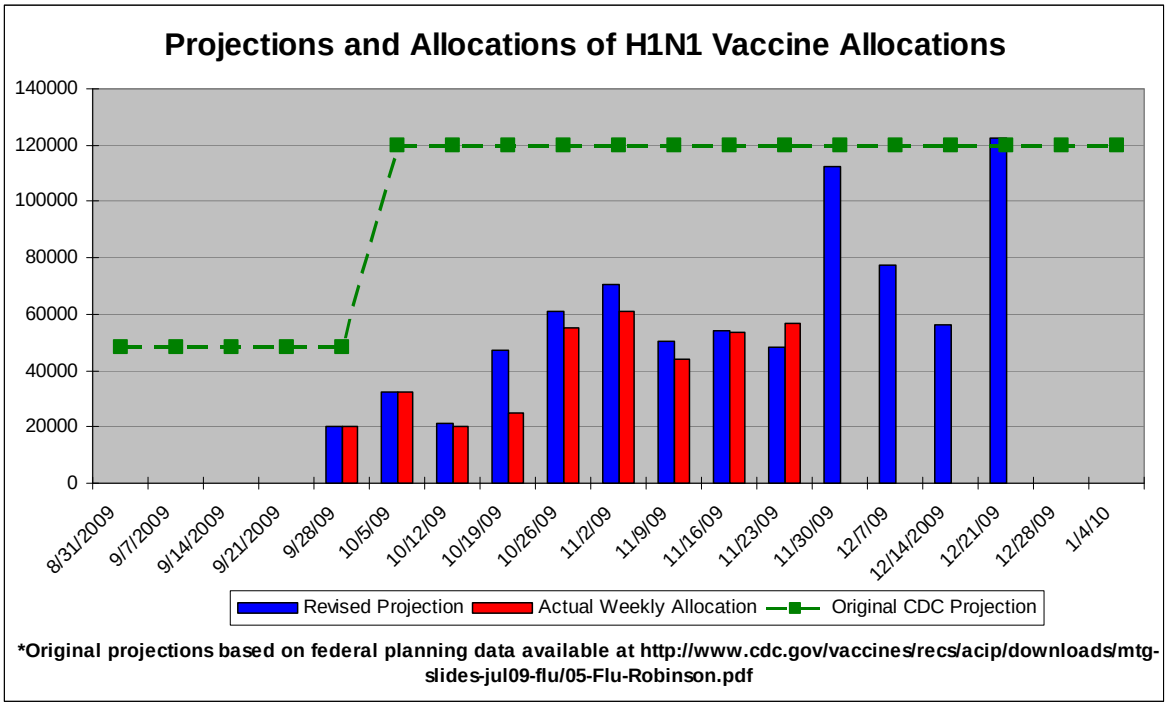
King County H1N1 Vaccination Program Local Strategy:

- Healthcare workers were offered first access to initial shipments of live attenuated intranasal virus (LAIV)
- Initial injectable vaccine was targeted for persons at highest risk for hospitalization, complications and death
- Initial vaccinators were medical home healthcare providers and specialty clinics serving high-risk patients (Not pharmacies or mass vaccinators initially)
- Clinicians were given flexibility to prioritize within ACIP guidance based on their patient populations
- Subsequently expanded distribution to venues where healthy persons could access vaccine
- Limited Public Health Center clinics for priority persons with no medical home

King County H1N1 Vaccination Program Allocation Formula Goals:

- Provide at least 100 doses to all medical home vaccinators with 500 or more patients eligible for available formulations
- Provide 10% of total doses requested for the vaccinator's target population based on the following assumptions: 50% of eligible persons in target population will seek vaccination; 20% of these patients will be vaccinated before next order cycle
- Prioritize inactivated vaccine for administration to pregnant women (to assure all pregnant women had access to vaccine through their birthing hospital), young children, and target groups not eligible for LAIV (FluMist®,)

The table below shows that allocations did not begin to consistently reach original projections until late December 2009.




Although allocations were significantly lower than original CDC projections, vaccine was rapidly distributed to healthcare providers throughout the County as it became available. In order to address the required 100-dose/formulation minimum vaccine shipment from McKesson, the national vaccine distributor, a Public Health Distribution Center was activated to provide vaccine

in less-than-100-dose increments to small-volume healthcare providers. Ninety-five percent of vaccine orders were processed within one business day, or on the same day the allocation to PHSKC was made. The remaining 5% were delayed due to the need to contact providers to clarify the number of doses requested, which formulations were appropriate to their populations, and to explain that certain formulations were not yet available for distribution. Some providers were confused about the ordering process. Many thought that the estimates of vaccine doses they provided on the pre-registration form and provider agreement ***were*** their actual order. Follow-up calls were made to explain the order process and get an actual order for that provider. Providers were also not clear that HMAC was initially filling only 10% of their order due to limited supplies.

The first doses of vaccine received in King County (intranasal only) were distributed to interested large health-care systems and emergency medical providers to use for their eligible healthcare workers. There was reluctance among some facilities and health care providers to accept the intranasal vaccine, resulting in fewer doses of injectable vaccine available for patients who were not eligible for the intranasal formulation. As a component of this initial strategy, HMAC coordinated with a single pharmacy chain to serve as a vaccine location for healthcare and EMS workers who could not access vaccine from their work place. The pharmacy chain identified 14 sites across the county, each receiving 100 doses of intranasal vaccine. Healthcare providers were notified of limited vaccine availability through these pharmacy sites and were required to present identification and proof of medical license in order to receive vaccine. Subsequent allocations of intranasal and multi-dose vials of injectable vaccine were distributed to healthcare providers. While no guidance existed that ranked within the priority groups, some health systems offered vaccine to their staff before making it available to patients who fell into the priority groups.

By the second week of November, HMAC began incorporating a small number of pharmacies as vaccination sites. The goal was to provide access to vaccine for persons in the priority groups but without a healthcare provider or whose healthcare provider was not providing H1N1 vaccine. The criteria used to select this initial group of pharmacies included registration status, ability to vaccinate children and infants, and broad geographic representation. Two gaps that quickly emerged in this pharmacy strategy included the absence of ethnic pharmacies as part of the initial group, and an insufficient number of pharmacies that could vaccinate down to age 6 months. Some pharmacies received just-in-time training to expand their vaccination age range. The varying vaccination age ranges at pharmacies created confusion and frustration for the public and for healthcare providers who lacked vaccine and wanted to direct their patients to pharmacies. Some pharmacies offered vaccinations by appointment and others preferred to host walk-in clinics.

Pharmacies participated on weekly conference calls to receive information about priority groups, allocation strategies and projections, and to share lessons learned with their peers. PHSKC also provided pharmacies with fact sheets, forms, templates and frequently asked questions to ensure that staff had current information. Liaisons from the HMAC were deployed to participating pharmacies each morning to enhance communications, answer questions and support pharmacies with the vaccination effort. Participating pharmacies were extremely flexible and supportive of the regional vaccination strategy and in honoring the priority groups

HMAC created and maintained a pharmacy webpage which listed the locations of participating pharmacies, the H1N1 vaccine formulations, the age ranges eligible for vaccination by pharmacy, hours of operation, and contact numbers to schedule appointments. The web site was very successful at keeping the public and healthcare providers informed, measured by a

decrease in phone calls, yet HMAC underestimated the work load involved and necessary participation by pharmacies in keeping the website updated in real time. In January, all remaining registered pharmacies were allocated vaccine and incorporated into the H1N1 vaccination program.

By late November, King County vaccinated approximately 190,000 people in the priority groups. Healthcare providers continued to receive timely information (vaccine distribution information to assist them in ordering and receiving vaccine, vaccine formulations, reporting requirements, recalls, etc.) via fax, email and telephone. Weekly Vaccine Bulletins were produced to keep providers informed of any changing information related to vaccine.

In early December, approximately one third of the target population groups in King County were vaccinated. On December 12th, in coordination with DOH and neighboring local health jurisdictions, HMAC expanded vaccine eligibility to all persons over the age of 6 months.

Following the H1N1 event, one of the primary lessons identified was a need to coordinate messaging of vaccine strategies, especially differences in vaccine strategies, across county lines. The pro-rata allocation strategy utilized by DOH caused significant adverse impacts on vaccine availability in King County. The County has a disproportionately higher number of healthcare workers and patients seeking specialty care compared to other counties. Thus, King County was still trying to meet the needs of priority groups while other jurisdictions began opening up vaccination clinics to all residents. Communicating this discrepancy to the public became very challenging.

## *Resource Management*

**Objectives:**

1. Continue to monitor and support the availability of antivirals
2. Distribute and track antiviral supplies to community dispensing sites in all zones
3. Finalize N95 Personal Protective Equipment (PPE) strategy and allocation
4. Allocate N95 PPE to hospitals and finalize plans for allocating surgical masks
5. Coordinate with pharmacy chains to monitor commercial antiviral supplies, FluMist® supplies, and readiness to receive additional vaccine
6. Maintain pharmacy distribution systems and evaluate options for re-supply

**Capability:** Medical Supplies Management and Distribution

**Activities:** Develop and Maintain Plans, Procedures, Programs, and Systems: Direct Medical Supplies Management and Distribution Tactical Operations: Activate Medical Supplies Management and Distribution

**Scenario Summary:**

Pediatric doses of Oseltamivir (Tamiflu) and Zanamivir (Relenza) courses were provided to PHSKC from the Strategic National Stockpile (SNS). Adult courses of antivirals were made available at select locations across the county from King County's regional stockpile. The two sources were managed together and were named the Public Health Regionally Managed Stockpile (PHRMS). The HMAC created a strategy to provide antivirals to members of the community who could not afford to pay. The seven sites that received product included jail sites, tribal clinics, one federally-qualified community health clinic, one site that served a large number of homeless patients, and multiple Public Health Center clinic sites. Community Pharmacies and one Community Clinic were provided antiviral stock to dispense patients who could not afford to pay for their prescription. They were not permitted to charge for the product or impose a fee for

dispensing. They also played a critical, but unexpected role in ensuring access to pediatric suspension for outpatients. The supply chain for pediatric Tamiflu suspension was strained during the H1N1 response and PHSKC chose to direct much of its suspension inventory to the designated community dispensing sites.

Extensive planning occurred to prepare for dispensing to large multi-specialty clinics and systems, although no product was dispensed during 2009 to these types of organizations. During the spring response, HMAC attempted to collect unduplicated patient counts to inform an allocation strategy. This number was typically not available and if it was, it was an extrapolated number that was wildly inconsistent between organizations.

**Personal Protective Equipment (PPE) Planning**

On October 14, 2009 the CDC published "Interim Guidance on Infection Control Measure for 2009 H1N1 Influenza in Healthcare Settings, Including Protection of Healthcare Personnel." This guidance outlined recommendations for use of PPE in healthcare settings, namely the use of N95 respirators during aerosolizing procedures and close patient contact with those with symptoms of influenza-like illness.

This guidance created a national debate on the scientific merit of the recommendations. This debate intensified when OSHA published "OSHA Directive No. CPL-02-02-075: Enforcement procedures for High and Very High Occupational Exposure Risk to 2009 H1N1 Influenza" on November 20, 2009. This document was consistent with CDC guidelines from the previous month and now forced healthcare organizations to make difficult decisions weighing staff safety, science, inventory levels, risk management, and the implications of non-compliance with OSHA Guidelines. Both the CDC and OSHA guidance included strategies for healthcare facilities for prioritization of use of limited supplies of N95 respirators based on healthcare worker risk.

On October 30, 2009 HMAC held a workshop to discuss strategic management of scarce resources with Hospitals and Outpatient facilities. The workshop produced a final report titled "PPE Resource Allocation and Conservation Suggestions", a compilation of suggested strategies and best practices for resource conservation.

Throughout the fall, supplies of PPE, particularly N95 respirators, continued to dwindle. HMAC created a hospital distribution strategy for N95 respirators from the PHRMS. Hospitals were the focus of this distribution strategy based on the CDC guidelines prioritizing protection of staff conducting aerosolizing procedures. Those procedures primarily occurred in an inpatient environment and namely in Intensive Care Units (ICUs). The strategy was based on peak staffed beds, adult ICU beds, and Pediatric ICU beds, and weighted toward ICU bed capacity.

After much review and discussion by a number of subject matter expert groups, this strategy was presented to the Multi-Agency Coordination Group (MAC Group) in late November 2009 for feedback and approval. After small requested changes, the final strategy was approved, but was not implemented because the MAC Group felt that inventory levels were improving and the resource was not an urgent need at that point in the response.

## *Communications*

**Objectives:**

1. Implement communication strategy for vaccine distribution

2. Develop and disseminate messaging regarding vaccine orders and delivery for media, public and providers
3. Maintain timely public education and communication regarding availability of vaccine
4. Maintain timely and accurate H1N1 messaging and communications to providers, partners and the public

**Capability:** Emergency Public Information and Warning

**Activities:** Activate Emergency Public Information, Alert/Warning, and Notification Plans; Issue Public Information, Alert/Warnings, and Notifications; Conduct Media Relations; Provide Rumor Control; Manage Emergency Public Information and Warnings

**Scenario Summary:**

During the summer between the spring and fall H1N1 responses, the Communications Section began planning and developing materials for the fall flu season. These materials included: Frequently Asked Questions (FAQ) sheets for specific organizations, including schools, congregate meal providers, and agencies that provide services to the homeless; a one-page comic strip for school-age children and their parents about H1N1 vaccine priority groups, organizing childcare for sick children, and respiratory hygiene; and ready-made PowerPoint presentations on H1N1 flu for organizations to give their own trainings.

During the fall and through the winter, additional products were created as new needs emerged. The Communications Section produced a one-page pamphlet that answered common questions about vaccine safety, and several videos on flu prevention behaviors, including a 30-second PSA featuring sports mascots from local teams. Many of these materials, as well as flyers that advertised free vaccine clinics, were translated into up to 13 languages commonly spoken in King County, including Spanish, Russian, Vietnamese, Chinese, Somali, and Ukrainian.

Information about H1N1 flu and H1N1 flu vaccine was distributed through numerous channels. Free clinic flyers were posted in the areas near Public Health Center clinics, and disseminated to over 100 community-based organizations via the Community Communications Network. Ads listing the dates and times of the clinics—and featuring images of culturally appropriate individuals and families--were purchased in ethnic media newspapers, local television and magazines as well as a college newspaper. Information about the free vaccine clinics was also distributed to community colleges in King County. Ad campaigns in King County were coordinated with the Washington State Department of Health's state-wide television and radio ads.

The Communications Section was responsible for creating content for the flu hotline, conducting ongoing media management and response, and tracking and responding to rumors in the community in mass media, blogs and other sources. Media briefings for major updates were well attended by major television and radio outlets and organized media events were held for key milestones, such as arrival of vaccine in the community. A special press conference was held for reporters from high school newspapers to foster understanding of the H1N1 flu response amongst teen populations. The Communications team was also responsible for distributing information to PHSKC and King County employees about H1N1 flu and the vaccine.

## *Call Center*

**Objectives:**

1. Activate the Public Information Call Center (PICC) capabilities to manage questions from providers and the public about vaccine availability and prevention measures
2. Expand the PICC operations as needed to manage increase call volumes
3. Monitor the PICC to assess demobilization timeframes

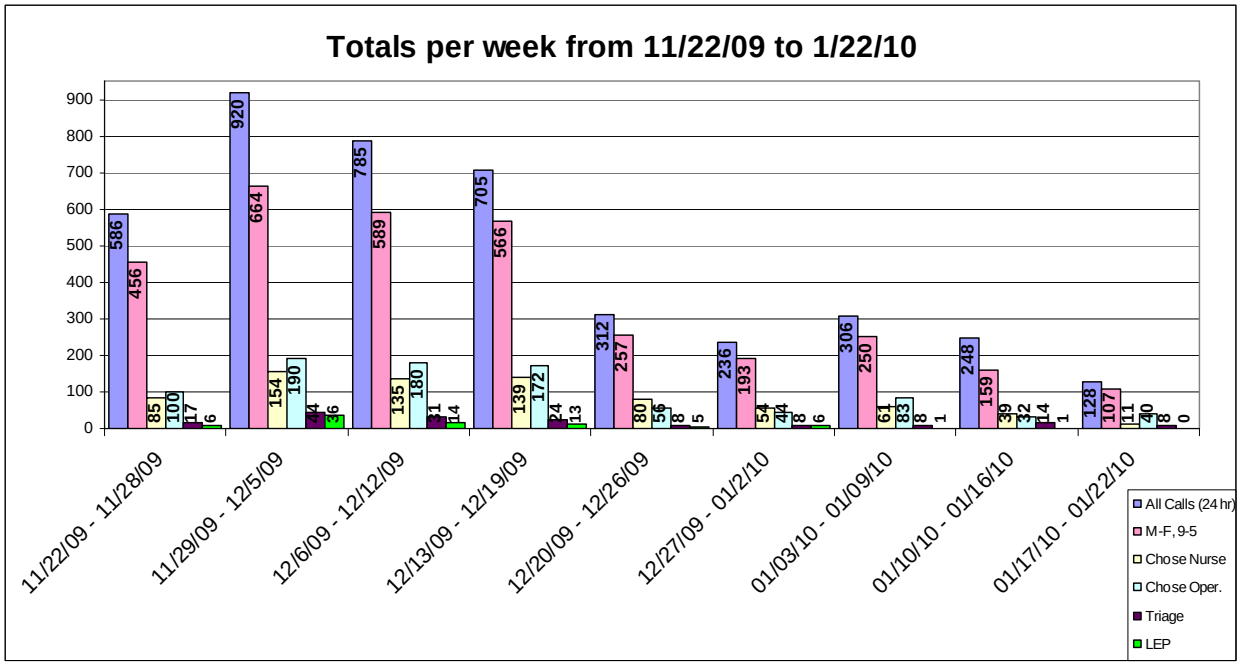
**Capability:** Emergency Public Information and Warning

**Activities:** Develop and Maintain Plans, Procedures, Programs, and Systems; Manage Emergency Public Information and Warnings; Provide Public Rumor Control; Demobilize Emergency Public Information and Warning; Activate Emergency Public Information, Alert/Warning, and Notification Plans

**Scenario Summary:**

On October 20th, the PICC opened under the Operations Section of HMAC and was staffed with operators and nurses to field questions from the public regarding H1N1. Due to the national delay in vaccine, there was increased fear and anxiety among the public calling the PICC (known to the public as the "Flu Hotline"). The PICC allowed callers to select from a menu of options for recorded information, or to speak with an operator or nurse. The top three recorded topics selected by callers were: "where to find vaccine", "H1N1 overview", and "symptoms". Multiple internal and external partners referred their clients to the flu hotline to alleviate their call volumes. The CD-EPI and Public Health Centers routinely transferred callers to the PICC, and established a recorded message that referred callers to the hotline. Several healthcare partners used this same strategy to alleviate the volume of calls they were receiving as well. It is important to note that the recorded topics, kept current by the Communications Section throughout the event, provided sufficient information to callers and effectively reduced the number of calls that required action by a call center operator by 60 – 70%.

Messaging for the PICC was coordinated with the information and messaging that was distributed to the public, healthcare providers and other partners through a variety of channels, including; WaTrac, CD–EPI Blast Fax Alert, Community Communications Network (CCN), media releases, and other informal communication channels. Callers accessed the flu hotline from across King County, multiple counties within Washington State, and from outside the state. Over 20,000 calls were received from within Washington State, of which 15% were from callers outside King County. 1000 calls were received from Oregon residents, over 800 from Utah, and over 400 from the Bay Area of California. The Language Line was utilized to serve the callers who were non-English speaking. Spanish was the most utilized interpreter service, followed by Vietnamese. Total calls by type are outlined in the chart below.




The PICC routinely received information from the public or healthcare providers that needed to be validated. As this increased, a protocol was established to assign responsibility to follow-up on the validity of the information being received in the hotline by coordinating with the Communications Section. The caller then received a call or email with follow-up on their complaint or information. Hotline staff responding to calls received support through the call center Supervisor, who was often able to defuse callers' anger and frustration.

Due to the demands on HMAC personnel, a number of the previously trained PICC Operators were unable to serve in the PICC. Continuity was successfully met by hiring and training temporary operators and nurses, with augmentation by previously trained PHSKC. Additional PICC Supervisors were trained and served during the activation of the PICC, increasing the pool of PICC Supervisors from two to nine, which benefited the response.

The PICC was also coordinated with outside nurse lines. In the 95 days it was operational, the hotline received over 25,000 calls. The status of the situation drove the volume of calls. A summary of the busiest times is below.

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|---|---|
| **Busiest Week** | 5,556 total calls; 2,148 chose Operator or Nurse |
| **Busiest Day** | 1,333 total calls; 595 chose Operator or Nurse |
| **Busiest Hour** | 221 total calls; 118 chose Operator or Nurse |

The PICC proved extremely valuable and very successful. The use of advanced technology through menu options and recorded messages, augmenting call taker staff with volunteers and contracted nurses, and directly linking to multiple nursing call lines created a robust, comprehensive medical and general information call center for King County.

## *Vulnerable Populations Action Team (VPAT)*

**Objectives:**

1. Making antiviral medicines available and accessible free of charge to those uninsured or unable to pay
2. Making vaccine available and accessible free of charge to those uninsured or unable to pay
3. Communicating information and outreaching to CBOs and other partners who serve vulnerable populations, and vulnerable individuals throughout the county.

**Capability:** Community Preparedness and Participation
**Activity:** Integrate Public Outreach and Non-Government Resources into Emergency Operations Plans and Exercises

**Capability**: Emergency Public Information and Warning
**Activity:** Develop and Maintain Plans, Procedures, Programs and Systems

**Scenario Summary:**
In September 2009, VPAT hosted a four hour "H1N1 Briefing for Community Based Organizations" that was designed to assist agencies in their H1N1 preparedness efforts. Presentations were specifically targeted to include issues of particular concern to CBOs, including an in-depth overview of H1N1 with information on how to protect the member in the audience, clients, and staff; and information on cleaning and sanitizing. Approximately 150 people attended, representing 83 organizations. Additionally, VPAT staff fielded calls from CBOs related to their agency emergency plans, providing technical assistance and support.

In the early fall, VPAT staff also conducted many presentations at agency staff meetings, including at El Centro de la Raza and the International District Housing Alliance. Presentations were also provided to vulnerable residents including the Deaf/Blind community, a Somali women's group, and ESL classes. Information and assistance to CBOs who serve vulnerable communities was provided throughout the duration of the response.

In October, VPAT's interdepartmental team began meeting weekly to monitor the response and advocate or raise issues where appropriate. The weekly VPAT meetings were an important and necessary strategy to focusing the VPAT response and identifying issues to impact. Significant discussion focused on H1N1 vaccine uptake in the Somali community and how to handle concerns related to the porcine gelatin. VPAT staff worked with contacts in the Somali community to set up a meeting with East African religious leaders to learn more about how to best address the concerns related to the vaccine not being halal (Arabic word meaning lawful or permitted).

VPAT partnered closely with the Communications Section to advertise HMAC's free H1N1 vaccination clinics in the community. Regular communications were sent through the CCN to agencies partners updating them on the availability of vaccine and notifying them of clinic locations and hours. Attendance at these free clinics was closely monitored to assure that all communities were aware of the opportunity. While the December clinics vaccinated large numbers of Latino and Vietnamese people, other communities were disproportionately absent including: African American, Cambodian, Chinese, Ethiopian, Filipino, Korean, Native American, Russian, Somali and Ukrainian.

In response to the low attendance of some communities at the free H1N1 vaccine clinics, an RFP was developed with the primary purpose being to encourage culturally competent and innovative ways of conducting outreach to vulnerable populations, by ensuring our communities have adequate information and by getting more residents vaccinated (by hosting a clinic or referring people to the January clinics). Public Health awarded grants of up to $4,999 each to five community agencies that serve many of the communities that were absent from the free H1N1 vaccine clinics. At the clinics sponsored by International District Housing Alliance, Asian Counseling and Referral Services, New Futures and Horn of Africa, 471 people were vaccinated.

## *Healthcare*

**Objectives:**

1. Receive, distribute and administer H1N1 vaccine to priority groups
2. Ensure messaging and appropriate guidance regarding H1N1 vaccine availability and personal protective equipment reaches healthcare providers and patient populations
3. Conserve resources and ensure consistency with OSHA guidance for respiratory protection

**Capability:** Medical surge

**Activities:** Pre-event Mitigation and Preparedness, Incident Management; Increase Bed Surge Capacity; Medical Surge Staffing Procedure.

The impacts on the healthcare community from this event ranged from complications due to lack of succinct communications, lack of vaccine availability, and resource constraints with masks and hand sanitizer. Healthcare does not experience geographical boundaries in the same way as governmental organizations, therefore different distribution plans in different counties made the exercise of distributing vaccine, from a provider level, extremely challenging. Several healthcare partners reported a desire for more DOH guidance on appropriate use of vaccine and defining priority groups, or consistency across county lines. Some organizations reported that they instructed all their sites, regardless of location in Washington State, to follow the HMAC guidance because they found it to be the most useful to navigate and to make well founded decisions.

The constantly changing information and resources during this event compounded the challenge of keeping healthcare providers informed in a timely manner. Several reported an appreciation for the scheduled conference calls and updates, stating that it allowed them to plan internal meetings and updates around expected informational briefings. They also suggested having updates available in different media forms (text messaging, pager messaging, etc) would have been extremely helpful, especially for those conducting patient care and not able to access a computer until the end of each day. Information about locations where vaccine was available was confusing due to different strategies employed by individual local health jurisdictions. Confusion with this issue increased due to the difference in target priority groups. Several providers were frustrated that community pharmacies received vaccine before their organization was able to vaccinate staff or high risk patients. In some cases, the cause of this problem relates to a mishap in the ordering process – some organizations declined to order nasal spray, therefore they had to wait until injectable vaccine was available. In other cases, the delay was caused by a difference in strategy between local health jurisdictions. Regardless of healthcare sector, providers felt communication was lacking about why some groups were not included in the priority list, such as elderly, and found it difficult to convey to their patients/clients why they were not eligible to receive vaccine. Hospitals reported an appreciation for having a standardized set of recommended visitor guidelines to create their own visitor policies from. The

guidelines eased the management of hospital visitors because there was precedence at institutions across the County, and no hospital could be singled out

Receiving vaccine from different manufacturers made writing disclaimers challenging because each manufacturer had their own restrictions. Providers requested this be streamlined at the state or regional level to reduce the amount of staff time spent on writing disclaimers. The delay in vaccine gave time for myths and misinformation to circulate, causing fear and frustration among staff about the vaccine. It was suggested that a group of trusted individuals (medical directors, infection control officers, etc) from across the region or across multiple counties, develop messaging to healthcare staff to answer their questions and translate guidance as needed. Healthcare provider organizations were creative in developing internal distribution strategies. Several indicated utilizing small departments, such as employee health personnel, was not enough for the task of vaccinating several hundred staff. They reported that many of their staff do not speak English as a first language, and having training materials available in different languages would have been helpful.

Healthcare organizations were surprised that their supplies of hand santizer were depleted, and several experienced difficulties with N95 mask availability. Some employed the use of Powered Air Purifying Respirators (PAPR) in place of N95 respirators, but others did not have PAPRs available or had a fit testing program that only supported one type of mask. Although the SNS did provide N95 masks, the timing of the delivery was delayed and the types and sizes available in the shipment were largely unfamiliar to healthcare providers in King County. The MAC Group deliberated over the best strategy to allocate the masks, taking into consideration healthcare workers at highest risk first. In the end, however, the supply chain opened up and N95 masks became available through regular channels, making distribution of SNS supplies unnecessary.

Overall, the lessons learned from our healthcare partners centered around the need to better coordinate messaging, especially unifying messages across county lines; more support for mask guidance and collaborative messaging on changing guidance; need for clear communication on vaccine availability, ordering process, and where to send staff; and that our healthcare providers felt supported by HMAC, which is a huge success.

## SECTION 3: ANALYSIS OF CAPABILITIES

### Table of Contents



**Target Capability: Critical Infrastructure Protection**

| Activity | Observation | Analysis | Recommendation | Reference |
|---|---|---|---|---|
| Business Continuity Activity: Assess impacts of event on PHSKC mission-critical services and report impacts to HMAC | | Strength: Business Continuity Operations Section (BC Ops) was effective in this area. A particular strength was tracking the impact of staff absenteeism on mission-critical functions via the Division Business Continuity Status form. Using this form, CHS Division reported high staff absenteeism in a critical PHSKC clinic function before the absenteeism impacted operations. BC Ops Section then coordinated with the Finance & Administration Section to deploy trained staff to this continuity role, assuring critical clinic services could continue uninterrupted. | Contributing to this strength:<br>• PHSKC Divisions' commitment to completing the Division BC Status form<br>• BC Section Chief sharing and acting on intelligence received from division<br>• Close coordination between BC Ops and the Finance & Administration Sections<br>• Workforce deployment system able to deploy staff to continuity roles | |

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| Business Continuity Activity: Facilitate communication between PHSKC Divisions and HMAC around the response | | Strength: This response represented the first activation of the BC Ops Section of HMAC, with the primary mission of maintaining good communication between PHSKC divisions and HMAC. Activities of BC Ops Section successfully improved situational awareness among PHSKC Divisions and HMAC, particularly with regard to event's impact on PHSKC Priority 1 & 2 functions. Activation of BC Ops Section also created another point through which PHSKC divisions could access / coordinate with HMAC, enhancing overall coordination of continuity operations with response operations. | Continue to enhance the approaches used to carry out this activity:<br>• Division BC Status Form<br>• BC Ops WATrac Command Center Chatroom<br>• BC Ops Section Twice-Weekly Face to Face Briefings<br>• Division BC Leads regularly attending HMAC Briefings<br>• All email communications regarding BC Ops sent to Division BC Lead and their backup | |
| Finance & Administration Activity: Mobilize PHSKC, PHRC, and contracted staff to support vaccine ordering process and data management needs, field response needs and PICC needs. | Section worked to schedule staff and fill staffing requests and scheduling to later find out the division had already filled that spot. | Divisions need to be completely finished with their internal surge before requesting staff from the Finance & Administration Section. It would be easiest if the division stepped back once Finance & Administration Section has the request. | Follow-up with divisions to set expectations about filling surge staff roles | |
| | Business Continuity needs to finalize their priority 4/3/2/1 lists so that when we have an emergency, we are not second guessing or changing the list. | The business continuity plan needs to be revised showing priority levels for all Sections. | Revisit membership in existing response teams, assessing staff's ability to serve based on whether they work in a Priority 1 – 4 service. Build this consideration into recruitment of future response teams. | PHSKC Priority 1 – 4 services |

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| | Staff in the divisions who are on response teams did not remember their response team assignments. | Department leadership and BC Ops did not communicate well to Priority 4 staff that they could be called up to respond. | Continue to work with department leadership on deployment process and approval to deploy out of divisions. | |
| Business Continuity Activity: Coordinate with Workforce Deployment team to minimize the impact of deployment on PHSKC mission-critical services | | Area of Improvement: PHSKC staff have been recruited/trained for emergency response teams without regard to whether they work in a Priority 1 or 2 function (mission-critical staff). The first priority of mission-critical staff should be to remain in base position and continue providing mission-critical services. | HMAC did not have the depth in responders previously believed and would have had significant challenges mounting a more staff-heavy response due to the failure to take BC responsibilities into account when staffing emergency response teams. This oversight created:<br>• Need for constant back and forth between Division BC leads and HMAC deployment team to determine eligibility/availability of each individual team member for call out.<br>• Frustration at the Division level that the emergency response was taking all their critical people.<br>• Approximately one third of response team members actually available for redeployment, after taking BC responsibilities into account. | Revisit membership in existing response teams, assessing staff's ability to serve based on whether they work in a Priority 1 – 4 service. Build consideration of BC roles into recruitment of future response teams. |

**Target Capability: Emergency Operations Center Management**

| Activity | Observation | Analysis | Recommendation | Reference |
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| Finance & Administration Activity: Mobilize PHSKC, PHRC, and contracted staff to support vaccine ordering process and data management needs, field response | Finance & Administration Section did not have an automated workforce deployment database available to assist with response. | We need an automated workforce development system. In the absence of this system, BC Ops Section and Deployment Team resorted to manual methods, which were more time consuming and led to errors and lapses in communication surrounding | Complete development, training, and implementation of deployment module of workforce. | Workforce deployment procedures |

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| needs and PICC needs. | | deployment processes | | |
| | Responsibility for EOC check in and check out falls under Operations in the plan, but during the event this function was managed by Finance & Administration Section. | Check in and Check out process needs policy definition and needs to be implemented. | Work with the Operations Section to establish a check in check out policy. | |
| | Hiring administration staff, nurses, and epidemiologists on a full-time temporary "contract" basis using flu stimulus money was extremely helpful for surveillance activities. They could be trained and integrated into the team in a more rapid and productive manner | Integration of full-time staff was easier than integrating part-time staff. | 1. Increase epidemiology surge support to CD-EPI earlier in an incident using full-time temporary contract staff when possible.<br>2. Provide resources to develop training materials and procedures for surge back-up personnel | |
| | Vaccine was available for distribution before a database could be piloted. This resulted in multiple challenges in creating a database urgently and producing accurate analyses. In the initial stages of the outbreak, CD-EPI did not have enough epidemiology staff. | The absence of an epidemiologist to develop and test a database and the use of multiple epidemiologists did not adequately meet the needs for timely data. | An epidemiologist (or similar position) should be available and hired full time prior to the implementation of a vaccine distribution program. Possibly recruit more epidemiology support to the PHRC. | |

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| | PHSKC attempted to hire personnel to assist in the vaccine distribution program prior to its implementation. The positions were not in place in time for the implementation. | Human resources processes were complicated and lengthy. The process was initiated on July 21 and was completed by the end of October. Hiring freeze waivers must be signed off by the Division Director, the Chief Administrative Officer and the King County Executive's office | 1. PHSKC and King County Human Resources representatives need to establish procedures to streamline hiring during public health emergencies.<br>2. Develop written job descriptions for temporary staff that may include various responsibilities | |
| | Ergonomics of the Area Command Center are not supportive and caused physical problems for staff. The desk set-up doesn't work for a lot of people and the room is too crowded. | Desks and desk chairs in the Area Command Center need to be evaluated. | King County should evaluate staff workstations for recommendations for making the desks and chairs more comfortable for staff that are in the Area Command Center. | |
| Finance & Administration Activity: Track response costs, communicate burn rate to leadership | Burn rate was calculated based on reports from different Sections and reported at HMAC meetings, yet there was no consistent schedule for calculating and communicating current burn rate statistics to the Area Commander and the Local Health Officer. | A reporting schedule for burn rate calculations should be developed and incorporated into HMAC protocols. | It is imperative to the Finance & Administration Section that a position in the HMAC structure is dedicated to tracking costs and burn rates. This position should develop a reporting schedule, approved buy the Finance & Administration Chief, immediately upon activation. | |
| Finance & Administration Activity: Process contracts and purchasing paperwork for H1N1 | Sections were good about getting purchasing paperwork to Finance & Administration for approval prior to ordering services | This practice should be maintained in the next response. | n/a | |

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| Liaisons Activity: Disseminate information to a broad range of constituents (including elected officials and policy advisors, schools, child care and early learning programs, parents, guardians, pregnant women) in a timely and appropriate manner. | Liaisons supported information dissemination, particularly to the schools and childcare community. Elected officials appreciated receiving information preemptively and in particular, Senator Prentice's staff expressed her appreciation and posted information in her district newsletter. | Liaisons are necessary to manage the flow of information to/from stakeholders and protective information dissemination can reduce the number of phone calls and increase awareness of response activities. | It's important to activate liaisons for response activities. The role of the Liaison Officer should be evaluated since individual liaisons were effective in reaching their specific stakeholders. | |
| CD-EPI Activity: Implement a new automated system for collecting and analyzing school absenteeism data | CD-EPI implemented a new automated electronic reporting system for K-12 school absenteeism surveillance, but had to rely on incomplete manual web-based reporting for the first several weeks of the fall flu season. The value of school absenteeism data to the public health response is unclear.<br>The regional PHSCK school teams would probably not have had sufficient staff and resources if schools had needed more information exchange with HMAC (e.g. there were more cases of severe illness among children and follow-up of schools with increased absenteeism was needed) similar issues exist for child care centers, for which there is only passive surveillance. | Automated reporting was valuable tool once it got off the ground. The system should be developed to facilitate the recording of other organizations with young children-- such as child care centers. More information is needed to assess whether school absenteeism reporting and evaluation is valuable for understanding an epidemic or designing a public health response. | 1. Examine whether additional surveillance and support is needed for child care centers.<br>2. Conduct evaluations to determine the correlation between absenteeism and influenza and the public health value of absenteeism reporting.<br>3. Determine the representations and visualizations of school absenteeism data that are easiest to understand and most useful to public and the K-12 community.<br>4. Use regular conference calls with schools in future pandemic influenza outbreaks to ensure that schools have accurate and timely information. | |

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| Planning Section Activity: Utilize WATrac to communicate to healthcare partners and gather data elements | WATrac users were invited to join and participated in chat rooms in Command Center to communicate with HMAC and each other and enter data related to ICU bed usage and ILI data. Data elements were set up in the system and activated for hospitals providing input. | WATrac supports the HMAC response activities as well as other regions in WA during preparedness and response times. Functionality can be enhanced through training users on existing capabilities as well as following up with vendor on possible enhancements. | Follow up with WATrac users and provide training on key features and how to work with the system.<br><br>Support WATrac users with training and/or reminders on functionality including:<br>• Current process for setting up news user accounts and activating resources (data elements)<br>• Data entry and saving changes to variables<br>• Setting up Command Center rooms (i.e. naming) and responding to requests to join a Command Center room<br>• Using support@watrac.org to get help<br><br>Work with the WATrac vendor on re-designing some features including:<br>• Ensure viewing rights work correctly Capturing historical data by activating correct data fields<br>• Investigate flexibility for formatting date range<br>• Investigate incorporating “no change” button | |
| Planning Section Activity: Supporting situational awareness and the HMAC Sections with data and reports | The Operations Section did a significant amount of planning related to the H1N1 vaccine distribution as well as data collection. | The Planning Section was often asked for information that it did not have or was unaware of. This information often resided in the Operations Section. | Work more closely with Operations, perhaps having a Planning Section representative embedded in Operations to facilitate joint planning and data collection. | |

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| | The Planning Section was responsible for issuing several documents including the Incident Action Plans (IAP), Situation Reports, Resource Status Unit reports, Healthcare Impacts Report and organizing HMAC briefings. | Much of the pre-planning done over the summer and early fall helped with establishing processes and data collection (i.e. Resource Status Unit). Healthcare Impacts Report and Situation Reports supported situational awareness with healthcare and community partners. | Continue use of Healthcare Impacts Report and Situation Reports. | Situation Report<br><br>Healthcare Impacts Report |
| | | It was a challenge to get General Staff input into the development of the Incident Action Plan. | Revisit the Incident Action Plan template and "Planning P" to more efficiently develop document. | Incident Action Plan |
| | | Several hospitals mentioned that scheduled conference calls and updates were useful because regular calls allowed them to plan their internal updates. | | |
| | The Planning Section updated the boards/monitors, monitored HealthEOC Outlook mailbox, organized conference call lines, answered phones, and supported other Sections as needed. There was great team work in the Section to support the activities. | At times, staff were tasked with additional assignments outside of the ICS chain of command as well as assignments belonging to other Sections, which created a burden on staff time and resources. | Refresher on ICS and chain of command for HMAC staff as well as reminders about staff roles in HMAC versus their day-to-day responsibilities. | |
| | The Multi-agency Coordination (MAC) Group was utilized for a recommendation on the distribution of PPE to healthcare organizations. | The development of briefing materials (i.e. emails, key documents, recommendations, guidance) and the follow up with MAC Group members is time intensive. | Examine how the MAC Group is supported, including who will develop briefing materials. | |

**Target Capability: Emergency Public Information and Warning**

| Activity | Observation | Analysis | Recommendation |
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| Public Information Call Center (PICC) Activity: Staff and train flu hotline with previously trained PHSKC staff and PHRC Volunteers, and temporary employees. | Additional PICC Supervisors were trained and served during the activation of the flu hotline increasing our pool of PICC Supervisors from two to nine, which benefited the response.<br>Due to the demands on PHSKC personnel, a number of the previously training PICC Operators were unable to serve in the PICC. Continuity was successfully met by hiring and training temporary operators and nurses, with augmentation by previously trained Public Health staff.<br>Admin & Finance Workforce Deployment Team created mock schedules in preparation for an activation of the Flu Hotline.<br>Previously trained PHSKC staff provided their schedule availability and were on-call for a potential activation. | Some PHSKC staff reported having availability to staff the flu hotline, but were not released by their supervisors. Additional assessment of staff availability based on business continuity planning could have supported the PICC activation, if funding was not available to hire outside staff. PHSKC Staff that augmented the hotline were part time employees who were able to increase their hours to serve in the hotline. Having staff on-call in preparation for the PICC activation allowed HMAC to activate fully staffed in less than 48 hours. | 1. Identify part time employees within PHSKC and King County government who may be available to work additional hours.<br>2. Document procedures in Workforce Deployment for advance scheduling of teams in preparation for future activations of the PICC or other response functions.<br>3. Develop a process to communicate to PHSKC supervisors regarding response activities, and keep them apprised of continued efforts and potential staff needs. |
| Public Information Call Center (PICC) Activity: Provide timely, accurate and consistent messaging to the public and community partners. | Due to the national delay in vaccine, there was increased fear and anxiety among the public calling the flu hotline. The staff managing the calls were able to receive support through their Supervisors, who were often able to defuse callers anger and frustration. | Staff provided quality customer service in the call center. Operators should be monitored for stress when there is heightened public anxiety. PICC Supervisors should expect to take over angry callers to ease the operators stress. | Add information in the PICC Supervisor Job Card to provide oversight of PICC Operators management of angry callers. |

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| Public Information Call Center (PICC) Activity: Provide efficient and equitable information to the public who are non-English speakers or have communication disabilities. | The hotline staff utilized the Language Line to serve the callers who were non-English speakers. | Once staff were comfortable using the conference calling function, they were able to easily coordinate non-English speaking callers. On rare occasions calls were lost when setting up the conference calling function, but it is not known whether the caller hung up. | 1. New PICC staff should receive hands on training of conference call functions and use of Language Line prior to being activated in the PICC.<br>2. Assess costs associated with upgrading phones for more efficiency in using conference calling function. |
| Public Information Call Center (PICC) Activity: Track, document and analyze daily usage data. | Initially, documentation of call volumes were recorded twice a day. As call volume decreased, documentations reduced to once per day. The Documentation Unit in the Planning Section kept records of data. | As the PICC activation progressed, new documentation needs arose. | Develop data tracking tool prior to next PICC activation to ensure appropriate and timely tracking of needed information. |
| Public Information Call Center (PICC) Activity: Respond to incoming intelligence and caller feedback. | The PICC routinely received information from the public or healthcare providers that needed to be validated. As this increased, a protocol was established to assign responsibility to follow-up on the validity of the information being received in the PICC. Routinely, the caller received a call or email with follow-up on their complaint or information. | Efficient system was eventually developed to ensure prompt and timely customer service. | Develop a process for rumor control when the PICC receives intelligence from the public or response partners. Provide follow-up to callers as needed. |
| CD-EPI Activity: Receive inquiries from healthcare providers, and assist with inquiries from the general public | Regular and surge staff responded to queries from providers about the signs and symptoms of the disease. A surge in public inquiries to providers was addressed by the PICC, with technical support from CD-EPI staff. | Lessons learned and experience by CD-EPI staff in the spring pandemic of H1N1 influenza were beneficial in responding to public information needs in the fall outbreak. | Continue to use experience learned in responses to inform information sharing with external partners and the public. |

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| Communications Activity: Articulate vaccine prioritization/ distribution rationale to the public and promote vaccine as it becomes available | LHJs had different strategies for vaccine allocation, and it looked chaotic to the public. Counties got played off each other. | The DOH could play a larger role in coordinating policy and/or messaging strategies for LHJ vaccine availability, including explaining reasons for the different strategies. In absence of DOH support, we could play a stronger role in message coordination, at least among Puget Sound - area LHJs. | Emergency Communications Plan, Version 4 (updated September 2009) |
| | There could have been greater coordination among the LHJs in Washington State in opening up the priority groups. | | More frequent conference calls or some other type of check-in, both at the policy and the PIO level, would have been useful. |
| | Many people expected to know exactly where the vaccine was being delivered, but it wasn't necessarily a good real-time representation of where vaccine was available, and providers were sensitive to their delivery information being public information. | | Consider ways to be more transparent about the delivery of vaccine. |
| | The rationale behind the vaccine distribution strategy wasn't clear to staff who were developing messaging, which made it difficult to develop effective public communications. | | Ensure that rationale for decisions is explicitly articulated to staff; review and test messaging in real time with selected audiences outside of Public Health. |
| | Early in the fall response, the director's policy directives were clear, as he was a direct participant in planning and response leadership meetings. As the response progressed, he was less visible in these meetings, and the decision making process and rationale became less transparent within the department. | | An ongoing, regularly scheduled executive briefing and policy meeting with key lead staff may have supported greater clarity in decision-making |

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| | Providers were frustrated that community pharmacies received vaccine before their organization was able to vaccinate their staff or high risk patients. | The perception that community pharmacies received vaccine before health care providers was partially due to problems with the ordering process—some organizations declined to order nasal spray, and therefore had to wait until injectable vaccine was available. In other cases, there was a difference in strategy between local health jurisdictions. | PHSKC and the Healthcare Coalition work with hospitals assess how key messages can be more effectively distributed to hospitals and within hospitals during an emergency. |
| | Hospitals appreciated having a standard set of recommended visitor guidelines. In explaining priority groups to their clients, especially to seniors, they felt like there was not enough information about why certain groups were prioritized. Also, since hospitals receive vaccine from several different manufacturers, providers were also frustrated that they had to write separate disclaimers for each vaccine manufacturer, which ate up valuable staff time. | n/a | PHSKC and the Healthcare Coalition work with hospitals assess how key messages can be more effectively distributed to hospitals and within hospitals. The Healthcare Coalition will also advocate at the state or regional level for streamlining the production of disclaimers for medical treatment during an emergency activation |
| Communications Activity: Promote local PHSKC vaccination clinics for vulnerable populations when activated | Health Educators at the Public Health Centers were very effective in encouraging their contacts to go to the free vaccine clinics, but were activated relatively late in the response. | | Incorporate Health Educators as part of the communications strategy earlier in the response. |
| Communications Activity: Produce, disseminate and update H1N1 messaging and public education materials, including translations | We did not have a method for gathering feedback from the public regarding the effectiveness of communication materials, especially in regards to vulnerable populations. | | Work with the Planning Section to establish systems of data collection earlier in the response. |

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| | It was challenging to communicate information (especially translated information) when information was changing so quickly and decisions were made with short notice. | | Work with Command Section leads and leadership to find a better balance between quick turnaround of vaccine and information and simplifying the message. |
| | Messaging numbers proved to be problematic at times: first, in agreeing on a credible and consistent methodology to communicating vaccine doses delivered, and second, in estimating the number of people vaccinated using a formula that reflected changing conditions over time. | | Anticipate data reporting issues sooner in the process to engage Planning Section and CD-EPI on; clearly define responsibilities and update schedules. |
| CD-EPI Activity: Provide technical support and consultation to the communications team, the school-health team, and other operational units of the HMAC's response | CD-EPI also worked with the Communications Section to ensure that accurate messaging and timely information was distributed to the public. The Section also worked with the school-health team, and other operational units. Weekly conference calls with school districts were well-received. In a more severe or wide-spread epidemic, there will be a much greater need to support schools. | In a more severe or wide-spread event, there may not be enough staff to response to the needs of schools and child care facilities. | Increase the surge capacity of school and child care response teams, and develop a plan for quickly deploying teams for an incident requiring a more intense and widespread response. During events that impact schools, use regular conference calls with schools to keep school administration, teachers, and nurses informed. |

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| Public Information Call Center (PICC) Activity: Coordinate Flu Hotline through the Operations Section of ESF-8 Area Command Center (ACC). | In the fall of 2009 a Call Center Branch under the Operations Section of PHSKC's HMAC structure was created to manage the operations of the Public Information Call Center, which was previously managed by the Communications Section.<br>The PICC line was activated in a timely way that prevented CD-EPI from being overwhelmed with telephone calls. | The transition of the PICC function from Communications to Operations Section allowed for a more coordinated and effective response to provide public information to the community during the fall and winter outbreak of H1N1 influenza. Coordinated messaging in and out of the Flu Hotline continued through the Communications Section, but with the guidance and oversight of the Operations Chief. Initially, Flu Hotline staff were not always up to date on accurate information, and were at times informed by the public or healthcare providers of messaging from various operational activities, but a process for updating information was created, which provided call center staff with prompt information. | 1. Ensure Call Center Branch Chief routinely attends Operations Section briefings and operates, at least part time, in the Area Command Center.<br>2. Develop Demobilization Plan at time of activation of a PICC with specific actions and timeline. Share plan with all interested parties. |
| Public Information Call Center (PICC) Activity: Coordinate Flu Hotline messaging with Communications (external and internal), CD-EPI, DOH, and Public Health Centers. | Correspondence to the public, healthcare providers and other partners was sent out through a variety of channels, including; WaTrac, CD-EPI Blast Fax Alert, CCN, media releases, and other informal communication channels. | Requested messaging from the Flu hotline was responded to in a prompt manner by the Communications Section. A protocol was eventually established that provided the PICC was date and time stamped "Hot Sheets" that provided PICC staff with brief updated information.<br>Due to the multiple efforts to communicate information, the PICC did not initially receive outgoing messaging. Questions came into the PICC that were not able to be answered due to the delay in receiving correspondence. Eventually, the Communications Section and the Call Center Branch Chief were included correspondence, which was disseminated to the PICC operators and nurses. | Develop process to ensure PICC operations receive all information communicated out of HMAC or other response operations. |

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| Vulnerable Population Action Team (VPAT) Activity: Communicating information and outreaching to CBOs and other partners who serve vulnerable populations and vulnerable individuals throughout the county. | Flyers and text heavy information does not work in many of the communities we were trying to reach.<br>PHSKC lacks established relationships with faith-based organizations in culturally specific communities. Outreach provided at a Vietnamese Buddhist Temple made an impact. The monks called members of their temple about flu shots at Columbia Public Health Center.<br>HMAC needs to broaden PHSKC staff working on outreach to include interpreters, and programs/individuals that work in the community. Get buy in from folks early and agreement/ownership in the process. | n/a | 1. Need to tailor strategy/message and information to particular communities, it's not enough to just translate and provide more low literacy and visual-based messages.<br>2. Conduct literature search on vaccine uptake in various populations- childhood vaccinations, new refugees, perception of prevention in different cultures, IV drug users<br>3. Advocate for changes at policy level to CDC and DOH to include race/ethnicity data on forms/reporting requirements<br>4. Conduct inventory of PHSKC programs that partner with agencies/communities representing "vulnerable communities". Develop system/relationship with the programs and understanding of the role they could play in a response<br>5. Develop and implement a strategy to access an internal resource: staff who could provide two-way communication because they had established relationships in communities either through their work or personal life. |

**Target Capability: On-Site Incident Management**

| Activity | Observation | Analysis | Recommendation |
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| Logistics Activity: Track requests from HMAC and HMAC Sections to procure event related supplies and/or services. | The Request Log, a new system application, was used to record and track the incoming requests. The Request Log was a good communications and tracking tool. Requests should have been sent to the shared email address EOC Logs established during the Spring | As the requests became more frequent, requests were sent directly to individuals working with the HMAC Logistics Section and bypassed the EOC Logs mailbox. The purpose of using a central mailbox is to avoid information or requests being overlooked. | Standardizing the request process, so all information is provided in the initial request, will streamline the overall process. Ensure that all new requests for service or supplies go through the Planning Section and is authorized before logistics becomes standard. |
| Logistics Activity: Provide all material and service support needs, except personnel, as defined by the Incident Commander and the Logistics Chief. The Section is responsible for Facilities, Transportation, Communications, Supplies and Equipment | Logistics cleared conference rooms for the Area Command Center and PICC. Logistics also worked with PHSKC Facilities Management to coordinate power and air conditioning requirements for Public Health Centers that were hosting vaccine clinics. | The moves preempted a lot of standing meetings for other departments, but were essential to run the EOC and response activities. | None at this time. |
| | Mistakes in the Request Logs could not be fixed or deleted. | The Request Logs application needs the ability to correct initial entries. | Work with IT to improve usability of the Logistics Section request form; we need to be able to correct information. |

**Target Capability: Epidemiological Surveillance and Investigation**

| Activity | Observation | Analysis | Recommendation |
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| CD-EPI Activity: Implement a new automated system for collecting and analyzing school absenteeism data | CD-EPI implemented a new automated electronic reporting system for K-12 school absenteeism surveillance, but had to rely on incomplete manual web-based reporting for the first several weeks of the fall flu season. Data from the new automated system was much more complete and timely. | Automated reporting was valuable tool once it got off the ground. However it is not clear how best to summarize and present school absenteeism data. | Determine the representations and visualizations of school absenteeism data that are easiest to understand and most useful to public and the K-12 community. |
| CD-EPI Activity: Implement improved ICS and internal CD-EPI communications systems | Based on CD-EPI's experience in the spring, the Section improved ICS structure and internal communications systems. | The improved staff structures and communications systems facilitated smoother communication in the Section and with other PHSKC Sections. | The ICS structure and communications systems should continue to be tailored to the needs of each response. ICS training should be conducted regularly. Changes and improvements should be documented for future planning. |
| CD-EPI Activity: Receive inquiries from healthcare providers, and assist with inquiries from the general public | Regular and surge staff responded to queries from providers about the signs and symptoms of the disease. A surge in public inquiries to providers was addressed by the PICC but CD-EPI staff supported this effort by providing staff to the call center and answering questions that could not be answered by operators and nurses in the PICC. Thanks to experience in the spring epidemic, these processes went smoothly. | Lessons learned and experience by CD-EPI staff in the spring pandemic of H1N1 influenza were beneficial in responding to public information needs in the fall outbreak. | Continue to use experience learned in responses to inform information sharing with external partners and the public. |

**Target Capability: Laboratory Testing**

| Activity | Observation | Analysis | Recommendation |
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| CD-EPI Activity: Work with interested hospitals to devise a means to report laboratory-confirmed influenza deaths and hospitalizations by electronic spreadsheet | There was little time to develop electronic case reporting, which was a pilot project for the 2009-2010 season. | Of the three hospitals that tried electronic reporting, one had IT staff working together with infection control staff, while two used only infection control staff. Once electronic data was received by CD-EPI, it could not be electronically imported into our database so manual data entry was necessary. While it would require a considerable investment of resources by healthcare facilities and PHSKC, automated electronic reporting has the potential to improve the timeliness and completeness of data. | Automated electronic reporting is preferable over traditional reporting by fax or phone, but only if automated reporting results in more accurate, complete, or efficient transfer of data. Otherwise, use of electronic reporting should wait until the technology is more mature and hospitals have the IT resources to support it. Integrating surveillance with electronic medical records (EMR) should be explored, though this would require long term commitment of IT resources by hospitals.<br>1. Discuss future options for electronic reporting with hospitals.<br>2. Further develop the ability of CD-EPI to receive electronic case-level data on notifiable conditions such as novel influenza. |

**Target Capability: Mass Prophylaxis**

| Activity | Observation | Analysis | Recommendation |
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| IMMS Activity: Provide leadership and technical support for the planning, coordination and implementation of H1N1 vaccine distribution to healthcare providers in King County. | Vaccine was allocated and distributed according to ACIP guidance targeting priority populations based on an internal strategic plan. Vaccine was available at a large number and variety of locations throughout the county. | Plans for vaccination developed over the summer and early Fall focused on initial CDC projections of vaccine availability warranting mass vaccinations strategies. More attention should be paid to worst case scenarios with frameworks developed for contingency plans. | Ensure that future vaccine and medication dispensing plans incorporate best and worst case scenarios |
| IMMS Activity: Ensure regular communication with providers for technical assistance for ordering. | Lifting the law restricting permitted mercury content in vaccines confused providers in regard to formulation ordering. | Special care is needed to effectively communicate non-standard protocols for vaccine formulations to providers. There is a need for a robust understanding of providers' abilities and preferences for ordering vaccine. | Implement a survey of large and small providers to evaluate their experience with the ordering process. These results will be used to inform future ordering protocols. |
| | The Distribution Center (DC) process for small providers was hampered by some providers picking up vaccine when they were not authorized to do so and consequently, vaccine had not been set aside for them. | There needs to be a method for ensuring that small providers that have ordered vaccine can pick-up their vaccine and that other providers to do not take their allotment. This method should be based on a thorough understanding of providers' experience with ordering vaccine. | Implement a survey of large and small providers to evaluate their experience with the ordering process. These results will be used to inform future ordering protocols. Small providers will be surveyed regarding their use of the DC system. |
| IMMS Activity: Coordinate logistics for the ordering and delivery process with DOH, healthcare providers and the Distribution Center. | 95% of vaccine orders were processed within one business day, on the same day that the allocation to PHSKC was made. Vaccine distribution problems were addressed and resolved with external and internal partners. | The remaining 5% were delayed due to the need to contact providers to clarify the number of doses requested, which formulations were appropriate to their populations, and to explain that certain formulations were not yet available for distribution. | n/a |

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| | Preregistration of VFC providers into the H1N1 program included providers that did not wish to participate. PHSKC did not limit the types of providers who could initially receive the vaccine during the time of shortage, i.e. dermatologists, dentists, eye surgeons. During the unanticipated vaccine shortage, another layer of screening was required to make sure that "appropriate" providers--i.e. primary care providers--received vaccine before other types of specialists. | n/a | In a future event, clear communication with VFC providers who do not want to enroll in influenza distribution should occur. In a future event, a shortage of vaccine should be anticipated so that primary care doctors can be pre-screened. |
| | Initially, the total number of allowable shipping sites was unknown but expected to be limited, which resulted in the creation of Direct Ship (DS) sites. These DS sites allowed large organizations to provide centralized distribution to their multiple sites. | Unfortunately, a protocol was not developed for the distribution and reporting requirements of the DS and its system. In addition, HMAC was allocating vaccine based on requests from AS sites while DS sites were using vaccine they received according to their priorities (vaccine we thought we allocated for certain patient populations at AS sites was used for different patient populations by DS sites). | In a future event, include representatives from the vaccine distribution program in discussions with systems representatives about DS sites. |
| IMMS Activity: Provide regular distribution reports and information for internal and external use. | IMMS employed 50 fax communications, multiple emails, online surveys and numerous phone calls to impart and gain information. It is not known whether providers would prefer one form of communication over another. | PHSKC needs a sound understanding of what communication methods are the most preferable for healthcare providers. | Develop a survey for healthcare providers to assess communication methods and provide analysis of results (identify preferred methods and incorporate into registration form). |

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| IMMS Activity: Monitor usage reports and analyze data. | Providers were largely noncompliant with reporting requirements. Most did not report, some apologized that they were unable to track these data, and some simply refused to report. Reliable usage data was unavailable. | CDC required weekly reporting, which seemed an excessive burden for providers. PHSKC also requested usage information when refills were requested. Usage data were desirable to inform allocation decisions, public messaging and policy development, and to notify the public about vaccine uptake and availability. DOH created forms as well as a web portal for providers to report usage. Providers were also able to report usage through CHILD Profile but those data could not be accessed by PHSKC. | Debrief with DOH including the experience of tracking usage, the importance of collaborative development of reporting protocols and forms, and the potential of creating a standardized database template for emergency large scale vaccine administration. Develop just-in-time training to educate providers on priority groups and usage reports. |
| IMMS Activity: Provide technical support and information on clinical immunization practice related to administration of H1N1 vaccine and related to interpretation and application of CDC guidance. | Technical assistance from PHSKC to non-VFC providers (temperature adherence, correct needle use, etc.) was not possible due to core staff responsibilities for vaccine distribution. There needs to be a method for training non-VFC providers in the basics of vaccine storage and distribution. Regular PHSKC staff did not have the time to conduct trainings because of their core responsibilities. Ideally, the training would use a conference call or webinar format so that providers could take the training without traveling to PHSKC. | Survey non-VFC providers to identify needs and develop training curriculum for just-in-time technical assistance (i-Link, conference call). Assess with DOH the feasibility of providing this training state wide. | |
| IMMS Activity: Respond to adverse events related to H1N1 vaccination. | There were no adverse events reported to Immunizations. | While no adverse events were reported, careful monitoring of adverse events is important for ensuring the safety of vaccines and maintaining public trust in vaccines. | Training for reporting adverse events should continue in order to maintain this essential service and emphasize the importance of reporting such events to the provider community. |

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| IMMS Activity: Assure optimal and equitable access of H1N1 vaccine to priority groups. | Immunizations worked with Community Health Services Division and HMAC to successfully distribute vaccine at homeless shelters, as well as to distribute vaccine at free clinics at Public Health Centers and other community clinics at multiple locations in King County. | While vulnerable populations in King County received disproportionally less vaccine, these efforts were an important step towards ensuring equal access. | Equity considerations should continue to be incorporated into vaccine distribution strategies during future influenza responses. |
| Logistics Activity: Coordinate with CD-EPI to establish a Distribution Center for small providers to pick up vaccine. | Coordinating when to submit withdrawal forms for the DC to release vaccine from inventory was a challenge. | If withdrawal forms were sent prior to providers scheduling a pick up date, the DC would be short that amount of vaccine for other providers. | Establishing time frames for all parties to set expectations, and streamlining the overall process. i.e. Pharmacy X will need to pick up in two day's time because their order was submitted after orders had been transferred to Logs for processing. |
| | An attempt was made to be prepared for providers that arrived at the DC prior to scheduling a pick up time. | This worked to some degree, but it also overwhelmed the DC with forms and caused more data entry into MAS if order quantities were changed or orders cancelled. | The Logistics Section and the DC need to establish a flexible process for handling multiple and some times volatile, orders. |
| | Inventory and order status were reviewed by item number or customer number, because running a report to reconcile the spreadsheet and MAS was difficult or not yet discovered. Questions related to inventory, no doubt created double work for the Chief Warehouser | Reconciling the inventory on the shared Excel spreadsheet allowed everyone to have the same information and reduced the number of emails, miscommunications, and questions. | Develop a way to share information with a common tool that is less labor-intensive. |
| Logistics Activity: Establish and maintain cold chain standards at the Distribution Center. | Cold Chain standards were observed and as a result no vaccine was comprised. | The following elements of this system contributed to its success: Additional refrigerators where procured and tested. Thermometers with exterior temperature displays and auditory and visual alarms monitored all refrigerators. | Detailed back up plans should be required when inventory items require special handling or storage |

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| Logistics Activity: Provide all material and service support needs, except personnel, as defined by the Incident Commander and the Logistics Chief. The Section is responsible for Facilities, Transportation, Communications, Supplies and Equipment | We ended up with more PPE than needed. | Our communications with DOH on requirements or lack of requirements for addition antiviral or PPE supplies could be improved. | The people who form the core of the Logistics Section should meet at least twice a year to look at potential emergency requirements and insure blanket POs exist to cover potential purchase requirements. |
| | MAS200 worked very well as a tracking and monitoring tool for controlled supplies. The filling out of withdrawal forms by the Logistics Section and the entry of Sales Orders into MAS was a duplication of effort. | We should look for a way to do that work once. | Work with CPRES to eliminate the need for double entry of information. |
| | CD-EPI did not anticipate projected inventory levels of vaccine or what impact their requests had on supplies. Logistics had to create a parallel inventory planning process using Excel in order to help CD-EPI with planning. | This caused synchronization issues because of time delays and double entry of information. | Logistics to work with CD-EPI to address this issue. |
| | Longer lead times between authorization of supplies going to healthcare partners and the committed pick up or delivery time promised. | We need more structure for requests coming to Logistics so we know the requests are authorized and are properly tracked. | 1. We need a better process for assessing the roles we willing assign to the DC while also trying to maintain normal operations<br>2. We should avoid using the DC for regular pick ups by multiple healthcare partners.<br>3. We need to establish more realistic turn around times for requests |

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| Pharmacy Operations Activity: Develop and finalize plans to distribute antiviral supplies to health providers. | Hospitals received antiviral stock to dispense to inpatients and ED patients who could not afford to pay. Allocations were based on percent of peak staffed beds within King County. This percent was then applied to a total course allocation developed using CDC modeling that predicted the number of hospitalized patients in King County. | While the strategy was based on expected inpatient volumes, most hospitals used their allocation for Emergency Department and Outpatient Clinic patients. This occurred primarily due to inventory management issues. Almost all hospitals use a pharmaceutical tracking and dispensing management system (e.g., Phyxis) to control access, reduce medication error, and enhance billing accuracy. This type of system created two barriers:<br>(1) All hospital-owned Tamiflu inventory would have to be removed from the pharmaceutical dispensing system and replaced with PHRMS product;<br>(2) Inpatients are typically provided compounded Tamiflu medication intravenously and therefore hospitals must use the lower dosage pills and compound it into a suspension, making it difficult to track. | 1. Evaluate the use-case scenarios for antiviral medication within hospitals.<br>2. Ensure that PHSKC's allocation strategy matches and optimizes the use-case scenarios outlined by hospitals.<br>3. Revise the current allocation strategy to reflect the results of this system analysis |
| Pharmacy Operations Activity: Develop and finalize strategy for pharmacies and commercial vaccinators to become providers for H1N1 vaccine. | The HMAC had several staff members contacting pharmacies on a routine basis. Pharmacies participated in weekly conference calls and all other communication was conducted by phone, e-mail and fax. The majority of communication to pharmacies was with the regional representatives who were then responsible for delivering information to their stores. | It is important to follow up with individual stores, including possible in-person visits to review set up and operations. | Ensure stores are operationally ready to begin taking appointments and inquiries from the public before launching. |

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| | Pharmacies were asked to provide information about the age groups they could vaccinate and to provide a list of 10 stores within King County from which we could choose. Very few pharmacies were able to vaccinate young children because of their lack of training on pediatric vaccination. | | PHSKC should be more assertive in communicating our needs for a successful operation. An example is asking pharmacies to consider utilizing commercial vaccinators from the beginning rather than waiting for a change in strategy. |
| | Pharmacies participating on weekly conference calls and those who had signed a provider agreement by Oct. 21st were considered as providers for H1N1 vaccine. In addition, pharmacies sent lists of prospective stores and stores were selected based on geographic spread and age groups. | | Set up standard, geographical grid for future incidents to ensure geographical gaps (such as Vashon Island) are covered. |
| | Inpatients are typically provided compounded Tamiflu medication intravenously and therefore hospitals must use the lower dosage pills and compound it into a suspension, making it difficult to track. | | Consult with pharmacies regarding their operations and which stores would be best suited to vaccinate mass populations in a time of vaccine shortage before trying to fill geographical gaps. |
| Pharmacy Operations Activity: Maintain distribution systems and evaluate options for re-supply. | Pharmacies were given instructions, process flows, and a revised order form for this transition. In addition, weekly conference calls were held to go over questions and communicate deadlines. Those who were not on the call were called directly to go over any questions. CD-EPI sent additional information via broadcast fax. | This strategy worked well as instructions were clear and multiple steps were taken to ensure questions were answered. | Meet with other Sections/divisions who are planning to send communication and ensure all materials reflect the same message. |

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| Pharmacy Operations Activity: Maintain timely and accurate H1N1 messaging and communications to providers, partners, and the public. | In the beginning, the website was updated frequently throughout the day as often as needed. After a few weeks, we decided to only update the website three times a day (10:00 am, 1:00 pm, and 4:00 pm).<br>Updated information was gathered by HMAC by calling each pharmacy on the list each day to ask for current inventories and operational hours. | In the beginning, the website did not always reflect the most current information because pharmacies were not sending updates or appointment availability changed too frequently for HMAC to keep up. | Develop an interactive pharmacy website whereby pharmacies can update their own contact information, hours of operation and supplies inventories remotely and in real time<br>1. The website should be updated three times a day and expectations should be set around these timeframes. This is effective particularly because the public has set timeframes for receiving updated information and all updates can be done simultaneously at each set time.<br>2. Select one person in charge of responding to all complaints regarding web based data. |
| | Mechanisms utilized to reach out to pharmacies: Conference calls, WSPA compiled contact list from pharmacies | Although communication efforts were great with pharmacies who did participate in the conference calls, this was not an effective strategy as many smaller, ethnic pharmacies were not included in the process. For future incidents, we will need a comprehensive list of pharmacies which can be obtained from the Board of Pharmacy. In addition, the University of Washington Pharmacy staff is working on creating a database to capture a list of pharmacists who are also registered as vaccinators. | 1. Obtain comprehensive list of pharmacies from the Board of Pharmacy that includes smaller, ethnic pharmacies.<br>2. Create database of pharmacists that are also registered as vaccinators. |

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| IMMS Activity: Coordinate logistics for the ordering and delivery process with DOH, healthcare providers and the Distribution Center. | HMAC attempted to provide vaccine to all who asked for it, regardless of the size of the order. When vaccine is abundant, an order for vaccine could be shipped directly to the provider. The number of providers who picked up was larger than originally planned. | When vaccine is in short supply and all formulation were not available at one time, and vaccine was shipped only in increments of 100, it was not possible to send 100 doses to small providers, which resulted in the distribution of smaller doses at a DC. | Debrief with the Logistics Section on successes and challenges of DC and develop protocols for DC to include method for tracking small providers' reception of vaccine. In a future event, include representatives from the vaccine distribution program in discussions with systems representatives about DS sites. |

**Target Capability: Medical Supplies Management and Distribution**

| Activity | Observation | Analysis | Recommendation | Reference |
|---|---|---|---|---|
| Resource Status Unit Activity: Track deployed resources. | There is a lot of human error associated with calculating data that could be fixed by automating the [antiviral data entry/analysis] process.<br>For each completed series of weekly reports, the RSU Unit sends 2-3 reminder emails and often calls healthcare providers and pharmacies. | The tool we used to track antiviral worked really well, but it was difficult to create during the response period. | 1. It would be helpful to identify the important variables and statistics that need to be tracked ahead of time so during the response we can focus on the collection and entering of data and not continually changing the tools we use to collect and disseminate information.<br>2. Excel is not the easiest format to have this antiviral tracking in because of its ability to be changed easily. If there was another program that we could use to input data and do calculations for us that might be more user friendly and more difficult to mess up that would be helpful.<br>3. It would be helpful to document and standardize who get's what communications about reports and such ahead of time so anyone doing the reporting knows who to send information to.<br>4. Develop clear expectations and associated consequences for lack of reporting. Some community dispensing sites had less than 50% reporting compliance rates. Depending on how important data is to our overall response, the HMAC may want to exclude them from future consideration as a community dispensing site.<br>5. Create an acceptable level on reporting non-compliance to avoid unnecessary staff time aimed at 100% reporting rate. | Survey Monkey Regional Antiviral Cache Tracking Form (faxed back)<br>PH Antiviral Withdrawal Form (trigger for shipment form logs)<br>ALS Provider Shipping Contact Info<br>Regional Antiviral Cache Packet<br>Mask Request Form<br>PH PPE Withdrawal Form (trigger for shipment from logs) |

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| Resource Status Unit Activity: Develop/inform resource allocation and distribution strategies. | The knowledge held by the RSU regarding antiviral usage and community need did not appear to be considered during decision-making processes to open additional community dispensing sites or when creating strategies regarding oral Tamiflu suspension. | We are currently unequipped with staffing, expertise, and data to allocate the entire SNS concurrently. Much work is needed to ensure we are able to do this work efficiently and equitably. | Ensure Planning Chief is aware of resource policy decisions that are pending and receives input from the RSU Unit Leader before entering a Command environment where a decision is needed. | Inpatient N95 strategy<br>Inpatient Tamiflu strategy<br>Outpatient Tamiflu strategy (in progress)<br>Site Decision-Making & Tracking Algorithm<br>Resource Conservation Strategy Workshop Materials<br>Resource Conservation Strategy Final Report |
| | During the fall response, the RSU created an allocation formula that was based on the number of prescribing providers and the expected patient volumes according to CDC scenario formulas. It proved much easier to collect prescribing provider information through a quick extraction from the organization's Human Resource databases. | | 1. Unduplicated client count is not a realistic number on which to base an allocation strategy; prescribing providers proved to be a more standardized metric to compare clinic systems.<br>2. Collect information about sites that dispense prescriptions directly to patients in advance of a response. Be certain to ask about direct dispensing by providers and on-site pharmacies that could be managed and staffed by the healthcare organization staff or by a private contracted company (e.g., Kelley Ross Pharmacy at Polyclinic). Ensure all three options are considered in who should receive product. | |

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| | Several healthcare organization experienced difficulties with N95 mask availability. Some employed the use of Powered Air Purifying Respirators (PAPR)s in place of N95 respirators, but others did not have PAPRs available, or had a fit testing program that only supported one type of mask. | Although the Strategic National Stockpile (SNS) provided N95 masks, the timing of the delivery was delayed and the types and sizes available in the shipment were largely unfamiliar to healthcare providers in King County. The MAC Group deliberated over the best strategy to allocate the masks, taking into consideration healthcare workers at highest risk first. In the end, the supply chain opened up and N95 masks became available through regular channels. | If resource-constraint issues arise in the future, the MAC Group is an effective way to strategize the use of limited resources and they should continue to be consulted. | |
| | The RSU also struggled to ensure reporting compliance from some community dispensing sites that processed large volumes of prescriptions. This data gap reduces the accuracy of our analysis on the effectiveness of the Community Dispensing Site selection and compromises our ability to estimate the impacts the non-reporting sites had on illness in the community. | | 1. Clear definition of a Community Dispensing Site.<br>2. Authorization for more forceful follow-up with non-reporting community dispensing sites to ensure solid dispensing statistics. | |

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| Resource Status Unit Activity: Provide ongoing resource utilization data to inform other ACC activities. | The reporting system was helpful, as well, as it helped us to stay on task each day knowing there was at least one report due on top of any ad hoc work we were assigned. | Reports take time to develop which wasn't always factored in when ad hoc assignments were divided out. | Reports were generated, but often not reviewed because the information was not required at the time. As the response winds down and the reporting process becomes more important for record keeping, due dates and reporting turnaround times should be relaxed to accommodate other responsibilities. | Antiviral Tracking Summary Report (Weekly raw data)*<br>Antiviral Tracking Instructions<br>Antiviral Tracking Compliance Data Sheet<br>TEMPLATE – Cumulative Antiviral Dispensing Report*<br>TEMPLATE – Community Dispensing Sites<br>Antiviral Weekly Usage*<br>TEMPLATE – Deployed PH Staff Report (ACC)*<br>TEMPLATE – Deployed PH Staff Report (CHS)*<br>TEMPLATE – DOH SNS Reporting Form*<br>TEMPLATE – Resource Request Report*<br>Weekly Report Instructions<br>Timeline for Reports |

**Target Capability: Medical Surge**

| Activity | Observation | Analysis | Recommendation |
|---|---|---|---|
| Public Information Call Center (PICC) Activity: Alleviate internal and external partners' surge of information needs from the public. | Multiple internal and external partners utilized the Flu Hotline as a referral to alleviate call volumes. CD-EPI and Public Health Centers routinely transferred callers to the Flu Hotline, and established a recorded message that referred callers to the Flu Hotline. | Callers reported being referred to the Flu Hotline by their providers. It is unclear how many healthcare providers utilized the Flu Hotline. In a larger event, the Flu Hotline could be beneficial to emergency response partners to alleviate call volumes. Anecdotally, it was useful to alleviate call volumes with internal partners, specifically Public Health Centers, CD-EPI and PHSKC's main number. | Evaluate the marketing of the hotline by assessing how many healthcare providers used it as a referral to ensure reducing health system surge. |

**Target Capability: Volunteer Management and Donations**

| Activity | Observation | Analysis | Recommendation |
|---|---|---|---|
| Finance & Administration Activity: Mobilize PHSKC, PHRC, and contracted staff to support vaccine ordering process and data management needs, field response needs and PICC needs. | The Healthcare for the Homeless clinics were staffed mostly by PHRC Volunteers. HCHN and the PHRC Volunteers both gave positive feedback that the clinics were very successful. Volunteers asked if they could participate in more events like this one. | We need to strategize what the best opportunities are for using the PHRC volunteers. | Offer meaningful volunteer opportunities when activating PHRC volunteers. |

## SECTION 4: CONCLUSION

Major Strengths:

- The fall H1N1 flu response built on successes and lessons learned from the spring H1N1 response and the Pandemonium Full Scale Exercise in 2008. Coordination with external stakeholders and within PHSKC cross-divisional programs was greatly improved.

- The fall response created an opportunity to build and strengthen relationships that will be beneficial in future emergencies. This was especially true with healthcare partners, including new relationships with pharmacies. The Multi-Agency Coordination (MAC) Group met multiple times to advise PHSKC on decisions involving resource management and other key considerations. The Communicable Disease, Epidemiology & Immunication Section held weekly conference calls with K-12 school representatives, which reduced the number of calls to the Section.

- Full-time surge staff and volunteers provided much needed additional capacity primarily for vaccine distribution — especially in the Communicable Disease, Epidemiology & Immunization Section. Public Health Reserve Corps (PHRC) volunteers served in numerous capacities during the H1N1 flu response. Twenty-five PHRC volunteers, for example, helped with vaccinating 988 homeless individuals at homeless shelters.

- HMAC was an effective source of key information for healthcare providers, response partners and the public. HMAC responded to a high volume of public queries about the H1N1 flu and vaccine, including almost 24,000 phone calls and 775,000 total website visits. HMAC also produced a weekly Healthcare Impacts Report, which documented emergency room and hospital admissions data, to provide situational awareness of the flu's impact to area hospitals and providers. Health alerts, broadcast faxes to providers, weekly influenza and school absenteeism reports were also issued. Regular situation reports also provided key information on the activities for each HMAC Section, thus facilitating both internal and external communication.

- Planning for community outreach and vaccine distribution incorporated equity considerations. Vaccinations were held for the homeless and incarcerated individuals, and free clinics were held at Public Health Centers that were geographically distributed across the County. Free vaccinations were also offered at non-PHSKC community health clinics and at community-based organizations. Flyers advertising the clinics were translated into different languages, and health educators with ties to community members were brought on to spread the word about the clinics.

Primary Areas for Improvement:

- During the fall H1N1 response, the lack of consistency between jurisdictions in the Puget Sound region became especially challenging. Each county had different strategies for distributing vaccine. These inconsistencies created confusion for the public (who often live and work across county borders) and for health care providers who have offices in multiple counties. Informing and educating the public about vaccine availability, access, and the priority groups was difficult in an environment where the public was hearing about different strategies in neighboring jurisdictions. Since the disease was not showing high rates of mortality, a decision was made at the national level to not vaccinate critical infrastructure personnel (such as law enforcement), even though these sectors had been involved in the planning process and prioritized in guidance for more severe pandemics.

While King County communicated this change effectively to our partners, sectors in other parts of the region were not fully briefed with this change.

For the healthcare sector, differences between counties also meant that organizations had to learn more than one system for ordering vaccine and reporting utilization. There was also inconsistency in how healthcare organizations prioritized vaccine within their organizations, especially when balancing the need to vaccinate staff as well as high-risk patients.

- Collecting and communicating data also presented a new challenge during the H1N1 response. Many data points such as vaccine allocation numbers, requests for resources, and information requests from the public changed daily-- sometimes hourly--and ensuring that key partners in the health and medical response had access to the most current data was difficult. Collecting data from hospitals and community clinics to help inform situational awareness involved clearing institutional hurdles.

- Health care providers (including pharmacies) encountered challenges in providing immunizations to age groups they were not familiar with. The federal children immunization program, Vaccines for Children (VFC), provided the backbone for distributing H1N1 influenza vaccine to children during the response. PHSKC asked providers who were enrolled in the program to distribute vaccine since they had experience ordering, receiving, and storing vaccine, or vaccinating children. Difficulties arose, however, in finding clinicians to vaccinate high-risk patients—since there was no existing infrastructure for adult vaccinations. Pharmacies, on the other hand, were reluctant to vaccinate young children. When pharmacies were initially contacted about H1N1 influenza vaccinations, only a small handful of pharmacies in King County were willing to accept children, and it was especially difficult to find pharmacies that were able and comfortable inoculating infants from six months to two years of age.

- Part-time and full-time surge staff and volunteers proved to be valuable additions to regular response staff and helped relieve the pressure, but finding time to train surge staff and incorporate them into their respective division was a challenge. Managers in divisions that were not directly affected by the response were less willing to relinquish their staff. In addition, several Sections had difficulty hiring surge staff for their Sections due to delays in the hiring process.

## APPENDIX A: EVENTS SUMMARY TABLE

### H1N1 Response: Timeline of Major Events

**4-26-09**
The Department of Health and Human Services issues a **National Public Health Emergency Declaration** in response to the H1N1 virus.

**8-11-09**
More than **1,000 volunteer to test swine flu vaccine** in King County.

**9-5-09**
Emergency Department visits for ILI have steadily increased and officially exceed levels observed during the Spring H1N1 outbreak. Emergency Department visit counts are highest among ages 5-17 and 18-44.

**9-13-09**
All recordings for the PICC were updated (English and Spanish) to address current H1N1 issues. The public was able to access 24/7 important health and safety H1N1 information by using a toll-free number and self-selecting the topics of their choice.

**9-18-09**
Washington Department of Health (DOH) adopts an emergency rule requiring hospitals and healthcare providers to report hospitalized and deceased patients with laboratory-confirmed influenza infections to the local health jurisdiction where the patient resides.
**See official changes to Washington Administrative Code (WAC) 246-101-101 and 246-101-301**

**9-21-09**
The DOH faxes H1N1 Provider Agreements to all childhood vaccine providers.

**9-25-09**
The DOH faxes out H1N1 Provider Agreements for all non-childhood vaccine providers who have pre-registered for the H1N1 vaccine program.

**9-30-09**
HMAC receives its first shipment of single-dose H1N1 vaccine (FluMist®). The allocation is 20,000 doses.

**9-30-09**
HMAC staff move into the Area Command Center to begin full activation.

**9-30-09**
HMAC faxes out a newly revised **Provider Agreement for Receipt of H1N1 Influenza Vaccine** and a supplemental **Provider Agreement Addendum.**

**10-9-09**
First doses of King County's initial allocation of single-dose H1N1 vaccine (FluMist®) (20,000) begin to arrive.

**10-12-09**
All providers who receive H1N1 vaccine through HMAC are mandated to submit usage reports to the state for the duration of the vaccination effort.

**10-14-09**
**CDC issues updated guidance** on infection control measures in healthcare settings, including protection of healthcare personnel. The guidance addresses N95 respirators.

**10-15-09**
The Communications Section develops Vaccine Core Messaging for internal development of materials and communications. This document is not intended for circulation to the public.

**10-15-09**
**First reported death** from complications related to confirmed H1N1 influenza in King County (patient in their 20's with underlying health condition).

**10-16-09**
HMAC learns due to national delays in H1N1 flu vaccine production, that the amount of vaccine that is available to order would cover approximately 30% of the population by mid-December.

**10-20-09**
The PICC is staffed with general operators and nurses to provide H1N1 information, including questions related to vaccine availability and medical triage by nurses.

**10-20-09**
Four Public Health Centers begins offering **free H1N1 flu vaccinations** to King County residents through age 64 with no health insurance and who have significant health problems.

**10-21-09**
Public Health Centers began providing vaccine to existing clients that fall within the priority groups at all public health center locations.

**10-23-09**
HMAC deploys first PHRC volunteers to staff CHS Vaccination Clinics and the PICC.

**10-24-09**
The President of the United States declares a national emergency for H1N1 Influenza through the National Emergencies Act, which allows healthcare facilities to petition for Social Security Act Section 1135 waivers for specific needs.
**See Official Presidential Declaration**

**10-29-09**
CDC releases a support hotline for critically ill pregnant women with suspected or confirmed influenza.

**10-30-09**
HMAC in collaboration with the consulting firm Meridian hosts a Hospital Resource Management and Conservation Workshop.

**11-3-09**
The DOH receives shipment of N95 respirators from the Strategic National Stockpile.

**11-5-09**
Emergency Department visits for Influenza like Illness (ILI) have been steadily decreasing (See *Summary of Event*, **Health and Medical Area Command Situation Report #10**).

**11-6-09**
**Public Health begins distributing vaccines to pharmacies** to ensure vaccine access to those individuals without a healthcare provider and also for those whose healthcare provider is not enrolled to receive H1N1 vaccine.

**11-6-09**
The King County Healthcare Coalition releases the final version of the **Regional Guidelines for the Development of Individual Hospital Visitor Policies for Influenza.**

**11-8-09**
2 additional 2009 H1N1 deaths in King County are reported (both had underlying conditions) bringing the total deaths in King County to 7, with 198 confirmed H1N1 hospitalizations.

**11-10-09**
HMAC receives an additional 1400 pediatric suspension courses of antivirals to bring the total allotment to 2800 courses.

**11-13-09**
The FDA expands the approved use of **existing 2009 influenza A (H1N1) vaccine** to include children aged 6 months and older in efforts to meet the needs of those populations at highest risk.
**Influenza A (H1N1) 2009 Monovalent Vaccine (CSL Limited)**

**11-13-09**
Proposed N95 respirator allocation strategy is submitted to the ESF8 MAC Group for review and comment.

**11-17-09**
Prescriptions for antivirals filled at community dispensing sites have fallen sharply from the previous weeks.

**11-18-09**
HMAC begins releasing **Healthcare Impacts Reports** to healthcare partners.

**11-20-09**
HMAC estimates that there have been ~234,000 doses of vaccine delivered to King County for vaccination of persons in the priority target population and that 190,000 persons in the target population have been vaccinated.

**11-20-09**
Dr. David Fleming and Dr. Jeff Duchin, Chief of Communicable Disease, PHSKC conduct a press briefing to answer questions concerning H1N1 Influenza from the press.

**11-20-09**
OSHA issues an H1N1 Enforcement Procedures Directive establishing enforcement policies and providing instructions for its inspectors to minimize “high” to “very high” occupational exposure risk to the H1N1 virus. The directive is **CPL-03-00-012**.

**12-1-09**
1 additional 2009 H1N1 death in King County is reported, bringing the total deaths in King County to 14, with 244 confirmed H1N1 hospitalizations (From Oct 5-December 7, 2009).

**12-3-09**
To date, approximately 1/3 of the target group members in King County have been vaccinated.

**12-7-09**
Pediatric H1N1 vaccine manufactured by **Sanofi Pasteur in pre-filled syringes are recalled** from the market .

**12-11-09**
As of December 11, 2009 an estimated 372,000 people in King County who are at highest-risk for complications have been vaccinated for H1N1 influenza and an additional 142,000 doses of vaccine are in the process of being shipped to vaccine providers within the county.

**12-12-09**
HMAC expands eligibility of **individuals that can receive H1N1 vaccine** to all persons over 6 months of age.

**12-12-09**
HMAC offers residents who cannot pay for H1N1 vaccination an opportunity to get vaccinated at 9 drop in clinics locations throughout the county.

**12-15-09**
HMAC makes a decision to not release PPE resources from the SNS to allocated health partners due to many commercial supply chains opening up availability of resources.

**12-18-09**
HMAC issues its last **situation report** to healthcare partners and the Area Command Center is deactivated. Flu response activities in PHSKC relating to vaccine ordering, vaccination of patients, public education and messaging and operation of the Flu hotline and websites continue at various levels through the month of January.

**1-4-10**
HMAC transitions from the existing strategy to a more general ordering and allocation program for pharmacies. Pharmacies will submit revised orders for the season and have greater flexibility in where and how vaccine is distributed in their stores.

**1-22-10**
The PICC is deactivated.

**1-29-10**
H1N1 vaccination clinics for those who cannot afford to pay goes to limited hours and no longer includes community health centers.

**2-9-10**
King County employee H1N1 vaccination effort concludes, 1,392 adults and 12 children were vaccinated.

**2-16-10**
Vaccination clinics at sponsored by community based organizations that serve vulnerable populations concludes.

## APPENDIX B: ACRONYMS

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|---|---|
| AAR | After Action Report |
| ACC | Area Command Center |
| ACF | Alternate Care Facility |
| CD | Communicable Disease |
| CDC | Centers for Disease Control and Prevention |
| CDES | Communicable Disease Section |
| COOP | Continuity of Operations Plan |
| DEM | Department of Emergency Management |
| DHS (U.S.) | Department of Homeland Security |
| DMAT | Disaster Medical Assistance Team |
| DOH | (Washington State) Department of Health |
| DOH-CFH | (DOH) Community and Family Health |
| DOT | Department of Transportation |
| EEG | Exercise Evaluation Guide |
| EMD | (WA) Emergency Management Division |
| EMS | Emergency Medical Services |
| EOC | Emergency Operations Center |
| Epi | Epidemiology |
| Epi/IMMS Section | Epidemiology and Immunizations Section |
| ESF | Emergency Support Function |
| FBI | Federal Bureau of Investigation |
| HAN | Health Alert Network |
| HR | Human Resources |
| HSEEP | Homeland Security Exercise and Evaluation Program |
| IAP | Incident Action Plan |
| ICS | Incident Command System |
| ILI | Influenza-like Illness |
| IT | Information Technology |
| KC | King County |
| LEP | Limited English Proficiency |
| LHJ | Local Health Jurisdiction |
| LRN | Laboratory Response Network |
| MAC | Multi-Agency Coordination |
| MRC | Medical Reserve Corps |
| NIMS | National Incident Management System |
| PHIC | Public Health Information Center |
| PHSKC | Public Health - Seattle & King County |
| PICC | Public Information Call Center |
| PIO | Public Information Officer |
| PPE | Personal Protective Equipment |
| SNS | Strategic National Stockpile |
| SOP | Standard Operation Plan / Procedure |
| TCL | Target Capabilities List |
| UWMC | University of Washington Medical Center |
| VPAT | Vulnerable Populations Action Team |
| WA | Washington |
| WATrac | Washington system for Tracking Resources, Alerts, and Communication (Washington's hospital bed capacity website) |