H1N1 Influenza (Swine Flu) 2009
April 26, 2009 – May 15, 2009

KING COUNTY ESF-8 AFTER ACTION REPORT

Public Health
Seattle & King County

KING COUNTY Healthcare Coalition
Executive Summary

On April 26, 2009 the Centers for Disease Control (CDC) declared a Public Health Emergency due to the rapid spread of a novel flu virus. Human cases of swine influenza A (H1N1) virus infection had been identified in at least four states and in several countries around the world. In response to this situation, Public Health – Seattle & King County (PHSKC) activated King County Health and Medical Area Command on Monday, April 27, 2009, with the broad response goals of:

- Providing education to the public and community partners about the nature and potential threats of Swine Influenza A (H1N1), and educating the public on how to protect themselves
- Assessing impacts on the functionality of the healthcare system
- Ensuring that local government, businesses and community based organizations maintain continuity of business operations

The H1N1 activation was the longest and most complex since the inception of PHSKC’s Preparedness program in 2002, lasting 19 days. Many aspects of the response still continue. From its emergency operations center in downtown Seattle, Health and Medical Area Command activated ten major response functions, including health system status, mass dispensing, risk communications, public information call center, medical resource management, epidemiological surveillance, business continuity, workforce and volunteer mobilization, response liaisons and laboratory testing. New response capabilities were tested, such as receipt of the Strategic National Stockpile, a 24/7 regional medical call center, mass dispensing via partnerships with retail pharmacies and health clinics, prophylaxis of first responders, and outreach to child care providers, schools and elected officials.

By the end of the activation:
- Over 200 PHSKC staff, 40 Public Health Reserve Corps volunteers, and liaisons from healthcare and emergency management partners had contributed to the effort
- Over 2,000 individuals and organizations had received regular situation updates from Area Command
- More than 1,000 calls were received by the Public Health Flu Hotline
- Five King County schools temporarily closed for three days or less
- As of 8/1/09, in King County:
  - Over 2700 courses of antivirals were distributed to dispensing sites, who in turn dispensed 142 courses to patients
  - 65 hospitalized and 2 deceased persons were confirmed to be infected with pandemic H1N1 influenza virus

Healthcare partners experienced a variety of challenges throughout this event due to the evolving nature of response requirements for the novel influenza strain, increased patient volume, heightened levels of public concern and supply chain disruptions for critical supplies such as personal protective equipment. Visits to emergency departments and ambulatory care providers by mildly ill and worried well patients strained the capacity of these healthcare partners, with particular impact to pediatric providers. Additional impacts experienced during this event include:
- A dramatic increase in the need for communicable disease surveillance and case and contact investigations
A surge in demand for health information by response partners, elected leaders, schools, businesses, the media, healthcare providers, and the general public. Scarcity of medical resources such as lab media and N95 respirators. School closures implemented on a site by site basis by the Local Health Officer. Surge in demand for antivirals early in the event by non-symptomatic individuals reduced the availability of these medications through commercial pharmacies. This posed challenges later in the event to sick individuals with valid prescriptions who had limited options.

Health and Medical Area Command’s response focused on:
- Assessing and assuring availability of scarce medical resources in the community
- Receiving, storing and distributing local and federal caches of medicines and personal protective equipment
- Providing health-related guidance to a variety of audiences including healthcare providers, parents of school age children, shelter providers, community and faith-based organizations, and first responders
- Activating the Public Health flu hotline, offering medical and general information to the public
- Providing daily media briefings
- Mounting a rapid public education campaign that included translated health messages and field teams of health educators
- Distributing information to and receiving information from partners by multiple methods, including daily situation reports, the healtheoc@kingcounty.gov inbox, the Community Communication Network, WATrac, and regular conference calls with key sectors
- Operating temporary antiviral dispensing sites
- Mobilizing Public Health Reserve Corps Volunteers and KC government employees to assist with response efforts

Health and Medical Area Command deactivated on May 15, 2009, when remaining H1N1 activities could be managed via normal PHSKC and partner operations. Valuable lessons were learned during this event and the response demonstrated good collaboration and innovation among ESF 8 partners in addressing the challenges they faced.

**Timeline of Major Events**

**Prior to April 24, 2009**
- CDC confirms 7 cases of novel swine origin influenza A (H1N1) in San Diego and Texas

**Friday, April 24, 2009**
- Dr. Duchin issues health advisory to healthcare partners regarding signs and symptoms of H1N1
- Dr. Fleming, Local Health Officer, briefs King County Executive on H1N1 situation
- PHSKC Preparedness distributes H1N1 health advisory to healthcare and community partners. Briefing document specifically sent to Seattle, King County, Kent, Bellevue Emergency Management with request to send on to other local Emergency Management partners.
- Washington Poison Center begins addressing planning issues around rapid activation of coordinated medical and public information call center

Saturday, April 25, 2009

- University of Washington accelerates collaborative drug therapy agreement work – requests completion within days rather than months
- CDC reports H1N1 cases in Kansas City and NYC

Sunday, April 26, 2009

- DOH conducts press conference at State Public Health Lab
- PHSKC decides to activate Health and Medical Area Command (Area Command) at 0800 Monday, April 27
- DOH convenes statewide conference call
- CDC declares Public Health Emergency

Monday, April 27, 2009

- PHSKC Preparedness Director activates the ESF 8 Health and Medical Area Command
- CDC activates Strategic National Stockpile (SNS) and implements delivery of 25% of antiviral and PPE stockpiles to states
- World Health Organization (WHO) raises pandemic alert level to 4, modifies definitions of alert levels
- PHSKC staff brief King County Council
- PHSKC activates Emergency Communication Plan
- Area Command activates Emergency Management Liaison and External Affairs Liaison
- Area Command initiates pharmacy conference calls with several local pharmacy chains

Tuesday, April 28, 2009

- PHSKC Chief of Staff requests assistance of Division Managers in filling potential future staffing needs for Public Health Flu Hotline

Wednesday, April 29, 2009

- CDC reports first death in US
- FDA issues authorizations for emergency use of antivirals and diagnostic tests
- WHO raises the Pandemic Alert Level to 5
- PHSKC EMS division facilitates EMS conference call with ALS, BLS agencies and dispatchers, launching a series of regular conference calls that continue throughout the event
- PHSKC staff briefs Seattle City Council
- Area Command activates a Schools Liaison
- DOH identifies 6 probable cases in Washington State, 3 in King County
- PHSKC holds media briefing to announce probable cases in King County
- PHSKC works with Seattle School District to close Madrona K-8 school via PH Order
- Area Command initiates regular conference calls with local emergency management
Thursday, April 30, 2009
- PHSKC works with Seattle Public Schools to close Stevens Elementary and Aki-Kurose Middle school, as well as working with Federal Way Public Schools to close Woodmont elementary, all via PH Order
- ESF 8 Area Commander and the Local Health Officer brief the Multi-Agency Coordinating Group
- Public Health Reserve Corps activated to support response operations
- PHSKC issues letter on H1N1 to parents, students, and staff of King County schools
- PHSKC begins daily press briefings

Friday, May 1, 2009
- Area Command activates Child Care Liaison
- Area Command begins coordination with Emergency Management partners to fund emergency public education campaign
- PHSKC works with Highline Public Schools to close Midway Elementary in Des Moines
- Public Health Flu Hotline activated to provide general information to the public
- PHSKC activates Health Educators Surge Team for outreach at community centers, libraries, and neighborhoods where schools are closed
- PHSKC launches daily summary of H1N1-related issues and tips for community partners
- SNS delivery of antivirals and PPE received by Washington State Department of Health

Saturday, May 2, 2009
- PHSKC implements enhanced school absenteeism reporting process

Sunday, May 3, 2009
- Area Command dispatches a pharmacist to drive to the State Receiving, Storing and Staging Center and pick up the King County allocation of pediatric Tamiflu formula.
- Temporary antiviral clinic opens at North Public Health Center using King County stockpiles
- PHSKC implements a process for sites receiving antiviral from King County stockpiles to report on its usage

Monday, May 4, 2009
- Local Health Officer changes school closure policy, and stops closing schools with probable cases. All closed schools allowed to reopen on Tuesday, May 5.
- PHSKC accelerates education of school staff and parents regarding the need to keep symptomatic students away from school.
- A small percentage of Federal stockpiles of Relenza and Tamiflu capsules arrive at PHSKC Distribution Center
- Area Command implements a partner status reporting process to gather information regarding impacts of H1N1 on healthcare providers

Tuesday, May 5, 2009
Temporary antiviral dispensing sites expand to 6 locations throughout King County
The 5 King County schools closed on orders of the Local Health Officer reopen
Federal stockpiles of PPE arrive at PHSKC’s storage warehouse
EMS Medical Director requests testing of antiviral distribution plan to first responders. On May 6, 10 courses of antivirals are delivered to each Advanced Life Support (ALS) provider, stored for less than 1 week, and returned to the Area Command under specific protocols

Wednesday, May 6, 2009

- PHSKC begins resupplying specific hospitals with antivirals from PHSKC cache due to shortages in commercial supplies
- Public Health Flu Hotline: Area Command adds the option to speak with registered nurses regarding management of symptoms at home, guidance on when to see a health care provider, and other medical questions about the H1N1 flu, to its existing flu hotline.

Thursday, May 7, 2009

- Public Health Flu Hotline expands to 24 hours of operation by connecting with Evergreen Healthcare Answering Service
- PHSKC’s Syndromic Surveillance program launches an online survey as another method of collecting surveillance information from healthcare partners

Friday, May 8, 2009

- PHSKC launches H1N1 broadcast media campaign with radio public service announcements
- DOH issues new guidance on cleaning and disinfecting surfaces targeting schools, child care providers, and businesses

Saturday, May 9, 2009

- DOH announces the first H1N1 death in Washington (Snohomish County resident)

Monday, May 11, 2009

- Public Health Flu Hotline deactivates operators, changes to recorded information only
- WA DOH de-activates their emergency operations center as of 9:45AM

Thursday, May 14, 2009

- Remaining King County allocation of Federal Tamiflu stockpile arrives at PH Distribution Center, 10 days later than the rest of the supplies

Friday, May 15, 2009

- King County Health and Medical Area Command deactivates at 5:00 pm
- CDC Travel Health Warning for novel H1N1 flu in Mexico removed
Summary of Principal Recommendations

The response to the first wave of H1N1 highlighted strengths in the region’s health and medical command structure, and opportunities for improvement. Based on lessons learned in this event, Public Health – Seattle & King County and ESF 8 response partners will work to:

- Refine roles and processes around tracking and assuring the availability of scarce medical resources in the community, and conduct more pre-planning around prioritizing the use of scarce resources
- Develop a trained cadre of surge staff available to support PHSKC’s Communicable Disease Epidemiology & Immunizations program in times of high demand
- Improve methods for communicating diagnosis and treatment guidelines with healthcare providers throughout an event
- Improve efficiency in receiving and distributing medical resources
- Expand relationships and communication methods to include key audiences such as businesses, child care providers, private schools, community and faith based organizations, and ethnic pharmacies
- Increase the size of the Public Health Reserve Corps to support health and medical response activities
- Better define triggers for activating resources such as Alternate Care Facilities and Public Information Call Center
- Continue to develop rapid translation capacity
- Improve staff deployment processes to include staff from all King County departments
- Develop a Vulnerable Populations Response Plan that outlines roles and responsibilities for ESF 8 responders and community partners
- Clarify expectations of health and medical response partners and the roles and capabilities of ESF 8 Area Command regarding resource and information support.
- Leveraging community healthcare partners and experts for media briefings and communication/messaging to the public

Summary of Regional Impacts

Patient Influx/Public Demand
All providers reported an influx in worried well and patients presenting with influenza like illness (ILI). Providers reported:

- High call volumes
- Increased numbers of patients reporting to Emergency Departments who did not have a primary care provider (especially among the uninsured)
- Increased numbers of non-symptomatic patients requesting flu testing
- Overall higher patient volumes in both Emergency Departments and inpatient units at hospitals

Dispensing
The event demonstrated the effectiveness of public-private partnerships between PHSKC and pharmacies. The cooperation from local pharmacies provided valuable guidance in the development and implementation of the antiviral distribution plan. The event also provided an
opportunity for advanced planning around collaborative drug therapy agreements between PHSKC and area pharmacies. Areas for improvement include:

- Reporting requirements for sites receiving antivirals were burdensome. Better collaboration with partners to outline documentation processes is needed.
- Protocols are needed to ensure scarce medications are provided only to people who meet treatment guidelines
- Pharmacists need better guidelines regarding personal protective equipment for themselves and their staff when working with ill patients/clients
- Improved relationships with smaller and ethnic pharmacies to expand outreach to ethnic and vulnerable populations
- Antiviral dispensing sites addressed only part of the regional need for public access to antivirals, particularly for the uninsured
- Effective messaging to physicians about “prudent use” of scarce medical resources is needed
- Plans for distributing medications to first responders need to be finalized

**Supply and Staff Management**

All healthcare sectors experienced challenges related to supply management for critical resources including antivirals, personal protective equipment and lab/testing supplies. Health and Medical Command assisted in quickly getting needed supplies to healthcare partners through supply brokering or direct provision. Hospitals also effectively assisted each other with supply chain challenges. Continued work is needed to clarify Area Command’s role and partner expectations around facilitating the mutual aid process for medical resources, and planning around prioritizing scarce resources. Challenges occurred with the State Department of Health’s operation to distribute federal stockpile resources to local health departments.

**Lab media/testing supplies**

- Many outpatient clinics exhausted their normal supplies of swabs due to high patient volume
- Laboratories reported shortages of testing media

**Personal Protective Equipment (PPE)**

- Vendors reported shortages of different PPE supplies, particularly N95 respirators, and rationed their supplies, thereby impacting agencies’ options for resupply or increasing their orders.
  - Agencies that did not normally order specific types of masks had difficulty getting orders filled by their vendor.
- Healthcare agencies had differing strategies for PPE use resulting in very different usage rates.
- Some healthcare agencies reported the need to develop a security strategy for managing staff access and distribution of PPE.
- A region-wide strategy for prioritizing and distributing PPE is needed
- Equipment for fit testing staff for N95 masks was requested by several healthcare organizations, yet was in short supply.

**Public Health Reserve Corps (PHRC)**

- Reserve corps volunteers responded positively to requests for help.
- There is an insufficient number of PHRC volunteers to support all ESF8 commitments simultaneously (i.e. potential for multiple ACF sites in tandem with multiple dispensing sites)
Communication and Coordination of Messages

Coordination and management of communications to varying audiences proved challenging for many organizations. Health and Medical Area Command’s regular conference calls with diverse audiences including EMS, hospitals, ambulatory care providers, pharmacies, elected officials, local emergency management, and schools, kept partners informed and generated helpful intelligence.

Communicating to Healthcare Partners

- Providers experienced “information overload” from the various sources providing updates on the virus, guidelines for infection control, screening/testing information, and information for the public. They desired more centralized, succinct and focused communications for specific target audiences.
- Providers struggled in working with physicians on which source to follow (WHO, CDC, WA DOH, or PHSKC).
- Healthcare agencies reported difficulties managing staff communications about the evolving nature of the event and changing protocols particularly when there were different messages for different employee audiences (e.g. emergency department vs. outpatient)
- Providers needed better clarity on laboratory testing purposes and procedures
- Participation by PHSKC epidemiologists on healthcare partner conference calls was helpful. Rapid circulation of notes from conference calls would have helped those who could not attend.
- Hospital public information officers experienced delays getting information from Health and Medical Area Command’s Public Health Information Center
- Health and Medical Area Command did not effectively communicate with diagnostic laboratories

Communicating to the Public

- The Flu Hotline established by PHSKC was valuable, but activating the clinical portion of the hotline would have been more helpful earlier in the event. Additional clinical expertise, such as having pediatric specialists would have been helpful.
- Messages shared by the Flu Hotline were not always in concert with messages shared by large medical practice groups with their patients.
- Health and Medical Area Command’s daily media briefings and referral of selected media inquiries to partners like Seattle Children’s and PATH were beneficial for sharing key messages and using resources efficiently.
- Core public health messages did not always account for healthcare access or the economic diversity of the population. Options such as “call your healthcare provider / stay home when sick” are not available options for everyone (i.e. the uninsured).
- Increased call volumes at clinics and other practices significantly impacted clinician’s abilities to respond to the event effectively. Calls were primarily from worried well or those with minor illness.
- Visitors at healthcare facilities were confused due to the conflicting levels of visitor policies throughout the region (some required masking, screening and limited entry into the facility; others did not do any screening or change visitor policies in any way).

Communicating with Elected Officials

- Regular email updates, almost daily at the outset, were appreciated.
- Quick response to requests to meet was key to sharing early information as to changing events.
• Efforts to assure that elected officials were made aware of significant information prior to hearing it from the media was a main focus of communication.
• Maintaining distribution of most recent materials was challenging at the outset, something made easier by directing all to the website where most recent documents were maintained

Communicating with Schools and Child Care Providers
• PHSKC’s Child Care Health Program provided education on handwashing, cleaning and sanitizing, and exclusion for illness. Few true outbreaks occurred at child care sites.
• Significant challenges existed for getting immediate messages to parents and child care providers.
• Better strategies were needed for outreach to private schools (independent, religious, etc.).
• Coordination of outreach to child care providers was needed earlier in the event.
• Like healthcare providers, child care providers also experienced “information overload” from Area Command’s frequent emails, while some child care programs do not have access to email at their sites.

Communicating with Response Partners
• Local emergency management and first responders desired earlier clear guidance on PPE usage.
• Cities were not consistently informed of Area Command’s collaboration with CBOs within their jurisdictions.
• Staff support and liaisons from partners like Seattle OEM were helpful but can be utilized more effectively.

Communicating with Community Based Organizations (CBOs)
• A formalized Vulnerable Populations Response Plan is needed to roles and responsibilities for ESF 8 responders and community partners.
• Resources and guidelines to assist homeless shelters with infection control and outbreak issues were not readily available.
• Translated public education materials were needed more rapidly in a wider array of languages.

Successes
• Early activation of Health and Medical Area Command at the highest level proved to be a good strategy.
• Consistent use of HICS/ICS proved valuable for many healthcare organizations.
• Regional use of Command Center in WATrac for hospital coordination was helpful.
• Just-in-time fit testing and fit testing clinics worked well.
• Previous pandemic influenza planning, training and exercising, including PHSKC’s development of a number of Advanced Practice Center tools was beneficial.
• Activation of the Flu Hotline, especially the added clinical component was very useful.
• Some organizations found engagement and coordination with Medical Directors useful in managing physician compliance with response protocol.
• Management and distribution of regional caches of medical supplies, including antivirals.
• Surge by PHSKC’s communicable disease epidemiology program to meet demand.
• Pushing out timely, targeted health information to many audiences.
- Leveraging public-private partnerships with pharmacies to accomplish mission of distributing antivirals.
- Responsiveness of Public Health Reserve Corps and other volunteers to staffing requests.
- Targeting information to vulnerable populations through existing networks, including Healthcare for the Homeless Network and Community Communication Network (CCN).
- Improvements in ability to track school absenteeism data.
- Area Command facilitated conference calls with many audiences to share updates and allow organizations to learn from each other.
- Coordinating outreach and communication with key constituents via Area Command liaisons, including elected officials, schools, local emergency management, cities, community based organizations, and child care providers.

Conclusion
Public Health – Seattle & King County continues to track the H1N1 virus and planning is underway regionally to prepare for the fall flu season. The lessons learned during this event are currently under review and several improvement measures are in process to address some of the gaps in planning and preparation identified in our region. The improvement plan can be found at the end of this document. Overall, the collaboration among healthcare partners; coordination and support from Health and Medical Area Command; communication and management of constantly evolving guidance information from PHSKC’s Communicable Disease Epidemiology & Immunizations program; and implementation of response measures such as the Flu Hotline and Antiviral Clinics all contributed to a successful response to this emerging virus. The most effective way to support our community is to continue the regional collaboration, coordination and communication that occurs every day. Leveraging partnerships and existing relationships during an emergency continues to be the most valuable response measure possible, as well as the most valuable lesson.
The following matrix outlines a work plan for the items that are required to bridge an identified gap in current planning or response activities. There is no priority order to the following list.

<table>
<thead>
<tr>
<th>#</th>
<th>Actions to be Taken</th>
<th>Responsible Parties</th>
<th>Estimated Completion Date</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Revise reporting requirements for sites receiving antivirals. Collaborate with partners to identify best reporting strategy.</td>
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<td>2</td>
<td>Provide pharmacists with guidelines for PPE for themselves and their staff when working with ill/symptomatic clients</td>
<td>PHSKC CD/Epi</td>
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<td>3</td>
<td>Finalize plans for distribution of antivirals to first responder agencies</td>
<td>Bryan Heartsfield</td>
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<td>4</td>
<td>Give healthcare providers clear guidance on appropriate use of PPE for specific settings, this will help with burn-through rates</td>
<td>PHSKC CD/Epi</td>
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<td>5</td>
<td>Develop a regional strategy for prioritizing and distributing PPE</td>
<td>Cynthia Dold</td>
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<td>6</td>
<td>Work with Ambulatory Care Providers to determine the feasibility of a regional fit-testing strategy to increase surge capacity for events requiring advanced respiratory protection such as N95 masks</td>
<td>Allison Schletzbaum</td>
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<td>7</td>
<td>Develop better strategy for engaging infectious disease physicians directly with communicable disease staff and medical epidemiologists at PHSKC</td>
<td>Communicable Disease and Epidemiology Section</td>
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<td>8</td>
<td>Develop workgroup to define visitor guidelines recommendations that standardize policies across the region</td>
<td>Danica Mann</td>
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<td>9</td>
<td>Improve coordination between PHSKC Communications staff and Public Information Officers in healthcare organizations. Utilize WATrac as a tool for this partnership.</td>
<td>Allison Schletzbaum, Danica Mann, James Apa</td>
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<td>10</td>
<td>Develop a study session with medical directors to explore multiple issues: pharmaceutical distribution, executive engagement, and chain of command.</td>
<td>Cynthia Dold</td>
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