



San Francisco Department of Public Health
San Francisco Infection Control Working Group
Hospital Council Emergency Preparedness Task Force



2006 Pandemic Influenza Infection Control Tabletop Exercise

September 14, 2006



After Action Report

Exercise Participants:

Infection Control Practitioners, Emergency Preparedness Coordinators and other staff from San Francisco Hospitals: California Pacific Medical Center, Chinese Hospital, Kaiser Permanente, Laguna Honda Hospital, Saint Francis' Hospital, Saint Luke's Hospital, Saint Mary's Hospital, San Francisco General Hospital, Seton Medical Center, San Francisco Veterans' Affairs Medical Center, University of California at San Francisco.

City and County of San Francisco staff: San Francisco Department of Public Health – Communicable Disease Control & Prevention Section, Emergency Medical Services, Occupational Safety and Health, Office of Policy and Planning, Public Health Laboratory; San Francisco Office of Emergency Services.

Exercise Observers: California Department of Health Services

Attachments: Attachment A: Exercise Scenarios
Attachment B: Questions from hospitals

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Background

Preparing the response to an influenza pandemic has been a major priority in emergency planning efforts for hospitals and public health department in San Francisco. At the request of the San Francisco Infection Control Working Group (ICWG), the San Francisco Department of Public Health (SFDPH), members from the ICWG and the San Francisco Hospital Council Emergency Preparedness Taskforce (HCEPT) developed the Pandemic Influenza Infection Control Tabletop Exercise which took place in September 2006 in order to practice coordination and communication activities that must take place between hospital infection control and emergency preparedness staff during various phases of a pandemic, as well as to identify other infection control-related issues to guide preparedness planning.

Infection control guidelines developed by SFDPH, which include the Avian Influenza Infection Control Guidelines and the Interim Pandemic Influenza Infection Control Guidelines for WHO Phases 4 /5 and 6, may be accessed at the SFDPH Communicable Disease Control & Prevention Section website: www.sfdph.org/cdcp. As of August 25, 2006, it is recommended that in healthcare settings, persons suspected or confirmed to have avian influenza A (H5N1) should be cared for with Standard, Airborne, and Contact precautions, in addition to the use of Eye Protection, Respiratory Hygiene/Cough Etiquette and Hand Hygiene strategies until 14 days after onset of symptoms unless an alternative diagnosis is established or infection with influenza A (H5N1) has been excluded.

Exercise Description

The San Francisco Pandemic Influenza Infection Control Tabletop Exercise was conducted over a 4-hour period on September 14, 2006. All nine San Francisco Hospitals and Seton Medical Center of San Mateo County were represented at the exercise.

Three pandemic influenza-related scenarios were presented during the exercise (See Appendix A for the full scenarios):

- 1) A rule-out H5N1 Avian influenza case during a World Health Organization (WHO) Pandemic Alert Phase 3 (no or very limited human-to-human transmission)
- 2) A confirmed H5N1 case seen in San Francisco during a WHO Pandemic Alert Phase 4 (evidence of increased human-to-human transmission), and
- 3) Widespread H5N3 influenza cases in San Francisco during a WHO Pandemic Alert Phase 6 (efficient and sustained human-to-human transmission) pandemic with hospital supply and staffing shortages.

Box 1. Exercise goals and objectives:

Goal

- To practice coordination and communication activities in a pandemic influenza scenario among hospital infection control professionals, hospital emergency preparedness coordinators, and Sections of the San Francisco Department of Public Health

Objectives

- Identify thresholds that would trigger an emergency response activation or a change in infection control standards within each hospital before and during an influenza pandemic.
- Improve communication between emergency preparedness coordinators and infection control professionals as they prepare for their hospital's infectious disease emergency responses.

Follow-up questions from each scenario were discussed either in individual hospital groups or with all participants in a large group. When any questions arose for the health department during hospital group discussions, hospital groups were encouraged to submit questions to the health department table and answers were shared with all participants. (See Attachment B)

Participants were asked to bring copies of their hospitals' emergency plans to the exercise and were provided with infection control resources produced by SFDPH. Each hospital also provided an exercise evaluator who observed and recorded major issues discussed by each hospital during the exercise; each evaluator also provided a summary of their evaluation to SFDPH. Observations by hospitals, SFDPH, and the California Department of Health Services (CDHS) were compiled into this after action report.

Main lessons learned from this Tabletop Exercise include:

- All San Francisco hospitals sent representatives to participate in this exercise. We believe that **active encouragement from the highest level of SFDPH and hospital administration** helped to make this high participation rate possible; similarly, we hope continual support from this level can enable a greater level of participation among hospitals in the Infection Control Working Group in the future.
- Participation in this exercise **increased communication** between hospital staff who need to be involved in pandemic preparedness and also improved communication between the hospitals and SFDPH. Participants would like to see continual development of these partnerships.
 - Some venues already exist to facilitate cross-hospital communications (e.g. Infection Control Working Group, Hospital Council Emergency Preparedness Task Force) and we encourage all hospital staff who have a role in pandemic / infectious disease emergency preparedness to share their concerns with their hospital's representatives to these venues.
- Participants also stressed that the **planning process at each hospital for pandemic preparedness needs to be more multidisciplinary**, including departments such as materials management, security, employee / occupational health, etc. This tabletop was a useful tool for hospitals to start these multidisciplinary discussions and many plan on adapting it for use within their own hospitals.
- Participants noted that many issues that may arise during a pandemic response require **decisions from hospital management and upper levels of administration**. These issues include developing guidelines for alternate standards of care, supply stockpiling, leave policies, and personnel surge capacity issues. Many would like to increase awareness among management staff regarding the scale of a pandemic influenza response and possible response activities.
- **Hospital staff need training** on issues such as pandemic influenza basics, use of personal protective equipment, and clarifications about work responsibilities in such an emergency both before and during pandemic. Hospitals would like to develop materials for this training.
- **Infection control actions should be better integrated into existing emergency response plans** and the all-hazards emergency planning process. Participants also learned that the strategies for responding to an infectious disease emergency such as a pandemic, which may last from weeks to months, are very different from those required for a response during a mass casualty disaster such as an earthquake, on which most current emergency response plans are based.
- Hospitals expect **SFDPH to take a lead role in providing information** during a pandemic to ensure consistent communication with the public and health care workers. This may be done through health alerts, web updates, prewritten scripts and templates, telephone conferences and/or a Joint Information Center. In order to ensure that SFDPH begins to coordinate this information in a timely way, hospitals should ensure that:
 - Suspect **cases are reported** to SFDPH in a timely manner
 - **Updated physician and key response staff contact information** such as business fax numbers are provided to SFDPH on a regular (at least biannual) basis.
- Many hospitals also asked SFDPH to **clarify how a declaration of emergency** would influence hospital actions such as: 1) changing standards of care, staffing ratios, etc. due to staff and supply shortages, 2) implementation of disease control measures within the population. Hospitals would also like clarification on when such a declaration would be made.

A) Hospital assessment of their current preparedness level

All San Francisco hospitals have existing general emergency plans / disaster manuals. Seven have infection control emergency plans, or address infection control issues in their general emergency plans. Five have completed pandemic influenza response plans, and one hospital is in the process of creating one. Other plans that hospitals brought to the exercise include: bioterrorism response plans, infection control emergency preparedness plans and internal communication plans.

Most hospitals assessed that while their plans are adequate, they would like to further develop details regarding austere care, resource staging and security, continuity of providing care for non-influenza patients, plans to meet supply and staff shortages and more templates that are ready to use during an emergency. Some also noted that they would like to streamline their many disparate plans into fewer documents. Others stressed the need to regularly train their hospital administration and staff on the plans.

B) Triggers for emergency plan activation

During the exercise, hospitals were asked to share the thresholds that would trigger an emergency plan activation. Most hospitals indicated that one or more of the triggers in Box 2 would activate their response plans.

From our exercise, three of the ten hospitals noted that for a single confirmed H5N1 case in San Francisco during WHO Pandemic Alert Phase 4 (Scenario 2), they would not fully activate their Hospital Emergency or Hospital Incident Command Structure (HEICS/HICS 4); three others were unsure whether they would activate at all. In addition to facilitating communication, the hospitals most likely to partially activate would do so to address volume increases and security concerns.

The decision to activate the HEICS/HICS 4 in each hospital lies with one or a combination of the following: Administrator-On-Duty, Chief Executive Officer, or Medical Chief. However, in most cases it is described as a joint decision by these individuals, with advice from infection control practitioners (ICPs), nursing officers, a pandemic influenza advisory group, or employee health.

The triggers noted by hospitals varied in degree of specificity. Some hospitals noted that “a case of pandemic influenza” would trigger an activation, and some were more specific such as “2 to 3 cases of an infectious disease that is monitored in our emergency department”. It may be beneficial to add criteria such as the location of the potential case, the WHO Pandemic Alert phase or based on alerts from the local or state health department.

Another related lesson learned among hospitals is that most emergency plans are currently written to respond to a one-time emergency incident such as an earthquake which takes place at one point in time and results in a large influx of patients for a short amount of time. However, for a pandemic situation, in which there may be more lead time to anticipate a local infectious disease emergency involving large patient influxes and resource shortages, some hospitals are considering adding a “heightened alert situation” activation phase that precedes and prepares for a full HEICS/HICS 4 activation. During this preparation phase, a few HEICS/HICS 4 command positions may be activated to coordinate communication within the hospital and with outside entities such as SFDPH or the media and prepare staff and/or mobilize materials in anticipation of surge capacity needs.

Box 2. Triggers for emergency activation used by San Francisco Hospitals relating to avian and/or pandemic influenza:

- Volume-related concerns:
 - Increase in the number of patients arriving at the hospital
 - Increase in the number of worried well coming to or calling the hospital
- Case-related concerns:
 - Admission of a suspect case meeting the WHO case definition, even without laboratory confirmation
 - Known cases in the community
 - Demonstration of efficient person-to-person transmission of avian influenza
- Resource-related concerns:
 - Decrease in resources in caring for patients such as: negative pressure rooms, High Efficiency Particulate Air (HEPA) filters, ventilators and workforce
 - Decrease in likelihood of resupply by vendor
- Other concerns:
 - Rumor control
 - Need to facilitate increased staff communication

The following is an example from one of the hospitals that had previously designated three alert levels in their HEICS/HICS 4 activation. This hospital is now considering adding an additional response phase prior to their Level 1 Activation for a heightened alert situation:

Activation Level	Trigger	Potential actions
Heightened alert phase	Very low threshold – e.g. single suspect case of H5N1 or potential pandemic influenza in the area	Basic HEICS/HICS 4 implemented, develop incident action plan and specific strategic actions such as Staff Information and Education, daily briefings, securing critical resources, press briefings, etc.
Level 1 Activation	Small number of cases in our hospital only	All of the above, plus: More fully activated HEICS/HICS 4, strategic actions implemented, visitor limitations as appropriate
Level 2 Activation	Multiple confirmed cases or community-wide impact anticipated	All of the above, plus: Possible implementation of facility lock-down, alternate schedules, action plan for rationing supplies, etc.
Level 3 Activation	Declaration of Emergency issued, significant community-wide impact including major staffing and/or supply shortages	All of the above, plus: Alternate staffing ratios and shifts, supply rationing, etc.

C) Scenario 1: Rule-out H5N1 Avian Influenza case (WHO Pandemic Alert Phase 3)

The first scenario of this tabletop consists of a suspected H5N1 avian influenza case in a San Francisco hospital that was ultimately ruled out by influenza laboratory tests performed by the local and state health departments. In such a scenario, 8 out of 10 hospitals stated that they would contact SFDPH when a rule-out is conducted. The responsibility of notification either belonged to the Infection Control Professional (ICP) or the Emergency Preparedness Coordinator (EPC), depending on hospital protocols. In addition to SFDPH, most hospitals may notify one or more of the following staff:

- Pharmacy staff (to check on antiviral stockpiles)
- Materials staff (to check on personal protective equipment stockpiles)
- Emergency Department staff
- Laboratory
- Safety Manager
- Nurse supervisor or charge nurse
- Hospital public information officer
- Radiology and respiratory therapy
- Admitting manager
- Infectious Disease department
- Medical Center Director
- Administrator on-call
- Regional office staff, if applicable

Other responsibilities of the ICP within this scenario, as noted by hospitals, include: a) collecting information on rule-out patients such as clinical condition, travel history, etc., b) ensuring that a negative-pressure isolation room is available to isolate the patient, and c) ensuring that infection control precautions are followed in patient rooms and in admitting areas.

Responsibilities of the EPC include recognizing a potential emergency, evaluating whether a HEICS/HICS 4 activation is needed and communicating with SFDPH (including regularly checking for health alerts and other city-wide updates). EPCs from some hospitals are responsible for implementing the infection control measures and determining the likelihood of the case being a real case of H5N1 infection. One hospital EPC indicated that for a rule out scenario, he/she may consider activating their bioterrorism plan and developing an incident action plan.

Hospitals also indicated that they would like SFDPH to provide information about cases identified at and actions being taken on the city or regional level in order to inform their decisions about response actions. Some of the information requested included epidemiology of the virus and affected population, and laboratory information. Meanwhile, hospitals would start to look for other potential cases in their Emergency Department records and increase alertness for potential cases prospectively.

D) Scenario 2: WHO Pandemic Alert Phase 4 (sustained human-to-human transmission) with one confirmed H5N1 case in San Francisco

In this scenario, each hospital was asked to list activities that they would perform should the H5N1 case be seen at their institutions. In addition to internal communications, hospitals indicated that they will be looking to their regional offices, SFDPH, and CDC guidelines to help them decide on their course of action. Activities include:

Instituting infection control measures. All hospitals agreed that the patient should be isolated and staff treating the patient would be given personal protective equipment (PPE); while most plan on using N95 masks, some hospitals may assign powered air purifying respirators (PAPRs) to key staff caring for (H5N1) influenza patients. Two hospitals indicated that they would implement droplet precautions, while others will implement airborne precautions. Most hospitals stated that the patient will probably be isolated in the Emergency Department (one hospital plans on isolating patients in the ICU in anticipation of having to move them there upon laboratory confirmation). One hospital noted that infection control measures would probably be instituted in the Emergency Department only at this point, and not throughout the hospital.

Other measures to decrease exposure include limiting access to the isolation room so that non-essential staff, such as housekeeping or nutrition staff, would not be allowed into the room. Some hospitals also suggested excluding visitors or asking all staff and visitors entering the room to log their names. At this point, hospitals would also identify areas for cohorting patients. Some hospitals have already identified these areas and have indicated these locations in their plans.

Setting up triaging stations for all patients entering the emergency room. In anticipation of a rise in walk-in patient volume, many hospitals are planning on setting up alternative triage sites (e.g. using surge tents in the parking lot). Walk-in patients will be given surgical masks to wear while waiting and patients with respiratory symptoms will be asked to wait in an isolated area. Hospitals plan on posting respiratory etiquette signs and setting up access control within the hospitals. One hospital stressed the importance of preparing to serve a diverse population by issuing informational scripts and templates in different languages.

Identifying potentially exposed staff. During the exercise, some hospitals indicated that they plan on asking exposed staff to return home and voluntarily quarantine themselves from their families and may involve occupational health in monitoring and clearing staff to return to work. If effective, some hospitals may give antiviral prophylaxis to exposed staff. In a real WHO Phase 4 scenario, hospitals should also plan on coordinating the identification of exposed staff with SFDPH, who may impose mandatory quarantine for these staff if deemed appropriate.

Initiating staff communication. All hospitals stressed the importance of having a clear and consistent message for hospital staff. Depending on hospital protocol, communications with staff will be conducted by the hospital's Public Relations / Marketing Department, Chief Nursing Officer, Regional Offices or as a collaboration between the ICP and EPC or Employee Health. Hospitals would most likely communicate with staff by sending memos or bulletins, email updates, hosting "town hall" meetings with hospital staff, posting signs or posters in the hospital, set up a telephone hotline or brief with managers, who would then disseminate the information to their staff. Specific protocols and messages still need to be developed. Hospitals also indicated interest in receiving pre-written scripts and templates from SFDPH to guide their communication and to ensure a consistent message.

Box 3. Activities hospitals will take during WHO Pandemic Alert Phase 4 with one confirmed case in San Francisco:

- Institute infection control measures in patient rooms and other areas where potential cases may be located.
- Create monitoring systems for symptomatic patients, staff and visitors
- Set up a triaging station for all patients entering the emergency room
- Identify potentially exposed staff and recommending measures to minimize exposure
- Communicate with staff about case recognition, PPE, self-assessment for symptoms and address other staff concerns via memos, meetings and hotlines
- Inventory and secure existing supplies

Box 4. Areas that need to be addressed in staff communications as identified by exercise participants:

- Increased vigilance for and how to recognize a potential case
- Use of PPE
- Isolation and infection control guidelines, and hand hygiene
- Methods to self-monitor and assess for symptoms
- Clarify questions that staff may have regarding quarantine and family safety.

Inventory and secure supplies. Hospital ICPs and EPCs would inventory supplies such as availability of isolation rooms, masks and PAPRs. In addition to securing and controlling the allocation of existing PPE supplies, they would also start to ration the existing supply and educate staff on when to use PPE, and when its use is not needed. Pharmaceutical supplies would also be secured. In conjunction with the supply inventory, hospitals would also contact supply vendors immediately and order more masks and other PPE. Those hospitals belonging to regional networks may also contact other hospitals in their network regarding extra supplies.

E) Scenario 3: WHO Pandemic Alert Phase 6 with widespread H5N3 infections in San Francisco

In this scenario where all hospitals are experiencing staffing and supply shortages, many questions surfaced concerning how a local or statewide declaration of emergency may affect hospital policy on addressing shortages. Most notably, hospitals would like clarification on whether a declaration would allow them to change to austere care standards, loosen staffing ratios, be exempt from providing social services, reuse PPE, or ask staff to work despite an inability to provide adequate PPE. They would also like clarification on the powers that SFDPH has during an emergency to reallocate private resources for surge capacity purposes or to ask hospitals to share resources.

Addressing staffing shortages. Hospitals offered a number of options to address staffing shortages. Four hospitals plan on using volunteers (such as retired clinical staff, dentists, etc.) or their strike contingency plans in such a scenario; however, it is unknown whether these plans would be adequate during a pandemic, which may last for many months. Other ideas include lengthening shifts to 12 or 24 hours, reassigning staff who usually perform elective procedures and/or other non-clinical duties (e.g. clipboard nurses) to care for influenza patients. Some hospitals plan on offering antivirals, if available and effective, to staff and their families as an incentive for staff to come to work. At the exercise, some hospitals inquired whether SFDPH had the ability or plans to provide housing for hospital staff in order to minimize the risk of staff exposing their families to infection during a pandemic. As a result of this tabletop exercise, some hospitals plan on contacting their Human Resources Departments to clarify policies on job abandonment and emergency credentialing.

Stockpiling materials. Hospitals were divided on the next steps to take regarding stockpiling. Some hospitals will focus on acquiring as much supply as they can before a pandemic, while others anticipate that a stockpile will not last through a pandemic and will focus on researching the use of alternative PPE instead. Most hospitals currently do not have a stockpile of N95 masks or other PPE; some keep a 24 -72 hour supply of N95 masks for day-to-day use during the non-influenza season. Inventory of other PPE supplies are likely to be bigger. Hospitals indicated that there is a “global backorder” for N95 masks from a major supplier and that other institutions, such as state or federal agencies, may have priority over local hospitals in acquiring limited supplies. One hospital intends to use the SARS model to help prioritize PPE access. Some others may institute measures to increase the length of time that certain PPE supplies are used, such as double-masking (placing a N95 mask under a surgical mask), or washing gloves.

Staying in touch with SFDPH. During a pandemic situation, regular communication between hospitals and SFDPH is crucial to monitoring its extent and to inform control measures. While SFDPH will attempt to post the most updated disease and infection control information on the SFDPH website, it may also communicate with hospitals via periodic health alerts, EMS systems and conference calls. During the exercise, hospitals also expressed the desire for SFDPH to lead a Joint Information Center to facilitate communication among SFDPH, hospitals and the public. Box 5 illustrates the types of information that need to be exchanged between SFDPH and hospitals during a pandemic situation.

Clarifying SFDPH role during a pandemic. In addition to infection control and treatment guidance, SFDPH will also be informing hospitals of citywide policies (such as canceling large indoor meetings or other social distancing measures and standards for home care for the sick) so that there will be consistent and coordinated efforts at the city, regional, and possibly state level.

Box 5. Information needs during a pandemic situation:

- From hospitals to SFDPH:
 - Number of suspected and confirmed cases
 - Availability and types of rooms and supplies
 - Staffing situation
- From SFDPH to hospitals:
 - Infection control recommendations
 - Update on the number of lab confirmed cases, citywide and region wide
 - Where to obtain updated information
 - Informational scripts and templates for staff and community communications
 - Address rumors
 - Updated information on treatment options

Next Steps for Hospitals

Next steps identified by San Francisco Hospitals:

- Incorporate infection control issues into current emergency response plans
- Make the emergency planning process and emergency notification process more interdisciplinary
- Clarify requirements for staff to work during a pandemic situation
- Improve pre-pandemic training for hospital staff
- Ensure essential hospital staff are able to receive health alerts from SFPDH
- Evaluate current PPE supplies

Next steps in revising plans:

- ✓ Most hospitals plan on **revising their current emergency and surge capacity plans to incorporate infection control issues**. Some will be consolidating many disparate plans into fewer plans to make it easier for staff needing to reference them. They also plan on including more flow charts to define responsibilities for administration, staff, physicians, etc.
- ✓ Hospitals also identified the following departments which they would like to **bring into the planning process**:
 - Employee health (regarding staff responsibilities, communication and clearance)
 - Union representatives
 - California Occupational Health and Safety Association
 - Environmental health and safety staff (to better define their role in an outbreak response)
 - Regional offices
 - Mental and behavioral health
 - Materials management
 - Emergency Department staff
- ✓ Some hospitals also plan on revising their communication strategies to **bring the following staff into earlier parts of the notification process**. They also want to make their notification schemes more explicit and readily accessible to staff (one hospital may post on its internal website):
 - ICP
 - Safety officer
 - Materials management
 - Surveillance groups
 - Administrator on duty
 - Emergency Department
- ✓ **Check hospital plans for isolation precautions** for potential avian and pandemic influenza patients to ensure that plans are consistent with local and state recommendations. Revise plans accordingly.
- ✓ Evaluate policies on how **caring for non-influenza patients** may continue under pandemic conditions and revise plans accordingly
- ✓ Consult with human resources and employee health to determine staff **requirements for work during a pandemic** and/or under situations where adequate PPE may not be available.

Next steps in training and communications:

- ✓ Many hospitals saw the need to **improve training** for all hospital staff (especially administrators, emergency department staff and departmental managers) via grand rounds/lectures, management trainings and internal tabletops in the following areas:
 - How to recognize disease, who to notify and when to activate HEICS/HICS 4
 - The reality of an influenza pandemic and basics about the disease
 - Use of PPE and fit testing
 - Information on what to do about their families when staff need to report to work, and whether housing would be provided for staff
- ✓ Anticipate the need to **coordinate messages** to hospital staff and the public within the hospital organization as well as with SFPDH. Hospitals all indicated that they would like to start working on communications

and just-in-time training materials now. Consider collaborating among hospitals and with SFDPH to develop these messages on a pre-event basis.

- ✓ Ensure that **essential response staff are able to receive health alerts** from SFDPH via the fax and internet in a timely manner. In order to ensure that all response staff and physicians are able to receive health alerts, SFDPH needs the list of updated physician contact information (e.g. business address, phone number, fax number, email, etc.) from each hospital at least biannually. SFDPH maintains a database of San Francisco-based health care providers for the purposes of sending the latest health information of significance.

Next steps in supplies preparations:

- ✓ **Evaluate current supplies** of ventilators and isolation rooms, and PPE stockpiles.
 - Identify locations where patients may be isolated or cohorted and where staff may be quarantined. One hospital will evaluate negative pressure capabilities for patient isolation in “unconventional” settings such as conference rooms.
 - One hospital would like to make a decision about the need for stockpiling antivirals for staff prophylaxis
 - One hospital will devise protocols on how to stage, triage and distribute supplies during a pandemic situation

Next Steps for SFDPH

Next steps identified by San Francisco Department of Public Health:

- Clarify what communication pathways and city resources are available to hospitals during an emergency
- Clarify what types of potential city-wide policies may be instituted during a pandemic
- Clarify what an official “Declaration of Emergency” at the local or state level may mean in terms of alternate standards of care and reallocation of resources among hospitals.
- Test the fax notification system to ensure that key hospital staff are able to receive health alerts in a timely manner
- Research the use of non-traditional PPE
- Coordinate more exercises with key partners within and outside of the hospital community around pandemic influenza

Clarify the role of SFDPH and CDHS agencies during a pandemic:

- ✓ Clarify the National Incident Management System (NIMS) compliant **communication pathways** between hospitals and SFDPH regarding request for additional resources (e.g., that hospitals should submit their resource requests to the SFDPH Departmental Operations Center, where the Medical Health Operational Area Coordinator for San Francisco resides). Also **clarify what city resources**, such as local supplies and pharmaceutical caches, may be available for hospital use during an emergency.
- ✓ **Follow-up with CDHS on their order of N95 masks** for the state stockpile and update hospitals on whether they can access the stockpile during a pandemic emergency.
- ✓ Provide hospitals with context for their infection control measures by **describing potential city-wide policies such as social distancing and other measures**. Inform hospitals of DPH progress in establishing these policies. Clarify that public health recommendations to the public (such as shelter in place or school closures) will come from SFDPH, whereas hospitals are still responsible for making infection control recommendations to their own staff and patients visiting their facilities. Similarly, **clarify what SFDPH will most likely not be doing during a pandemic**. Current assumptions by hospital participants include

SFDPH taking cases into an isolation facility, performing extensive contact tracing in the middle of the pandemic, addressing insurance issues, provision of housing to hospital staff working during a pandemic, and having the authority to redistribute resources among San Francisco hospitals to share resources with other hospitals.

- ✓ Clarify whether hospitals may be required to share supplies purchased via **Health Resources and Services Administration (HRSA) or Urban Area Security Initiative (UASI) funding** with other hospitals or CDHS during a pandemic.
- ✓ Start a subcommittee to address questions around **austere care** raised by hospitals in the exercise. Clarify **what a local or state “declaration of emergency” means** for hospitals regarding austere care, because currently hospitals are assuming that such a declaration is the trigger point for them to move to austere care standards. Include ethicists, legal representatives, union representatives and spiritual care in these discussions. Also discuss when it is appropriate during a pandemic to institute alternate standards of care for the whole population or multiple standards of care for different risk groups in the population.
- ✓ **Increase communication with CDHS and other local health departments** to stay updated about the number of cases detected in the Bay Area and update hospitals accordingly.

SFDPH communication with hospitals in preparation of and during a pandemic:

- ✓ In order to facilitate communication between SFDPH and hospitals, **include “consider activating HEICS/HICS 4” as a recommendation** in health alerts sent during a heightened alert situation. Also, update hospitals when the SFDPH Departmental Operations Center has been activated.
- ✓ Hospitals requested **periodic test of the fax alert system** that would include asking relevant hospital staff to verify receipt of the health alert (this would require all hospitals to update SFDPH with their physician names and contact info). Also consider web posting in this test to ensure redundancy.
- ✓ Consider putting a **conference call agenda** as an appendix to the SFDPH Infectious Disease Emergency Response plan; include information such as: 1) update on the situation and DPH actions, 2) information to share with hospitals, 3) information DPH needs from hospitals, 4) recommendations, etc.

Add to current pandemic infection control guidance:

- ✓ **Research and formulate recommendations on the use of non-traditional PPE.** During the exercise, hospitals realized that no matter how much stockpiling is done, running out of traditional PPE is inevitable given the fact that a pandemic may last for months. They would like standards for using alternative PPE to be established on a pre-event basis.
- ✓ **Collaborate with CDHS and other Bay Area County Health Departments** to ensure consistency in infection control guidelines for a pandemic response.

Other:

- ✓ Hospitals requested that **future exercises** include the following foci, building up to a multidisciplinary functional exercise:
 - Human resources and supplies / materials management
 - Include law enforcement / security agencies as well as businesses
 - Surge capacity
- ✓ One hospital indicated that **long-term care facilities** may potentially be a resource for “de-stressing” other acute-care hospitals in the system by taking patients during a pandemic. Consider whether this is a viable strategy to address surge capacity issues and how this may fit into city and/or hospital response plans.

Conclusion

This exercise provided a great learning experience for its participants because of the collaboration between all San Francisco hospitals and SFDPH. All participants indicated that they found this exercise to be extremely useful in helping their hospital improve its pandemic influenza plans. Most indicated that the exercise was well structured, the scenario realistic, the SFDPH infection control plans useful as a reference and that the right mix of disciplines were represented amongst the exercise participants.

Through this exercise, hospitals learned that many of them are facing the same challenges in preparation for a pandemic: supplies (such as masks and ventilators) are currently already limited, many are still in midst of improving or drafting their plans, and they need to bring in staff from other disciplines (such as materials management, employee health, union representatives, behavioral health, etc.) earlier in the planning process. Most importantly, hospitals realized that especially in a pandemic situation which may unfold over many months, the earlier response plans are developed and implemented, the better hospitals would be able to allocate resources and conduct clear communication with staff and the community. Hospitals plan on identifying gaps in communication and how their existing plans may be streamlined or more details added.

This exercise was helpful in identifying next steps both for SFDPH and hospital planners. By using an exercise scenario, hospitals and SFDPH were able to integrate evaluation of current plans and to facilitate future planning efforts so that San Francisco may be better prepared to respond to a pandemic. Even though there are many issues that still need to be resolved in pandemic preparedness, the exercise helped to define and prioritize our next steps in the planning effort.

Attachment A: San Francisco Pandemic Influenza Infection Control Tabletop – Scenarios

Scenario A:

It is February 2007, WHO reports ongoing avian influenza (H5N1) outbreaks in Asian, European and African countries. There is no efficient human-to-human transmission, and the alert level remains at Pandemic Alert Phase 3.

On February 14th, 2007 at 4pm, the Emergency Department (ED) nurse calls the Infection Control Professional (ICP) and states that there is a patient in the ED waiting to be admitted with a diagnosis of rule out H5N1 Avian Influenza.

Questions (5 minute hospital discussion):

- What does the ICP do? Should the ICP or anyone else contact the Emergency Preparedness Coordinator (EPC)?
- Do you need additional information to guide your decisions/actions? If so, where will you find it?
- Who will you (ICP and EPC) consult and/or notify within the hospital? Outside of the hospital?

The ICP calls SFDPH and the specimens are sent from your hospital and arrive at Public Health Lab on Feb 15th at 10am. At 4pm, the preliminary test is positive for influenza A and equivocal for subtype H3. The specimens are forwarded to the State lab for additional testing.

By noon on Feb 16th, the State lab confirms seasonal influenza and no avian influenza. The patient improves on antivirals and is discharged home after 4 days.

Scenario B:

On Monday, September 8th, 2008, WHO reports evidence of increased human-to-human transmission of H5N1 avian influenza in both Indonesia and China. Many of the cases were reported late as both countries' public health systems are overwhelmed by the numbers of avian and human cases.

WHO raises the alert level to Pandemic Alert Phase 4 and the SFDPH sends out a Health Alert. Please keep the following in mind as you answer the next questions: 1) H5N1 virus is now transmissible from person to person, and 2) infection control precautions are the only means of protection until a vaccine is developed or antivirals are shown to be effective.

On Tuesday, Nov 4th at 10pm, Mr. Yu, a visiting Chinese national goes to Hospital X ED with flu-like symptoms which started on Nov 2nd. He arrived 5 days ago (Oct 31st) from Beijing with his family to visit relatives who live in Chinatown. His cousin Mr. Chen, a native San Franciscan, accompanies Mr. and Mrs. Yu to the hospital. Census at Hospital X is at about 85% capacity. All but one negative pressure airborne isolation rooms are being used for tuberculosis patients.

Mr. Yu is a 42 year old businessman who travels frequently to the southern part of China. He denies having tuberculosis but said he was given a 6-month course of medication when his father had tuberculosis 2 years ago. On physical exam, he has a temperature of 101.6°F, productive cough, shortness of breath, chest x-ray shows right upper and lower lobe infiltrates, oxygen saturation is 88%. Mr. Yu is admitted to Hospital X on Nov 5th at 2am.

Having remembered the SFDPH Health Alert, the ED physician considers avian influenza in the differential diagnosis and calls the ICP, who also calls the SFDPH Communicable Disease Control Unit at 554-2830 and the hospital's EPC. Specimens – nasopharyngeal and throat swabs – are picked up on the afternoon of November 5th to be sent to the Public Health lab.

On Thursday, Nov 6th at 8:30am, preliminary results from SFDPH lab are positive for H5N1, and the specimens are sent on to the state public health lab for confirmation.

SFDPH and the Mayor's office hold a press conference at 10am to announce the first human case of H5N1 in San Francisco.

Attachment A: San Francisco Pandemic Influenza Infection Control Tabletop – Scenarios

Questions (5 minute hospital discussion):

- What is your isolation procedure?
- What is the mechanism for your hospital to identify clinical and support staff who have been exposed? What do you tell your exposed staff?
- Who would you notify about the H5N1 result?
- What information would you give to the general staff at this point?
- What questions do you have for SFDPH?
- How would you manage this patient differently from the patient in Scenario A?

Mr. Yu's condition deteriorates the night of Nov 6th. He requires intubation. All ICU beds at Hospital X are occupied, so he is transferred to Hospital Y. That evening at 11pm, SFDPH receives confirmation from the state lab that Mr. Yu's specimen tested positive for H5N1.

The next afternoon (Nov 7th), the CA state public health lab confirms a second human case of H5N1 in Alameda County and notifies all local health departments. SFDPH has activated its Infectious Disease Emergency Response plan and is actively investigating possible cases and contacts, and instituting isolation and quarantine measures.

Questions (15 minute all participant discussion):

- Will your hospital activate your emergency response plan?
- Who will make that decision?
- What information do you need to make that decision?
- How do you triage the influx of patients who will come to the hospital?

When Mrs. Yu visits her husband in the ICU on that Friday, Nov 7th, she appears tired and has a hacking cough. She attributes her symptoms to lack of sleep. SFDPH recommends isolation for Mrs. Yu who is admitted that same day to SFDPH because there is an airborne isolation room available. The Yu children and the Chen family are quarantined at the Chen's home, also on Nov 7th.

Mr. Yu passes away on the afternoon of Sunday, Nov 9th. The news of Mr. Yu's death travels quickly in and out of Hospital X, Y and Z.

Ever since the Nov. 7th press conference confirming the first human case of H5N1, masks and gloves have been disappearing from the hospital stock rooms. Your Materials Management Director tells you on Monday, Nov 10th that he only has enough masks and gloves to meet 60% of the anticipated need for the next 2 days until the next shipment arrives on Wed.

Questions (15 minute all participant discussion):

- What do you tell the staff about PPE? How will you enforce it?
- Do you have a stockpile of PPE?
 - If yes, what's in it? Where is it? How long will it last? When will you draw from it? Who decides? How will you distribute / utilize it?
 - If no, what will you do?
- Do you consider modifying your infection control guidelines?

Globally, there were only 7 small clusters of localized H5N1 cases, and all of them were contained. Large clusters never developed and there are no additional human clusters by March 2009, although sporadic poultry outbreaks continue. WHO downgrades the alert level back to Pandemic Alert Phase 3.

Scenario C:

On Monday, June 1st, 2009, Hospital A reports 2 suspected cases of H5N1; Hospital B reports 3 cases and Hospital C reports 5 cases to SFDPH. Preliminary tests come back positive for H5 strain of influenza. SFDPH recommends continuing vigilant respiratory and hand hygiene for all persons with influenza-like illness and institutes contact tracing and airborne isolation for suspect cases.

Attachment A: San Francisco Pandemic Influenza Infection Control Tabletop – Scenarios

The next day (Tues June 2nd), SFDPH receives more reports of 18 suspect cases from 5 other hospitals. By 10am on Tuesday, confirmatory tests from the state lab identify H5N3 from the June 1st specimens.

SFDPH sends an urgent message on June 2nd to all hospitals requesting ICPs to participate in a telephone conference call on June 3rd at 9am. The agenda is as follows:

- 1) Update from SFDPH on the number of lab confirmed cases of H5N3
- 2) Update from hospitals on the status of infection control supplies
- 3) Future communication – the SFDPH website will be updated at least daily, fax alerts, and phone conference as SFDPH is able.

Questions (15 minute all participant discussion):

- This is the June 3rd conference call
- What additional items would you like to have on the agenda for this type of conference call?
- What other questions do you have for SFDPH?

On June 3rd, at 2pm, WHO reports a new influenza strain has broken out in clusters in many cities in Asia, Africa and elsewhere. It is believed to be a mutated H5N3 strain that is efficient in its transmission from person-to-person. WHO raises the alert level to Pandemic Phase 6.

Your hospital has patients waiting in the ED. On Friday, June 5th, at 35% above your capacity. 60% of staff report to work. Supplies are dwindling and you have been only getting intermittent shipments as some truckers are afraid to drive up to the hospital for fear of getting disease.

Questions (15 minute hospital discussion):

- What are your hospital's infection control recommendations at this time given the shortages of PPE and lack of isolation rooms?
- What about staffing issues?
- Who's going to do your job when you go home?
- Do you have a plan to address staff shortages? If so, how will you implement it in this scenario?
- Who makes the decision about how to handle the shortages? How will it be enforced?

On Wed June 24th, 2009, being the conscientious person you are, you report to work. Your incident commander briefs you on the following: all ventilators are in use, there are no more N95 masks, surgical mask supplies are inadequate, soap and paper towel supplies are drying up, staff report getting sick at work, the hospital is not expecting to receive shipments of supplies anytime soon.

Questions (15 minute all participant discussion):

- What do you do at this point?
- What planning and preparations should we make now to minimize the impact of this type of situation?

Attachment B: Questions from hospitals during tabletop

Infection control questions:

- How to define “exposed staff”?
- What are the appropriate practices for extended use of PPE?
- What options are there for non-traditional PPE that would adequately protect staff?
- Clarify what SFDPH infection control recommendations are for exposed staff
- What types of disinfectants are effective in this situation?

Questions about SFDPH powers and responsibilities during a pandemic:

- Is SFDPH responsible for finding and contacting the index case’s contacts?
- How involved will SFDPH and the CDC be regarding HEICS/HICS 4 activation at the hospitals?
- What is the role of the health officer?
- During a pandemic, does SFDPH and/or CDC have the power to:
 - Enforce quarantine?
 - Designate one facility to hold infected patients?
 - Designate facilities to hold non-ill staff between shifts?
 - Direct PPE suppliers to distribute supplies?
- What does a declaration of emergency mean for hospitals in terms of:
 - standards of care
 - requirement of staff to work through pandemic
 - availability of state/federal resources
 - authority to implement social distancing
 - legal implications of expecting staff to work when PPE supplies are inadequate

Questions about other city agencies’ powers and responsibilities during a pandemic:

- If the SF Police Department is expected to be overwhelmed during a pandemic, will the national guard be called in? Who will make this decision and make the request?

Questions about the state’s powers and responsibilities during a pandemic:

- Does the state have a stockpile of masks?
- What is the availability of ventilators and supplies from city cache, state cache and SNS?
- Will there be any guidance from the state regarding the level of screening that hospitals will need to implement for families and visitors?

Other questions:

- How will non-acute hospitals be incorporated into the city-wide pandemic response plan?