

Section 6. Infection Prevention and Control Guidelines For Non-Health Care and Health Care Settings

Introduction

This section provides general infection control guidance, including the use of Personal Protective Equipment (PPE), for both non-health care settings (workplaces, jails, schools, etc.) and health care settings. (See also Sect. 7 Non-Pharmaceutical Interventions for community disease control and prevention measures, and see Sect. 4 Clinical Case Management Section for information on vaccines and antivirals.)

The CDC, WHO, the California Department of Public Health, and the federal Occupational Safety and Health Administration (OSHA) have all issued guidelines and recommendations that are consistent with current scientific knowledge and accepted infection prevention and control practices. These guidelines will undergo modification as more is known about the characteristics of the pandemic influenza strain and as new medications and vaccines become available. Strategies that may be appropriate at the early onset of the pandemic, such as isolation and quarantine of individuals suspected or infected with pandemic flu, may not be sustainable over the course of the pandemic. Supplies may become scarce, human resources may fluctuate and care delivery may require modification. After pandemic flu begins circulating in Contra Costa, full community cooperation will be necessary to control the spread of the disease.

The essential goal of infection prevention and control is to minimize the transmission of illness from infected individuals to non-infected individuals. This is accomplished through practices designed to prevent the spread of disease throughout all levels of the community.

This section is divided into two broad categories:

- A. general infection control guidelines for non-health care facilities such as businesses, schools, board and care facilities, jails etc. and for home care;
- B. more detailed infection control guidelines for licensed and acute care facilities

Interpandemic/Pandemic Alert Period (WHO phases 1-5)

The primary Infection Control objectives during the Interpandemic/Pandemic Alert period are to:

1. implement effective control measures to slow the spread of pandemic flu;
2. ensure common understanding of appropriate infection control measures across all levels of care in Contra Costa

Modes of influenza transmission

The mode of transmission defines how an infectious viral particle is transmitted from an infected person (“source person”) to a well person (“susceptible person”) and causes infection. The major mode of transmission for influenza is not

entirely clear. However, the pattern of person-to-person spread is generally consistent with spread through close contact (i.e. exposure to large respiratory droplets, direct contact, or near-range exposure to aerosols). Some studies support airborne transmission through small particle aerosols; however, there is little evidence of airborne transmission over long distances or prolonged periods of time. Unfortunately, the relative contributions and clinical importance of the different modes of influenza transmission are currently unknown.

1. Droplet Transmission – Droplet transmission occurs when a person who has symptomatic illness or who is a carrier of the virus (“source person”) generates droplets containing virus when they cough, sneeze or talk. These droplets then contact the conjunctivae (covering of the eyeball) or the mucous membranes of the nose or mouth of a susceptible person, and cause infection. Transmission via large-particle droplets ($> 10 \mu\text{m}$ in diameter) requires close contact between source and recipient persons, because droplets do not remain suspended in the air and generally travel only short distances (about 3 feet) through the air. Because droplets do not remain suspended in the air, special air handling and ventilation are not required to prevent droplet transmission.
2. Contact transmission – Direct contact transmission involves skin-to-skin contact and physical transfer of virus from an infected person to a susceptible person (e.g., by hand contact). Indirect-contact transmission involves contact of a susceptible host with a contaminated intermediate object, usually inanimate, in the person’s environment.
3. Transmission via contaminated hands and fomites (objects) has been suggested as a contributing factor in some studies. However, there is insufficient data to determine the proportion of influenza transmission that is attributable to direct or indirect contact. In an experimental study, influenza viruses could be transferred from hard, non-porous surfaces such as stainless steel and plastic to hands for 24 hours and from tissues to hands for up to 15 minutes. Virus can survive on hands for up to 5 minutes after transfer from an environmental surface. Higher humidity shortens virus survival.
4. Airborne transmission – Airborne transmission occurs by dissemination of either airborne droplet nuclei ($< 5 \mu\text{m}$ in diameter) or small particles in the respirable size range containing the infectious agent into the air. Microorganisms carried in this manner may be dispersed over long distances by air currents and may be inhaled by susceptible individuals who have not had face-to-face contact with (or been in the same room with) the infectious individual. Organisms transmitted in this manner must be capable of sustaining infectivity, despite desiccation and environmental variation that generally limit survival in the airborne state. Preventing the spread of agents that are transmitted by the airborne route requires the

use of special air handling and ventilation systems (e.g. negative pressure rooms).

Small particle aerosols. There is no evidence that influenza transmission can occur across long distances (e.g. through ventilation systems) or through prolonged residence in air, as seen with airborne diseases such as tuberculosis. However, transmission may occur at shorter distances through inhalation of small particle aerosols (droplet nuclei), particularly in shared spaces with poor air circulation.

In summary, the precise mode of transmission, and the relative contribution of droplet transmission versus airborne transmission versus contact transmission are not known. However, several observations suggest that the influenza is spread primarily through close contact (i.e. exposure to large respiratory droplets, direct contact, or near-range exposure to aerosols), and does not travel long distances (i.e. through ventilation systems). Our recommendations are thus based on close contact spread.

A. GENERAL GUIDELINES FOR NON-HEALTHCARE SETTINGS

Schools, Businesses, Jails, Board and Care Facilities, etc.

The most important element in preventing the spread of influenza is to prevent introduction of the virus into the respiratory tract. During the alert period and throughout the pandemic each facility in Contra Costa County should establish and implement basic infection control practices to limit transmission of and exposure to pandemic influenza, including policies to decrease the spread of pandemic flu in the workplace, such as “no work while sick” and appropriate personal hygiene policies. (See also CCHS’ Pandemic Action Planning Kit for schools and day care providers at www.cchealth.org for public education materials such as “Cover Your Cough” posters and fact sheets, as well as Sect. 9 Risk Communication and Public Information of this plan.)

Infection control practices to prevent spread of disease

The following recommendations are based on what is known about the modes of influenza transmission. The most important concept in preventing the spread of influenza is to prevent the direct and indirect inoculation of the respiratory tract. (For information on the use of vaccines and antiviral drugs, see Sect. 4 Clinical Case Management.) There are four major ways to accomplish this:

1. Protect the well with personal protective equipment (PPE) and hand hygiene
 - a. Hand hygiene
 - If hands are visibly soiled, wash them with warm water and soap
 - If hands are not visibly soiled, perform hand hygiene.

- Perform hand hygiene after contact with a person who may be ill, after removing mask or gloves, or after touching items or surfaces that may be soiled.
 - b. Persons in contact with individuals suspected to be infected with influenza (during transport of an ill person, or in the home, in the jails, or in a daycare, school or work setting) can protect themselves by doing the following:
 - Wear a surgical or procedure mask when in close contact (< 3 feet) with an infectious person. A mask should be changed and discarded when it becomes moist. Perform hand hygiene after touching or discarding a mask.
 - Wear gloves if there is likely to be contact with respiratory secretions. Discard gloves immediately after use and perform hand hygiene.
- 2. Limit contact between infected and not infected persons.
 - a. Whenever possible, isolate infected persons. In the workplace or school, persons with symptoms of influenza (fever, headache, myalgia [muscle pain], prostration, cough, rhinitis [runny nose], or sore throat) should be sent home. If they cannot be sent home immediately, confine to a separate room. If contact between infected and not infected cannot be avoided (e.g. during transport in a car), place a surgical or procedure mask over the nose and mouth of the ill person, and open the windows to increase air circulation.

For workers uncertain of potential exposure (such as in a day care center), wear a surgical or procedure mask when in close contact (less than 3 feet) with a potentially infectious person. Change the mask when it becomes moist, and perform hand hygiene after discarding the mask. Wear gloves if there is contact with respiratory secretions and discard gloves immediately after use and perform hand hygiene.

- 3. Contain infectious respiratory secretions of the ill.
 - a. All persons with signs and symptoms of a respiratory infection, regardless of presumed cause, should:
 - Cover their nose and mouth when coughing or sneezing, preferably with a tissue or cloth
 - Use tissues to contain respiratory secretions
 - Dispose of tissues in the nearest waste receptacle after use
 - Perform hand hygiene after contact with respiratory secretions and contaminated objects/materials
 - b. Schools, workplaces, businesses and other places where people congregate should ensure availability of supplies to facilitate use of tissues, proper disposal and hand hygiene. Wherever possible,
 - Provide tissues and garbage receptacles

- Provide facilities for hand hygiene; either sink, water and soap, or alcohol-based hand rub dispensers
4. Promote air circulation and keep environment clean
- a. Good air circulation has been shown to decrease the chance of spreading respiratory viruses.
 - When caring for a patient in the home, or a residential facility, place a patient in a separate room with an operable window. Keep window open as the climate permits, and if necessary use a fan to circulate the fresh air.
 - UV light can kill the influenza virus. Open the shades and allow sunlight into the room.
 - b. Waste disposal
 - Tissues used by the ill person and other waste should be placed in a bag and disposed of with other household waste.
 - c. Linen and laundry
 - Laundry may be washed in a standard washing machine with warm or cold water and detergent. It is not necessary to separate soiled linen and laundry used by a patient with influenza from other household laundry. Care should be used when handling soiled laundry (i.e. avoid “hugging” the laundry) to avoid self-contamination. Hand hygiene should be performed after handling soiled laundry.
 - d. Dishes and utensils
 - Soiled dishes and eating utensils should be washed either in a dishwasher or by hand with warm water and soap. Separation of eating utensils for use by a patient with influenza is not necessary.
 - e. Environmental cleaning and disinfection
 - Environmental surfaces in the home, workplace, school, etc., can be cleaned using normal procedures. An EPA-registered hospital disinfectant can be used according to manufacture’s instructions, but is not necessary. There is no evidence to support the widespread disinfection of the environment or air.

Infection control considerations for specific settings

For each of the settings described below, the infection control guidance described under “Infection control practices to prevent spread of disease” applies as well as the setting-specific guidance below.

1. Home Care

The use of respiratory hygiene, hand hygiene, cough etiquette, and droplet, and contact precautions are recommended, as possible. (See outline below

and Appendix XXX for Home Care Brochure and Sect. 4 Clinical Case Management.)

Symptomatic patients who do not require hospitalization should not go to work, school, childcare centers or other public areas until fourteen days after the onset of symptoms. During this time, the additional infection prevention recommendations below should be used to minimize the potential for transmission:

- a. Physically separate the patient with influenza from non-ill persons living in the home as much as possible. If more than one person in the home has influenza, all ill persons can share the same room. Ideally the patient(s) with influenza should have their own room with windows that open to increase air circulation.
- b. The patient should cover mouth and nose with a facial tissue when coughing or sneezing; wear a surgical mask when uninfected persons enter the room or, if unable, uninfected persons should wear an N-95 respirator when entering the room;
- c. When travel outside the home is necessary for a patient (e.g. for medical care), the patient should cover the mouth and nose when coughing and sneezing and should wear a mask.
- d. As much as is possible, one person in the home should be the designated caregiver and all others should limit contact to the extent possible.
- e. Follow general infection control measures described above.

Caregivers should:

- Wear disposable gloves when in contact with the ill person's blood and body fluids (including respiratory secretions or items such as disposable tissues contaminated with respiratory secretions) and the immediate environment. Immediately after activities involving contact with blood and body fluids including respiratory secretions, gloves should be removed and discarded and hand hygiene should be performed. *Gloves are not intended to replace proper hand hygiene;*
- Wash hands with soap and water after gloved and ungloved contact with the ill person's blood and body fluids (including respiratory secretions or items such as disposable tissues contaminated with respiratory secretions) and the ill person's immediate environment. Alcohol-based hand hygiene products can be used after removing gloves when hands are not visibly soiled with respiratory secretions, blood and other body fluids and soap and water is not immediately accessible. Gloves should never be washed or reused;
- Unwashed dishes and utensils should not be shared. Wash dishes and utensils with warm to hot water and any commercial detergent after each use. Disposable plates or eating utensils are not necessary;
- Clean and disinfect environmental surfaces in the kitchen, bathroom and bedroom at least daily with a household cleaner diluted and used according to

manufacturer's instructions. Bleach, if used, should be diluted 1 part bleach to 10 parts water. A fresh solution should be mixed daily;

- Linens should not be shared between household members until they have been washed. Wash clothes, bed linens and towels in water at any temperature using any commercial laundry product and dry at an appropriate fabric temperature. Gloves should be worn when handling soiled linens;
- Dispose of waste soiled with respiratory secretions, blood or other body fluids, and surgical masks as normal household waste;
- Any rented, non-disposable medical or respiratory equipment should be placed in a plastic bag and labeled contaminated prior to their return.

2. Schools and Daycare Providers (See also CCHS' Schools Pandemic Action Planning Kit for schools and day care providers at www.cchealth.org)

- a. Keep sick students, teachers and other workers away from school or daycare while ill.
- b. If there will be a lag time between when a potentially infectious person is identified and when they can leave school, move them to a separate and well ventilated room during the waiting period.
- c. Promote respiratory hygiene, cough etiquette and hand hygiene as for any respiratory infection.
- d. Routine environmental cleaning is adequate.

3. Workplace (See also Sect. 7 Non-pharmaceutical Interventions)

- a. Keep sick workers away from the workplace while ill and potentially infectious (up to 14 days from onset of illness; this may be revised to a shorter period when more is known about the virus).
- b. If there will be a lag time between when a potentially infectious person is identified and when they can leave the workplace, move them to a separate and well ventilated room during the waiting period.
- c. Promote respiratory hygiene, cough etiquette and hand hygiene as for any respiratory infection.
- d. Routine environmental cleaning is adequate.

4. Jails, Correctional Facilities, Locked Wards

Jails, correctional facilities, or other locked wards represent unique settings in which crowding, barrack-style living, and freedom of mobility may increase transmission of influenza and special care should be taken to identify infectious inmates as early as possible.

- a. To the extent possible, house inmates into three groups:
 - i. Ill
 - ii. Exposed
 - iii. Not ill and not exposed

- b. Keep ill inmates in a well-ventilated room or rooms physically separate from the remainder of the population.
- c. Avoid allowing jail staff assigned to the ill inmates to float or have any contact with the second or third groups.
- d. Promote respiratory hygiene, cough etiquette and hand hygiene as for any respiratory infection.
- e. Once a pandemic is established, considering using masks for all inmates and staff.
- f. Routine environmental cleaning is adequate.

5. Law Enforcement

For law enforcement personnel, who may have contact with or transport ill people or those who have been potentially exposed to pandemic flu, follow law enforcement's standard procedures for infection control and implement PPE protocol per departmental policy and use patrol cars with plastic dividers that separate officers from suspect/passenger. Follow infection control guidelines above, including for the workplace, and:

- a. If contact between infected and not infected cannot be avoided (e.g. during transport in a car), place a surgical or procedure mask over the nose and mouth of the ill person, and open the windows to increase air circulation.
- b. For workers uncertain of potential exposure, wear a surgical or procedure mask when in close contact, or in an enclosed area (less than 3 feet) with a potentially infectious person. Change the mask when it becomes moist, washing hands with soap and water or an alcohol based hand rub after discarding the mask. Wear gloves if there is contact with respiratory secretions and discard gloves immediately after use, washing hands or using an alcohol based hand rub.
- c. Symptoms of flu include muscle ache, headache, fever, cough, runny nose, and/or sore throat. Provide a mask to the individual to cover the face and mouth, and increase the amount of fresh air circulating in the room.
- d. Law enforcement vehicles should be equipped with masks and alcohol hand sanitizer.

6. Pre-hospital care situations (emergency medical services/ambulance drivers, etc.)

For ambulance drivers or others who may transport ill patients or suspected cases of pandemic flu, implement usual standard protocol and:

- a. Screen patients requiring emergency transport for symptoms of influenza
- b. Follow standard and droplet precautions when transporting symptomatic patients

- c. Once pandemic influenza has been identified in the community, use N-95 respirators for all patient transport.
- d. If possible, place a surgical or procedure mask on the patient to contain droplets expelled during coughing. If this is not possible, (i.e. would further compromise respiratory status, difficult for the patient to wear), have the patient cover the mouth/nose with tissue when coughing, or use the most practical alternative to contain respiratory secretions.
- e. Oxygen delivery with a non-rebreather face mask can be used to provide oxygen support during transport. If needed, positive-pressure ventilation should be performed using resuscitation bag-valve mask.
- f. Unless medically necessary to support life, aerosol-generating procedures (i.e. mechanical ventilation) should be avoided during pre-hospital care.
- g. Optimize the vehicle's ventilation to increase the volume of air exchange during transport. When possible, use vehicles that have separate driver and patient compartments that can provide separate ventilation to each area.
- h. Notify the receiving facility that a patient with possible pandemic influenza is being transported.
- i. Follow standard operating procedures for routine cleaning of emergency vehicles and reusable patient care equipment.

B. GENERAL GUIDELINES FOR HEALTH CARE SETTINGS (Hospitals, health centers, etc.)

In addition to the above guidelines, health care facilities are encouraged to implement additional precautions:

Standard Precautions

These precautions are designed to reduce the risk of transmission of microorganisms from both recognized and unrecognized sources of infection within healthcare facilities. The precautions apply to blood and all body fluids except sweat regardless of whether or not they contain visible blood, non-intact skin and mucous membranes. All healthcare facilities and providers must ensure:

- Barriers are used to protect the skin and mucous membranes of the healthcare worker from contact with the blood and/or body fluids of the patient. Standard Precautions are to be observed in **all** patient care interactions.
- The availability of personal protective equipment (PPE), including gowns, gloves, masks and eye protection (See PPE section below).
- Ensure the availability of hand washing/hand sanitization stations.

Airborne Precautions

These measures are designed to limit the spread of microorganisms that are small (5 µm or less). Because of their small size, these microorganisms may remain in the air for long periods of time. Microorganisms carried in this manner can be dispersed widely by air currents and may be inhaled by a susceptible host in the same room or over a longer distance depending on environmental factors. All Healthcare facilities and providers must ensure:

- Negative pressure – where available is utilized in rooms where these patients are housed.
- Protective masks used by personnel should be an N95 respirator.

Contact Precautions

These measures are designed to limit the transmission of microorganisms that are spread by skin-to-skin contact or physical transfer of the microorganisms via unwashed hands or certain inanimate objects in the patient care environment.

All Healthcare facilities and providers will ensure:

- Personal protective equipment utilized will include gloves, gowns for direct contact and masks if splashing or aerosolization of secretions is anticipated. (See PPE section below)

Droplet Precautions

These measures are designed to limit the transmission of organisms contained in the droplets that are generated from the infected person during coughing, sneezing and talking and during the performance of certain procedures such as suctioning and bronchoscopy. These droplets are generally large and are propelled a short distance through the air and either land directly on the conjunctiva, nasal mucosa or mouth of another person or on surfaces where they can contaminate the hands of another person. The unwashed contaminated hands will spread the pathogen when they touch the conjunctive, nasal mucosa or mouth of another. Because droplets do not remain suspended in the air, special air handling and ventilation are not required to prevent droplet transmission; that is, droplet transmission *must not* be confused with airborne transmission. All Healthcare facility and providers will ensure:

- A N95 respirator and protective eyewear is utilized.
- Personal protective equipment needed includes gloves for direct contact, gowns if soiling is anticipated.

Personal Protective Equipment (PPE)

During an influenza pandemic, masks and respirators - called Personal Protective Equipment (PPE) - used in combination with other Non-Pharmaceutical Interventions (NPIs) when close contact is expected with someone who has pandemic influenza - may help reduce the spread of influenza. (See Sect. 7 Non-Pharmaceutical Interventions)

A risk assessment to determine necessary PPE and work practices to avoid contact with blood, body fluids, excretions, and secretions will help to customize standard precautions to the healthcare setting of interest. Standard precautions

include the use of gloves and facial (nose, mouth, and eye) protection by healthcare workers when providing care to coughing/sneezing patients.

In suggesting the use of these PPEs, CCHS will follow the CDHS, DHHS, OSHA, and CDC interim recommendations based on the best judgment of public health experts who relied in part on information about the protective value of masks in healthcare facilities.

Employees whose work involves close contact with humans or animals known or suspected to be infected with certain types of flu or pandemic influenza must be provided appropriate PPE. Employees providing direct care to patients known or suspected of being infected with pandemic influenza or those employees working directly with animals known or suspected of being infected with influenza should use “full barrier” PPE.

Full barrier PPE includes:

- respirator at least as protective as a NIOSH-certified N95 respirator;*
- gown;
- gloves; and
- eye protection (faceshield/goggles).

Although most employees outside of healthcare or animal control settings will not need PPE, the need for PPE by employees whose regular duties do not involve possible contact with infected humans or animals will be evaluated on a case-by-case basis.

*Respirators should be used in the context of a complete respiratory protection program as required by OSHA. This includes pre-use medical evaluation, training, and fit testing, as well as seal checking at time of use to ensure appropriate respirator selection and use. To be effective, respirators must seal properly to the wearer's face. Detailed information on respiratory protection programs is available at: <http://www.osha.gov/SLTC/etools/respiratory/> and <http://www.health.state.mn.us/divs/idepc/dtopics/infectioncontrol/rpp/index.html>

Assorted PPE

Differences between Surgical Masks and Respirators

Although some disposable respirators look similar to surgical masks, it is important that healthcare workers understand the significant functional difference between surgical masks and disposable respirators.

Surgical Masks

Surgical masks are not designed to prevent inhalation of airborne contaminants. Their ability to filter small particles varies greatly and cannot be assured to protect healthcare workers against airborne infectious agents. Instead, their underlying purpose is to prevent contamination of a sterile field or work environment by trapping bacteria and respiratory secretions that are expelled by the wearer (i.e., protecting the patient against infection from the healthcare

worker). Surgical masks are also used as a physical barrier to protect the healthcare worker from hazards such as splashes of blood or bodily fluids. Surgical masks should be used once and then thrown away.

When both fluid protection (e.g., blood splashes) and respiratory protection are needed, a “surgical N95” respirator can be used. This respirator is approved by FDA and certified by NIOSH.

Respirators

A respirator (e.g., an N95 or higher filtering face piece respirator approved by the National Institute for Occupational Safety and Health) is designed to protect people from breathing in very small particles, which might contain viruses. Healthcare workers, such as nurses and doctors, use respirators when taking care of patients with diseases that can be spread through the air.

“N95” means the filter on the respirator screens out 95 percent of the particles (0.3 microns and larger) that could pass through. To be most effective, these types of respirators need to fit tightly to the face so that the air is breathed through the filter material. “Fit testing” is the usual method for assuring proper fit in workplaces where respirators are used. Respirators are not designed to form a tight fit on people with small faces (e.g., children) or facial hair. Men who have beards need to shave before using.

N95 and higher respirators are less comfortable to wear than facemasks because they are more difficult to breathe through.

Like surgical masks, most N95 respirators should be worn only once and then thrown away in the trash.

Particulate respirators can be divided into several types:

- Disposable or filtering face piece respirators, where the entire respirator face piece is comprised of filter material. It is discarded when it becomes unsuitable for further use due to excessive breathing resistance (e.g., particulate clogging the filter), unacceptable contamination/soiling, or physical damage.
- Reusable or elastomeric respirators, where the face piece is cleaned, repaired, and reused, but the filter cartridges are discarded and replaced when they become unsuitable for further use.
- Powered air-purifying respirators, where a battery-powered blower pulls contaminated air through filters, then moves the filtered air to the wearer.

All respirators used by employees are required to be tested and certified by NIOSH. NIOSH uses very high standards to test and approve respirators for occupational uses. NIOSH-certified particulate respirators are marked with the manufacturer’s name, the part number, the protection provided by the filter (e.g.,

N95), and “NIOSH.” This information is printed on the face piece, exhalation valve cover, or head straps. If a respirator does not have these markings and does not appear on one of the following lists, it has not been certified by NIOSH.

A list of all NIOSH-certified disposable respirators is available at:

http://www.cdc.gov/niosh/npptl/respirators/disp_part/particlist.html

NIOSH also maintains a database of all NIOSH-certified respirators regardless of respirator type (the Certified Equipment List), which can be accessed at:

<http://www.cdc.gov/niosh/celintro.html>

Goggles/Face Shields

The HHS Pandemic Influenza Plan does not recommend the use of goggles or face shields for routine contact with patients with pandemic influenza; however, if sprays or splatters of infectious material are likely, it states that goggles or a face shield should be worn as recommended for standard precautions.

If a pandemic influenza patient is coughing, any healthcare worker who needs to be within 3 feet of the infected patient is likely to encounter sprays of infectious material. Eye and face protection should be used in this situation, as well as during the performance of aerosol-generating procedures.

Facemasks are loose fitting, disposable masks that cover the nose and mouth. These include products labeled as surgical, dental, medical procedure, isolation, and laser masks. Facemasks help stop droplets from being spread by the person wearing them. They also keep splashes or sprays from reaching the mouth and nose of the person wearing the facemask. They are not designed to protect the person wearing it against breathing in very small particles. Facemasks should be used once and then thrown away in the trash.

Gloves

HHS recommends the use of gloves made of latex, vinyl, nitrile, or other synthetic materials as appropriate, when there is contact with blood and other bodily fluids, including respiratory secretions.

- There is no need to double-glove.
- Gloves should be removed and discarded after patient care.
- Gloves should not be washed or reused.
- Hand hygiene should be done after glove removal.

Because glove supplies may be limited in the event of pandemic influenza, other barriers such as disposable paper towels should be used when there is limited contact with respiratory secretions, such as handling used facial tissues. Hand hygiene should be practiced consistently in this situation.

Indications for, and limitations of, glove use

- Hand contamination may occur as a result of small, undetected holes in examination gloves
- Contamination may occur during glove removal
- Wearing gloves does not replace the need for hand hygiene

- Failure to remove gloves after caring for a patient may lead to transmission of microorganisms from one patient to another

Gowns

- Healthcare workers should wear an isolation gown when it is anticipated that soiling of clothes or uniform with blood or other bodily fluids, including respiratory secretions, may occur. HHS states that most routine pandemic influenza patient encounters do not necessitate the use of gowns. Examples of when a gown may be needed include procedures such as intubation or when closely holding a pediatric patient.
- Isolation gowns can be disposable and made of synthetic material or reusable and made of washable cloth.
- Gowns should be the appropriate size to fully cover the areas requiring protection.
- After patient care is performed, the gown should be removed and placed in a laundry receptacle or waste container, as appropriate. Hand hygiene should follow.

Materials Management/Equipment Availability

Daily contact is needed with Materials Management to ensure that appropriate PPE is available for employee and patient use. Stockpile equipment as needed. As the pandemic widens, shortages can be anticipated. Materials management must maintain constant inventory oversight of basic infection control equipment including: gloves, N95 masks, gowns, waste disposal bags, alcohol based hand gel and antiseptic hand wash, tissues, and the like. Shortages in other materials are also anticipated. Consider whether work procedures can be modified to avoid the need for PPE during a pandemic. Agencies should assess their expected service delivery needs during a pandemic and consider the current recommended personal protection guidelines. If personal protection is expected to be necessary during a pandemic, agencies should make arrangements in advance to evaluate, train, and equip employees with the appropriate PPE.

1. Agencies will be responsible for providing employees with properly selected and fitted PPE when needed during a pandemic. Agencies must provide training on the proper use of PPE. Agencies must follow any applicable OSHA regulations. Employees that are issued PPE are required to wear the equipment.
2. Agencies that have a clear need for PPE during a pandemic (direct care of individuals ill with influenza or other critical services where PPE is required) should consider the gradual stockpiling of nonperishable PPE..

Employee Instruction. Employee education will need to focus on appropriate personal protective equipment (PPE) as well as proper donning and doffing sequence. Information on immunization and medications used for prophylaxis as

well as review of all isolation precautions will also be needed. (See Sect.4 Clinical Case Management for information on vaccines and antivirals; and Sect. 9 Risk Communications and Public Education for lists of disease prevention materials, such as posters, etc.)

Educational offerings will likely need to be repeated and perhaps revised every three to six months. To maintain employee interest, it will be necessary to develop different types of presentations that can be rotated and sent out to remote sites (e.g. Ambulatory Care Centers).

Patient Education

Handouts will need to be developed on many topics including infection prevention and control in the home setting. Instruction on patient home care and self-care will be critical because of the expected surge in patients and overcrowding of health care facilities. Non-critical patients should be encouraged not to come to hospitals or health care centers. Information and fact sheets on immunization and prophylactic medications will also be needed. (See Sect. 9 Risk Communications and Public Education for lists of disease prevention materials, such as posters, etc, and Risk Communication Guidance for Hospitals.)

Also:

- Plan education for all levels of employees on newly developed policies as well as influenza;
- Promote influenza vaccination for all employees;
- Institute “Cover your Cough” signage;
- Develop strategies to provide masks, tissues and appropriate disposal containers in Emergency Department and Ambulatory Care sites;
- Immunization should be strongly encouraged and healthcare workers should be provided with immunization free of charge.
- Reinforcement of existing policies for Respiratory Hygiene, Isolation Precautions, Hand Hygiene;
- Education of healthcare workers to facilitate rapid identification of potential cases of Influenza due to a novel strain with pandemic potential;
- Increased surveillance for flu-like illness;
- Assessment of current levels of N95 mask availability, begin to consider some stockpiling;
- Develop teaching handouts address issues related to home care of patients with influenza, antiviral medication, influenza vaccine declination forms, and symptom diaries;
- Maintaining close contact with CCHS and other health care infection control and prevention practitioners in Contra Costa County.
- Conducting frequent review of current literature to ensure that the most recent recommendations have been considered in the development of any policies, procedures or patient and employee management recommendations.

Signage and Policy Implementation. Daily rounds will be needed to insure that signs are posted in necessary locations and in a variety of languages. Waiting areas will need to have a supply of tissues and/or masks and appropriate disposal containers.

Patient Management. (See also Sect. 4 Clinical Case Management and Sect. 5 Health Care Facility Planning)

As more patients present for care, the number of negative pressure isolation rooms will not be adequate. Thought must be given to housing patients in designated areas. The optimal characteristics for a designated area would include:

- Ability to create negative pressure rooms within this area.
- Ability to limit access to the area
- Room for storage/stockpiling supplies.
- Ability to house more than one person within the room.

Criteria for placing patients on this floor as well as assigning staff to this floor will need to ensure that the patients have documented illness with the pandemic influenza and the staff will need to have received full immunization.

Administration will need to consider whether assignment to these areas will be voluntary or mandatory.

Nutrition, Laundry and Environmental Services

At this time there is no recommendation regarding the use of disposable dishes and eating utensils. Standard Precautions should be observed when handling dishes and utensils used by patients with influenza. Laundry should also be handled using Standard Precautions and no additional precautions are recommended at this time.

Cleaning and disinfection of environmental surfaces are important infection control measures in healthcare facilities. In addition to routine daily environmental decontamination, healthcare personnel should perform more frequent disinfection of commonly touched surfaces in patient rooms and common areas. All rooms should be terminally cleaned after discharge.

Post Mortem Care

Standard Precautions should be followed when caring for deceased persons. If autopsy or other procedures are performed on a person suspected or known to have died from pandemic influenza, a Personal Air Purifying Respirator (PAPR) should be utilized.

Pandemic Period

During the peak of the pandemic it may be necessary to establish a triage center outside of the entrance to the Emergency Department or health center. This area would need to be staffed and equipped to screen patients and direct them to

an appropriate treatment area. Separate areas will be needed for persons with influenza like symptoms and persons needing to be seen for other health care issues.

Patients should be managed according to all previously outlined precautions. Additionally a secure method to transition patients out of the hospital and into alternate care sites and/or home care will be needed.

The goal of infection prevention and control in the alternate care sites will be to limit the transmission of virus within and out of the site. Sites are expected to have staffing mixes (healthcare professionals and volunteers) and no special air handling capacities, so strict attention must be paid to Respiratory Etiquette, Hand Hygiene, Droplet and Contact precautions. Whenever possible, symptomatic persons awaiting examination and diagnosis should be masked and separated from those persons being seen for other reasons.

During this phase infection prevention and control activities will be focused on:

- Participation in any daily meetings regarding bed utilization and patient management;
- Enforcement of all infection prevention and control recommendations;
- Meeting all requirements regarding reporting to local, state and federal agencies as required by law;
- Facilitation of patient transfer when needed;
- Daily rounds to ensure that all cases reported and appropriate infection prevention measures in place;
- Provision of immunization and/or prophylactic medication to all hospital and health center employees;
- Monitoring employee sick calls and employees who have received either vaccination and/or prophylaxis;
- Serving as a clearinghouse for current information and treatment guidelines and distributing educational materials as needed;
- Frequent assessment of supplies – work in close collaboration with materials management and pharmacy;
- Attend all county wide meetings as required;
- Assist and facilitate discussions regarding patient care, resource allocation.

Nutrition, Laundry and Environmental Services

Although no recommendation exists for the use of disposable utensils and dishes, it may be necessary to utilize them as the pandemic spreads and there may be shortages within the Nutrition Services Department. Laundry should continue to be handled using Standard Precautions until such time as additional precautions are recommended. As the pandemic spreads there may be shortages or delay in laundry delivery and creative alternatives may be needed.

Cleaning and disinfection of environmental surfaces are important infection control measures in healthcare facilities. In addition to routine daily environmental decontamination, healthcare personnel should perform more frequent disinfection of commonly touched surfaces in patient rooms and common areas. All rooms should be terminally cleaned after discharge.

Post Mortem Care

Standard Precautions should be followed when caring for deceased persons. Autopsies will likely not be done and there may be large numbers of bodies requiring storage. It may be necessary to have an alternative morgue set up.

Human Resources

As the pandemic progresses, manpower will be stretched and it will likely be necessary to utilize volunteer physicians and nurses and to cross train employees to do alternate jobs. All individuals will need specific infection control training to ensure policies and procedures are followed.

Employee Health

Employee health strategies will be in effect. As the epidemic peaks, methods will need to be developed to screen healthcare workers for influenza like illness at the start of their shift. Additionally it will be necessary to establish return to work criteria for employees.

Post-Pandemic Period

Continue infection control activities per normal operations.