Use of Personal Protection Equipment (PPE)
During Pandemic Influenza Outbreak

Interim guidance on the use of Personal Protective Equipment (PPE) by Fairfax County Public Schools (FCPS) employees during a pandemic has been proposed by the Centers for Disease Control (CDC) and the Occupational Safety and Health Administration (OSHA). In addition, OSHA regulates specific employee and employer requirements that shall be met if employees are required to wear PPE in their normal work environment.

> The key assumption in this PPE appendix is that during a severe pandemic (Category 2, 3, 4, and 5), all non-essential FCPS operations have been suspended and schools and administrative facilities are closed for normal business activities. As such, employee PPE use will be considered for essential FCPS employees that may have close/direct contact with the general public who have symptomatic influenza infection.

The CDC and OSHA interim guidelines include the use of facemasks (see figure 1 on page 7 for description) and respirators (see figures 2/3 on pages 7 and 8 for description) in certain settings only after administrative measures and proper work practice/engineering controls have been implemented or are not deemed feasible. Specific OSHA requirements for employees that are required to wear respirators are outlined in the Code of Federal Regulations (CFR) 1910.134 and for FCPS employees in the FCPS Respiratory Protection Program.

An influenza pandemic will likely cause illness in large numbers of people in almost every community worldwide. Influenza is thought to be transmitted from person to person by close contact (within six (6) feet) with individuals who are infected with influenza virus (e.g., via exposure to respiratory secretions). It is unclear to what extent inhalation of small particles or direct exposure to larger droplets contributes to this close-range transmission of influenza viruses. Experience with influenza viruses transmitted from person to person in institutional settings indicates that most transmission occurs over short distances; long-distance transmission through the air (e.g., via ventilation systems) has not been demonstrated.

There is very limited information on the use of facemasks or respirators for the control of pandemic influenza in community settings. Thus, it is difficult to assess their potential effectiveness in controlling influenza in these settings. In the absence of definitive data, the CDC/OSHA interim guidance draws from the principles of traditional infection control and industrial hygiene approaches used for enhancing protection of healthcare personnel in the healthcare setting during an influenza pandemic. However, there are fundamental differences between the healthcare and community settings, including the following:

- In the healthcare setting, exposure to an infectious source is frequently intense and prolonged, which would be less likely in the community;

- In the healthcare setting, the infectious source (e.g., an ill person or contaminated item) is more likely to be known to be infectious than it would be in community settings.

Because of these and other differences, recommendations for the community setting differ from those for healthcare settings. The CDC interim guidance emphasizes that the use of facemasks or respirators is only one part of a combination of approaches that can be used to help reduce the spread of virus from infectious to non-infected persons.

The best strategy to reduce the risk of becoming infected with influenza during a pandemic is to avoid close contact with individuals and crowded settings that increase the risk of exposure to someone who may be infected.

Protecting FCPS employees will depend on practicing proper hygiene (disinfecting hands/surfaces and cough and respiratory etiquette) and practicing social distancing. Social distancing means reducing the frequency, proximity (within six (6) feet), and duration of contact between people (both employees and the public) to reduce the chances of spreading pandemic influenza from person-to-person. FCPS employees should continue to observe good hygiene and infection control practices. In brief the CDC/OSHA interim guidance calls for the following:

Administrative Controls

- Encourage sick employees to stay at home.
- Encourage your employees to cover their coughs and sneezes with a tissue, or to cough and sneeze into their upper sleeves if tissues are not available. All employees should wash their hands or use a hand sanitizer after they cough, sneeze or blow their noses.
- Provide employees and the public with tissues and trash receptacles, and with a place to wash or disinfect their hands.
- Minimize situations where groups of people are crowded together, such as in a meeting. Use e-mail, phones and text messages to communicate with each other. When meetings are necessary, avoid close contact by keeping a separation of at least 6 feet, where possible, and assure that there is proper ventilation in the meeting room.
- Reducing or eliminating unnecessary social interactions can be very effective in controlling the spread of infectious diseases. Reconsider all situations that permit or require employees, general public, and visitors to enter the workplace.

Proper Work Practice and Engineering Controls

- Encourage employees to wash their hands frequently with soap and water or with hand sanitizer/antiseptic towelettes if there is no soap or water available.
- Encourage employees to avoid touching their noses, mouths, and eyes.
- Employees should avoid close contact with their coworkers and the general public (maintain a separation of at least six (6) feet). Employees should avoid shaking hands and always wash their hands after contact with others.

- If required, FCPS work locations should consider creating general public receiving areas that are at least six (6) feet and/or isolated from the general work place to minimize face-to-face contact with the general public (e.g. community essential needs resources could be picked up from tables in a cafeteria/and or lobby area that separates the general public from FCPS employees by six (6) feet).
- Discourage employees from using other employees' phones, desks, offices or other work tools and equipment.
- Keep work surfaces, telephones, computer equipment and other frequently touched surfaces and office equipment clean. Be sure that any cleaner used is safe and will not harm your employees or your office equipment. Use only disinfectants registered by the U.S. Environmental Protection Agency (EPA), and follow all directions and safety precautions indicated on the label.

OSHA Guidance on Personal Protective Equipment (PPE)

OSHA has provided interim guidance for workplaces classified as low exposure risk for pandemic influenza. These types of low exposure workplaces do not require employees to have frequent close contact with other employees and the general public (e.g. general office environments). The OSHA interim guidance for general office environments are the administrative controls and proper work practice/engineering controls mention in the above sections. Low exposure work environments are not expected to require specific PPE (e.g. face masks or respirators).

OSHA has provided interim guidance general strategies for workplaces classified as medium exposure risk for pandemic influenza. These types of medium exposure work places have a high-frequency, close contact with other employees and the general public (e.g. high volume retail, customer service receiving areas) where direct contact cannot be eliminated using administrative or engineering controls, and where contact with symptomatic ill persons is not expected.

As mentioned in the administrative and proper work practice/engineering controls sections above, FCPS employees should take every precaution to limit direct contact with the general public. FCPS employees should create work practices/engineering controls to create six (6) foot barriers (buffers) between employees and the general public.

While administrative controls and proper work practice/ engineering controls are considered to be more effective in minimizing exposure to the influenza virus, the use of PPE may also be indicated during certain exposures by FCPS essential employees.

It is incumbent upon individual FCPS departments to determine which FCPS essential employees are likely to have direct contact with infectious persons. Use of a respirator may be considered if there is an expectation of close/direct contact with persons who have symptomatic influenza infection. Some possible essential employees that may come in close/direct contact with the general public who have symptomatic influenza infection may include but are not limited to:

- Employees that are required to make home visits to students that may be sick and/or individuals in the student's home that are sick.
- Employees that are required to transport the general public during emergency situations (e.g. evacuations, vaccination clinics, and/or medication dispensing).
- Employees that are required to staff general public reception areas that cannot be isolated by six (6) feet from the employees.
- Employees that are required to staff emergency community shelters and have close/direct contact with the general public who have symptomatic influenza infection.

It is anticipated that the identified essential employees will be provided with an N-95 disposable type respirator. For ease/comfort of employee use, an N-95 respirator with an exhalation valve should be considered. Reusable or elastomeric respirators may be considered for employees that will have repeated exposures and where disposable type respirators are impractical.

FCPS is obligated to provide those essential employees with the proper PPE to keep them safe while performing their jobs. In the case of respirators, FCPS employees determined to be required to wear respirators shall follow all OSHA requirements as written in the FCPS Respiratory Protection Program. Some of these requirements include:

- Mandatory employee medical evaluation via a medical questionnaire by a physician or other licensed health care professional (PLHCP). Currently, these services are provided by INOVA Heath Systems contract.
- Mandatory respiratory protection training and annual refresher training. Currently, this training/refresher training is being provided to limited Office of Facilities Management (OFM) employees by the Environmental Health Engineer within the Office of Maintenance Engineering. It would be anticipated that the Office of Safety and Security (OSS) Environmental Health Specialist would provide training to FCPS employees. It would be anticipated that online training modules will be produced to handle large quantities of employees that may need to be trained.
- Mandatory individual respirator quantitative fit testing. Currently, respirator fit testing is being provided to limited Office of Facilities Management (OFM) employees by the Environmental Health Engineer within the Office of Maintenance Engineering. It would be anticipated that the Office of Safety and Security (OSS) Environmental Health Specialist would provide fit testing to FCPS employees.
- Conscientiously and properly worn;
- Regularly maintained and replaced, as necessary;
- Properly removed and disposed of to avoid contamination of self, others or the environment.

Voluntary Respirator Use

FCPS employees that are not part of the identified essential employees (that may come in direct contact with the general public who have symptomatic influenza infection) may choose to wear respiratory protection. As such, these employees are defined as "voluntary respirator users". Voluntary respirator users are not required to go through the same OSHA evaluation, training, fit testing requirements as the identified essential employees. FCPS employees who choose to be voluntary respirator users will be allowed to wear their personally supplied respirators as long as the respirator itself is not causing a hazard or preventing the employee in performing their work functions.

Voluntary respirator users will be given the OSHA Mandatory Information for Employees Using Respirators When Not Required under the Standard (Appendix D of CFR 1910.134).

Face Mask Use

The OSHA interim guidance general strategies for workplaces classified as medium exposure risk for pandemic influenza (medium exposure work places have a high-frequency, close contact with other employees and the general public where direct contact cannot be eliminated using administrative or engineering controls, and where contact with symptomatic ill persons is not expected) provides recommendations for face mask use. . As mentioned in the administrative and proper work practice/engineering controls sections above, FCPS employees should take every precaution to limit direct contact with the general public. FCPS employees should create work practices/engineering controls to create six (6) foot barriers (buffers) between employees and the general public.

If this contact (when symptomatic ill persons are not expected) cannot be avoided, there are practices to reduce the risk of infection and employees should use personal protective equipment to prevent sprays of potentially infected liquid droplets (from talking, coughing, or sneezing) from contacting their nose or mouth.

- A loose fitting face mask will provide such barrier protection.

Employees wearing face masks are not required to go through the same OSHA evaluation, training, fit testing requirements as the identified essential employees. FCPS should consider purchase and stockpiling of loose fitting face masks for employee use to provide employees a certain psychological comfort level if they are expected to work in general reception areas even when a six (6) foot barrier (buffer) is implemented.

Hand Protection (medical evaluation gloves)

Tight fitting medical evaluation (latex type) gloves will not protect employees from exposure to pandemic influenza. Even if employees wear gloves, they should wash their

hands upon removal of the gloves in case their hand(s) became contaminated during the removal process.

Eye and Face Protection

Eye protection generally is not recommended to prevent influenza infection although there are limited examples where strains of influenza have caused eye infection (conjunctivitis). At the time of a pandemic, health officials will assess whether risk of conjunctival infection or transmission exists for the specific pandemic viral strain. If it is determined that FCPS essential employees that are considered at risk to direct contact of infectious persons and conjunctival infection or transmission exists, clear safety glasses/goggles will be provided to employees. It should be noted that a readily available supply of safety glasses/goggles are available through the FCPS supply catalog.

CDC Guidance on Personal Protective Equipment (PPE)

The CDC interim guidance for the use of facemasks and respirators in certain public settings during an influenza pandemic is based upon limited information about the effectiveness of facemasks and respirators in controlling the spread of pandemic influenza in community settings. In the absence of scientific data, the CDC interim guidance offers interim recommendations that are based on public health judgment and on the historical use of facemasks and respirators in other settings. In brief, these interim recommendations advise the following:

- Whenever possible, rather than relying on the use of facemasks or respirators, close contact and crowded conditions should be avoided during an influenza pandemic.
- Facemasks should be considered for use by individuals who enter crowded settings, both to protect their nose and mouth from other people's coughs and to reduce the wearers' likelihood of coughing on others. The time spent in crowded settings should be as short as possible.
- Respirators should be considered for use by individuals for whom close contact with an infectious person is unavoidable. This can include selected individuals who must take care of a sick person (e.g., family member with a respiratory infection) at home.

Facemasks and respirators should be used in combination with other preventive measures, such as hand hygiene and social distancing, to help reduce the risk for influenza infection during a pandemic.

What You Should Know about Using Facemasks and Respirators during a Flu Pandemic

What is a Face Mask?

Loose fitting face masks are used as a physical barrier to protect employees from hazards such as splashes of large droplets of blood or body fluids.

Figure 1 - Loose fitting face mask

Loose fitting Face masks:

- Are designed to cover the mouth and nose loosely.
- Usually strapped behind the head.
- Made of soft materials and are comfortable to wear.

Loose fitting face masks are not designed or certified to prevent the inhalation of small airborne contaminants. These small airborne contaminants are too little to see with the naked eye but may still be capable of causing infection. Loose fitting face masks are not designed to seal tightly against the user's face. During inhalation, much of the potentially contaminated air passes through gaps between the face and the loose fitting face masks, thus avoiding being pulled through the material of the mask and losing any filtration that it may provide. Their ability to filter small particles varies significantly based upon the type of material used to make the surgical mask, and so they cannot be relied upon to protect employees against airborne infectious agents. Facemasks should be used once and then thrown away in the trash.

What is a respirator?

A respirator [for example, an N-95 disposable respirator (figure 2)] is designed to protect you from breathing in very small particles, which might contain viruses. These types of respirators fit tightly to the face so that most air is inhaled through the filter material. To work the best way, all respirators must be specially fitted for each person who wears one (this is called "fit-testing" and is usually done in a workplace where respirators are used).

Figure 2: Disposable N95 Respirator with exhalation valve

N-95 respirators:

- Fit closely to form a tight seal over the mouth and nose
- Must be fit-tested and adjusted to one's face
- Must be safely removed and discarded

Figure 3 – Elastomeric respirator with HEPA filters

Typically, N-95 respirators are used in construction and other jobs that involve dust and small particles. Some healthcare workers, such as nurses and doctors, use these types of respirators when taking care of patients with diseases that can be spread through the air.

Reusable or elastomeric (for example figure 3) respirators use replaceable filters. Elastomeric respirator facepieces can be cleaned, disinfected, and fitted with new filters for reuse. Such respirators typically have an exhalation valve and, when worn by an infected person, would not prevent transmission of virus to other persons.

Reuse of N-95 Type Respirators

An Institute of Medicine committee recently reported that disposable masks and respirators do not lend themselves to reuse because they work by trapping harmful particles inside the mesh of fibers of which they are made. This hazardous buildup cannot be cleaned out or disinfected without damaging the fibers or other components of the device, such as the straps or nose clip. Moreover, the committee could not identify any simple modifications to the manufacturing of the devices that would permit reuse, or any changes that would dispense with the need to test the fit of respirators to ensure a wearer is fully protected.

However, the committee suggested that, if necessary, a disposable N-95 respirator can be reused with the following precautions: 1) a protective covering such as a medical mask or a clear plastic face shield should be worn over the respirator to protect it from surface contamination; 2) the respirator should be carefully stored between uses; and 3) the wearer should wash his or her hands before and after handling the respirator and the device used to shield it. These steps are intended for reuse of a respirator by a single person.