

ADOSH Interim Guidance for Respiratory Protection of Healthcare Workers from Confirmed or Suspected H1N1 Influenza A Virus

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This document provides interim guidance for healthcare facilities (e.g., hospitals, long-term care and outpatient facilities and other settings where healthcare is provided) in Arizona and will be updated as needed.

Background:

Human cases of novel influenza A (H1N1) virus infection have been confirmed in residents of the U.S., including the state of Arizona. Current evidence indicates that on-going human-to-human transmission of the virus is occurring. Healthcare workers, as a result of their front-line care of individuals with suspected or confirmed H1N1 influenza, face particular exposure to the virus. It is imperative, therefore, that healthcare facilities establish measures, including respiratory protection, that will limit employee exposure and protect employees from contracting H1N1 influenza.

The Centers for Disease Control (CDC), in their “*Interim Guidance on Infection Control Measures for 2009 H1N1 Influenza in Healthcare Settings, Including Protection of Healthcare Personnel*”, provides guidance to healthcare facilities on controlling the spread of the H1N1 virus and protecting healthcare workers, including the establishment of a pandemic plan, and the use of a hierarchy of controls (including respiratory protection) to prevent virus spread.

The CDC guidelines recommend that employees who have direct exposure to H1N1 patients use respirators at least as protective as an N95 filtering facepiece respirator. Respirators are to be used by employees who must enter rooms or areas where people with suspected or confirmed H1N1 influenza are located. Respirators are only one component of the hierarchy of controls that are recommended to protect employees from inhalation exposure to this disease.

Similarly, the Occupational Safety and Health Administration (OSHA) has published documents providing guidance to healthcare facilities and other employers to prevent the spread of the virus. OSHA has issued a compliance directive, CPL-02-02-075 *Enforcement Procedures for High to Very High Occupational Exposure Risk to 2009 H1N1 Influenza*, that provides uniform procedures to its own staff when conducting inspections to identify and minimize or eliminate high to very high risk occupational exposures to the 2009 H1N1 influenza A virus.

In response to the CDC recommendations and the OSHA compliance directive, and the potential for respirator shortages, the Arizona Division of Occupational Safety and Health (ADOSH) has been asked to provide guidance on how it will view healthcare employer efforts to protect employees in the event there are respirator shortages.

Summary

Employers are expected to follow the most current guidelines and directives from the CDC and OSHA with respect to respiratory protection for healthcare personnel. As outlined in the OSHA compliance directive, employers must provide and ensure the use of respirators at least as effective as N95 respirators to workers with high or very high occupational exposure risk. Where an employer demonstrates that N95s (or more protective respirators) are not available (respirator shortage) for high risk exposures, it may prioritize respirator usage. When in a “prioritized respirator use mode,” employers: 1) Must ensure that respirators are available for situations where respiratory protection is most important, such as performance of aerosol-generating procedures on patients with suspected or confirmed 2009 H1N1 influenza (considered to be a “very high exposure risk” or provision of care to patients with other infections for which respiratory protection is strongly indicated (e.g., tuberculosis); and 2) may provide surgical facemasks (in addition to other protective measures) to those employees at lower risk of exposure to 2009 H1N1 influenza or lower risk of complicated infection. Employers who prioritize respirator usage and who provide surgical facemasks to employees at lower risk of exposure must be able to document reasonable efforts to obtain and maintain a supply of respirators.

Will ADOSH be conducting inspections and issuing citations?

ADOSH may conduct an inspection in response to employee complaints that allege serious hazards in the workplace, including allegations that employees are not being provided appropriate protection against 2009 H1N1 influenza or other respiratory hazards. ADOSH may also conduct an inspection in response to a referral or as part of a fatality investigation.

What will ADOSH look for during a compliance inspection?

ADOSH will conduct compliance inspections following the guidance given in OSHA’s compliance directive CPL-02-02-075 *Enforcement Procedures for High to Very High Occupational Exposure Risk to 2009 H1N1 Influenza*.

ADOSH will determine whether the employer has a written pandemic influenza plan as recommended by the CDC and whether the employer has considered or implemented a hierarchy of controls for worker protection (i.e. engineering controls, administrative controls, work practices, personal protective equipment, including respiratory protection program). Further details on the hierarchy of controls can be found in Appendix A to this guidance document, in the OSHA compliance directive, or in the CDC recommendations.

ADOSH will also determine if an employer has identified and evaluated respiratory hazards in the workplace, including an initial hazard evaluation to identify potential respiratory hazards of employees who have high or very high occupational exposure risk.

Where respiratory protection is required (including disposable N95 filtering face piece respirators), ADOSH will determine whether the employer has a complete respiratory protection program, including employee training and fit testing.

If an employer is experiencing a respirator shortage and is unable to maintain a sufficient supply through commercial sources, ADOSH will also examine, as appropriate, the employer's overall respirator use policies, as well as any and all supporting documentation used to make the determination that a shortage exists and the procedures used to provide interim protection to employees.

What do “very high” and “high” exposure risk mean?

Very High Exposure Risk: A job task or activity involving a medical or laboratory procedure during which there is a potential of occupational exposure to high concentrations of suspected or confirmed 2009 H1N1 influenza virus.

- Healthcare workers (for example, doctors, respiratory therapists, nurses, emergency responders, or dentists) performing aerosol generating procedures on suspected or confirmed patients (such as sputum inductions, endotracheal intubations and extubations, bronchoscopies, some dental procedures or invasive specimen collection).
- Healthcare workers present during performance of aerosol-generating procedures during autopsies (such as, medical examiners).

High Exposure Risk: A job task or activity involving a high potential for exposure to suspected or confirmed 2009 H1N1 influenza virus.

- Healthcare workers who are in close contact [working within 6 feet of suspected or confirmed patients or entering into a small enclosed airspace shared with the patient (e.g., size of an average patient room)].
- Staff transporting suspected or confirmed 2009 H1N1 patients in enclosed vehicles (such as, emergency responders).

What constitutes a shortage of respirators?

Employers must take all reasonable steps to procure and maintain an adequate supply of commercially available respirators. This includes considering the purchase and use of other types of commercially available respirators, such as N99 and N100 respirators and implementing and enforcing policies to conserve existing respirator supplies. ADOSH considers a shortage to exist if there is less than a 90 day supply of respirators despite all efforts to procure more.

How do I conserve existing respirator supplies?

Employers should conserve existing respirator supplies to the extent reasonably possible. This will help ensure that a sufficient supply of respirators will remain on hand to protect employees who care for patients with H1N1, tuberculosis, or any other disease requiring respiratory protection. Such measures may include but are not limited to the following:

1. Reviewing patient flow and work organization to determine whether unnecessary employee contact with suspected or confirmed H1N1 cases can be reduced. This may reduce the use of respirators.
2. Extending respirator use, or re-using N95 respirators. The same healthcare worker is permitted to extend use or re-use the respirator, so long as the respirator maintains its structural and functional integrity and the filter material is not physically damaged or soiled. Employers must address in their respiratory protection program the circumstances under which a disposable respirator will be considered to be contaminated and not available for extended use or re-use.

Am I required to document my efforts to obtain and maintain a supply of respirators?

Documentation is not required. However, if an employer claims that a shortage of respirators exists, it will be necessary for the employer to demonstrate efforts made to maintain and/or obtain a sufficient quantity of respirators for employees with high or very high exposure risk. Documentation of those efforts is strongly encouraged, and may include information showing that supply status and usage are being examined regularly and frequently; consideration is being given to other types of commercially available respirators; information showing efforts have been made to locate and order respirators; and information showing efforts to minimize exposure to patients with confirmed or suspected H1N1 influenza.

I have taken reasonable steps to obtain and maintain respirators, but I still have a shortage. What do I do?

In the face of respirator shortages, appropriate selection and use of respiratory protection is critical. A key strategy is to use source control, engineering and administrative measures, as outlined in the hierarchy of controls, to reduce the numbers of workers who come in contact with patients who have influenza-like illness in order to reduce the consumption of respiratory protection equipment.

As noted above, special care should be taken to conserve respirators so as to ensure that they are available for situations where respiratory protection is most important, such as performance of aerosol-generating procedures on patients with suspected or confirmed 2009 H1N1 influenza or provision of care to patients with other infections for which respiratory protection is strongly indicated (e.g. tuberculosis).

When all reasonable measures to conserve existing respirators, and all reasonable measures to procure additional respirators have been exhausted, resulting in a shortage of respirators (less than a 90 day supply), employers must continue to ensure that respirators are available for the performance of “*very high exposure risk*” procedures or for provision of care to patients with other infections for which respiratory protection is strongly indicated (e.g., tuberculosis). Employers may, however, discontinue providing N95 (or equivalent) respirators for the “*high exposure risk*” category, provided surgical masks and eye protection devices are provided as an interim measure to protect against large splashes and large droplets, and provided that other measures are instituted to protect employees, such as the use of partitions or other engineering controls that might reduce the need for PPE, or reducing exposure through grouping of patients.

Appendix A

ADOSH will look to see whether or not an employer has implemented control measures following the general hierarchy of controls outlined by the CDC, to protect healthcare workers from exposure to the H1N1 virus. Those CDC recommendations, in order of preference, are:

1. *Elimination of potential exposures*: Eliminating the potential source of exposure ranks highest in the hierarchy of controls. Examples of interventions in this category include: taking steps to minimize outpatient visits for patients with mild influenza-like illness who do not have risk factors for complications, postponing elective visits by patients with suspected or confirmed influenza until they are no longer infectious, and denying entry to visitors who are sick.
2. *Engineering controls*: Engineering controls rank second in the hierarchy of controls. They are particularly effective because they reduce or eliminate exposures at the source and many can be implemented without placing primary responsibility of implementation on individual employees. In addition, these controls can protect patients as well as personnel. Examples of engineering controls include installing partitions in triage areas and other public spaces, to reduce exposures by shielding personnel and other patients; and using closed suctioning systems for airways suction in intubated patients.
3. *Administrative controls*: Administrative controls are required work practices and policies that prevent exposures. As a group, they rank third in the hierarchy of controls because their effectiveness is dependent on consistent implementation by management and employees. Examples of administrative controls include promoting and providing vaccination; enforcing exclusion of ill healthcare personnel, implementing respiratory hygiene/cough etiquette strategies; and setting up triage stations and separate areas for patients who visit emergency departments with influenza-like illness, managing patient flow, and assigning dedicated staff to minimize the number of healthcare personnel exposed to those with suspected or confirmed influenza.
4. *Personal protective equipment (PPE)*: PPE ranks lowest in the hierarchy of controls. It is a last line of defense for individuals against hazards that cannot otherwise be eliminated or controlled. While providing personnel with appropriate PPE and education in its use is important, effectiveness of PPE is dependent on a number of factors. PPE is effective only if used throughout potential exposure periods. PPE will not be effective if adherence is incomplete or when exposures to infectious patients or ill co-workers are unrecognized. In addition, PPE must be used and maintained properly, and must function properly, to be effective.

Table 1. Examples of Use of a Hierarchy of Controls to Prevent Influenza Transmission

Elimination of sources of infection	Postponing elective visits and procedures for patients with suspected or confirmed influenza until they are no longer infectious
	Denying healthcare facility entry to those wishing to visit patients if the visitors have suspected or confirmed influenza
	Minimizing outpatient and emergency department visits for patients with mild influenza-like illness who do not have risk factors for complications
	Keeping personnel at home while they are ill to reduce the risk of spreading influenza
Engineering controls	<p>Installing partitions (e.g., transparent panels/windows/desk enclosures) in triage areas as physical barriers to shield staff from respiratory droplets</p> <p>Using local exhaust ventilation (e.g., hoods, tents, or booths) for aerosol-generating procedures</p> <p>Using hoods for the performance of laboratory manipulations that generate infectious aerosols</p> <p>Using ventilation controls in ambulances</p> <p>Installing hands-free soap and water dispensers, and receptacles for garbage and linens to minimize environmental contact</p> <p>Conducting aerosol-generating procedures in an airborne infection isolation room (AIIR) to prevent the spread of aerosols to other parts of the facility</p> <p>Using closed suctioning systems for airways suction in intubated patients</p> <p>Using high efficiency particulate filters on mechanical and bag ventilators</p> <p>Ensuring effective general ventilation and thorough environmental surface hygiene</p>
Administrative controls	<p>Vaccinating as much of the healthcare workforce as possible (once vaccine is available)</p> <p>Identifying and isolating patients with known or suspected influenza infections</p>

	Implementing respiratory hygiene/cough etiquette programs
	Setting up triage stations, managing patient flow, and assigning dedicated staff to minimize the number of healthcare personnel exposed to those with suspected or confirmed influenza.
	Screening personnel and visitors for signs and symptoms of infection at clinic or hospital entrances or badging stations and responding appropriately if they are present
	Adhering to appropriate isolation precautions
	Limiting the number of persons present in patient rooms and during aerosol-generating procedures
	Arranging seating to allow 6 feet between chairs or between families when possible
	Ensuring compliance with hand hygiene, respiratory hygiene, and cough etiquette
	Making tissues, facemasks, and hand sanitizer available in waiting areas and other locations
	Establishing protocols for cleaning of frequently touched surfaces throughout the facility (elevator buttons, work surfaces, etc.)
	Locating signage in appropriate language and at the appropriate reading level in areas to alert staff and visitors of the need for specific precautions
	Placing facemasks on patients, when tolerated, at facility access points (e.g., emergency rooms) or when patients are outside their rooms (e.g. diagnostic testing).
	Placing facemasks on patients during transport; when tolerated; limiting transport to that which is medically necessary; and minimizing delays and waiting times during transport
Personal protective equipment	Wearing appropriate gloves, gowns, facemasks, respirators, eye protection, and other PPE