

Annual Influenza Vaccination Requirements for Health Workers

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Purpose

Recognizing immunization as a premier public health intervention of the 20th century, the Arizona Public Health Association (AzPHA) has advocated for effective implementation of universal immunization and recommended requiring all health workers, as well as students in these fields, to be immunized against all vaccine-preventable diseases. This position statement examines influenza prevention in the United States today in the context of this longstanding AzPHA position. Immunizing health workers against influenza has an impact on the workers themselves and their coworkers and families, on patients in the healthcare facilities and community-based settings where they work, on overall communitywide immunity, and on the health system's capacity to provide safe care and its readiness to meet both routine and emergent service demands. This Policy closely models one adopted by the American Public Health Association in 2010. ¹

The Problem

Influenza and its complications account for the greatest number of vaccine-preventable deaths worldwide: one-quarter to one-half million deaths occur every year from approximately 3 to 5 million infections that cause severe disease and hospitalization ¹⁰⁻¹² In the United States, influenza annually affects approximately 15% of adults; 15 to 60 million cases lead to 250,000 or more hospitalizations and from 20,000 to more than 40,000 deaths. ¹⁵⁻²³ In Arizona, the most recent influenza season (2011-2012) was mild with only ^{xx} Influenza-related death toll estimates in some years have reached as high as 80,000 nationally. Together with pneumonia, it is the 8th leading cause of death in the United States and the 5th leading cause of death among those 65 years old and older ²⁴—with annual direct medical costs of \$3 billion to \$10.4 billion and \$16.3 billion in indirect costs. ²⁵⁻³⁰ Local epidemics are frequent.

As its population ages, the United States has been experiencing higher influenza-related mortality, including influenza pneumonia and cardiopulmonary disease. Although not more susceptible to infection, people older than 65 years are typically at highest risk for complications and death from the disease. From 1979 to 2000, influenza hospitalization rates for elderly patients were 17 times higher than the average rate, and more than 90% of the patients who died were elderly. ³¹⁻³³ Yet more than half of influenza-related hospitalizations are reported in people younger than 65 years. ^{20,32} Estimated rates of influenza-associated hospitalization and death start to rise around 50 years of age and continue upward thereafter. ^{24,32,33}

Pregnant women experience more complications than others with influenza. Besides being less likely to become infected with influenza during infancy, the newborns of women who had influenza vaccine when pregnant weigh more and are healthier at birth than those whose mothers did not. ^{34,35}

Influenza can trigger the complications of chronic disorders. People with diabetes; cardiovascular disease; or chronic lung, renal, or liver conditions are at higher risk for influenza morbidity and complications. ³⁶⁻⁵¹ During periods of high influenza incidence, hospitalizations of adults with these high-risk medical conditions may increase 2- to 5-fold, depending on age group. People with cancer and other immunocompromising conditions are especially susceptible to severe complications. ^{45,46,47} With an estimated 7% to 10% death rate, cancer patients are 10 times

more likely to die than others hospitalized with flu-related infections, and this mortality impact is particularly notable among those younger than 65 years.⁴⁵ Residents in long-term care facilities have a greater risk for infection because they live in close quarters in closed settings and have contact with numerous caregivers. Because residents often have multiple underlying medical problems, long-term care facility outbreaks are associated with significant morbidity and mortality.^{20,52–55}

Protecting Health Workers From Influenza

Health workers include all workers who, during the course of their work, have direct or indirect contact with the recipients of a preventive or restorative health service or related social or counseling services or with their caregivers, family members, or household members—regardless of the location where they perform their work. This contact may be a part of their normal work duties or may occur incidental to work activities—routinely or infrequently. They include full-time and part-time employees, contract or per diem workers, independent consultants, volunteers, trainees, and students. Those not directly involved in direct care may, nevertheless, be exposed to infected people; infectious materials; or contaminated supplies, equipment, or environmental surfaces (e.g., food and housekeeping service workers).

AzPHA advocates protecting health workers on the job. This includes putting worker health and safety first, ensuring protection through tough enforcement of existing regulations, establishing new worker protections, and increasing worker participation in workplace safety and health programs.⁵⁵ Any workplace can be a setting for influenza transmission (not just healthcare facilities). Health workers can likewise be exposed to influenza anywhere in the community. Occupational exposure to infected patients, however, especially those with unrecognized infection, heightens risk for health workers. If infected at work, they can, in turn, unknowingly transmit infection to coworkers and carry infection home to family members. Up to 25% of unvaccinated health workers may be infected each year.^{40,58,59} Health workers themselves (and their family members) frequently have medical conditions that raise their risk for influenza morbidity and mortality.⁶⁰ In addition, the frequently noted aging of the healthcare workforce places an increasingly greater number and proportion of health workers in a higher-risk category.

Influenza infection is readily spread by respiratory droplets. It mainly spreads from person to person when a host coughs or sneezes, with greater contagion in semiclosed or crowded environments. Less efficient transmission also may occur through indirect contact, such as touching something already laden with virus, then touching the eyes or nose. Symptoms usually appear 1 to 4 days after infection, and an infected person is contagious during this asymptomatic period. Approximately 20% of cases remain subclinical.^{11,20} Thus, we cannot rely on signs of another person's illness to alert us to use protective barriers, nor is an infected person necessarily even aware of having been exposed.

Annual vaccination is the most effective method for preventing influenza infection and its severe complications.^{21,22,61–69} Primary prevention by vaccination is therefore at the top of the influenza infection control hierarchy. Influenza vaccination of healthcare workers is the single most important measure for preventing occupation-acquired and nosocomial influenza from both known and unexpected sources. Other measures, such as hand hygiene and barrier precautions, are additional protective steps, not alternatives. Masks or respirators, whether worn by people with influenza-like illness (ILI) symptoms or those who are in proximity to them, are not as protective as preexposure immunization, especially given the high proportion of asymptomatic infectious people. Influenza occurs in healthcare workers even when there is high personal

protective equipment (PPE) adherence.⁵⁹ Improving influenza vaccination rates in health workers is thus essential for their safety and for infection control.

Social Justice Perspective—For Workers and Patients

Addressing the risk to patients is an especially salient social justice issue when poverty, poor health infrastructure, low health literacy, or lack of information influence their susceptibility status.^{70–72} In turn, unvaccinated people can experience a double jeopardy disparity when, in a healthcare setting, they are exposed to infected personnel—the healthcare system fails them twice.

Unvaccinated status may reflect a disparity in access to the primary care that should afford a person timely counsel from a healthcare provider to get vaccinated.⁷³ Access to health care is a predictor of influenza vaccination, even among those at high risk for complications.^{43,71,74} Access limitations exist not only for people in medically underserved or low socioeconomic communities, but also for many others who, for whatever reason, lack a medical home or may not know that gratis vaccination is available or where to find it. A high proportion of health workers represent minority ethnic groups, including many immigrants, and health workers from different racial and ethnic groups have significantly different immunization vaccination rates.^{38,39,43, 44,73–75}

Chronic conditions that put people at higher risk for influenza-related morbidity and mortality, such as diabetes and asthma, are more prevalent in African Americans and Hispanics than in Whites. Yet influenza vaccination rates are lower in these populations, including among those with greater influenza risks, such as the elderly and people with diabetes or heart, lung, or renal disease.^{38,39,43,44,48–50,71,73–77} African Americans have a higher influenza hospitalization rate than other races/ethnicities.

The strongest and most frequently asserted ethical principle is that the healthcare provider's primary duty is to protect and avoid harming those served, often articulated as “First, do no harm.” The healthcare consumer has the right to assume that health workers, and the organizations that employ them, will take all reasonable measures to avoid transmitting communicable pathogens for which safe and effective vaccines exist.^{78–81} Bioethicist Arthur Caplan maintains, “Getting a flu shot is the least those who claim to be bound by professional ethics ought to do.”⁸² American Nurses Association President Rebecca Patton enjoins her colleagues, “As nurses, we have an ethical obligation to protect ourselves, our patients, and our families from illness. Vaccination is one simple step we can take to do that.”⁸³ Matthew Wynia, Director of the American Medical Association Institute for Bioethics, adds that “patients should be informed when they are seeing a healthcare worker who has refused vaccination.”⁸¹

The public reporting of staff vaccination rates at healthcare facilities as both a quality measure and a matter of transparency to inform communities, patients, and visitors has also been recommended ^{21,40,78,81} as a component of retrospective patient safety “report cards” with real-time, facilitywide, and unit-specific posting during influenza seasons. Current Medicare-Medicaid requirements for reporting of nursing home residents' vaccination rates could be expanded to include staff coverage too.

Improving Vaccination Coverage of Health Workers

Improving influenza vaccination rates in health workers provides benefits to workers, patients, and health service agencies. Preventing both community and workplace influenza transmission to health workers is essential both for maintaining a safe work environment in healthcare settings and for ensuring staffing capacity. ILI-related absenteeism can cause or exacerbate significant

staffing shortages, which can be especially problematic during influenza's peak periods.^{28,29,59,60,84–86} Staff immunization is highly cost-effective and can be cost saving.^{25,26} Additional costs for healthcare organizations implicit during and after a nosocomial influenza outbreak are also relevant considerations.^{26,28,29}

Since 1984, the Advisory Committee on Immunization Practices (ACIP) of the US Centers for Disease Control and Prevention (CDC) has continually recommended universal annual influenza vaccination for health workers.⁸⁷ At the millennium, 60% was targeted as the national 2010 health objective for healthcare personnel and all adults younger than 64 years, with a 90% goal for older adults.⁷⁷ Since 2007, the Joint Commission has required accredited hospitals and long-term care facilities to offer influenza vaccination to staff and independent licensed practitioners as a patient safety and infection control standard.^{88,89} Unions, too, urge strong enforcement of prevention steps to protect health workers, including influenza vaccination,^{56,90,91} encouraging members working in health services to get influenza vaccination and calling for healthcare employers to provide free vaccination to employees.⁹¹ Nevertheless, the vaccination rate among health workers has remained dismally low, typically less than 30% (often much lower) and infrequently reaching 50%, even in hospital units caring for high-risk patients.⁹² In fact, as a group, health workers are among the most poorly covered.⁶⁸ By mid-January 2010, after unprecedented intense, communitywide promotion efforts across the country, the highest level ever was reached, though it was still less than 70%.⁹⁷

The American College of Occupational and Environmental Medicine (ACOEM) took the position that “education and adherence to infection control practices should be mandatory” in 2006 but questioned whether evidence regarding the benefit of healthcare worker vaccination to patient safety was then currently adequate to override workers’ autonomy to refuse.¹²⁷ Since then, more than 100 institutions across at least 30 states, Puerto Rico, and the District of Columbia—small and large, public and voluntary—have successfully implemented mandates.⁷⁹ Reports from these institutions and multifacility systems indicate that mandates are a highly effective intervention, resulting in the highest reported rates for any intervention designed to improve coverage.^{79,118,124–130} As more employers establish and implement requirements, reports demonstrate their effectiveness with little, if any, negative impacts. A CDC-sponsored RAND Corporation study found that when healthcare employers required staff to be vaccinated against seasonal flu, the vaccination rates were twice as high as when employers recommended vaccination but did not require it.⁹⁷ During the 2010-2011 influenza season, coverage for influenza vaccination among health care workers was estimated at 63.5%. Coverage was 98.1% among health care workers who had an employer requirement for vaccination.^{xy}

Patient Safety Concerns in Healthcare Settings

The patient safety issue has been highlighted by the Joint Commission, the Society of Healthcare Epidemiology of America, IDSA, ACP, the Association of Professionals in Infection Control and Epidemiology, ACOEM, the National Patient Safety Foundation, the National Foundation for Infectious Diseases, the Immunization Action Coalition, the Society of Healthcare Epidemiologists of America, and the Hospital Infection Control Practices Advisory Committee of the CDC.^{78,79,88–90,118,122,127,143–145} The consensus among these national agencies and organizations is that influenza vaccination of health workers is crucial. Unvaccinated workers can introduce infection or propagate an outbreak in any facility or congregate community setting. Barrier precautions must be considered for unvaccinated workers (regardless of the reason for not being immunized) when they are within a specified proximity of susceptible patients.^{78,79,85,123}

Unfortunately, neither nosocomial influenza nor staff vaccination status has been routinely tracked at hospitals, but available data nevertheless demonstrate a link between staff vaccination and nosocomial infection.^{117,149–152} A national survey of 50 university-affiliated hospitals found 62% monitored healthcare-associated influenza, documenting a range of 0 to 5 cases per 10,000 inpatient days.¹¹⁹ A tertiary medical center that tracked hospital-acquired influenza for more than a decade found a strong association with the vaccination rate of healthcare workers: The nosocomial infection rate was totally eliminated when the staff vaccination rate rose 63% above its baseline rate.¹³¹

Immunizing staff even adds complementary protection to the most vulnerable and those with weaker immune responses to vaccination.^{21,31,42,43,50,70–76,131,153} Epidemiology shows that staff immunization is necessary to control outbreaks in nursing homes, even when there are high immunization rates of residents.^{31,70–76,131,153,142} A RAND Corporation study of 301 nursing homes found that, regardless of facility size, only the immunization of both staff and residents reduced the rate of ILI cluster outbreaks.¹³¹ Even when 60% of patients have been vaccinated, vaccinating staff enhances mortality reduction.¹³⁰ These findings are especially relevant when the season's vaccine is not well matched to the most common virus strain; that is, even higher vaccine uptake is then needed to achieve group protection (herd immunity).

Community/General Population—Beyond Hospital Walls

Health work settings include not only acute and chronic care facilities (e.g., hospitals, nursing homes, skilled nursing facilities, long-term residential facilities, rehabilitation care centers, residential substance abuse treatment programs) but also outpatient facilities (e.g., medical and dental offices, clinics and community health centers, urgent care centers) emergency services, and community-based residential settings ranging from group homes to assisted living facilities. Of no less concern is the safety of workers in home care, school health services, shelters for the homeless, mental health centers, senior centers, day care centers for adults or children, and the like, along with the safety of the people served in these settings. Nursing home assistants have been called the forgotten workers, but home care workers are the truly invisible, whether caring for children or elders, and are least likely to have employer-paid health insurance or other healthcare benefits, such as vaccination. Often providing the only support for the community's frail, disabled, or homebound, they have an essential role in the health sector. Unlike in hospitals, clinics, and medical offices, the home care worker typically has less control over environmental infection control than workers in other settings, usually works alone and without supervision or collegial assistance, and may have to improvise when supplies run out. Likewise, the "medical rooms" or "nurse's offices" in schools usually have not been designed to facilitate respiratory infection control.

Ethical Rationale for a Mandatory Approach

Public health's societal reach has strong ethical foundations. Vaccination mandates represent an important area of focus for ethics, equity, and public health practice, acting as an equalizer for those who fall through the cracks.^{70,202,203} With few exceptions,^{204–206} ethical reviews that weigh the pros and cons of requiring healthcare worker influenza vaccination conclude with support for the mandatory approach.^{82,164,207–213} For example, Anikeeva and colleagues noted in the *American Journal of Public Health* that "It is unlikely that purely voluntary programs [though preferable] will achieve vaccination rates that are sufficient to meet the ethical obligations of beneficence and nonmaleficence . . . [E]vidence shows that the most successful option for increasing vaccination rates is to make annual immunization of health care workers mandatory" with sanctions for refusal.^{214p28} Stattdlander responded, further asserting that from the individual patient and public/societal perspectives, the unvaccinated healthcare worker

pursues his or her own interest and misses the opportunity to demonstrate personal and professional integrity.⁸⁰ Matthew Wynia, director of the American Medical Association Institute for Bioethics, likewise asserted that mandates are “sorely needed” and that there should be “significant barriers to opting out.”⁸¹

The ACP call for making healthcare worker influenza vaccination mandatory emphasizes the ethical underpinning: “Vaccinating healthcare workers against influenza represents a duty of care, and a standard of quality care, so it should be reasonable that this duty should supersede healthcare worker personal preference.”^{122p2}

For organizations with a healthcare mission, a population focus on health (i.e., public health) is an aspect of organizational ethics.²²¹ Achieving near universal influenza vaccination rates is thus part of the moral grounding of healthcare organizations, integral to a contract of solidarity with their communities, not merely an aspirational idea. The community at large may regard health workers’ actions and their employers’ requirements as an indicator of whether to place importance on particular preventive health guidance. Indeed, healthcare providers are cited as the most frequent source of information about vaccines and vaccination, even by unvaccinated people and the parents of unvaccinated children.²²² Thus, it is posited that health workers have a responsibility to the public—to patients and society at large—to demonstrate confidence in and adherence to scientific standards.²²² This concern takes on particular resonance in the context of the current ACIP/CDC recommendation for universal immunization against influenza of everyone older than 6 months.²²³

Stepwise implementation and initial soft enforcement may be effective. Some employers have first boosted coverage by initially coupling recommendations for vaccination with education and promotion campaigns and then advancing in a subsequent season to requiring signed declinations with individual employee health counseling, perhaps along with supervisory feedback before moving to fully implement a vaccination requirement that precludes declining for other than religious grounds.^{65,118,128,135} Leapfrogging directly to a fully mandatory policy can be a more practical and cost-effective approach for others and may be more efficient when a large proportion of the community or an institution’s staff is susceptible.

Conclusion

Requirements for influenza vaccination are congruent with existing standards of prevention practice for other conditions. Requiring vaccination for workers in clinical settings is a long-time, widely used standard practice when healthcare workers can be vectors of infection, particularly airborne pathogens. For example, requirements for measles, varicella, and rubella immunization are virtually unquestioned and have been effective in controlling outbreaks and reducing nosocomial transmission. Some states already mandate influenza vaccination for workers in long-term care facilities, and several have requirements for acute care facilities.^{59,224,225} More consistent enforcement is needed, along with adequate funding for monitoring and evaluation. Vaccination requirements must be part of comprehensive worker and patient safety programs, which start with promoting an organizational culture of safety that involves all levels of staff in planning, implementation, and evaluation. A culture of safety permeates the organization from the top and colors every decision within it.²²⁶ It reflects a commitment that all are entitled to the highest quality protection.²⁰¹ Providers are accountable to the service-seeking public to ensure optimal safety conditions. There must be broad stakeholder engagement across the health sector, including public health and related regulatory agencies, to prevent the spread of infection and reducing harm from complications. Recognizing employee vaccination as an important safety measure, all steps needed to maximize coverage must be taken.⁸⁹

Mandates provide the blueprint for accountability; they also require cooperation. They involve an intensive education effort, logistical planning, and outreach to make vaccine administration conveniently accessible. As with other initiatives, the implementation of mandates requires tailoring to specific settings, individual institutions, and their employees. A one-size-fits-all approach cannot suit the needs of the varied population of health workers and diverse institutional cultures.

Continuing evaluation to determine the effectiveness of institutional mandates and external regulations or legislation, which should address appropriate data collection for evaluative monitoring—with standardized, uniform definitions for tracking criteria—capable of producing the scientific evidence needed for risk assessment and capable of assigning responsibility is essential. Annual, discriminate monitoring of mandatory and nonmandatory program implementation and outcomes is needed to track costs and workers' participation in education activities, vaccination status, medical contraindications, medical waivers, reasons for requests to decline vaccination, illness and absenteeism during influenza season, and responses to and satisfaction with vaccination program components. Evaluation studies using large administrative databases must, therefore, be key components of public policy for immunization. Nosocomial influenza monitoring must likewise be part of routine institutional surveillance.

Requiring vaccination of health workers is not a panacea for influenza control and should not divert attention from other important infection control measures. Mandates rest on the premise that a sufficiently vaccinated workforce is a critical component of maintaining and promoting the public's health. Whereas health workers may choose to pursue other individual health behaviors, their vaccination choices, and the potential result of those choices, affect all others with whom they come in contact.

Therefore, the Arizona Public Health Association—

- Urges providers, employers, and other organizations to implement comprehensive infection control programs that include vaccination requirements along with vaccination training and education, respiratory protection, standard respiratory precautions, and housekeeping routines in keeping with infection control standards.
- Emphasizes that vaccination of health workers is important not only for patient safety but also for their own protection and calls for strengthening both the health sector's commitment to safe working environments and its capacity to achieve national goals for protecting the health workforce from influenza through education and convenient access to employer-provided vaccination.
- Strongly recommends that institutions that train health professionals, deliver health care, or provide laboratory or other medical support services require immunizations for personnel at risk for contracting or transmitting vaccine-preventable illnesses.
- Encourages institutional, employer, and public health policy to require influenza vaccination of all health workers as a precondition of employment and thereafter on an annual basis, unless a medical contraindication recognized in national guidelines is documented in the worker's health record. An educational component should be created for health workers to learn about vaccine safety science.
- Urges providers of health and related social services, professional associations, and unions to promote greater influenza vaccination uptake by healthcare workers as an essential component of worker safety programs.
- Encourages other organizations and associations involved in promoting public health and those representing health workers to endorse positions that promote annual influenza vaccination of

health workers, including affirmative support for requirements such as public position statements, public service ads, testimony in public and government forums, and friend-of-court briefs when legal challenges to them are raised.

- Recommends that schools and programs of public health, medicine, nursing, dentistry, and other health professions and occupations promote awareness of the science underlying the safety and efficacy of influenza vaccination and the ethical responsibility of health workers to put the interests of public health and safety ahead of personal preference and convenience.
- Advises that requirements should not place additional burdens on workers and emphasizes that employers of health personnel have the responsibility to offer vaccine and facilitate vaccine administration at worksites or other convenient locations and times. Employer responsibility for administering vaccine to staff should not be deferred to local health departments.
- Advocates for assurance of compensation to health workers and their families if serious vaccine-associated adverse events arise, with explicit inclusion in the federal vaccine injury compensation system.
- Calls for posting staff influenza vaccination rates at health facilities and related Web sites and including this measure in quality assurance, facility accreditation, and patient safety report cards.
- Urges strong surveillance of both occupational and nosocomial influenza rates and related complications, as well as continuing evaluation of health worker vaccination programs, including required efforts.
- Supports continued prioritization of health worker and first responder vaccination in emergency preparedness plans as well as seasonal epidemics.

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