

Epidemics, Pandemics, & Infodemics: Vaccinating HCP for Influenza & COVID-19

History of an Influenza Mandate

Amy J Behrman, MD
Medical Director, Occupational Medicine & Employee Health
Professor, Perelman School of Medicine
University of Pennsylvania

NO DISCLOSURES



Immunizing Healthcare Workers: What Works & Why Does it Matter?



Seasonal Influenza

- ❑ Highly contagious respiratory viral illness
- ❑ Complications include pneumonia, worsening chronic conditions (CHF, CAD, COPD, asthma) & death
- ❑ Healthy adults can infect others from 1 day before symptoms and up to 7 days after becoming sick
- ❑ 5- 20% of population affected each year
- ❑ Vaccination is the single most effective way to prevent influenza cases, hospitalizations and deaths
- ❑ Vulnerable patients (elderly, neonates, immune-compromised) have the least response to vaccination
- ❑ Non-elderly adults, including HCP, have the strongest response
- ❑ Influenza among HCP is common and often sub-clinical, posing risk to patients & other HCP
- ❑ **Vaccination of HCP can decrease transmission risk to patients**
- ❑ **Employer requirements for influenza vaccination, aka mandates, have been shown to dramatically increase HCP rates in acute care settings**

1. <https://www.cdc.gov/flu/keyfacts.htm>

2. Wilde et al. Effectiveness of influenza vaccine in health care professionals: a randomized trial. JAMA 1999;281:908--13.

3. Ofstead et al: Moving the needle on nursing staff influenza vaccination in long-term care: Results of an evidence-based intervention. Vaccine. 2017

4. Rakita et al: Mandatory influenza vaccination of healthcare workers: A five year study. ICHE 2010

5. Babcock et al: Mandatory influenza vaccination of healthcare workers: Translating policy to practice. CID 2010

Why Focus on Influenza Vaccination Requirements?

- **Voluntary measures have generally NOT been successful in raising HCP influenza vaccination coverage to the Healthy People 2020 goal of $\geq 90\%$ coverage**
- **In a national survey, the percentage of HCP in LTCFs who were vaccinated (by employer approach to influenza vaccination):**
 - **Work requirement (89%)**
 - **Promoted by employer (vaccine offered on-site >1 day at no cost to HCP), but not required (59%)**
 - **No employer requirement or vaccine promotion (42%)**

1. Hollmeyer H, Hayden F, Mounts A, Buchholz U. Review: interventions to increase influenza vaccination among healthcare workers in hospitals. *Influenza Other Respir Viruses*. 2013;7(4):604-621.
2. Black CL, Yue X, Ball SW, et al. Influenza Vaccination Coverage Among Health Care Personnel — United States, 2017–18 Influenza Season. *MMWR*. 2018; 67(38):1050-4. DOI: <http://dx.doi.org/10.15585/mmwr.mm6738a2>

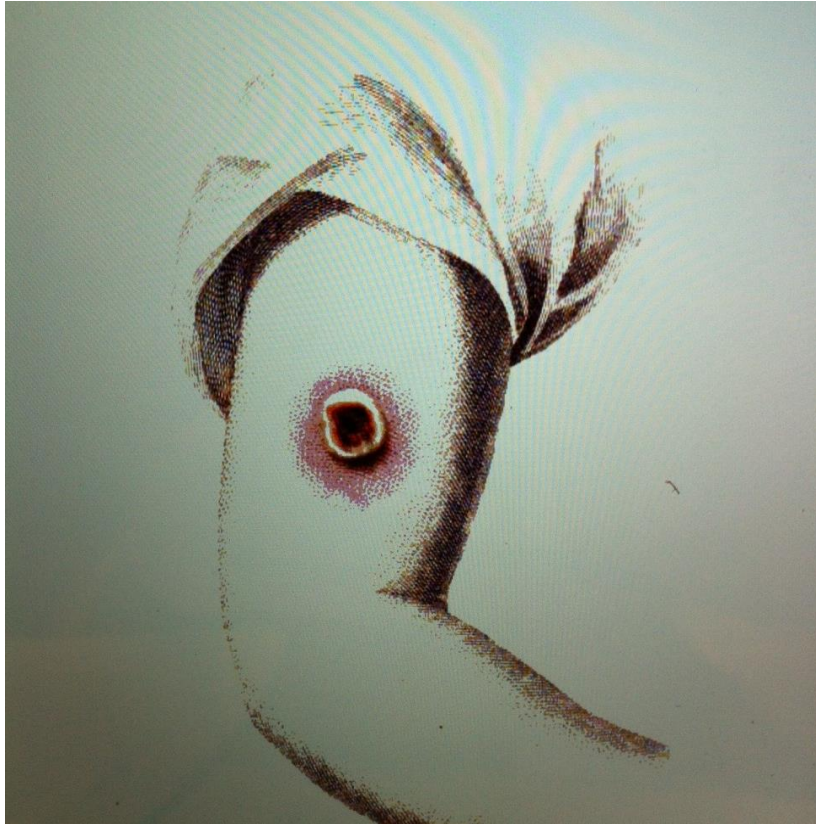
Variolation - First Workplace Mandate - 1777



HCWs
British troops
Germ Warfare
Inoculation risk
Inoculation benefit
Inoculation Mandate



Vaccination – A Game-Changing Innovation



Objections to the British Smallpox Vaccination Mandates 19th & 20th Centuries

- **Smallpox is not as dangerous as it used to be**
- **The vaccine doesn't work**
- **The vaccine will make me sick**
- **The vaccine is dangerous**
- **I don't like to put foreign things into my body**
- **I live a clean life so I won't get smallpox**
- **This is a plot against the working class**
- **Doctors are getting rich from selling smallpox vaccines**

Vaccine Mandates in the United States

Jacobson vs Massachusetts 1905



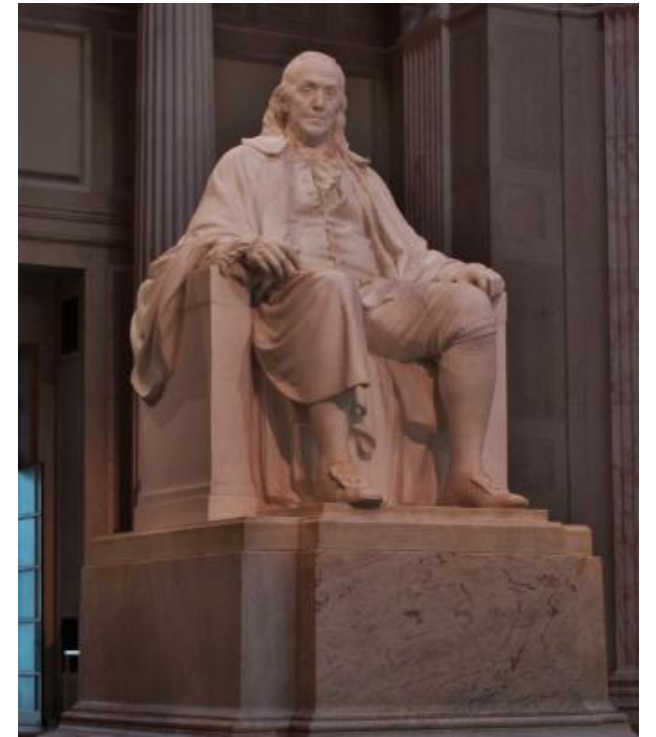
School Children



Keep track of your child's vaccine record, since schools and childcare facilities in your state may require proof of vaccination.

Influenza Vaccines For Healthcare Personnel

History & Experience from a Large Academic Healthcare System 2004-2023



HCP and Vaccination 2004 onward: How were we doing with HCP at Penn?

- ▶ **Measles, mumps, rubella, varicella required for all staff**
 - HCP and patients are at risk if not immune
 - Long term immunity from disease or vaccine
 - Condition of employment, assessed at hire
 - **HCP compliance approached 100%**
- ▶ **Influenza recommended for all staff**
 - Free vaccine available to all HCP
 - Vaccination on-site in all units, all shifts
 - Vaccine at cafeteria and public hospital areas
 - “Flu fairs” with education, games, & incentives
 - Vaccine for walk-ins in OM clinic 8-12 hours/day
 - **Vaccination Rates <50% in 2004**
 - **Why were staff declining influenza vaccine?**

Penn Med Voluntary Influenza Vaccine Program 2006-2007: Declination Form Analysis

- **Flu is not dangerous**
- **The vaccine doesn't work**
- **The vaccine will give me influenza**
- **The vaccine isn't safe**
- **I don't put foreign things into my body**
- **I live a healthy life so I won't get flu**
- **This is a plot against the staff**
- **You must be making money from this**



Penn Med Voluntary Influenza Vaccine Program 2006-2008

- Declination forms analyzed
- Outreach & education via hospital newsletter, email, intranet, & managers' meetings
- 2008 Flu shot music video using hospital staff:



- Results: **Inadequate** Improvement: 54% 2008-09 (60% of clinical staff)

Should Flu Vaccine be Required?

Pros & Cons

- Nobody likes being compelled – especially annually
 - May reduce efforts to educate & improve voluntary measures
 - May produce resentment
 - Expensive to monitor and enforce
 - Rare voluntary programs have achieved >80-90%
-
- There may be real limits to voluntary programs
 - Even 80-90% coverage rates don't maximize risk reduction
 - Compliance for mandated MMRV immunity approaches 100% with negligible objections
 - Early mandatory influenza vaccine programs for HCP reported >95% - doubling prior rates (*Rakita 2010; Babcock 2010*)
 - HCP are generally healthy younger adults with optimal vaccine responses- in contrast to medically fragile patients

Should Flu Vaccine be Required?

- 2007-2008 - Consensus among IC and OM staff
- 2008 Institutional debate and discussion of mandates to enhance patient and staff safety
- 2009 HUP IM/EM Physician survey strongly supported a mandatory vaccine policy (*DeSante et al 2010*)
- Early 2009 Leadership commitment

Medical Boards- CMOs

Nursing Leadership – CNOs

Human Resources - CHROs

Administration

General Counsel

Occ Health & Infection Control

Penn Med Influenza Vaccine Program 2009-2010

- ▶ **New UPHS-wide policy requiring influenza vaccination for all HCP**
- ▶ **Scope: Staff, Physicians, Contractors, Volunteers, Students**
- ▶ **Included Community Caregivers, LTCF Staff, Homecare Staff**
- ▶ **Resources - supported by**
 - Educational programs, website
 - Interactive live and electronic Q&A
 - **Exemption reviews, medical and religious**
 - Multi-faceted outreach to all staff @ all locations
 - Administrative Penalties for Noncompliance
- ▶ **Pandemic Preparedness**
- ▶ **Normalization** of vaccine recommended by CDC (& WHO & ACOEM)

Influenza, COVID-19, and

Managing Exemptions for Required Vaccines

- **Medical Contraindications & Religious Exemptions**
- **Community Relations including PCPs and Clergy**
- **Implement standardized process for employee**
 - Requests
 - Reviews
 - Appeals
- **Be transparent regarding process, consequences**
- **Data integrity and privacy**
- **Equitable enforcement**
- **Address contractors, volunteers, trainees, remote workers**
- **Consider annual reviews**
- **Expect the unexpected**

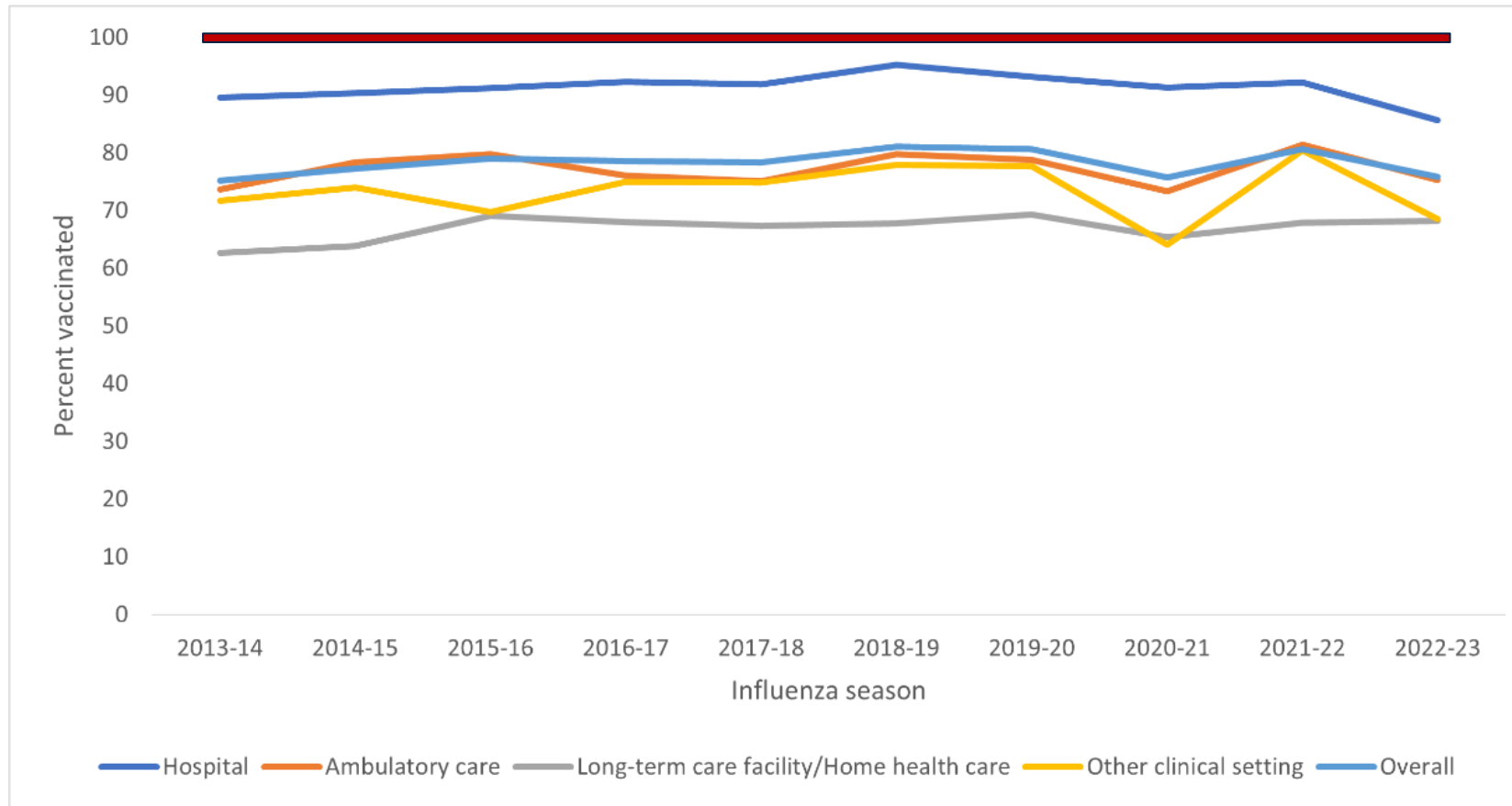
San Francisco Holds H1N1 Flu Clinic, Distributing Thousands Of Vaccines

SAN FRANCISCO - DECEMBER 22: Thousands of people wait in line to receive an H1N1 flu vaccination during a clinic at the Bill Graham Civic Auditorium December 22, 2009 in San Francisco, California. The city had 16,000 doses of the vaccine on hand for residents of the city. (Photo by Justin Sullivan/Getty Images)



Influenza Vaccination Coverage of HCP by Work Setting

Figure 1. Percentage of health care personnel who received influenza vaccination, by work setting* — Internet panel surveys†, United States, 2013-2014 through 2022-2023 influenza seasons‡



Penn Med % Flu Vax – IPT, LTC & Ambulatory

- ▶ Saito R, Suzuki H, Oshitani H, et al. The effectiveness of influenza vaccine against influenza a (H3N2) virus infections in nursing homes in Niigata, Japan, during the 1998--1999 and 1999--2000 seasons. *Infect Control Hosp Epidemiol* 2002;23:82--6.
- ▶ Lemaitre M, Meret T, Rothan-Tondeur M, et al. Effect of influenza vaccination of nursing home staff on mortality of residents: a cluster-randomized trial. *J Am Geriatr Soc* 2009;57:1580--6.
- ▶ Carman WF, Elder AG, Wallace LA, et al. Effects of influenza vaccination of health-care workers on mortality of elderly people in long-term care: a randomised controlled trial. *Lancet* 2000;355:93--7.
- ▶ Hayward AC, Harling R, Wetten S, et al. Effectiveness of an influenza vaccine programme for care home staff to prevent death, morbidity, and health service use among residents: cluster randomised controlled trial. *BMJ* 2006;333:1241.
- ▶ Potter J, Stott DJ, Roberts MA, et al. Influenza vaccination of health care workers in long-term-care hospitals reduces the mortality of elderly patients. *J Infect Dis* 1997;175:1--6.
- ▶ Ofstead et al: Moving the needle on nursing staff influenza vaccination in long-term care: Results of an evidence-based intervention. *Vaccine*. 2017
- ▶ Rakita et al: Mandatory influenza vaccination of healthcare workers: A five year study. *ICHE* 2010
- ▶ Babcock et al: Mandatory influenza vaccination of healthcare workers: Translating policy to practice. *CID* 2010
- ▶ Frenzel et al: Association of increased influenza vaccination in health care workers with a reduction in nosocomial influenza infections in cancer patients. *AJIC* 2016
- ▶ Hollmeyer et al: Interventions to increase influenza vaccination among healthcare workers in hospitals. *Influenza and other Respiratory Viruses* 2013
- ▶ Lam et al: Seasonal influenza vaccination campaigns for health care personnel: Systematic review. *CMAJ* 2010
- ▶ Black et al: Influenza Vaccination Coverage Among Health Care Personnel — US, *MMWR*. 2018

