
**Immunization Trends in Adults 2000 to 2010**
*http://www.cdc.gov/nchs/data/hus/hus11_InBrief.pdf*

OBJECTIVE: To determine the influenza vaccination coverage required to establish herd immunity, and to compare whether the percentages of vaccination coverage proposed and those registered in the United States and Europe are sufficient to establish herd immunity.

METHODS: The vaccination coverage required to establish herd immunity was determined by taking into account the number of secondary cases per infected case and the vaccine effectiveness.

RESULTS: The objectives of vaccination coverage proposed in the United States—80% in healthy persons and 90% in high-risk persons—are sufficient to establish herd immunity, while those proposed in Europe—only 75% in elderly and high-risk persons—are not sufficient. The percentages of vaccination coverage registered in the United States and Europe are not sufficient to establish herd immunity.

CONCLUSION: The influenza vaccination coverage must be increased in the United States and Europe in order to establish herd immunity. It is necessary to develop new influenza prevention messages based on herd immunity.

Where we are...
Source: Early release of selected estimates on data from the 2011 National Health Interview Survey, data table for figure 4.2

Influenza Vaccination (Data are for the U.S.)
http://www.cdc.gov/nchs/fastats/flu.htm

- Percent of children 6 months to 17 years who received an influenza vaccination during the past 12 months: 45.3%
- Percent of adults 18-49 years who received an influenza vaccination during the past 12 months: 27.2%
- Percent of adults 50-64 years who received an influenza vaccination during the past 12 months: 42.7%
- Percent of adults 65 years and over who received an influenza vaccination during the past 12 months: 67.0%
Large surveys on barriers to influenza immunization

National Foundation for Infectious Diseases (NFID) Adult Consumer Survey (Opinion Research Corporation CARAVAN® Omnibus). Results are based on telephone interviews conducted August 7-11, 2008 with a sample of 2,029 adults (1,010 men and 1,019 women).

Barriers to Adult Immunization. Johnson D, Nichol K and Lipczynski K. Ann J Med. 2008: 121 (7 suppl) S28 – S35. Consumers (N = 2,002) and healthcare providers (N = 200) completed structured telephone interviews concerning their attitudes and knowledge about adult vaccines and factors affecting their vaccination decisions.


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Continue talking to patients about the importance of influenza vaccination

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Providers are at the forefront of promoting influenza vaccination

Adults who were told they needed an influenza vaccination most often say the recommendation came from a family, general or internal medicine practice (73 percent).

Nearly eight in 10 consumers (79 percent) have seen a HCP in the last 12 months. 86 percent of those who have been to a HCP in the last year have gone more than once.

More than 9 in 10 (93 percent) who were vaccinated last year say they plan to be vaccinated again this year. About 4 in 5 (82 percent) who skipped vaccination last year do not plan to get vaccinated this year.
Patients did not get influenza vaccination for, more or less, the same reasons

“Didn’t think I needed it” (96%)
Concern about side effects (45%)
Not believing it was an appropriate time to be vaccinated (32%)
Avoidance of all vaccines (31%)
Belief that influenza is not serious (20%)
Did not recognize a personal risk for getting influenza (17%)

Inappropriate beliefs about immunizations in high risk patients remain a problem

...unvaccinated persons commonly believed that vaccination was unnecessary (33%), that vaccination would cause illness (21%), or that they failed to think about being vaccinated (17%), and these beliefs were significantly more common among individuals who had a high-risk medical condition than among those who did not.

...the survey also identified cases where health providers missed opportunities to immunize against influenza when high risk patients were seen for other reasons...

The Long Beach Department of Health & Human Services
HIV Clinic

BACKGROUND: We sought to describe rates of vaccination among HIV-infected adults in care and identify factors associated with vaccination.

METHODS: We used data abstracted from medical records of participants in the HIV Outpatient Study (HOPS) during 8 influenza seasons (1999-2008) to examine factors associated with increased prevalence of annual influenza vaccination.

RESULTS: Among active patients, 46.8% to 73.3% were vaccinated for influenza each year (annual mean=63%), with the highest rates seen in 2005-2006, during which the H1N1 influenza pandemic coincided with seasonal influenza activity. Vaccination rates peaked in October and November of each season and decreased sharply thereafter. Patients were mostly male (66.8%), non-Hispanic white (25.5%) or Hispanic (66%), and lower HIV viral loads (75.5%), were prescribed antiretroviral treatment (72.5%), or had a greater number of clinical encounters per year (80%) were more likely to receive influenza vaccination.

DISCUSSION: The decreased likelihood of vaccination among women and non-Hispanic black patients suggests the need for focused efforts to reduce disparities. Increasing patient and clinician education on the importance of annual vaccination, and ensuring that vaccination activities continue in HIV clinics during the latter months of the influenza season may improve influenza vaccine coverage.

Influenza and Pneumococcal vaccination rates in HIV Clinics.

Objective: To assess influenza and pneumococcal vaccination coverage among HIV-infected adolescents and adults receiving medical care in the United States.

Design: Record reviews of the charts of adult HIV patients who attended ≥ 10 clinic, hospitals, and private medical practices in nine cities in the U.S. They looked for documentation of influenza & pneumococcal vaccinations in the medical records during time periods.

Results: Overall, 50% of individuals received influenza vaccination while 75% received pneumococcal vaccination. In their study, vaccination levels varied little by age group, race/ethnicity, or mode of HIV exposure.

Conclusion: Until new, more effective means of preventing pneumococcal disease and influenza become available, efforts should be directed towards improving vaccination levels among HIV-infected individuals.

Where we should be or where we hope to be ...

<table>
<thead>
<tr>
<th>Where we are (2011)</th>
<th>Healthy People 2013 goals</th>
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<tbody>
<tr>
<td>% of children 6 months to 17 years who received influenza vaccine</td>
<td>45.2%</td>
</tr>
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<tr>
<td>% of adults 65 who received influenza vaccine</td>
<td>67.0%</td>
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Long Beach HIV Clinic Study

Objective: To determine the influenza (and pneumococcal) vaccination rates among HIV-infected adults receiving medical care from the clinic

Methods: Medical record review of charts of HIV infected adult patients receiving care from the clinic. Chart review focused on finding documentation of receipt of influenza (and pneumococcal vaccination) for period July 1, 2010 to June 30, 2011. (Reporting: either yes or no)

Exclusion criteria: Clinic attendance after June 30, 2011

Long Beach HIV Clinic Study

Results: n=161 patient charts reviewed

95.6 % (154/161) of the patients had received influenza vaccination

About 95% (147/154) received the flu shot from the clinic
About 5% (7/154) received the flu shot from the outside:
  pharmacies (3) jail (2) hospitals (2)

Patients were allowed to decline the shots.

3.1% (5/161) declined the flu shot

The clinic missed giving vaccinations to very few patients (~ 1%)

1.3 % (2/161) missed getting the flu shot
Influenza vaccination rates the past 3 years at the LB DHHS HIV Clinic

Limitations of this study

- Adults (pediatric population not covered)
- Influenza vaccine was given at no cost to the patient (different situation in clinics where patients will have to pay)
- HIV clinic setting (as opposed to General Medicine or Family Practice clinic)
- Influenza vaccination (intramuscular trivalent influenza vaccine for HIV + patients and not the intranasal Flu Mist)
- Data derived from July 1, 2010 to June 30, 2011 season
What worked?

Awareness always of the value of influenza vaccination

Influenza…

- Highly contagious
- 49,000 deaths each year
- 22 million healthcare visits
- 200,000 hospitalizations, depending on severity of annual outbreaks
- Can complicate the management of chronic illnesses, such as heart disease & CHF
- Risks for complications, hospitalizations, and death higher among adults age ≥ 65 and older, children < 5 years, and people of any age who have medical conditions that place them at increased risk for complications from influenza.
- Bacterial pneumonia frequent complication of influenza and pneumonia constitute the seventh leading cause of death in adults over 65.
- People with HIV/AIDS are considered at increased risk from serious influenza-related complications.
- Higher risk of influenza-related death in HIV-infected people.
- Vaccination with a flu shot has been shown to produce an immune response in people infected with HIV.
- It is generally safe to give.
What worked?
Good sources of information http://www.cdc.gov/flu/protect/keyfacts.htm
- Why should people get vaccinated against the flu?
- How do flu vaccines work?
- What kinds of flu vaccines are available?
- Who should get vaccinated this season?
- Who should not be vaccinated?
- When should I get vaccinated?
- Why do I need a flu vaccine every year?
- Does flu vaccine work right away?
- Can I get seasonal flu even though I got a flu vaccine this year?
- How well does the seasonal vaccine work?
- What are the side effects of the injectable flu shot? The nasal?
What worked?
Good sources of information http://www.immunize.org

We have noticed that CDC recommends that we begin vaccinating with seasonal influenza vaccine as early in September or even earlier. Does protection from seasonal influenza vaccine decline or wane within 3 or 4 months of vaccination? Should I wait until October or November to vaccinate my elderly or medically frail patients?

How late in the season can I vaccinate my patients with influenza vaccine?

Which travelers are recommended to be vaccinated?

Why do people who received influenza vaccine last year still need to get vaccinated this year when the viruses haven’t changed?

If an unvaccinated patient who has just recovered from a diagnosed case of influenza comes into our clinic, should we vaccinate him?

How long does immunity from influenza vaccine last?

Are there recommendations for the prevention of institutional outbreaks of influenza?

What is the recommended interval for receiving influenza vaccine after an allergy injection?

Some of my patients refuse influenza vaccination because they insist they “got the flu” after receiving the injectable vaccine in the past. What can I tell them?

- People may be exposed to an influenza virus shortly before getting vaccinated or during the two-week period that it takes the body to gain protection after getting vaccinated. This exposure may result in a person becoming ill with flu before the vaccine begins to protect them.

- People may become ill from other (non-flu) viruses that circulate during the flu season, which can also cause flu-like symptoms (such as rhinovirus).

- A person may be exposed to an influenza virus that is not included in the seasonal flu vaccine. There are many different influenza viruses that circulate every year. The flu shot protects against the viruses that research suggests will be most common. Unfortunately, some people can remain unprotected from flu despite getting the vaccine. This is more likely to occur among people that have weakened immune systems. However, even among people with weakened immune systems, the flu vaccine can still help prevent influenza complications.

What worked?

Good source of information #3: [https://flunearyou.org/](https://flunearyou.org/)

Flow sheets: prompts review of immunization status
What worked?
Flow sheet as provider reminder / alert

What worked?
Flow sheet as provider reminder / alert

What worked?
Standing orders downloadable from immunize.org
What worked?

**QA chart audits**: missed influenza vaccination opportunity prompts an explanation during quarterly chart audits

- Chart audit every 3-6 months
- Random audit of 10% of clinic population
- Involves Medical Assistants who are involved in giving the immunization vaccines
- Missed vaccination opportunity prompts an explanation during quarterly chart audits

Good source of information #4: www.myvaccineresource.org
What worked?
Good sources of information www.myvaccineresource.org

Individual studies give us information about specific programs and policies. But looking at the larger bodies of research provides a much better understanding of whether or not a type of intervention has been shown to be effective.
The Community Preventive Services Task Force
http://www.thecommunityguide.org/uses/general.html

- The Community Guide is a resource for evidence-based Task Force recommendations and findings about what works to improve public health.
- The Task Force is an independent, nonfederal, uncompensated body of public health and prevention experts, whose members are appointed by the Director of CDC.

Each Task Force finding is:
- Based on systematic reviews of published literature
- Based on the strength of the evidence of effectiveness in changing outcomes
- Conducted by a team of experts on behalf of the Task Force
- Meant to be used along with information about local needs, goals, and constraints

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Enhancing Access to Vaccination Services
http://www.thecommunityguide.org/vaccines/universally/index.html

- Home visits either by providing vaccinations to clients in their homes or by providing referral to available immunization services
- Reducing client out of pocket costs
- Vaccination programs in schools & organized child care centers like non-home day care, nursery or pre-school, and federal Head Start settings for children aged ≤ 5 years
- Vaccination Programs in WIC settings especially if on site vaccinations and incentives for vaccinations (like monthly vouchers) are available

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Increasing Community Demand for Vaccinations
http://www.thecommunityguide.org/vaccines/universally/index.html

- Client or Family Incentive Rewards which may be monetary or not (e.g., food vouchers, gift cards, lottery prizes, baby products).
- Client Reminder & Recall Systems reminding people that vaccinations are due (reminders) or late (recall) — telephone, letter, postcard — and may be accompanied by educational messages regarding the importance of the vaccine.
- Vaccination Requirements for Child Care, School, & College Attendance: Laws or policies requiring vaccinations as a condition of child care, school, and college attendance to reduce the incidence of vaccine-preventable disease
Provider or System Based Interventions
http://www.thecommunityguide.org/vaccines/universally/index.html

- Health care system-based interventions implemented in combination
  Example: combining outreach with home visits and standing orders for vaccinations
- Immunization information systems (IIS) are confidential, population-based, computerized databases that record all immunization doses administered by participating providers to persons residing within a given area. It can (support interventions like client reminder and recall systems) evaluate public health responses to outbreaks of vaccine-preventable disease; help vaccine management & accountability; determine client vaccination status for decisions made by clinicians, health departments, and schools and (3) aid surveillance and investigations on vaccination rates, missed vaccination opportunities, invalid dose administration, and disparities in vaccination coverage.

Provider or System Based Interventions...continued
http://www.thecommunityguide.org/vaccines/universally/index.html

- Evaluate HCP performance in delivering vaccinations to a client population and give them feedback on their performance.
- Provider reminders to inform HCPs that individual clients are due for vaccinations — computerized or simple reminders, alerts in EMRs, checklists or flowcharts
- Standing orders
- Community-based interventions between community organizations, local government, and vaccination providers. (E.g. conduct outreach of clients, mass media, & expanded access to vaccination services.

Stinchfield, Patricia. Practice-Place Interventions to Increase Vaccination Rates and Broaden the Immunization Season. Am J Med 2008;121 (Supp 2); pages S11-S21
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4808a1.htm
http://www.amjmed.com/article/S0002-9343(08)00466-X/fulltext
### Successful types of interventions

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Description</th>
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<tbody>
<tr>
<td>Incentive in January and beyond</td>
<td>Deliver vaccine to patients throughout the influenza season rather than just prior to the early months of the season (October and November).</td>
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<tr>
<td>Vaccine-only sites</td>
<td>Assess patient need for influenza vaccination at any type of healthcare setting, including primary care, community health centers, and clinics.</td>
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<tr>
<td>Vaccine-only clinics</td>
<td>Reduce waiting time by reserving appointments for patients receiving vaccine only from a single facility.</td>
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<tr>
<td>Extended office hours</td>
<td>Increase or make more convenient the hours during which vaccination services are provided.</td>
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<tr>
<td>Vaccination services at alternative, nontraditional sites</td>
<td>Deliver vaccinations in settings in which they were not previously provided.</td>
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### Increase demand

- **Clinic-based patient education**
  - Provide information regarding vaccination to target patients served in a specific medical or public health clinic setting, including mass media campaigns, newsletters, posters, brochures, and reminders.

- **Community-wide education**
  - Deliver information regarding vaccination to a target population in a geographic area, techniques include media campaigns (television, radio, newspapers, posters, leaflets, brochures), and computer-based programs.

- **Patient reminder systems**
  - Send alerts that vaccinations are due (reminders) or that recall to patients, delivery techniques include telephone calls, letters, postcards, and emails.

### Improve practice-related factors

- **Standing orders**
  - Encourage medical personnel to prescribe or deliver vaccinations to patient populations by protocol without direct physician involvement at each visit.

- **Provider reminders**
  - Settings include clinics, hospitals, and nursing homes, inform those who administer vaccinations that individual patients are due (reminder) or in need (recall) for vaccinations. Delivery techniques include faxed patient charts, computer or e-mail notifications.

- **Assessment and feedback to vaccination provider**
  - Perform a retrospective evaluation of provider performance (vaccination of at-risk patients) and report results to providers to measure changes in vaccination rates, can also involve other activities, eg., reconvincing, improving performance via a pay-for-performance.

- **Adolescent influenza vaccination by quality-care checklists**
  - Formalize influenza vaccination into routine practices that form the basis of high-quality patient care.

- **Provider education and reinforcement**
  - Provide information to vaccination providers to increase their knowledge and change attitudes, techniques include written materials, videos, lectures, continuing medical education programs, and computer-based training programs.

Adapted from the Centers for Disease Control and Prevention (CDC) and Ann Intern Med."
Routine annual influenza vaccination is recommended for all persons aged 6 months.

**Vaccine Strains for the 2012–13 Influenza Season**

- U.S. influenza vaccines for 2012–13 will contain A/California/7/2009 (H1N1)-like, A/Victoria/361/2011 (H3N2)-like, and B/Wisconsin/1/2004-like (Yamagata lineage) antigens. The influenza A(H1N2) and B antigens differ from the respective 2010–11 and 2011–12 seasonal vaccine antigens (3). The influenza A(H1N1) vaccine virus strain is derived from a influenza A(H1N1)pdm09 (2009[H1N1]) virus and was included in the 2009(H1N1) monovalent pandemic vaccine as well as the 2010–11 and 2011–12 seasonal vaccines.
Vaccine Dose Considerations for Children Aged 6 Months Through 8 Years

(LAIV, FluMist) Live, attenuated influenza vaccine can be given \textit{intranasally} to healthy, non-pregnant adults younger than age 50 years without high-risk medical conditions.

(TIV) Trivalent inactivated vaccine can be given \textit{intramuscularly} for persons 6 months of age and older, including:

- elderly people ≥ 50 years of age
- pregnant women
- those with medical conditions such as asthma or reactive airway disease, chronic disorder of the pulmonary or CV system, metabolic diseases like diabetes, renal diseases, immune deficiency or being on immunosuppressive therapy.

Herd immunity \(\text{(or community immunity)}\) describes a form of immunity that occurs when the \textit{immunity} of a significant portion of a population \(\text{(or herd)}\) provides a measure of protection for individuals who have not developed immunity. Herd immunity theory proposes that, in \textit{contagious} diseases that are transmitted from individual to individual, \textit{chains of infection} are likely to be disrupted when large numbers of a population are immune or less susceptible to the disease. The greater the proportion of individuals who are resistant, the smaller the probability that a susceptible individual will come into contact with an infectious individual. Vaccination acts as a sort of \textit{firebreak} or \textit{firewall} in the spread of the \textit{disease}, slowing or preventing further transmission of the disease to others. Unvaccinated individuals are indirectly protected by vaccinated individuals, as the latter will not contract and transmit the disease between infected and susceptible individuals. Hence, a public health policy of herd immunity may be used to reduce spread of an illness and provide a level of protection to a vulnerable, unvaccinated subgroup. Since only a small fraction of the population \(\text{(or herd)}\) can be left unvaccinated for this method to be effective, it is considered best left for those who cannot safely receive vaccines because of a medical condition such as an \textit{immune disorder}, \textit{organ transplant} recipients, or people with \textit{Egg Allergies}. 
OBJECTIVE: To determine the influenza vaccination coverage required to establish herd immunity, and to assess whether the percentages of vaccination孰 allowable and those registered in the United States and Europe are sufficient to establish herd immunity.

METHODS: The vaccination coverage required to establish herd immunity was determined by taking into account the number of secondary cases per infected case and the vaccine effectiveness.

RESULTS: The required percentage that would have been required to establish herd immunity against previous influenza viruses ranged from 20% to 100% for the 1918-19, 1957-58, 1968-69, and 2009-10 pandemic viruses, and from 70% to 90% for the non-epidemic viruses. Studies reporting modifications of such parameters there is a general agreement that the increased viral replication is usually transient and unable to determine a clear, measurable progression of the underlying HIV disease. Therefore, vaccination against influenza can be safely administered to HIV infected individuals.

CONCLUSION: The influenza vaccination coverage must be increased in the United States and Europe in order to establish herd immunity. It is necessary to develop new influenza prevention messages based on herd immunity.
Physicians say they are discussing vaccines with patients, but adults say the opposite.

- Most physicians say they discuss vaccines with all patients (87 percent).
- Far fewer patients report these conversations taking place. Almost half (47 percent) can't recall discussing vaccines other than influenza with their physician or health care provider (HCP). One in five (21 percent) can't recall discussing any vaccines at all.
- Almost all doctors (99 percent) say they or members of their staff initiate vaccine discussions. However, 49 percent of patients say that when vaccine discussions occur, it's at routine healthy visits when they (not their HCP) bring it up. Only 37 percent say their physician or HCP initiates the discussion.
- Women more frequently report having discussions about vaccines other than influenza (57 percent) vs. men (40 percent), and discussions increase with age (age 65+: 53 percent vs. age 18-34: 43 percent).

Nearly nine in ten (88 percent) consumers say a strong recommendation from their physician would motivate them in their vaccine decisions.

- Other top motivators are: more knowledge about vaccine effectiveness (89 percent), information about the connection between vaccine-preventable diseases and cancer (79 percent), more information about the severity of vaccine-preventable diseases (76 percent).
- The two top reasons why adults are most likely to get a vaccine are to prevent spreading illness to family members or others and because a doctor or other HCP recommended it.
Physicians identify cost challenges, both for patients and themselves, as major obstacles to higher vaccination rates.

- Topping physicians’ list of perceived obstacles is patient unwillingness to pay out-of-pocket costs.
- (82 percent), complexities of coverage for shingles vaccine (77 percent), and the financial challenge vaccines pose to their practices (58 percent).
- Patients say they are also challenged by lack of time to discuss vaccines (57 percent), determining which patients need vaccines (47 percent), and the challenge of vaccine recordkeeping (40 percent).

Patients don’t often refuse vaccines, and when they do, lack of concern about the disease is usually the reason.

- 47% of physicians say most patients are receptive to any vaccine suggested, while 52% say some accept vaccine recommendation and others are reluctant. Only 1% of physicians say that most patients are not receptive to their recommendations.
- Only 1 in 4 adults (27%) reports ever refusing a vaccine offered to them by their HCP, with the highest rate of refusal for influenza (20%), followed by pneumococcal (7%); HPV (7%); shingles (6%); hepatitis B (6%) and pertussis (4%).
- Physicians say that when patients refuse a vaccine, it’s likely because they are not convinced they need it (33%) or have concerns over vaccine safety (29%). While physicians listed cost to patients as a top obstacle to vaccination (above), when asked for reasons they believe patients actually declined a vaccine, only 10% say it because of health insurance coverage or cost issues.


BACKGROUND:
Although annual influenza vaccination of human immunodeficiency virus (HIV)-infected patients has been recommended in the United States since the early 1990s, vaccine coverage in this population is reported to be low. The objectives of the present study were to assess trends in influenza vaccination coverage in HIV-infected patients and to determine predictors of influenza vaccination.

METHODS:
We analyzed data from the medical records of ≈7,400 HIV-infected patients from 15 sites observed in a longitudinal cohort study between 1994 and 2003. Using multivariate logistic regression, we determined predictors of influenza vaccination for both the pre-highly active antiretroviral therapy (HAART) and HAART eras.

RESULTS:
Vaccination coverage increased from 24% in the years pre to 60% in the years post HAART era. Vaccine uptake increased with increasing age and frequency of medical visits. In the HAART era, persons prescribed antiretroviral therapy were more likely to vaccinate and those with higher viral loads and lower CD4 T cell counts were less likely to have received influenza vaccine.

CONCLUSIONS:
Although influenza vaccination coverage in this population has increased in recent years, it is well below the Healthy People 2000 target of 60%. Efforts should be undertaken to increase influenza vaccination in HIV-infected persons.

http://www.cdc.gov/flu/protection/flufacts.htm

Who Should Get Vaccinated This Season?
- Everyone who is at least 6 months of age should get a flu vaccine this season. A detailed list is available at Who Should Get Vaccinated Against Influenza?

Who Should Not Be Vaccinated?
- People who have a severe allergy to eggs.
- People who have had a severe reaction to an influenza vaccine.
- Children younger than 6 months of age (influenza vaccine is not approved for this age group), and
- People who have a moderate-to-severe illness with a fever (they should wait until they recover to get vaccinated.)
- People with a history of Guillain-Barré Syndrome (a severe paralytic illness, also called GBDS) that occurred after receiving influenza vaccine and who are not at risk for severe illness from influenza should generally not receive vaccine.

Nurses' attitudes and beliefs about influenza and the influenza vaccine: a summary of focus groups in Alabama and Michigan.

Willis BC, Wortley P.

Source
Centers for Disease Control and Prevention, Health Services Research and Evaluation Branch, Immunization Services Division, National Center for Immunization and Respiratory Diseases, Atlanta, Georgia 30333, USA. bnw6@cdc.gov

BACKGROUND:
The U.S. Advisory Committee on Immunization Practices (ACIP) recommends influenza immunization among United States health care workers (HCWs) to reduce the spread of influenza to and from workers and patients. Despite these recommendations, influenza immunization among HCWs is less than 50%.

PARTICIPANTS AND METHODS:
Eight focus groups of registered nurses (RNs) were conducted in Birmingham, Alabama (n = 34) and Detroit, Michigan (n = 37). In each city, the focus groups consisted of 2 groups each of vaccinated and unvaccinated RNs.

RESULTS:
These focus groups revealed that many nurses were concerned about influenza vaccine effectiveness and safety; their lack of information about the vaccine plays a part in their willingness to promote it to patients. Unvaccinated nurses tended to be less aware of the ACIP recommendations for HCW vaccination, and overall, nurses were not aware of the rationale for HCW vaccination. Attitudes were mixed regarding mandatory influenza vaccination programs, including the hope that such programs would result in higher vaccination rates and concern about potential disciplinary action if vaccine was declined. Participants believed that increasing convenience was the key to increasing HCW vaccination.

CONCLUSIONS:
Our findings confirm the importance of comprehensive approaches that combine education and convenience, and suggest that emphasizing the rationale for HCW vaccination may contribute to increasing vaccination rates.
Herd immunity: Seasonal influenza vaccination reduces the likelihood of becoming ill with influenza or transmitting influenza to others.

- In contagious diseases that are transmitted from individual to individual, chains of infection are likely to be disrupted when large numbers of a population (herd) are immune or made less susceptible to the disease.
- The greater the proportion of individuals who are immune (resistant to influenza), the smaller the probability that a susceptible individual will come into contact with an infectious individual.
- Vaccinated individuals provide a "firewall" around unvaccinated individuals to limit the spread of influenza by slowing or preventing further transmission of influenza to other people.