



Childhood Influenza Vaccination Toolkit

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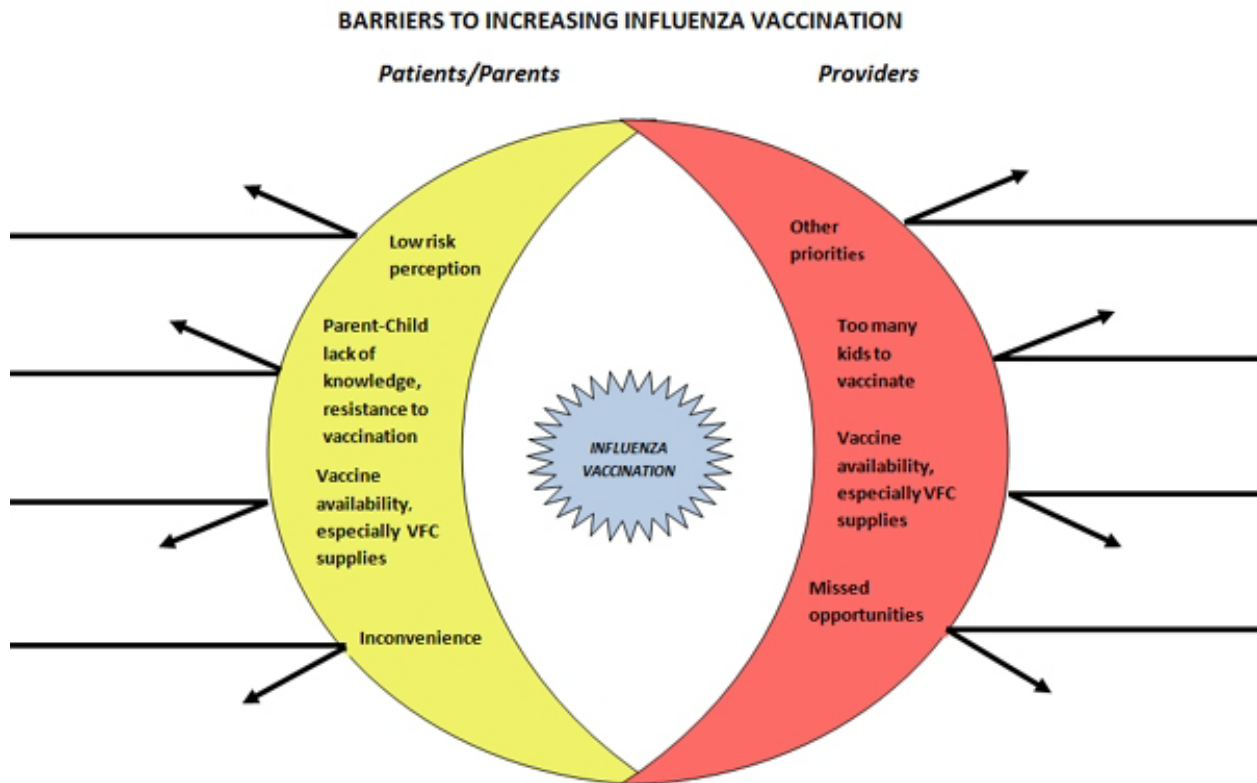


Learning Objectives for Childhood Influenza Vaccine Toolkit

1. Explain the burden of influenza, including missed activities and absenteeism, and the safety and the mechanism of action of various influenza vaccines in order to be able to recommend vaccine and answer parent's/patient's questions (See Supplemental Information).
2. Develop a system of:
 - a) **convenient influenza vaccination** that includes expanded vaccination season, express vaccination services; and
 - b) **reminders** (email, Audiocare/Televox, posters, and/or video) to parents about the **importance of influenza vaccine** and the **availability of the express services**.
3. Explain that:
 - a) enhancing **office vaccination systems** has a significant impact on improving vaccination rates; and
 - b) office system changes include **expanding the season**, making **assessment of vaccination a routine part of the visit** (e.g., during vital signs or via Best Practice Alerts) and empowering staff to **vaccinate by standing orders programs**.
4. Implement motivation for office system change, including an **immunization champion and tracking weekly progress toward a set immunization goal**.

Background

There are a variety of barriers to increasing influenza vaccination particular to parents, patients, and providers.



The purpose of this toolkit is to offer evidence based solutions to minimizing those barriers and increasing influenza vaccination rates of children in your practice.

The Task Force on Community Preventive Services (Task Force) has conducted a thorough review of the evidence to improve vaccination rates. The Task Force recommends using at least 2 strategic approaches:

1. Increase Patient (Client) Demand

- a. Patient reminder and recall systems
- b. Clinic based patient education

2. Enhance Access

- a. Office hours express clinics
- b. Non office hours express clinics

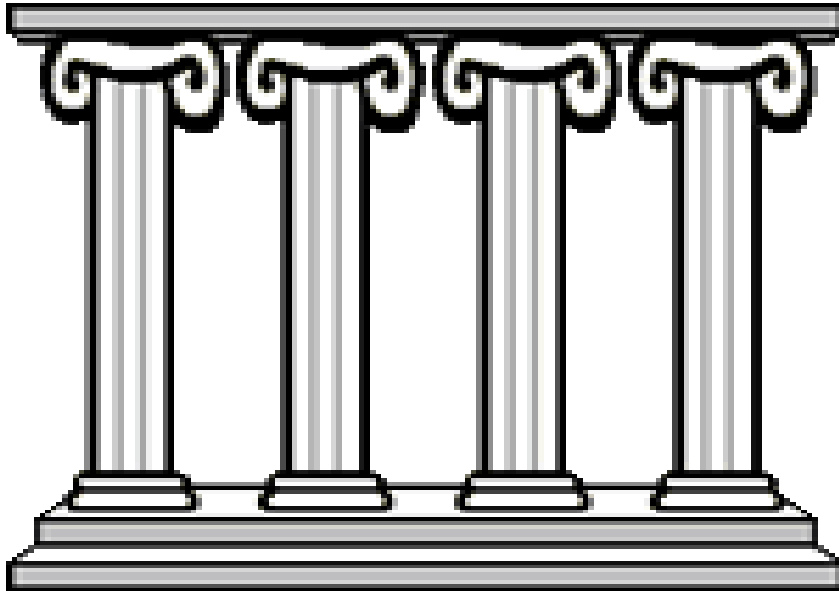
3. Provider Reminders and/or Modified Office Systems

- a. Standing orders programs (SOPs)
- b. Best practice alerts in electronic medical records (EMRs)

- Using a combination of 2 or 3 of these strategic approaches has led to a **16% point increase** in vaccination rates.
- Multiple interventions *within* a single strategic approach increase vaccination rates only 4% points.
- <http://www.thecommunityguide.org/vaccines/index.html>

Hence, we suggest these

Four Pillars of a Successful Influenza Vaccination Program:

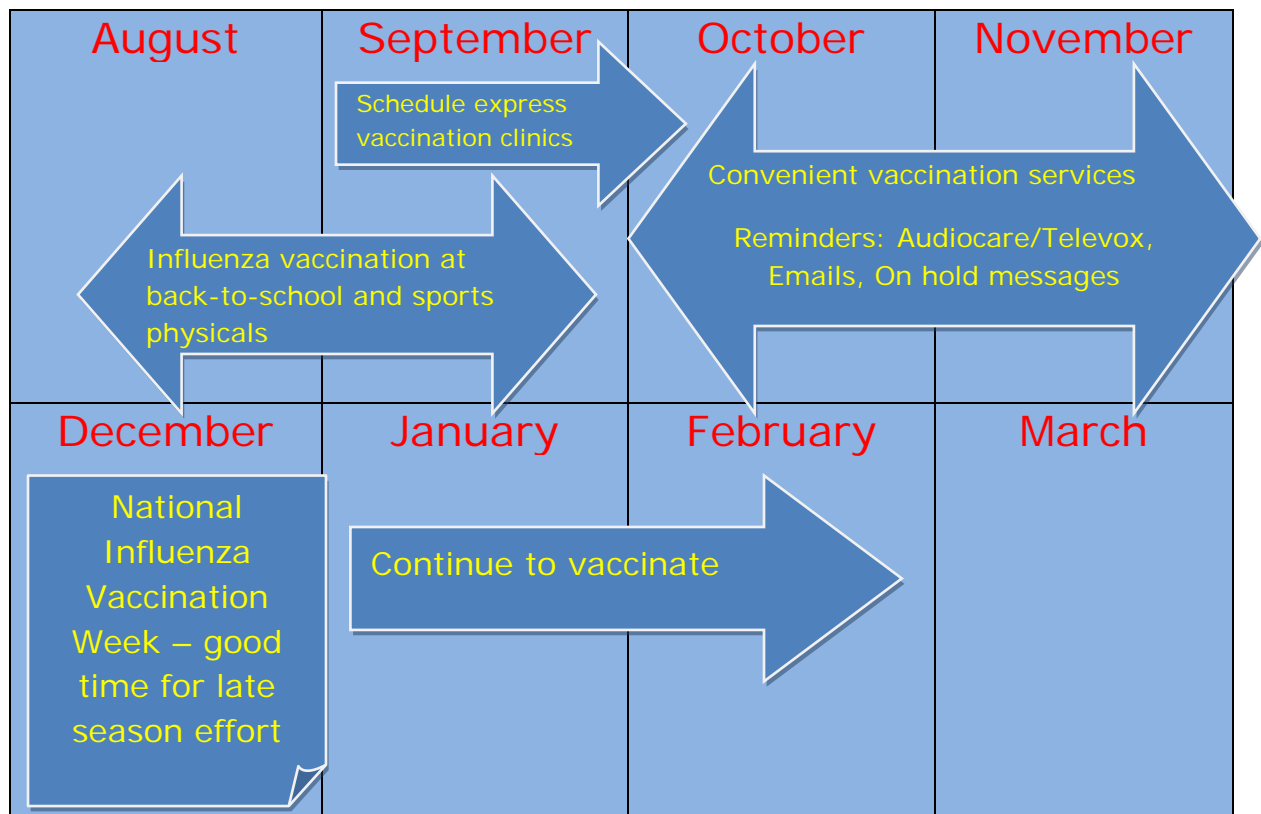


- Pillar 1** **Convenient influenza vaccination services**
- Pillar 2** **Patient notification about the importance of influenza vaccination and availability of convenient programs**
- Pillar 3** **Enhanced office vaccination systems**
- Pillar 4** **Motivation – Office immunization champion tracks progress towards a goal**

Pillar 1: Convenient Influenza Vaccination Services

- Most children will *not* be seen during the typical influenza vaccination season of October and November for well-child health supervision visits.
- **Extended Vaccination Season**
 - Use of August and September back-to-school physicals and sports physicals increases the opportunities to vaccinate and some vaccine is often available then.

- Peak influenza disease season varies but often is in February; thus, extending the season into January and beyond can increase vaccination coverage and prevent illness.
- **Express Vaccination Services**
 - Due to the number of children to be vaccinated, express services (influenza vaccination clinics) facilitate efficient office flow.
 - Given busy parent and child schedules, convenient express services are appreciated.
 - weekend or evening flu vaccine clinics
 - open access vaccine scheduling
 - dedicated influenza vaccination station
 - Dedicated express vaccination clinics can be systematized for efficiency
 - Offer only influenza vaccine
 - Efficient flow systems (1-2 minutes/patient) for check-in, screening, vaccination, and record keeping are available.



Pillar 2: Parent/Patient Notification about the Importance of Influenza Vaccination and Availability of Convenient Programs

- Physician Recommendations
 - Studies show that **physician recommendation** is central to influenza vaccine acceptance
- Parents need to know about the **importance of vaccination**
 - Parents of children *not* scheduled to be seen during influenza vaccination season, as well as those seen during that time should know about the importance of receiving an influenza vaccine.
- Parents should know **when convenient vaccination services are available** in your office
- Influenza vaccine messages can be delivered via:
 - Email
 - Autodialer (Audiocare/Televox)
 - Answering system messages while “on-hold”
 - Office posters

www.cdc.gov/flu/freeresources/print.htm?tab=1#TabbedPanels1

 - Social media
 - Public Service Announcements (PSAs) (See Evancho’s family PSA www.immunizationed.org/Evancho/)
 - Videos - See our Flu Bug video geared toward teens www.immunizationed.org/theBugStory/

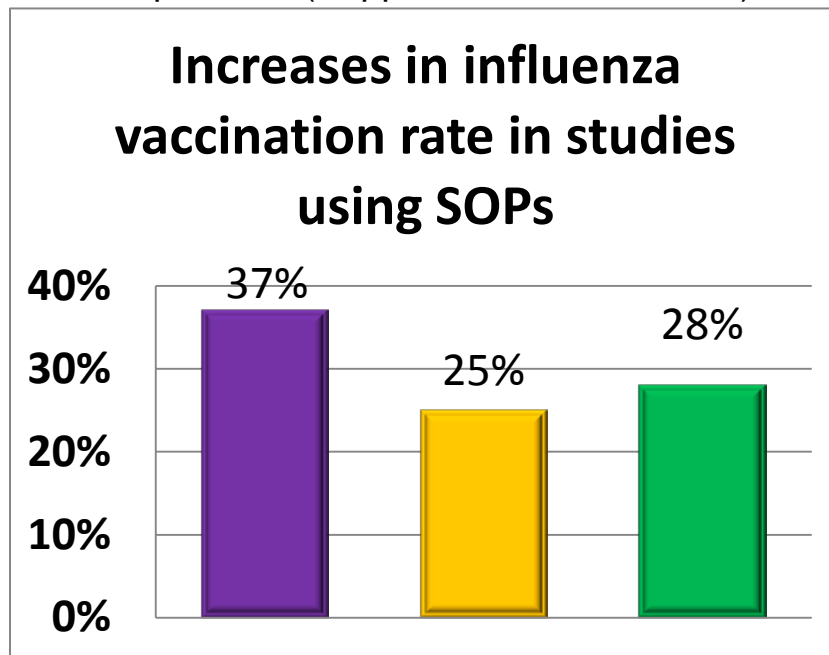


Pillar 3: Enhanced Office Vaccination Systems

- **Office vaccination systems** to reduce missed opportunities to vaccinate have a large impact on improving vaccination rates
 - **Assessment of influenza vaccination as a routine** part of the office visit **by nursing staff**. This should occur at all visits whether child is sick or well. Options include:
 - For practices with EpicCare or other EMR with similar capability, Best Practice Alerts for influenza vaccine should be turned on
 - Review of the Health Maintenance (see example) or immunization tab
 - **Routinely address as part of vital signs**, “Has the child received an influenza vaccine (or both doses of vaccine, as applicable) this season?”
 - Make assessment a “Standard Operating Procedure.”
- **Empowering staff to vaccinate by standing orders programs**

SOPs allow clinical staff, both nurses and medical assistants to assess eligibility for influenza vaccine and vaccinate per protocol without the need for an individual physician’s order.

 - See sample SOP (Supplemental Information)



Instructions for Coding/Billing for Influenza Vaccine

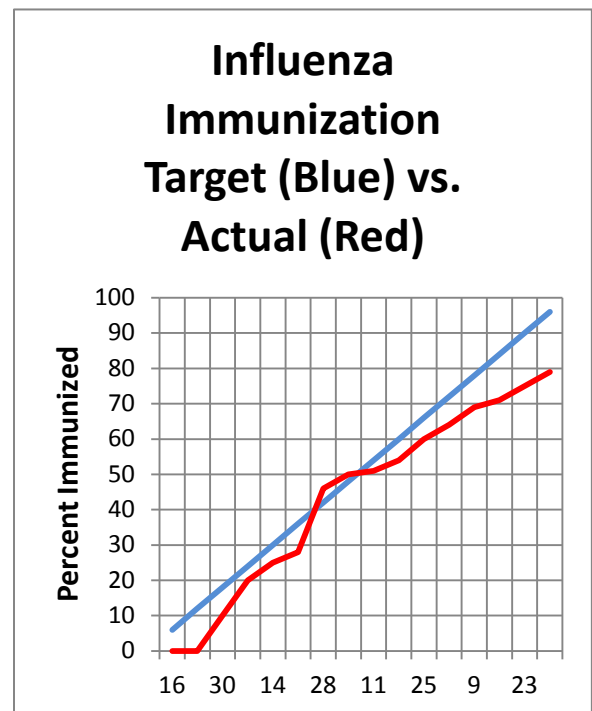
- Billing codes differ somewhat for VFC and commercial influenza vaccines.

Billing item	Commercial insurance Code	VFC Code
Influenza vaccine (6 mo-35 mo)	90658	90658
Influenza vaccine (>3 yrs)	90657	90657
Live attenuated (LAIV) (2-18 yrs)	90660	90660
Administration	--	90471
Counseling	90460 and 90461	--

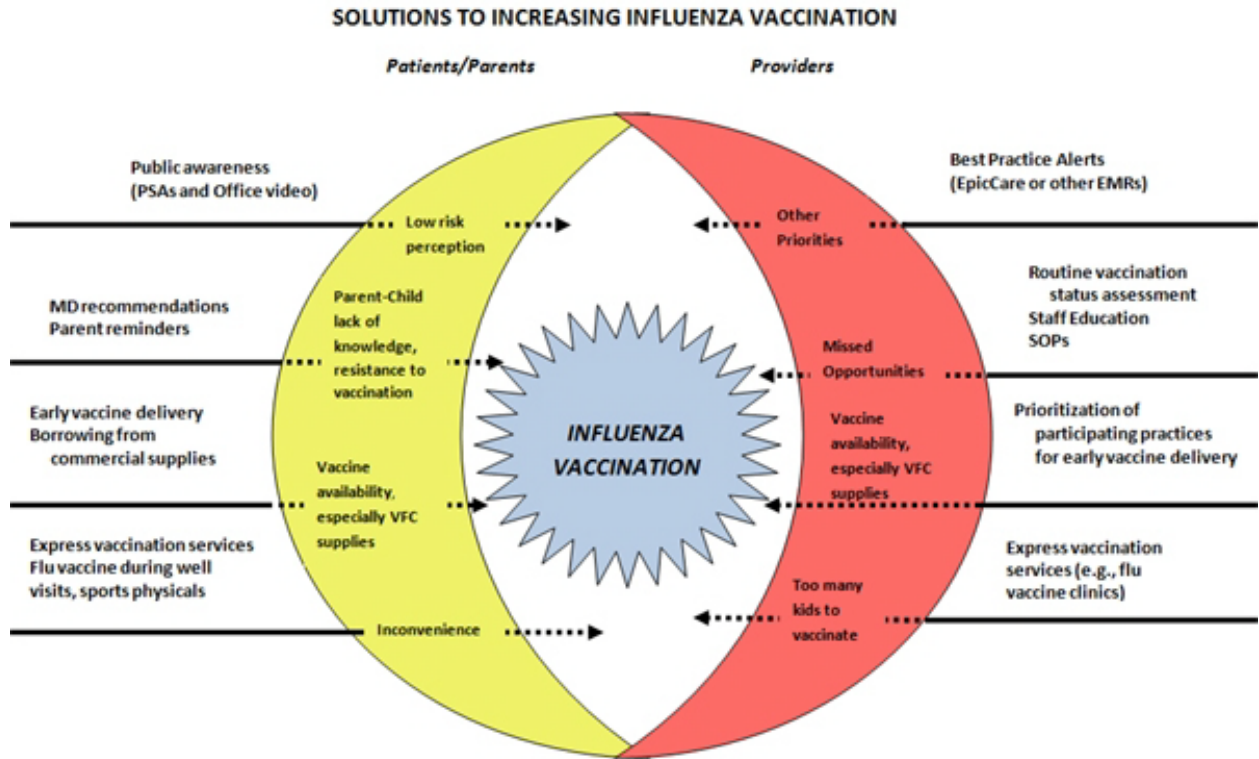
- **Expanding the influenza vaccination season**
 - Start Early as vaccine available – use back-to-school and sports physicals
 - Continue into the new year and the influenza season as benefit may occur and may help establish the vaccination habit

Pillar 4: Motivation – Office immunization champion tracks progress towards a goal

- Ongoing motivation is key to success
- **Immunization champion** is needed to foster motivation and track progress
- To monitoring progress:
 - **Set a goal that is a 20% to 25% increase** over last year – either as percent of children immunized or number of doses to be given
 - Monitor progress weekly
 - Share progress with team
 - Monitoring provides satisfaction if achievement is near goal and motivation to change systems if achievement is lacking
 - Allows competition among teams, awards



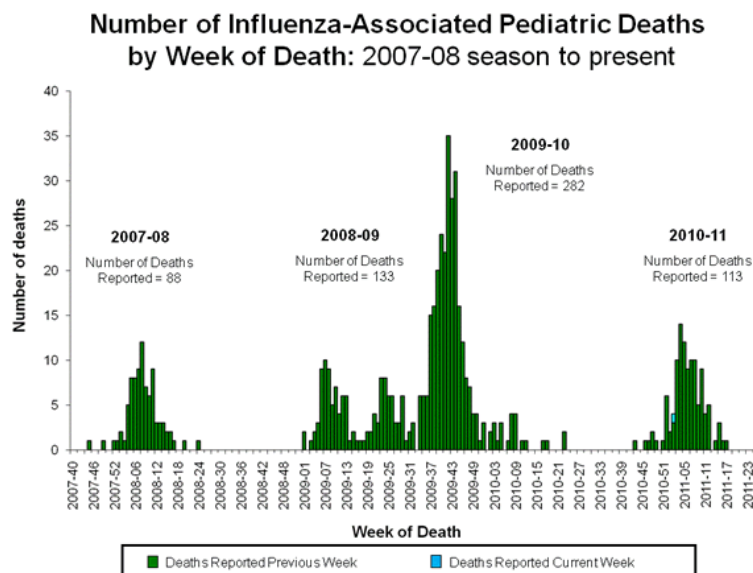
With a team effort and a multi-pronged approach, solutions to influenza vaccination barriers can be successfully implemented to improve children's influenza vaccination rates.



Supplemental Information

Impact of Influenza

- Rates of influenza infection are typically highest among children, occurring in 10%-20% of children annually prior to routine vaccination.
- Laboratory-confirmed influenza among children aged <5 years accounted for 10%-19% of office visits and 6%-29% of emergency department visits for acute respiratory illness or fever. (*N Engl J Med* 2006; 355:31-40).
- During an influenza season, 7-12 additional outpatient visits and 5-7 additional antibiotic prescriptions per 100 children aged <15 years have been estimated compared with periods when influenza viruses are not circulating (*N Engl J Med* 2000; 342:225-31).
- During 1979-2001, the U.S. estimated rate of influenza-associated hospitalizations among children aged <5 years averaged 108 per 100,000 (*JAMA* 2004; 292:1333-40).
- Hospitalization rates for children aged <5 years with high-risk medical conditions are approximately 250-500 per 100,000.
- Over 1,000 children are estimated to have died due to the influenza pandemic (www.cdc.gov/h1n1flu/estimates_2009_h1n1.htm).
- In the 2010-2011 influenza season, 113 children died of influenza or its complications.



Supplemental Information

Childhood Influenza Vaccine Safety

Trivalent Inactivated Influenza Vaccine (TIV or Flu Shot):

Today's inactivated influenza vaccines are considerably purer than vaccines produced prior to 1968 and cause fewer adverse events. TIV can cause local reactions such as soreness at the injection site that lasts <2 days. In persons previously exposed to influenza disease or vaccination, studies comparing current vaccine with placebo show similar rates of systemic reactions such as fever. A randomized, blinded crossover study among children and adults with asthma found that the only side effect reported more often after TIV than after placebo was myalgia (25% vs. 21%; *N Engl J Med.* 2001; 345:1529-1536). However, in young children not previously exposed to influenza vaccine, fever, malaise, and myalgia can occur after TIV.

TIV does not include live virus, it cannot cause influenza.

Live Attenuated Influenza Vaccine (LAIV or Flu Nasal Spray):

The LAIV is a trivalent, cold-adapted, temperature-sensitive vaccine. Master donor viruses are developed by serial passage at sequentially lower temperatures until the viruses have attained 3 genetic changes:

- 1) cold-adaptation with good replication at 25°C (below human core temperatures);
- 2) temperature sensitivity with poor replication at human core body temperature (37°C); and
- 3) attenuation so as not to produce classic influenza symptoms.

Among children, nasal congestion/rhinorrhea (20%-75%), headache (2%-46%), fever (0%-26%), vomiting (3%-13%), abdominal pain (2%), and myalgia (0%-21%) were more commonly reported by vaccinees than by placebo recipients. Symptoms were self-limited and more commonly occurred after the first dose. No overall increases were seen in acute respiratory-tract events or rare events among healthy vaccinees. However, among vaccinees 24-59 months old, exacerbations of reactive airways disease was more likely, leading to the LAIV contraindication in children <5 years with a history of wheezing.

Standing Orders Protocol Document for Seasonal Influenza Vaccine

Policy: Standing Orders for Seasonal Influenza Vaccine

Procedure:

1. **Identify influenza vaccine** types available in facility and modify the following based on type availability.
2. **Determine patient eligibility by vaccine type** (live attenuated influenza vaccine (LAIV), trivalent inactivated influenza vaccine (TIV), high dose TIV, intradermal TIV, and age-based specifics of TIV formulation):

Influenza Vaccines Licensed for Children in the U.S.

Influenza Vaccine Type	Administration Route	Age Group	Health status
Trivalent inactivated (TIV)	Intramuscular	≥6 months; varies by manufacturer & formulation	All, including pregnant and high-risk conditions for influenza complications
High dose TIV	Intramuscular	≥65 years of age	All, including high-risk conditions for influenza complications
Intradermal TIV	Intradermal	18-64 years	All
Live attenuated (LAIV)	Intranasal	2-49 years of age	Healthy only

3. If eligible for more than one vaccine type, **ask patient preference** as to type.
4. **Screen for contraindications and precautions** by selected vaccine type.
 - a. **Contraindications to Any Influenza Vaccine:**
 - Severe hypersensitivity reaction (e.g., anaphylaxis) to eggs (e.g., after ingesting eggs), a previous dose of influenza vaccine or an influenza vaccine component. For a list of vaccine components, go to www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/excipient-table-2.pdf. Guidance on vaccinating persons with a history of egg allergy is addressed below:
 - Individuals who can eat lightly cooked eggs without a reaction should be vaccinated by the usual protocol
 - Individuals who develop only hives in response to eating eggs or egg containing foods can be vaccinated with TIV by a provider familiar with potential manifestations of egg allergy but should be observed for 30 minutes.
 - Persons who develop cardiovascular changes (e.g., hypotension), angioedema, respiratory distress (e.g., wheezing), gastrointestinal symptoms (e.g., vomiting), a reaction requiring epinephrine or a reaction requiring emergency medical attention should be referred to a physician with expertise in management of allergies for further evaluation.

b. Contraindications to Live Attenuated Influenza Vaccine:

- Chronic medical disorders including chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, neurological/neuromuscular, hematological, or metabolic disorders (including diabetes mellitus);
- Immunocompromised (including immunosuppression caused by medications or by HIV);
- Children aged 2–4 years, report from parents or caregivers that a health-care provider told them during the preceding 12 months that their child had wheezing or asthma, or medical record that indicates a wheezing episode during the preceding 12 months;
- Children or adolescents aged 6 months–18 years, receipt of aspirin or other salicylates (because of the association of Reye syndrome with wild-type influenza infection);
- Pregnancy
- egg allergy

c. Precautions for Any Influenza Vaccine:

- Current moderate or severe acute illness with or without fever;
- History of Guillain Barré syndrome within 6 weeks of a previous influenza vaccination;

d. Precautions for LAIV only:

- Close contact with an immunosuppressed person when the person requires protective (reverse) isolation
- Not licensed for age <2 years or ≥ 50 years;

5. **Provide** patients with the most current federal **Vaccine Information Statement** (VIS). Document in the patient's medical record or office log, the publication date of the VIS and the date it was given to the patient. VISs are available from www.cdc.gov/vaccines/pubs/vis/default.htm#flu. Provide non-English speaking patients with a copy of the VIS in their native language, if available and preferred; these can be found at www.immunize.org/vis. A patient signature is not required.
6. **Determine TIV dosage** if applicable: Dosage is 0.25mL for children 6-35 months; 0.5mL for older children and adults; the intradermal preparation comes as a single-dose 0.1mL prefilled microinjection syringe.
7. **Determine number of doses.** For children <9 years of age, those who had at least 1 prior dose in 2010-2011 should receive one 1 dose this season. Children < 9 years of age who have not been previously vaccinated in 2010-11 should receive two doses of influenza vaccine spaced 4 weeks, see <http://www.cdc.gov/flu/professionals/acip/>.
8. **Administer vaccine.** If TIV or high-dose TIV selected, administer in the deltoid to adults and older children with a needle length of ≥ 1 " (>25 mm) because shorter needles might not reach muscle tissue in some persons, particularly if the subcutaneous tissue layer is thick. For elementary school age and other younger children who have enough deltoid muscle for use of that site, a needle length of

7/8" to 1.25" is recommended by ACIP. Infants and young children (e.g, toddlers) without much deltoid muscle should be vaccinated in the anterolateral aspect of the thigh. For children <12 months of age, the needle length is 7/8" to 1". If intradermal TIV selected, insert over the deltoid and then inject. If LAIV selected, administer 0.2 mL of intranasal LAIV; 0.1 mL is sprayed into each nostril while the patient is in an upright position.

9. **Document** each patient's vaccine administration information including date of administration, manufacturer and lot number, the vaccination site and route, and the name and title of the person administering the vaccine. If vaccine was not given, record the reason(s) for non-receipt of the vaccine (e.g., medical contraindication, patient refusal).
10. **Be prepared to manage a medical emergency** related to the vaccine administration with a written protocol, equipment and medications.
11. Report adverse reactions requiring medical attention to the Vaccine Adverse Event Reporting System (VAERS) at www.vaers.hhs.gov