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Flu vaccine for 2018-19

This guide provides a summary of CDC's flu vaccination recommendations for the 2018-19 flu season. For more details, read the full MMWR on Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices—United States, 2018–19 Influenza Season (www.cdc.gov/mmwr/volumes/67/rr/rr6703a1.htm?s_cid=rr6703a1_w).

This season's vaccine contains:

- A/Michigan/45/2015 (H1N1)-like virus
- A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus
- B/Colorado/06/2017-like virus. (This is a B/Victoria lineage virus)
- B/Phuket/3073/2013-like virus (This is a B/Yamagata lineage virus contained in quadrivalent vaccine)

The 2018-19 flu vaccine includes a change to the AH3N2 and B (Victoria) strains.

For more information on flu vaccine antigen selections, see Selecting Viruses for the Seasonal Influenza Vaccine (www.cdc.gov/flu/about/season/vaccine-selection.htm).

New options for flu vaccine are available nearly every season. This makes flu vaccine more accessible, but may also increase medication errors. Double check the package insert for age indication, route, and dosage. This information is summarized in the chart below and is available online in the 2018-19 Seasonal Influenza Vaccine Dosage Chart on Influenza Vaccine Administration (www.health.state.mn.us/divs/idepc/diseases/flu/vaccine/admin/index.html).

<table>
<thead>
<tr>
<th>Manufacturer*</th>
<th>Trade Name</th>
<th>Age</th>
<th>Dose-Presentation</th>
<th>Route</th>
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<tr>
<td><strong>Inactivated Influenza Vaccine, Trivalent (IIV3)</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Sanofi Pasteur</td>
<td>Fluzone High Dose</td>
<td>65 years and older</td>
<td>0.5 mL - prefilled syringe</td>
<td>IM (intramuscular)</td>
</tr>
<tr>
<td>Seqirus</td>
<td>Alfuria</td>
<td>5 years and older</td>
<td>0.5 mL - prefilled syringe</td>
<td>IM</td>
</tr>
<tr>
<td>Seqirus</td>
<td>0.5 mL - multi-dose vial</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Recombinant Influenza Vaccine, Quadrivalent (RIV4)</strong></td>
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<tr>
<td>Sanofi Pasteur</td>
<td>FluBlok</td>
<td>18 years and older</td>
<td>0.5 mL - prefilled syringe</td>
<td>IM</td>
</tr>
<tr>
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<tr>
<td>Seqirus</td>
<td>Fluad</td>
<td>65 years and older</td>
<td>0.5 mL - prefilled syringe</td>
<td>IM</td>
</tr>
<tr>
<td><strong>Cell Culture-Based Inactivated Influenza Vaccine, Quadrivalent (ccIIV4)</strong></td>
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<td>Seqirus</td>
<td>Flucelvax</td>
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<td>0.5 mL - prefilled syringe</td>
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</tr>
<tr>
<td>Seqirus</td>
<td>0.5 mL - multi-dose vial</td>
<td></td>
<td></td>
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<tr>
<td><strong>Inactivated Influenza Vaccine, Quadrivalent (IIV4)</strong></td>
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<tr>
<td>GlaxoSmithKline</td>
<td>Fluarix</td>
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<td>IM</td>
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<td>GlaxoSmithKline (ID Biomedical Corp.)</td>
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<td>IM</td>
</tr>
<tr>
<td>Seqirus</td>
<td>0.5 mL - prefilled syringe</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seqirus</td>
<td>0.5 mL - multi-dose vial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sanofi Pasteur</td>
<td>Fluzone Quadrivalent</td>
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<td>Dose per age - multi-dose vial</td>
<td>IM</td>
</tr>
<tr>
<td>6 through 35 months</td>
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<td>36 months and older</td>
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<td></td>
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<tr>
<td>0.5 mL - single-dose vial</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Live Attenuated Influenza Vaccine, Quadrivalent (LAIV4)</strong></td>
<td></td>
<td></td>
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<tr>
<td>AstraZeneca</td>
<td>FluMist</td>
<td>2 through 49 years</td>
<td>0.2 mL - prefilled intranasal sprayer; 0.1 mL in each nostril</td>
<td>Intranasal</td>
</tr>
</tbody>
</table>

*Make sure you are using the correct codes to enter doses into the Minnesota Immunization Information Connection (MIIC) by going to MIIC Vaccines and Vaccine Codes (www.health.state.mn.us/divs/idepc/immunize/registry/hp/vaxcodes.html).
**Pediatric flu vaccines**

FluLaval and Fluarix (manufactured by GSK) are now approved for infants as young as age 6 months. The correct dosage of these presentations is 0.5 mL for all individuals age 6 months and older. Fluzone (manufactured by Sanofi), which has been licensed for infants for many years, is given as 0.25 mL for persons age 6-35 months and 0.5 mL for persons age 3 years and older.

**Live Attenuated Influenza Vaccine (LAIV) is back**

The Advisory Committee on Immunization Practices (ACIP) recommended that LAIV (also called FluMist) be included as an option for flu vaccines during the 2018-19 season. LAIV can be used for patients age 2 through 49 years with no other contraindications to LAIV.

**Two-dose recommendations for certain children**

Give two doses of influenza vaccine, at least 4 weeks apart to children age 6 months through 8 years who are receiving influenza vaccine for the first time or if they have not received two or more doses of influenza vaccine previously.

See *Influenza vaccine dosing algorithm for children 6 months through 8 years old, 2018-19 influenza vaccination season* below and on *Influenza Vaccine Administration* (www.health.state.mn.us/divs/idepc/diseases/flu/vaccine/admin/index.html).

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**Administering vaccine safely**

The route of vaccine administration varies by product. Influenza vaccines recommended for use this season are administered in one of two routes: intramuscular or intranasal.

**Screening for contraindications and precautions**

Flu vaccine is one of the most widely administered vaccines and in general, most people, even those with egg allergy, can safely receive the vaccine.

- Do not administer flu vaccine to patients who have a contraindication.
- Patients that have a precaution should generally not be vaccinated unless the benefits outweigh the risks as advised by their health care provider.

If you use a protocol from a licensed prescriber to administer flu vaccine, make sure that your screening tools match the criteria for vaccination stated in the protocol. Influenza vaccine protocols should be reviewed every year before vaccination begins. Protocol information and templates can be found on *Vaccine Protocols* (www.health.state.mn.us/divs/idepc/immunize/hcp/protocols/index.html).
Core screening criteria

- A previous severe allergic reaction to flu vaccine, regardless of the component suspected of being responsible for the reaction, is a contraindication to future receipt of the vaccine.

- A person who has experienced Guillain-Barre Syndrome (GBS) within 6 weeks of receipt of a flu vaccine may be vaccinated after having a conversation with their medical provider regarding the risks and benefits of vaccination. While GBS is extremely rare after vaccination, a person who has experienced GBS within 6 weeks of a flu vaccination could be at higher risk to experience it again after vaccination.

- Mild illness is neither a contraindication nor precaution to flu vaccination. A mild illness is one in which there are no expectations of a worsening illness course. Examples include otitis media in which antibiotics are prescribed and fever may or may not still be present, or cold symptoms that have been declining. Immunization programs should have a policy with clear criteria about what symptoms would warrant deferral (e.g., fever >100.5 degrees F, or an acute illness that began within the past 24-48 hours) and when the patient may be vaccinated.

- LAIV: Because LAIV is a live vaccine, additional contraindications and precautions include, pregnancy, conditions that suppress the immune system, and receipt of antivirals. In 2015, the ACIP clarified that asthma and underlying medical conditions that place a person at high risk for influenza (diabetes, heart disease, etc.) are precautions to the receipt of LAIV rather than contraindications.

Egg allergy and flu vaccination

- People with egg allergies can receive any licensed, recommended, age-appropriate flu vaccine (IIV, RIV4, or LAIV4) and only need to be observed for the standard 15 minutes following vaccination instead of 30 minutes.

- People who have severe egg allergies should be vaccinated in a medical setting and be supervised by a health care provider who is able to recognize and manage severe allergic conditions.

- All vaccination providers should be familiar with the procedure for treating an acute reaction and be currently certified in cardiopulmonary resuscitation (CPR). Epinephrine and equipment for maintaining an airway should be available for immediate use.

Intramuscular (IM) administration

Injection technique is the most important factor in delivering the vaccine into the muscle. Proper intramuscular injection ensures the vaccine will be most effective, cause the patient the least amount of discomfort, and reduce potential injury.

- Select the appropriate needle length
  - Appropriate needle length depends on age and body mass. For all IM injections, the needle should be long enough to reach the muscle mass and prevent vaccine from seeping into subcutaneous tissue, but not so long as to involve underlying nerves, blood vessels, or bone.
  - Needle size and site of injection must be decided for each person based on the size of the muscle and the thickness of adipose tissue around the muscle. This is usually a 1 to 1½ inch needle for adults.

- Prevent injection injuries
  - Place three fingers from the top of the shoulder. Have the patient lift their arm (you should be able to see and feel the muscle contract). Once you have located the middle of the muscle, have the patient relax their arm and give the injection at a 90-degree angle at that point.
  - Giving the IM injection too close to the shoulder joint can cause bursitis, fasciitis, and other injury. These types of injuries are reported more often during flu vaccination season.

See How to Administer IM (Intramuscular) Injections (www.health.state.mn.us/divs/idepc/immunize/hcp/admim.pdf) for more information.
Intranasal administration

See the FluMist Quadrivalent Administration Steps (www.flumistquadivalent.com/hcp/dosing-administration/flumist-administration-steps.html) for instructions on proper vaccine administration.

Managing acute vaccine reactions

Administer vaccines in settings where staff are trained to recognize and respond to reactions.

- Have a signed hardcopy of a medical management of vaccine reaction plan and protocol that staff have reviewed and are ready to implement.
- Immediate systemic reactions can include syncope (fainting) and anaphylaxis.
  - To minimize syncope, have a place for patients to sit down while they are vaccinated, and be ready to lower them to a laying position if needed.
  - Although rare, anaphylaxis to a vaccine can occur and is a life-threatening event. Have the appropriate equipment on hand, and have trained staff available to administer epinephrine and maintain an airway in settings where vaccinations are given.
- The Immunization Action Coalition has examples of emergency plans. See Medical Management of Vaccine Reactions in Children and Teens (www.immunize.org/catg.d/p3082a.pdf) and Medical Management of Vaccine Reactions in Adult Patients (www.immunize.org/catg.d/p3082.pdf) for more information.

Vaccine Adverse Event Reporting System (VAERS)

- Health care providers are required to report any event after vaccination that requires medical attention, regardless of whether it is related to vaccination. Report events electronically to the Vaccine Adverse Event Reporting System (VAERS) (https://vaers.hhs.gov/index).
- While it is relatively rare to experience any kind of event, CDC relies on reports of adverse events to signal any problems with flu or other vaccines.

Documenting flu vaccination

Include the following information in your permanent electronic or paper records.

Federal law requires:

- Published date of the Vaccine Information Statement (VIS).
- Date the VIS was given to the patient.
- Name, address (office address), and title of the person who administers the vaccine.
- Date the vaccine is administered.
- Vaccine type, manufacturer, and lot number of each dose administered.

Best practice:

- Site
- Route
- Dose

Minnesota Immunization Information Connection (MIIC)

Flu vaccine is given in a variety of settings. It is important for health care providers to be able to access immunization records for their patients no matter where the vaccines were given. Minnesota’s immunization information system, MIIC (www.health.state.mn.us/miic), stores electronic immunization records that combine immunizations individuals received at different locations across the state. It is a best practice for all providers to enter vaccines they administer – including flu – into MIIC. MIIC’s combined immunization records help make sure Minnesotans get the right vaccines at the right times.
Providers can enter vaccine into MIIC in several ways:

- Submissions directly from electronic health record systems.
  - Current MIIC users with electronic health record systems can submit immunization information to MIIC through an electronic connection with their systems. Find more information about setting up a connection with MIIC at Process for Working on Data Exchange with MIIC (www.health.state.mn.us/divs/idepc/immunize/registry/hp/dataprocess.html).

- MIIC Flu Spreadsheet uploads.
  - The MIIC Flu Spreadsheet is an Excel template for providers to quickly record and upload administered vaccines. The template is especially useful for mass vaccination clinics and targeted vaccination campaigns.

- Direct data entry.
  - Providers who administer only a few doses of flu vaccine may enter these data directly into the MIIC application (https://miic.health.state.mn.us/miic/security_ui.showLogin).

In addition to combined immunization records, MIIC offers several other tools to support immunization practice, monitoring, and improvement in Minnesota. If you need help using MIIC, or would like to enroll your organization, contact the MIIC Help Desk:

- Email: health.miichelp@state.mn.us
- Phone: 651-201-5503, 800-657-3970

Learn more about MIIC

- Participating in MIIC (www.health.state.mn.us/divs/idepc/immunize/registry/hp/join.html). Information for health care providers, other health professionals, schools, and child cares that want to participate in MIIC.
- MIIC User Guidance and Training Resources (www.health.state.mn.us/divs/idepc/immunize/registry/hp/train.html). How-to guides and e-learning modules for MIIC features, as well as a sign-up for email updates on MIIC user guidance and training.

Storage and handling

Proper storage and handling of flu vaccine is critical to its effectiveness. Inactivated vaccines, like IIV, are especially sensitive to freezing temperatures. Here are some key tips to help ensure that your flu vaccine remains effective:

- Follow CDC and manufacturer specifications for maintaining the recommended temperature range (36° through 46°F/2° through 8°C, aim for 40°F/5°C) for storing flu vaccine.

- “Stand alone” or pharmacy grade units for storing vaccine are optimal; they provide uniform temperatures inside the unit. If using a combination unit, avoid using the freezer compartment to store vaccines because the freeze-thaw cycles impact the temperatures in the refrigerator portion and increase the risk of exposure to freezing temperatures. Include water bottles in the refrigerator to add additional temperature buffering.

- Use a calibrated temperature monitoring device; a continuous temperature monitoring device, such as a data logger, is recommended.

- Check and document the current temperature twice a day and the minimum and maximum teperature one a day. Take action if the temperature goes out of range.

- See the CDC’s Vaccine Storage and Handling Toolkit (www.cdc.gov/vaccines/hcp/admin/storage/toolkit/) for full guidance on storage and handling of vaccines.

Note: There are specific storage requirements for those that participate in the Minnesota Vaccines for Children (MnVFC) Program (www.health.state.mn.us/vfc). Refer to your site’s Policies and Procedures Manual for guidance.
Transport of flu vaccine

Vaccine should be delivered directly to the location where vaccination takes place whenever possible. If flu vaccine must be transported off-site from its main storage area, keep these key things in mind:

- Temperatures need to be continuously monitored and recorded. Take action if the temperature goes out of range.
- Follow specific packing recommendations. Better yet, use portable refrigeration units whenever possible.
- Storing vaccine in a home refrigerator is not acceptable. If overnight storage is a frequent aspect of your flu vaccination program, use portable refrigeration units.

Transport packing guidance can be found in CDC’s Packing vaccines for Transport during Emergencies on Vaccine Storage and Handling: Recommendations and Guidelines (www.cdc.gov/vaccines/hcp/admin/storage).

Antiviral recommendations

Antiviral use is recommended as soon as possible for patients with suspected or confirmed flu who are:

- Hospitalized.
- Have severe, complicated, or progressive illness.
- Outpatients at higher risk for influenza complications (e.g., children under age 2 years, pregnant women, those with immunosuppression, etc.).
- Residents of nursing homes and other chronic-care facilities.
- Have uncomplicated influenza and present within 48 hours of illness (based on clinical judgment).

For more information on influenza antivirals, see CDC's Antiviral Drugs (www.cdc.gov/flu/professionals/antivirals/index.htm).

Rapid flu testing

While rapid flu testing can be useful, it has limitations.

- False negative flu rapid testing results are common, and a negative rapid test result does not rule out flu.
- Likewise, a positive rapid test does not confirm flu, especially during times of low prevalence of disease in the community.

Antiviral treatment should not be withheld from patients with signs and symptoms suggestive of flu and a negative rapid flu test result. Providers are encouraged to use clinical judgment for treatment and infection control decisions. More information on rapid tests can be found at Rapid Influenza Diagnostic Testing (www.health.state.mn.us/divs/idepc/diseases/flu/hcp/rapid.html).

Recap of 2017-18 flu season in Minnesota

- 6,317 hospitalizations
- 698 outbreaks of influenza-like illness (ILI) in schools
- 212 outbreaks of influenza in long-term care facilities
- 6 pediatric deaths

The 2017-18 flu season was severe and prolonged with a record number of hospitalizations, high influenza-like illness (ILI), and high numbers of outbreaks in schools and long term care facilities. The dominant strain was influenza A/H3.
Providing information before vaccination

An essential part of flu vaccination is providing information about the risks and benefits of flu vaccination, which includes the Vaccine Information Statement (VIS), alerting vaccinees of common symptoms after vaccination, and instructions for follow-up care if needed.

Vaccine Information Statements (VISs)

- Providing the VIS before administering the vaccine is required by federal law.
- The VIS gives patients basic information on flu disease and vaccine risks and benefits.
- The VIS is available in multiple languages from the Immunization Action Coalition at Vaccine Information Statements (www.immunize.org/vis).

Potential side effects

Preparing a patient about what to expect and when to follow-up with a health care provider is a best practice and can ease anxiety about vaccination. Most reactions to flu vaccine are mild, resolve on their own, and do not result in serious outcomes. Common side effects include:

- Pain or redness at the injection site
- Achiness
- Headache
- Mild fever

These symptoms usually resolve in a day or two and should not be mistaken for flu disease.

Commonly asked questions

Sometimes patients ask for more information about flu vaccine. Review answers to these commonly asked questions so you can provide reassurance to patients who may be hesitant and build confidence in vaccination.

What is flu (influenza)?

- Flu (influenza) is caused by viruses that attack the lungs, nose, and throat. This group of viruses is very different from those that cause stomach upset and diarrhea—or what some call the “stomach flu.”
- Flu symptoms can be mild or severe, but typically cause a cough, sore throat, body aches, and fever.
- Usually flu is more severe than a cold, and symptoms start very suddenly.

Who is at high risk for flu?

Most healthy people will recover from flu without complication; however, many people are in an age group or have a condition that places them at high risk for complications from flu. These groups include:

- Children under age 5 years, but especially those under 2 years
- Adults over age 65 years
- Pregnant women
- Persons with a chronic medical condition, such as asthma, neurological and neurodevelopmental conditions, lung and heart disease, chronic kidney disease and diabetes, weakened immune system, and obesity (especially those with BMI ≥40).

Why does flu vaccine change every year?

- The flu virus is continuously changing, which results in a change of the most common strains circulating. The flu vaccine changes each year to try and match the strains that are expected to cause the most illness in the upcoming season.
- Whether the strains change or not, it’s important to get a flu vaccine every year since immunity decreases over time.
- Everyone 6 months of age and older should get a flu vaccine each year.
How effective is flu vaccine?
• Efficacy can vary based on things like how healthy you are, how old you are, and whether you’ve been vaccinated before.
• While the vaccine won’t prevent every case of flu, it is the most specific tool we have against the flu.

Is flu vaccine safe?
• Year after year, flu vaccine is shown to be safe. They have been extensively studied for safety and are continuously monitored for safety.

Can people with egg allergies get the vaccine?
• Yes. Extensive reviews of data indicate that severe allergic reactions are rare among persons with egg allergy who receive flu vaccination. Flu vaccination is safe for these individuals.

When is the best time to get vaccinated?
• Flu vaccine is usually available in late summer or early fall, but the start and peak of flu activity is typically months later. This raises questions about the ideal time to get vaccinated.
• In general, providers should begin offering vaccine as soon as they have it, and the public should take advantage of flu vaccination services in their community whenever they have the opportunity.
• Delaying vaccination until later in fall or winter may lead to missed opportunities and non-vaccination.
• Continue to vaccinate throughout the season until you run out of vaccine or it expires.

Stay informed about flu
• For information on flu activity in Minnesota, subscribe to our Weekly Influenza & Respiratory Activity: Statistics (www.health.state.mn.us/divs/idepc/diseases/flu/stats/index.html).
• Get an email alert when updates are made to Influenza Information for Health Professionals (www.health.state.mn.us/divs/idepc/diseases/flu/hcp/).
• Subscribe to Got Your Shots? News (www.health.state.mn.us/divs/idepc/newsletters/gys/index.html) for monthly immunization updates from MDH.

Get ready for National Influenza Vaccination Week!
December 2-8, 2018
www.cdc.gov/flu/nivw/index.htm

Questions?
MDH Immunization Program
651-201-5503 or 1-800-657-3970
health.flu@state.mn.us
www.mdhflu.com

CDC INFO: 1-800-232-4636