# 2017-18 Minnesota Fall Flu Guide

*Information to kick off the fall flu (influenza) vaccination season*

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Flu vaccine for 2017-18

This season’s vaccine contains:

- A/Michigan/45/2015 (H1N1)-like virus
- A/Hong Kong/4801/2014 (H3N2)-like virus
- B/Brisbane/60/2008-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 H1N1 strain has been updated this season but is still similar to the 2009 H1N1 strain that has been in the vaccine since 2010. This season’s H3N2 strain remains the same as the previous season.

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 dosage and route 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 2017-18 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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<tbody>
<tr>
<td><strong>Inactivated Influenza Vaccine, Trivalent (IIV3)</strong></td>
<td></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>
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<td>Seqirus</td>
<td>Fluvirin</td>
<td>4 years and older</td>
<td>0.5 mL - prefilled syringe</td>
<td>IM</td>
</tr>
<tr>
<td>Seqirus</td>
<td>Alfuria</td>
<td>5 years and older</td>
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<td>IM</td>
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<tr>
<td><strong>Recombinant Influenza Vaccine, Trivalent (RIV3)</strong></td>
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<tr>
<td>Protein Sciences</td>
<td>FluBlok</td>
<td>18 years and older</td>
<td>0.5 mL single-dose vial</td>
<td>IM</td>
</tr>
<tr>
<td><strong>Recombinant Influenza Vaccine, Quadrivalent (RIV4)</strong></td>
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<tr>
<td>Protein Sciences</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>
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<tr>
<td><strong>Cell Culture-Based Inactivated Influenza Vaccine, Quadrivalent (ccIIV4)</strong></td>
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<tr>
<td>Seqirus</td>
<td>Flucelvax</td>
<td>4 years and older</td>
<td>0.5 mL - prefilled syringe</td>
<td>IM</td>
</tr>
<tr>
<td>Seqirus</td>
<td>Afluria Quadrivalent</td>
<td>18 years and older</td>
<td>0.5 mL - multi-dose vial</td>
<td>IM</td>
</tr>
<tr>
<td><strong>Inactivated Influenza Vaccine, Quadrivalent (IIV4)</strong></td>
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<tr>
<td>GlaxoSmithKline</td>
<td>Fluarix</td>
<td>3 years and older</td>
<td>0.5 mL - prefilled syringe</td>
<td>IM</td>
</tr>
<tr>
<td>GlaxoSmithKline</td>
<td>Flulaval</td>
<td>6 months and older</td>
<td>0.5 mL - multi-dose vial</td>
<td>IM</td>
</tr>
<tr>
<td>Seqirus</td>
<td>Afluria Quadrivalent</td>
<td>18 years and older</td>
<td>0.5 mL - multi-dose vial</td>
<td>IM</td>
</tr>
<tr>
<td>Sanofi Pasteur</td>
<td>Fluzone Quadrivalent</td>
<td>6 months and older</td>
<td>Dose per age - multi-dose vial</td>
<td>IM</td>
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<tr>
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<td></td>
<td>6 through 35 months</td>
<td>0.25 mL - prefilled syringe</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>36 months and older</td>
<td>0.5 mL - prefilled syringe</td>
<td></td>
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<td></td>
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<td></td>
<td>0.5 mL - single-dose vial</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fluzone Intradermal Quadrivalent</td>
<td>18 through 64 years</td>
<td>0.1 mL - prefilled microinjection system</td>
<td>ID (intradermal)</td>
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</table>
Flu vaccine dosing alert!

GSK’s FluLaval is now approved for infants as young as age 6 months. The correct dosage of this presentation is 0.5 mL for all individuals age 6 months and older. Sanofi’s Fluzone product, which has been licensed for infants for many years, is still given as 0.25 mL for persons age 6-35 months and 0.5 mL for persons age 3 years and older.

LAIV not recommended

The Advisory Committee on Immunization Practices (ACIP) recommends that FluMist (LAIV4) not be used during the 2017-18 season.

Two-dose recommendations for children

Because the vaccine composition for the 2017-18 season continues to include a strain very similar to the 2009 H1N1 strain, children age 6 months through 8 years will need to have received two or more doses of flu vaccine previously to require only one dose for the 2017-18 season.

• Providers must determine whether the child has received two or more doses of quadrivalent or trivalent previously. Children who have not received two doses in prior flu seasons need two doses this season.
• See Influenza vaccine dosing algorithm for children 6 months through 8 years old, 2017-18 influenza vaccination season below and on Influenza Vaccine Administration (www.health.state.mn.us/divs/idepc/diseases/flu/vaccine/admin/index.html).

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 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.

Egg allergy and flu vaccination

- People with egg allergies can receive any licensed, recommended, age-appropriate flu vaccine 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.

Vaccine administration

The route of vaccine administration varies by product. Fluzone Intradermal is the only recommended vaccine that should be administered via the intradermal (ID) route. All other vaccines recommended for the 2017-18 season should be administered via the intramuscular (IM) route.

Intramuscular (IM)

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 1 ½ inch needle for adults.

- **Use proper technique to prevent injection injuries**
  - Guide for deltoid injections
    - 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.
    - 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’ve located the middle of the muscle, have the patient relax their arm and give the injection at a 90-degree angle at that point.

See [How to Administer IM (Intramuscular) Injections](www.health.state.mn.us/divs/idepc/immunize/hcp/admim.pdf) for more information.
Managing acute vaccine reactions

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

- Have a signed hardcopy of the emergency plan 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 and all events that require medical attention after vaccination to the Vaccine Adverse Event Reporting System (VAERS) (https://vaers.hhs.gov/index) regardless of whether it is related to vaccination.
- 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.
- CDC periodically conducts enhanced safety monitoring when new products are introduced or when newer recommendations are added for certain populations. This season (2017-18), enhanced safety monitoring will be conducted for adjuvanted flu vaccine, intradermal quadrivalent vaccine, vaccination during pregnancy, and anaphylactic events.

Documenting flu vaccine

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

**Federally required:**

- 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 manufacturer and lot number of each dose administered.

**Best practice:**

- Site
- Route
- Dose
Minnesota Immunization Information Connection (MIIC)

Since flu vaccine is given in various settings, it is important that all health care providers are able to retrieve this information on their patients. It is a best practice for all providers to enter flu vaccines that they administer into MIIC (www.health.state.mn.us/miic). MIIC is Minnesota’s immunization information system that stores electronic immunization records and helps ensure correct and timely immunizations.

Providers can enter flu vaccine into MIIC in several ways:

- Direct data entry.
  - Providers who administer only a few doses of flu vaccine may enter these data directly into MIIC.
- MIIC Flu Spreadsheet uploads.
  - The MIIC Flu Spreadsheet is an Excel template for providers to quickly record vaccines administered. The template is especially useful for mass vaccination clinics and targeted vaccination campaigns.
- Submissions directly from billing or electronic health record systems.
  - Current MIIC users with electronic billing or electronic health record systems can submit vaccination information to MIIC directly from their systems. Users may need additional IT support to determine whether or not their systems are capable of this type of exchange.

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

Four new e-learning modules that show you how to use different MIIC features are available on MIIC User Guidance and Training Resources (www.health.state.mn.us/divs/idepc/immunize/registry/hp/train.html). The module topics include:

- MIIC 101
- Client Search and Printing Immunization Records
- Interpreting a MIIC Vaccination Record
- Immunization Assessment

Storage and handling of flu vaccine

Proper storage and handling of flu vaccine is critical to its viability and 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°-46°F/2°-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 temperatures twice 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 requirements for those that participate in the Minnesota Vaccines for Children (MnVFC) Program (www.health.state.mn.us/vfc). Refer to the Separate Stock Sites: Policies and Procedures Manual or the Replacement Method Sites: 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.
- Specific packing recommendations need to be followed; 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 2016-17 flu season in Minnesota

- 3,790 hospitalizations
- 391 outbreaks of influenza-like illness (ILI) in schools
- 182 outbreaks of influenza in long-term care facilities
- 2 pediatric deaths

The 2016-17 flu season was dominated by the influenza A (H3N2) virus which peaked in February; however, there was a significant wave of influenza B in the spring.
Talking to patients about flu vaccine

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 3-9, 2017
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