

CDC Influenza Division Summary & Technical Key Points

October 19, 2018

Summary Key Points

- *Despite low levels of flu activity across the United States, CDC today reported the first flu-associated pediatric death of the 2018-2019 season.*
- *This is a somber reminder of how serious flu can be.*
- *While flu vaccine has been shown to be life-saving in children, about 80% of reported flu deaths each season occur in children who have not been fully vaccinated against flu.*
- *Flu activity is expected to increase in the coming weeks.*
- *CDC recommends that everyone 6 months and older get vaccinated between now and the end of October.*
- *Annual flu vaccination is the best way to reduce the risk of flu and its potentially serious complications.*
- *For the upcoming 2018-2019 influenza season, there is updated flu vaccine and many vaccine options, including nasal spray vaccine.*
- *Manufacturers have projected that as many 163 million to 168 million doses of flu vaccine will be available in the United States this season; as of October 12, 2018, more than 132 million doses of flu vaccine had already been distributed.*
- *Visit www.cdc.gov/flu for more information.*

Technical Key Points

In this document

- [Call to Action for 2018-2019 & Vaccine Benefits](#)
- [Key Flu Indicators](#)
- [Flu-Related Pediatric Deaths](#)
- [Summary of CDC 2018-2019 Flu Guidance](#)
- [What's New This Season](#)
- [Recent Study: Flu Vaccine Reduces Risk Flu Hospitalization in Pregnant Women](#)
- [CDC & AAP Influenza Vaccination Recommendations for Children](#)
- [Waning Immunity & Optimal Timing of Vaccination](#)
- ["Take 3" Framework \(Vaccine, Everyday Preventive Actions, Appropriate Antiviral Use\)](#)

Call to Action for 2018-2019

- We have updated flu vaccine and many vaccine options. Get vaccinated!
- CDC recommends a yearly flu vaccine as the best way to protect against influenza and its potentially serious complications.
- There are many **benefits of flu vaccination**.
 - Flu vaccination can keep you from getting sick with flu.
 - Flu vaccination can reduce your risk of flu-associated hospitalization.
 - Flu vaccine can be life-saving in children.
 - Vaccination helps protect women during and after pregnancy and can protect the baby from flu illness for several months after birth.
 - Most recently, a paper published in Clinical Infectious Diseases on October 11, 2018 showed that over the course of six flu seasons, getting a flu shot reduced a pregnant woman's risk of being hospitalized from flu by an average of 40 percent.

CDC Influenza Division Summary & Technical Key Points

October 19, 2018

- Flu vaccination helps prevent serious medical events associated with some chronic conditions (heart and lung disease, diabetes).
 - Vaccination can reduce the risk of heart attack in people with heart disease.
 - Flu vaccination also has been shown in separate studies to be associated with reduced hospitalizations among people with diabetes and chronic lung disease.
- Flu vaccination prevents millions of flu illnesses and doctors' visits and tens of thousands of hospitalizations each season.
- Some people who get vaccinated do get sick, but vaccination has been shown to make illness less severe.
 - A 2017 study showed that flu vaccination reduced deaths, intensive care unit (ICU) admissions, ICU length of stay, and overall duration of hospitalization among hospitalized flu patients.
 - A 2018 study showed that among adults hospitalized with flu, vaccinated patients were 59 percent less likely to be admitted to the ICU than those who had not been vaccinated. Among adults in the ICU with flu, vaccinated patients on average spent 4 fewer days in the hospital than those who were not vaccinated.
- More detailed information on flu vaccine benefits can be found at <https://www.cdc.gov/flu/prevent/vaccine-benefits.htm>.
- Flu vaccines this season have been updated to match the viruses research suggest will be most common.
- There are [many different flu vaccine options](#), including nasal spray flu vaccine.
 - Other options include high dose and adjuvanted vaccine for people 65 and older.
 - While there are many different flu viruses, flu vaccines protect against the 3 or 4 viruses that research suggests will be most common.
 - Get vaccinated by the end of October.
- Manufacturers have projected that as many 163 million to 168 million doses of flu vaccine will be available in the United States this season; as of October 12, 2018, more than 132 million doses of flu vaccine had already been distributed.
- For the latest information on flu vaccine supply, including regular updates on the number of influenza vaccine doses distributed, visit <https://www.cdc.gov/flu/about/qa/index.htm>.
- It is not possible to predict what this flu season will be like.
- While flu spreads every year, the timing, severity, and length of the season varies from one season to another.
- We do know that flu season is coming and we will likely have co-circulation of H1N1, H3N2 and B flu viruses and that flu vaccines offer important protection against all of these.

Key Flu Indicators

- The first FluView of the 2018-2019 season was published on October 12, 2018.
- FluView is published weekly on Fridays throughout the season at <https://www.cdc.gov/flu/weekly/fluactivitysurv.htm>.
- All key flu indicators are low at this time.
- Influenza-like-illness activity is below baseline for all reporting U.S. states and territories.
- Forty states, the U.S. Virgin Islands and the District of Columbia are reporting sporadic flu activity.
- Influenza A(H1N1)pdm09, A(H3N2) and influenza B viruses are co-circulating.

CDC Influenza Division Summary & Technical Key Points

October 19, 2018

- In recent weeks, H1N1 viruses have been most common.
- The first flu-associated pediatric death occurring during the 2018-2019 season was reported by CDC on October 19. (Last season, the total number of flu deaths in children reported to CDC was 183.)

Flu-Pediatric Deaths

- The first flu-associated pediatric death occurring during the 2018-2019 flu season was reported by CDC on October 19, 2018.
- For the 2018-2019 flu season, the reporting period began on September 30, 2018 and will run through September 28, 2019.
- Because of confidentiality issues, CDC does not discuss or give details on individual people.
- Since 2004, when pediatric deaths associated with influenza infection became nationally notifiable, the number of deaths reported to CDC each year has ranged from 37 (2011-2012 season) to 183 deaths (2017-2018 season).
- It's important to note that the actual number of flu deaths in children is thought to be higher than what is reported by states to CDC because not all flu deaths in children are detected/reported.
- At the end of October, CDC will post burden estimates, including estimates of the number of pediatric deaths that are thought to better reflect the actual number that occurred from 2010-2011 through 2017-2018.
- During past seasons, approximately 80% of flu-associated deaths in children have occurred in children who were not vaccinated. This proportion was similar for the 2017-2018 season.
- Even otherwise healthy children can get very sick and die from flu.
- Since the 2010-2011 season, between about 40% and 60% of pediatric deaths have occurred in children who were otherwise healthy and did not have an underlying medical condition.
- The single best way to protect against seasonal flu and its potentially severe consequences in children is to get a seasonal flu vaccine each year.
- Vaccination is important for children younger than 5 years. It is especially important for those younger than 2 years and children of any age with a long-term health condition like asthma, diabetes and heart disease and neurological and neurodevelopmental diseases. These children are at higher risk of serious flu complications if they get the flu.
- Yearly vaccination also is especially important for people in contact with high risk children in order to protect the child (or children) in their lives from the flu. In particular, children younger than 6 months are too young to be vaccinated themselves but are at high risk of flu complications if they get sick so the people around them should get vaccinated to protect the infant.
- Some children 6 months through 8 years of age require two doses of influenza vaccine. Children in this age group who are getting vaccinated for the first time will need two doses. Some children who have received influenza vaccine previously also will need two doses this season. A health care provider should be consulted to determine whether two doses are recommended for a child.
- Flu-associated deaths in children younger than 18 years old should be reported through the Influenza-Associated Pediatric Mortality Surveillance System. The number of flu-associated deaths among children reported during the 2018-2019 flu season will be updated each week and can be found at www.cdc.gov/flu/weekly/ and <https://gis.cdc.gov/GRASP/Fluview/PedFluDeath.html>.

CDC Influenza Division Summary & Technical Key Points

October 19, 2018

Summary of CDC 2018-2019 Guidance

- CDC guidance for the 2018-2019 is published and available at:
- [‘Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2018–19 Influenza Season’](#) has been published.
- CDC recommends annual influenza vaccination for everyone 6 months and older with any licensed, age-appropriate flu vaccine (IIV, RIV4, or LAIV4) with no preference expressed for any one vaccine over another.

What’s New This Season

- Flu vaccines have been updated to better match circulating viruses [the B/Victoria component was changed and the influenza A(H3N2) component was updated].
- For the 2018-2019 season, the nasal spray flu vaccine (live attenuated influenza vaccine or “LAIV”) is again a recommended option for influenza vaccination of persons for whom it is otherwise appropriate. The nasal spray is approved for use in non-pregnant individuals, 2 years through 49 years of age. There is a precaution against the use of LAIV for people with certain underlying medical conditions. All LAIV will be quadrivalent (four-component).
- Most regular-dose egg-based flu shots will be quadrivalent.
- All of the recombinant vaccine will be quadrivalent. (No trivalent recombinant vaccine will be available this season.)
- Cell-grown flu vaccine will be quadrivalent. For this vaccine, the influenza A(H3N2) and both influenza B reference viruses will be cell-derived, and the influenza A(H1N1) will be egg-derived. All these reference viruses will be grown in cells to produce the components of Flucelvax.
- No intradermal flu vaccine will be available.
- There were some changes in the age recommendation for two vaccines which are detailed in the 2018-2019 guidance.

Recent Study: Flu Vaccine Reduces Flu Hospitalization in Pregnant Women

- Influenza Vaccine Effectiveness in Preventing Influenza-Associated Hospitalizations during Pregnancy: A Multi-Country Retrospective Test Negative Design Study, 2010-2016 was published in Clinical Infectious Diseases on October 11, 2018 and is available at <https://academic.oup.com/cid/article-lookup/doi/10.1093/cid/ciy737>.
- The study looked at the medical records of 2 million pregnant women from four countries over six flu seasons and found that getting a flu shot reduced a pregnant woman’s risk of being hospitalized from flu by an average of 40 percent.
- While previous studies have shown that a flu shot can reduce a pregnant woman’s risk of flu illness, this is the first study to show vaccination protected against hospitalization.
- Other key findings include:
 - More than 80 percent of pregnancies overlapped with flu season, underscoring the likelihood that pregnant women will be exposed to flu at some point during their pregnancy.
 - Flu vaccine was equally protective for pregnant women with underlying medical problems such as asthma and diabetes, which also increase the risk of serious medical complications including a worsening of those chronic conditions.

CDC Influenza Division Summary & Technical Key Points

October 19, 2018

- Flu vaccine was equally protective for women during all three trimesters.
- A press release was issued and is available at <https://www.cdc.gov/media/releases/2018/p1011-flu-vaccine-reduces-risk-pregnant-women.html>.

CDC & AAP Influenza Vaccination Recommendations for Children

- CDC and the American Academy of Pediatrics agree that a flu vaccine is the best way to prevent flu, and both recommend that children 6 months and older get an annual flu vaccine.
- LAIV is a vaccine option in the recommendations of both organizations for the 2018-2019 flu season.
- CDC has no preferential recommendation for one flu vaccine over another.
- The AAP recommends inactivated influenza vaccine (flu shot) as the primary choice for children. The nasal spray vaccine is recommended for children who would not otherwise receive an influenza vaccine (eg, refusal of a flu shot) and for whom it is appropriate.
- Clinicians should exercise their clinical discretion to ensure that as many people as possible are protected against influenza.

Waning Immunity & Optimal Timing of Vaccination

- Antibody levels increase after vaccination, but then gradually decline over time.
- The rate at which influenza vaccine effectiveness declines is the subject of ongoing studies.
- Some studies show sharp waning (for example, [Kissling 2016](#) observed that VE declined to zero by four months post-vaccination).
- Other studies have found no appreciable waning until more than six months after vaccination (for example, [Radin 2016](#)).
- Two more recent studies on this topic looked at change in vaccine benefit with time since vaccination:
 - [Ferdinands 2017](#) found about 7% absolute decline in VE per month after vaccination.
 - [Ray 2018](#) found that the odds of influenza infection were twice as high among people who had been vaccinated for more than 22 weeks (5.1 mos) compared to people who had been vaccinated for less than six weeks.
- Some studies have shown that the waning may be more pronounced against H3N2- and influenza B-specific antibodies than H1N1-specific antibodies.
- The rate at which influenza antibodies decline is important to help determine the optimal timing of influenza vaccination.
- In recent years, vaccine has been available earlier than it had in the past, raising the question about when is “too early” to get vaccinated.
- ACIP/CDC currently recommends that “vaccination should be offered by the end of October.” (Except for children who need 2 doses who should get vaccinated “as soon as possible after vaccine becomes available.”)
- There currently is no specified time to start influenza vaccination (and thus no definition of “too early.”)
- ACIP/CDC will continue to look at this issue as more information becomes available but the picture is not yet clear enough to support change in policy.

CDC Influenza Division Summary & Technical Key Points

October 19, 2018

Take 3 Framework

1. Take time to get a flu vaccine each year.

- While there are many different flu viruses, flu vaccines protect against the 3 or 4 viruses that research suggests will be most common. Three-component vaccines contain an H3N2, an H1N1 and a B virus. Four component vaccines have an additional B virus component. (See Vaccine Virus Selection for this season's vaccine composition.)
- Flu vaccination can reduce flu illnesses, doctors' visits, and missed work and school due to flu, as well as prevent flu-related hospitalizations.
- Flu vaccination also has been shown to significantly reduce a child's risk of dying from influenza.
- Also, there are data to suggest that even if someone gets sick after vaccination, their illness may be milder.
- Everyone 6 months of age and older should get a flu vaccine every year before flu activity begins in their community. CDC recommends getting vaccinated by the end of October. Learn more about [vaccine timing](#).
- For the 2018-2019 flu season, CDC and its Advisory Committee on Immunization Practices (ACIP) recommend annual influenza vaccination for everyone 6 months and older with any licensed, age-appropriate flu vaccine (inactivated, recombinant or nasal spray flu vaccines) with no preference expressed for any one vaccine over another. (See Types of Flu Vaccines).
- Vaccination of high risk persons is especially important to decrease their risk of severe flu illness.
- People at high risk of serious flu complications include young children, pregnant women, people with chronic health conditions like asthma, diabetes or heart and lung disease and people 65 years and older.
- Vaccination also is important for health care workers, and other people who live with or care for high risk people to keep from spreading flu to them.
- Infants younger than 6 months are at high risk of serious flu illness, but are too young to be vaccinated. Studies have shown that flu vaccination of the mother during pregnancy can protect the baby after birth from flu infection for several months. People who live with or care for infants should be vaccinated.

2. Take everyday preventive actions to stop the spread of germs.

- Try to avoid close contact with sick people.
- While sick, limit contact with others as much as possible to keep from infecting them.
- If you are sick with flu-like illness, CDC recommends that you stay home for at least 24 hours after your fever is gone except to get medical care or for other necessities. (Your fever should be gone for 24 hours without the use of a fever-reducing medicine.)
- Cover your nose and mouth with a tissue when you cough or sneeze. After using a tissue, throw it in the trash and wash your hands.
- Wash your hands often with soap and water. If soap and water are not available, use an alcohol-based hand rub.
- Avoid touching your eyes, nose and mouth. Germs spread this way.

CDC Influenza Division Summary & Technical Key Points

October 19, 2018

- Clean and disinfect surfaces and objects that may be contaminated with germs like flu.
- **Take antivirals to treat your flu if your doctor prescribes them.**
- If you get sick with flu, antiviral drugs can be used to treat your illness.
- Antiviral drugs are different from antibiotics. They are prescription medicines (pills, liquid or an inhaled powder) and are not available over-the-counter.
- Antiviral drugs can make illness milder and shorten the time you are sick. They may also prevent serious flu complications.
- CDC recommends prompt antiviral treatment of people who are severely ill and people who are at high risk of serious flu complications who develop flu symptoms.
- For people with high-risk factors, treatment with an antiviral drug can mean the difference between having a milder illness versus a very serious illness that could result in a hospital stay.
- Studies show that flu antiviral drugs work best for treatment when they are started within 48 hours of getting sick, but starting them later can still be helpful, especially if the sick person has a high-risk health condition or is very sick from flu. Follow your doctor's instructions for taking this drug.
 - Flu-like symptoms include fever, cough, sore throat, runny or stuffy nose, body aches, headache, chills and fatigue. Some people, especially children, may have vomiting and diarrhea. People may also be infected with flu and have respiratory symptoms without a fever.

3. Take antiviral drugs for treatment if your doctor prescribes them.

- If you get sick with flu, antiviral drugs can be used to treat your illness.
- Antiviral drugs are prescription medicines (pills, liquid or an inhaled powder) and are not available over the counter.
- Antiviral drugs are different from antibiotics.
- Antiviral drugs can make illness milder and shorten the time you are sick. They may also prevent serious flu complications.
- CDC recommends prompt antiviral treatment of people who are severely ill and people who are at high risk of serious flu complications who develop flu symptoms.
- For people with high-risk factors, treatment with an antiviral drug can mean the difference between having a milder illness versus a very serious illness that could result in a hospital stay.
- Studies show that flu antiviral drugs work best for treatment when they are started within 48 hours of getting sick, but starting them later can still be helpful, especially if the sick person has a high-risk health condition or is very sick from flu. Follow your doctor's instructions for taking this drug.
- Influenza antiviral drugs are the only drugs approved to treat influenza infection.
- Three FDA-approved influenza antiviral drugs are recommended for use in the United States during the 2017-2018 influenza season: oseltamivir (Tamiflu® and generic formulations), zanamivir (Relenza®), and peramivir (Rapivab®).

CDC Influenza Division Summary & Technical Key Points

October 19, 2018

- Antiviral drugs are not a substitute for getting a flu vaccine. The flu vaccine is the best way modern medicine currently has to reduce the risk of flu illness and it's potentially serious outcomes.