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KEY INFORBITS

- 2019-2020 Updates and Influenza Strains
- Administration Technique
- Advisory Committee on Immunization Practices (ACIP) Recommendations
- Vaccination for Special Populations
- Tools to Prepare Your Pharmacy
- Healthy Hands Campaign

2019-2020 Influenza Season^{1,2}

The 2019-2020 influenza season is anticipated to be unusually strong for the United States. Reports gathered from countries in the Southern hemisphere such as Australia earlier in the year are used to predict the impact of influenza in the United States. Australia in particular experienced a stronger onset of the influenza season 1-2 months before peak infection was anticipated, so experts are spreading an urgency to patients to get vaccinated against influenza as soon as possible. Current vaccine products that have been approved are anticipated to be highly effective against influenza this year.

Updates for the 2019-2020 Influenza Season^{3,4,5}

- All regular-dose and recombinant vaccines are quadrivalent this season
 - Four strains included:
 - A/Brisbane/02/2018 (H1N1)pdm09-like virus (updated)
 - A/Kansas/14/2017 (H3N2)-like virus (updated)
 - B/Colorado/06/2017-like virus (Victoria lineage)
 - B/Phuket/3073/2013-like virus (Yamagata lineage)
- All four vaccine viruses used for cell-based flu vaccines (such as Flucelvax Quadrivalent) have been grown in cells, not eggs
- Afluria Quadrivalent is an inactivated influenza vaccine that is now available for children ≥ 6 months of age
- Xofluza[®] (baloxavir marboxil) is a new single-dose oral influenza antiviral drug approved in October 2018 by the FDA (US Food and Drug Administration) for the treatment of acute uncomplicated flu within 2 days of illness onset in people $\geq 12y/o$ and otherwise healthy



- Links to [all flu vaccines approved for use during 2019-2020 flu season](#) and [all approved flu treatments for the 2019-2020 flu season](#). Abridged versions are found below.

Table 1: Influenza Vaccines 2019-2020

Trade Name	Manufacturer	Vaccine Type*	Viral Growth Origin
Afluria Quadrivalent	Seqiris	IIV4	Egg
Fluarix Quadrivalent	GlaxoSmithKline	IIV4	Egg
FluLaval Quadrivalent ID	GlaxoSmithKline	IIV4	Egg
Flucelvax Quadrivalent	Seqiris	IIV4	Cell
Fluzone Quadrivalent	Sanofi Pasteur	IIV4	Egg
Fluad (Seqiris)	Seqiris	IIV3	Egg
Fluzone High-Dose	Sanofi Pasteur	IIV3	Egg
Flublok Quadrivalent	Sanofi Pasteur	RIV4	Recombinant
FluMist Quadrivalent	AstraZeneca	LAIV4	Egg

*IIV4: Quadrivalent Inactivated Influenza Vaccine, IIV3: Trivalent Inactivated Influenza Vaccine, RIV4: Quadrivalent Recombinant Influenza Vaccine, LAIV4: Quadrivalent Live Attenuated Influenza Vaccine

Adapted from CDC's U.S. Influenza Vaccine Products for the 2019-20 Season. See reference below⁴

Table 2: Antiviral Agents 2019-2020

Antiviral Agent	Activity Against	Use	Not Recommended For
Oral Oseltamivir	Influenza A and B	Treatment and Chemoprophylaxis	N/A
Inhaled Oseltamivir	Influenza A and B	Treatment and Chemoprophylaxis	People with underlying respiratory disease (e.g., asthma, COPD)
Intravenous Peramivir	Influenza A and B	Treatment and Chemoprophylaxis	N/A
Oral Baloxavir	Influenza A and B	Treatment and Chemoprophylaxis	N/A

Adapted from CDC's Antiviral Medications Recommended for Treatment and Chemoprophylaxis of Influenza. See reference below⁵

ACIP Recommendations³

- Groups recommended for vaccination:
 - Annually for all persons aged ≥ 6 months who do not have contraindications
 - Emphasis on high risk groups due to vulnerability to flu or decreased vaccine efficacy:
 - Children aged 6-59 months
 - Adults aged ≥ 50 years
 - Chronic pulmonary, cardiovascular, renal, hepatic, neurologic, hematologic, or metabolic disorders
 - Patients that are immunocompromised due to disease/medication
 - Pregnant women
 - Children 6 months-18 years receiving aspirin
 - Nursing home/long-term care facility residents
 - American Indians/Alaska Natives
 - Extremely obese persons (BMI ≥ 40)
 - Caregivers and people who contact those that are at high risk



Above images taken from CDC. See references below⁷

- In the event of a vaccine shortage, those populations that fall under the ACIP “high risk” category should receive priority in getting the flu vaccine
- Timing:
 - Vaccines should be offered by the end of October and should continue through circulation of virus and while unexpired vaccines are still available
 - Children 6 months to 8 years require 2 doses and should receive their first dose as soon as available and the second ≥ 4 weeks later
- Storage and Handling of Vaccines:
 - Consult manufacturer package information for proper storage and handling of vaccines. Contact manufacturer directly for specific situations not covered in package materials.
 - General recommendations:
 - Protect from light
 - Store influenza vaccines between 2° and 8° C (36° to 46° F)
 - Discard vaccines if they become frozen
 - Use single-dose vials only once
 - Only use multi-dose vials within the recommended time period and then discard
 - Do not use a vaccine after the expiration date
 - Multi-dose vials require a BUD (beyond use date) and expiration date
- Vaccine Adverse Event Reporting System (VAERS)
 - National vaccine safety monitoring system operated by FDA and CDC (Centers for Disease Control and Prevention)
 - May detect possible safety problems with vaccines
 - Healthcare providers must report any adverse events that qualify
 - Visit <https://vaers.hhs.gov/index.html> for more information

Table 3: Tools to Prepare Your Pharmacy for Influenza Season⁶

Making a strong recommendation for influenza vaccine is crucial to patients following through with receiving the vaccine

- The CDC has created the “**SHARE**” method to help health care providers in this process
 - **Share** reasons why getting the flu vaccine is appropriate for the patient with specific applicable risk factors
 - **Highlight** positive experiences with vaccines as appropriate to demonstrate the benefits of vaccination
 - **Address** patient questions and concerns in patient-centered language
 - **Remind** patients that getting vaccinated protects themselves and their loved ones
 - **Explain** the costs of contracting influenza, including time lost at work and serious adverse health outcomes

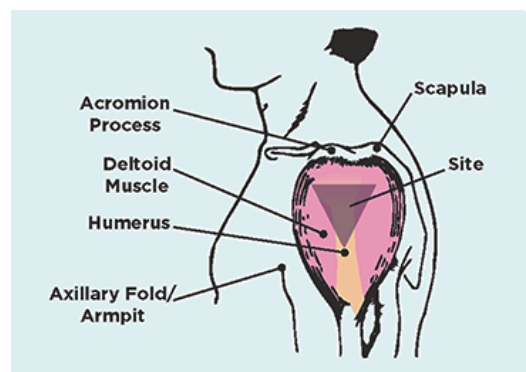
Proper Vaccine Administration^{7,8}

- Inactive Influenza Vaccine (IIV) and Recombinant Influenza Vaccine (RIV) can be given concurrently with other live or inactivated vaccines
- Administer vaccines into separate locations on the patient if given on the same day
- Live Attenuated Influenza Vaccine (LAIV) intranasal can be given simultaneously with other vaccines or ≥ 4 weeks apart from other live vaccines if not given simultaneously

- Choose the correct needle and syringe size:
 - Needle length: Based on sex/weight (see diagram)
 - 22-25-gauge needle
 - 1 mL or 3 mL syringe

Male	Female	Needle Length
<130lbs	<130 lbs	$\frac{3}{8}$ -1 inch
130-152 lbs	130-152 lbs	1 inch
153-260 lbs	153-200 lbs	1-1.5 inches
>260 lbs	>200 lbs	1.5 inches

- Proper Documentation:
 - Name and title of person administering vaccine and address of facility where records will be held
 - Date administered
 - Vaccine type, manufacturer, and lot number
 - Route
 - Dose (volume)
 - Site
 - Date on Vaccine Information Statement (VIS)

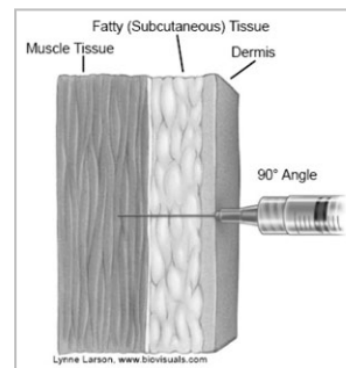


- Injection site: Upper arm, into deltoid muscle, 2 inches below acromion process, and at a 90-degree angle

- Safety:
 - DO NOT administer too high in the arm, may cause shoulder injury
 - Use a new needle and syringe for every injection
 - Maintain aseptic technique
 - Discard single-dose vial after use
 - Monitor patient for syncope/anaphylaxis for 15 minutes after administering

Above image taken from CDC. See references below⁷

- Ease patient concerns with eye contact, calm voice, and a positive attitude



Above image taken from CDC. See references below⁸

Table 4: Influenza Vaccination for Special Populations (ACIP Guidance Statements)³

Population	Guidance Statement
Exemption from Vaccination	<ul style="list-style-type: none"> ● Children < 6 months of age ● Those with a severe, life-threatening allergy to the flu vaccine or its components
Egg Allergy	<ul style="list-style-type: none"> ● Patients with some form of an egg allergy “no longer need to be observed for 30 minutes after receiving a flu vaccine”³ ● Those with any severity of egg allergy should be given “any licensed, recommended, and age appropriate influenza vaccine”, which includes inactivated, recombinant, and live-attenuated versions³ ● Those with a severe egg allergy (i.e., anaphylaxis) should receive the flu vaccine “in an inpatient or outpatient medical setting under the supervision of a health care provider who is able to recognize and manage severe allergic conditions”.³
Pediatrics	<ul style="list-style-type: none"> ● The following quadrivalent vaccines are approved for children 6-35 months old <ul style="list-style-type: none"> ○ 0.25 mL of Afluria Quadrivalent ○ 0.5 mL of Fluarix Quadrivalent ○ 0.5 mL of FluLaval Quadrivalent ○ Either 0.25 mL or 0.5 mL of Fluzone Quadrivalent ● If a 0.25 mL IM dose is administered to a person ≥ 36 months old, add an additional 0.25 mL to provide the necessary 0.5 mL (if error is noticed right away) or a full 0.5 mL dose (if discovered later). ● Those ≥ 9 y/o need only one dose for the 2019-2020 flu season. ● Children 6 m/o-8y/o that received 2 or more doses of trivalent or quadrivalent flu vaccine at any point before July 1, 2019 need only 1 dose. ● Children 6 m/o-8y/o that received 0-1 doses of trivalent or quadrivalent flu vaccine at any point before July 1, 2019 need 2 doses of flu vaccine given at least 4 weeks apart.
Pregnancy	Pregnant women should receive any age appropriate IIV or RIV4 flu vaccine at any time during pregnancy.
Geriatrics	Those ≥ 65 y/o should receive any age appropriate IIV or RIV4 flu vaccine (standard or high dose)
Immunocompromised	<p>Those who are immunocompromised should receive any age appropriate IIV or RIV4.</p> <ul style="list-style-type: none"> ● 2013 IDSA Clinical Practice Guidelines for Vaccination of the Immunocompromised Host recommend that vaccines “be administered prior to planned immunosuppression if feasible”.³ ● Those with HIV infection and CD4 count ≥ 200 should receive an annual flu vaccine.
Caregivers	<ul style="list-style-type: none"> ● Caregivers and close contacts of high-risk individuals should receive any age appropriate IIV or RIV4 <ul style="list-style-type: none"> ○ LAIV4 is an option if the individual in care is not severely immunocompromised or does not require a protected environment.

Population	Guidance Statement
Caregivers (continued)	<ul style="list-style-type: none"> Healthcare providers or those visiting hospitals who receive LAIV4 should refrain from seeing severely immunocompromised patients for 7 days following vaccination.
International Travel	Consider receiving a flu vaccine at least 2 weeks before departure.
Influenza Antiviral Medications	IIV or RIV4 may be given (LAIV4 is weakened if influenza antivirals are “administered from 48 hours before until 2 weeks after vaccination”) ³

Handwashing for Healthcare Settings¹⁰

- Hand Hygiene is best performed by washing your hands with soap and water, antiseptic/alcohol hand sanitizer, or surgical antiseptic. The reason why hand hygiene is so important is due to its ability to reduce germ to patient transmission and patient to healthcare provider transmission.⁷
- Should you use soap and water or hand sanitizer?
 - When the goal is to reduce the number of germs present on one’s hands, alcohol-based hand sanitizer is the most efficacious. Soap and water should be utilized when hands are visibly soiled, caring for patients with known or suspected infectious diarrhea, or after known or suspected exposure to spores (e.g. *C. difficile*).¹⁰
- Tips for using alcohol-based hand sanitizer:¹⁰
 - Apply product on hands and rub together
 - Continue to rub hands for about 20 seconds to cover all surfaces until hands feel dry
- Tips for washing hands with soap and water:¹⁰
 - The CDC Guideline for Hand Hygiene in Healthcare Settings recommends when cleaning your hands with soap and water to follow these steps:
 - Wet your hands first with water before applying the soap
 - Apply the appropriate amount of soap per the manufacturer’s recommendation.
 - Rub your hands together vigorously for 15-20 seconds covering all surfaces of the hands and fingers (including under fingernails).



Image taken from CDC. See reference below¹¹

Conclusion

In summary, preparedness against influenza this year is imperative due to predictive models indicating a more intense onset of cases. Changes in approved products for this season allow for a variety of options catered to patients based on age, allergies, and comorbid conditions. Establishing effective communication with patients in regard to vaccine education and safety is crucial to ensure that they understand the benefits and risks with their healthcare-related decisions. Familiarity with managing vaccination in special populations is important to deliver the most appropriate care possible. Future vaccine developments involving single-dose, universal influenza vaccines are anticipated, but strategies presented here are the best defense against influenza today.¹²

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-Wayne Gretzky [Canadian professional ice hockey player, “The Great One.” 1961-]

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