

Clinical Update for AIM: FluMist Quadrivalent – Live Attenuated Intranasal Vaccine

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July 15, 2021

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Please refer to the FluMist Prescribing Information for further product information



Influenza Infection and Replication

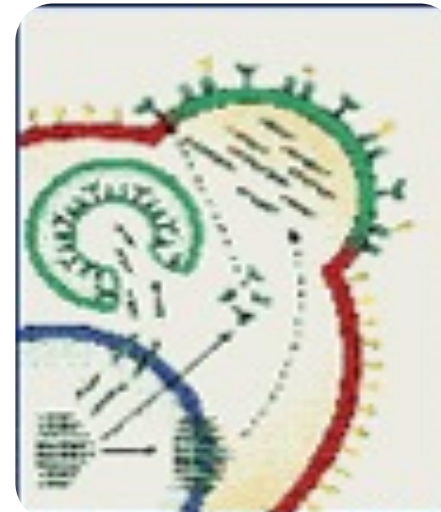
HA proteins bind to the sialic acid coating the surface of the cell



This triggers the cell to engulf the virus



The virus's RNA makes use of the cell's mechanisms to replicate



NA proteins cut the sialic acid on the surface of the host cell and newly formed viruses are released



Primary Means to Prevent Flu is Through Vaccination

World Health Organization¹

“Influenza vaccines are safe, effective
and the principal measure for preventing influenza and reducing the impact of epidemics”

Centers for Disease Control and Prevention^{2,3}

“The single best way to prevent seasonal flu is to get vaccinated each year”.
“Getting a flu vaccine during 2020-2021 is more important than ever because of the ongoing COVID-19 pandemic. It can help reduce the burden on healthcare systems”

European Centre for Disease Prevention and Control⁴

“Seasonal influenza is a vaccine-preventable disease
and annual influenza vaccination is the most effective way to prevent influenza”

1. World Health Organization. <http://www.euro.who.int/en/health-topics/communicable-diseases/influenza/vaccination>. Accessed August 2020;

2. Centers for Disease Control and Prevention. <https://www.cdc.gov/flu/prevent/actions-prevent-flu.htm>. Accessed August 2020;

3. Centers for Disease Control and Prevention. <https://www.cdc.gov/flu/season/protect-your-health.html>. Accessed May 2021;

3. European Centre for Disease Prevention and Control. <https://www.ecdc.europa.eu/en/seasonal-influenza/prevention-and-control/seasonal-influenza-vaccines>. Accessed August 2020. © AstraZeneca 2021

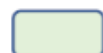
Influenza Vaccines Expected to be Available by Age Indication, United States, 2021–22 Influenza Season

Vaccine type		0 through 6 months	6 through 23 months	2 through 17 years	18 through 49 years	50 through 64 years	≥65 years
IIV4s	Standard-dose, unadjuvanted inactivated (IIV4)		Afluria Quadrivalent Fluarix Quadrivalent FluLaval Quadrivalent Fluzone Quadrivalent				
	Cell culture-based inactivated (IIV4)			Flucelvax Quadrivalent			
	Adjuvanted inactivated (aIIV4)						Fluad Quadrivalent
	High-dose inactivated (HD-IIV4)						Fluzone High-Dose Quadrivalent
RIV4	Recombinant (RIV4)				Flublok Quadrivalent		
LAIV4	Live attenuated (LAIV4)			FluMist Quadrivalent			

IIV4=quadrivalent inactivated influenza vaccine **RIV4**=quadrivalent recombinant influenza vaccine **LAIV4**=quadrivalent live attenuated influenza vaccine



Not approved for age group



Egg-based



Not egg-based

All vaccines expected for 2021-22 are quadrivalent (i.e., contain hemagglutinin derived from four viruses: one influenza A(H1N1), one influenza A(H3N2), one influenza B/Victoria and one influenza B/Yamagata).

CDC Recommendations for Influenza and Other Immunizations During the COVID-19 Pandemic

- Screen for symptoms of COVID-19 in vaccinees prior to and upon arrival at vaccination centers¹
- Healthcare providers should wear gloves when administering intranasal or oral vaccines due to the increased risk of contact with a patient's mucous membranes and body fluids¹
 - Between patients, gloves should be changed and hand hygiene performed
- Administration of these vaccines is not considered an aerosol-generating procedure, therefore the use of an N95 or higher-level respirator is not needed¹



How will US healthcare providers prepare for the 2021–22 influenza season?

- The CDC recommends a yearly influenza vaccine as the first and most important step in protecting against influenza²
 - Everyone 6 months of age and older should receive an annual influenza vaccine by the end of October

CDC = Centers for Disease Control and Prevention

1. Centers for Disease Control and Prevention. <https://www.cdc.gov/vaccines/pandemic-guidance/>. Accessed May 2021; 2. Centers for Disease Control and Prevention. <https://www.cdc.gov/flu/prevent/prevention.htm>. Accessed May 2021.

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CDC guidance: Co-administration of Influenza Vaccines with COVID-19 Vaccines

■ Proposed Language for 2021-22 Influenza Statement

- *Current guidance concerning administration of COVID-19 vaccines with other vaccines (<https://www.cdc.gov/vaccines/covid-19/info-by-product/clinical-considerations.html>) indicates that these vaccine may be given with other vaccines, including influenza vaccines. No data are currently available concerning coadministration of currently authorized COVID-19 vaccines and influenza vaccines. Providers should be aware of the potential for increased reactogenicity with coadministration, and should consult CDC guidance at the referenced link for updated guidance as more information becomes available. If coadministered, COVID-19 vaccines and vaccines that might be more likely to cause a local reaction (e.g., aIIV4 or HD-IIV4) should be administered in different limbs, if possible.*

US Prescribing Information

- FluMist Quadrivalent is approved for use in persons aged 2–49 years
- **Contraindications**
 - Severe allergic reaction (e.g. anaphylaxis) to any component of FluMist Quadrivalent, including egg protein, or after a previous dose of any other vaccine
 - Concomitant aspirin therapy in children and adolescents
- **Warnings and Precautions**
 - Children younger than 5 years with recurrent wheezing and persons of any age with asthma may be at increased risk of wheezing following the administration of FluMist Quadrivalent
 - If Guillain–Barre syndrome has occurred within 6 weeks of any prior influenza vaccination, the decision to give FluMist Quadrivalent should be based on careful consideration of the potential benefits and risks
 - FluMist Quadrivalent has not been studied in immunocompromised individuals

Live Attenuated Influenza Vaccine

Key Points

Live Attenuated Influenza Vaccine – for the prevention of influenza

- Attenuated: Elicits an immune response similar to wild type (natural influenza) but does not cause illness^{1–4}
- Cold adapted: The virus strains replicated efficiently in the cooler areas of the nasal pharynx, at 25°C^{1,5}
- Temperature sensitive:³ The virus strains do not replicate in the lungs, where infection occurs
- Intranasally administered (0.2 mL)¹
- 10⁷ FFU of each strain per dose¹
- Storage: 2–8°C (refrigerator)¹
- No preservatives or adjuvants¹
- Quadrivalent (LAIV4) formulation¹



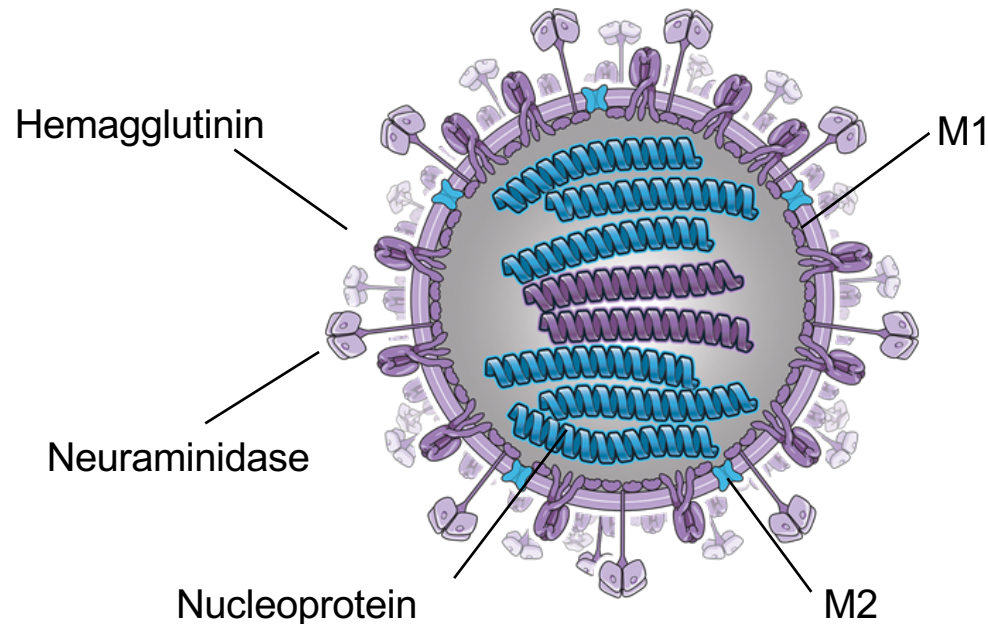
Image source: AstraZeneca

FFU = focus-forming units; LAIV = live attenuated influenza vaccine.

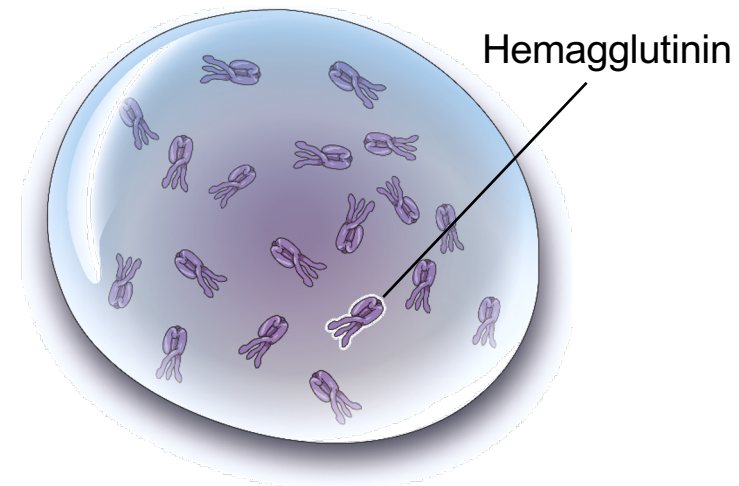
1. EMA. https://www.ema.europa.eu/en/documents/product-information/fluenz-tetra-epar-product-information_en.pdf. Accessed August 2020; 2. Mohn KG et al. *Hum Vaccin Immunother*. 2018;14:571–578; 3. Hoft DF et al. *J Infect Dis*. 2011;204:845–853; 4. Beyer WE et al. *Vaccine*. 2002;20:1340–1353; 5. Maassab HF. *Vaccine*. 1985;3:355–369.

Live Attenuated Vaccines Contain Multiple Antigens in Their Natural Configuration¹

Live Attenuated Influenza Vaccine



Traditional Inactivated Influenza Vaccine

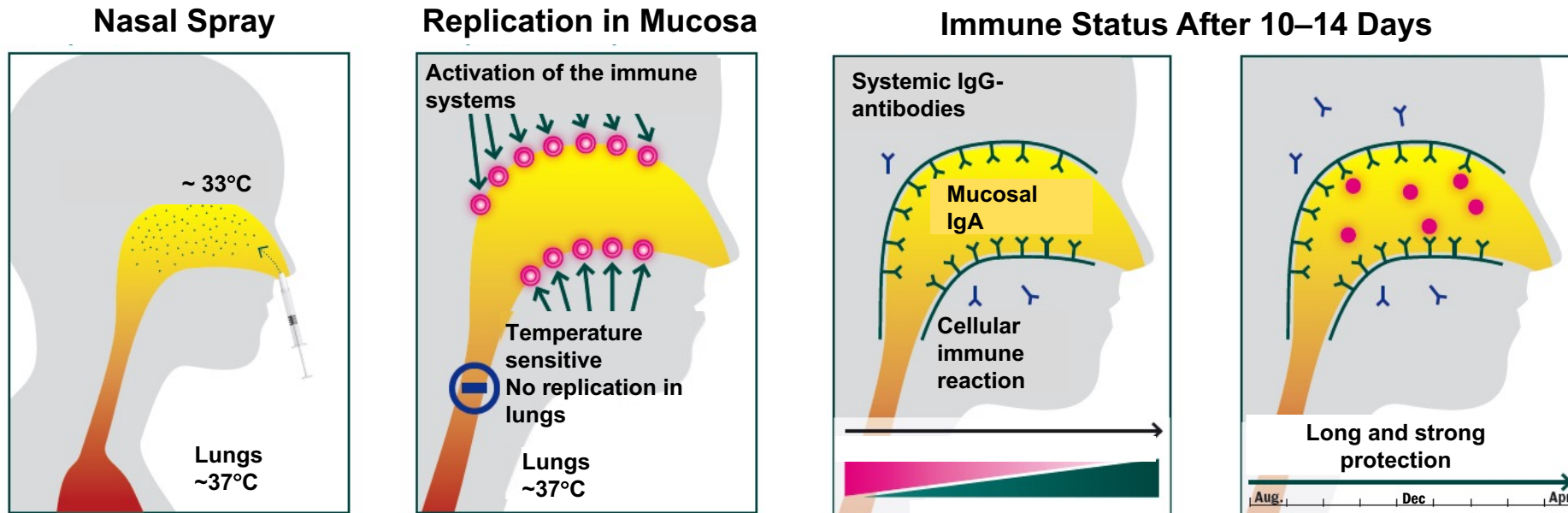


A live attenuated vaccine is designed to help stimulate a natural immune response²⁻⁷

1. Hayden FG et al. *Clinical Virology*. New York, NY: Churchill Livingstone; 1997:911–942; 2. Belshe RB et al. *J Infect Dis*. 2000;181:1133–1137; 3. Treanor JJ et al. *Vaccine*. 1999;18:899–906; 4. Hoft DF et al. *J Infect Dis*. 2011;204:845–853; 5. He XS et al. *J Virol*. 2006;80:11756–11766; 6. Basha S et al. *Hum Immunol*. 2011;72:463–469; 7. Krejtz JH et al. *Virus Res*. 2011;162:19–30.

Replication in the Nasal Cavity Initiates the Immune Response^{1–3}

- Intranasal administration mimics the natural route of infection of influenza
 - LAIV is deposited in the nasal cavity after vaccination where it replicates
 - Results in a localized mucosal immune response

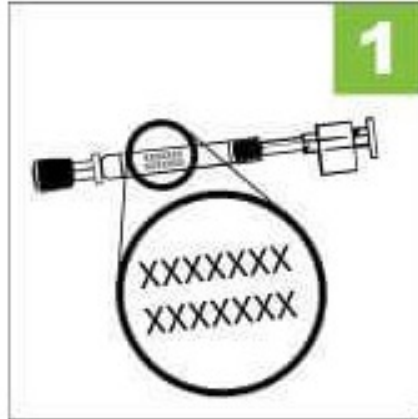


LAIV = live attenuated influenza vaccine.

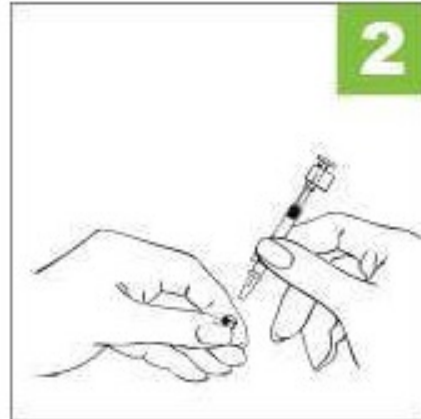
1. EMA. http://www.ema.europa.eu/docs/en_GB/document_library/EPAR_-_Public_assessment_report/human/001101/WC500103711.pdf. Accessed August 2020; 2. Beyer WE et al. *Vaccine*. 2002;20:1340–1353; 3. Hoft DF et al. *J Infect Dis*. 2011;204:845–853.

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FluMist Quadrivalent Administration



1
Check expiration date. Product must be used before the date on sprayer label



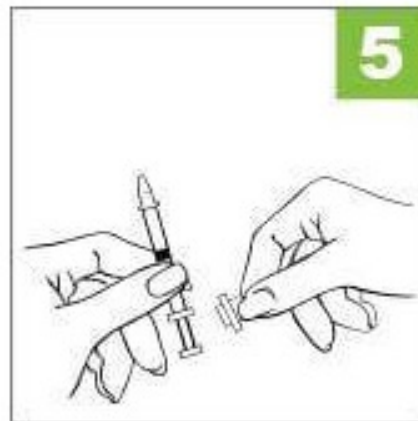
2
Remove rubber tip protector. Do not remove dose-divider clip at the other end of the sprayer



3
With the patient in an upright position, place the tip just inside the nostril to ensure FluMist Quadrivalent is delivered into the nose



4
With a single motion, depress plunger as rapidly as possible until the dose-divider clip prevents you from going further



5
Pinch and remove the dose-divider clip from the plunger



6
Place the tip just inside the other nostril and with a single motion, depress plunger as rapidly as possible to deliver remaining vaccine

Image source: <https://www.azpicentral.com/flumistquadrivalent/flumistquadrivalent.pdf#page=1>

View the Administration Video Here



Questions

- AstraZeneca. AZ Medical Information Website
<https://medicalinformation.astrazeneca-us.com/>
- Contact our medical information team at 1800-236-9933