Individuals using assistive technology may not be able to fully access the information contained in this file. For assistance, please call 800-835-4709 or 240-402-8010, extension 1. CBER Consumer Affairs Branch or send an e-mail to: ocod@fda.hhs.gov and include 508 Accommodation and the title of the document in the subject line of your e-mail.

Vaccines and Related Biological Products Advisory Committee Meeting June 18, 2026

Biologics License Application for STN 125869/0

Joseph M. Kulinski, PhD
Review Committee Chair
Division of Review Management and Regulatory Review
Office of Vaccines Research and Review
CBER/FDA

Outline

- Review of Currently Licensed Influenza Vaccines
- Key features of mRNA Vaccine Technology
- High level Overview of the MFLUSIVA BLA
- Agenda for VRBPAC Meeting
- Questions to the Committee

Currently licensed seasonal influenza vaccines for use in the U.S.

**preferred by the CDC based on ACIP recommendations

Proprietary Name	Manufacturer	Approved Age Group	Notes
Afluria	Seqirus	≥6 months	PharmaJet Stratis needle-free injector approved for 18 through 64 yoa only
Fluarix	GSK	≥6 months	Standard-dose, thimerosal-free single-dose formulations available
FluLaval	GSK	≥6 months	Standard-dose
Fluzone	Sanofi Pasteur	≥6 months	Standard-dose; intradermal formulation available for 18 through 64 yoa
Fluzone High-Dose	Sanofi Pasteur	≥65 years	Contains 60 mcg/strain (4× standard dose); **preferred**** for adults ≥65 yoa
Fluad	Seqirus	≥65 years	Adjuvanted (MF59); **preferred**** for adults ≥65 yoa; also an option for solid organ transplant recipients 18 through 64 yoa on immunosuppressants (per ACIP)

**preferred by the CDC based on ACIP recommendations

Proprietary Name	Manufacturer	Approved Age Group	Notes
Flucelvax	Seqirus	≥6 months	Egg-free; suitable for those with egg allergies
Flublok	Sanofi Pasteur	≥9 years	Expanded from prior ≥18 yoa indication; **preferred**** for adults ≥65 yoa; egg-free and contains 3× the hemagglutinin of standard-dose vaccines (45 mcg/strain)
FluMist	AstraZeneca	2–49 years	Egg-based; nasal spray; self-administration approved for 18 through 49 yoa; caregiver administration for 2 through 17 yoa; contraindicated in pregnant individuals and certain immunocompromised persons

mRNA vs. Traditional Influenza Vaccines

- **Traditional Vaccines (Egg-based and Cell-based)**
  - Supported by a decades-long safety record and have demonstrated effectiveness against influenza disease; shown to reduce the risk of severe illness and hospitalizations.
  - Cell and egg-based vaccines generally require 6–8-month production timeline from strain selection to first available supply.
  - Egg-based vaccines are susceptible to egg-adaptive mutations.
  - Effectiveness varies year-to-year depending on strain match.
- **mRNA Vaccines**
  - Rapid manufacturing allows for the potential to facilitate later, more precise strain selection; avoids propagation mutations.
  - Available data for seasonal influenza mRNA vaccines shows generally robust immune responses.
  - Associated with higher rates of transient local and systemic reactogenicity (e.g., injection-site pain, fatigue); comparative effectiveness against high-dose/adjuvanted traditional vaccines requires further evaluation.

MFLUSIVA (mRNA-1010) BLA Overview

- **Vaccine Composition**
  - Lipid nanoparticle (LNP)-encapsulated mRNA vaccine targeting seasonal influenza strains
  - Trivalent formulation encoding hemagglutinin (HA) glycoproteins of A/H1N1, A/H3N2, and B/Victoria-lineage (12.5 µg of each mRNA or 37.5 µg total mRNA per dose).

- **Proposed Indication & Target Population**
  - Active immunization for the prevention of influenza disease caused by influenza virus subtypes A and B represented in the vaccine.
  - Target population: Adults 50 years of age and older.

- **Proposed Regulatory Pathway**
  - Traditional Approval for adults 50 through 64 years of age (supported by safety, immunogenicity, and clinical efficacy).
  - Accelerated Approval for adults ≥ 65 years of age (supported by safety and immunogenicity, as well as relative vaccine efficacy data versus standard dose comparator and a postmarketing confirmatory study requirement).

MFLUSIVA: Efficacy & Safety Summary

Clinical Efficacy & Immunogenicity

Pivotal Phase 3 Efficacy Study (50 yoa and older)

Data from Moderna's Study P304 pivotal Phase 3 primary efficacy study in individuals 50 yoa and older was submitted to demonstrate that MFLUSIVA was noninferior to the standard-dose comparator in preventing influenza-like illness

Primary Immunogenicity Study (65 yoa and older)

Immunogenicity data from Study P303 Part C was submitted to support the effectiveness of MFLUSIVA in adults 65 yoa and older, based on the use of Hemagglutination inhibition assay Geometric Mean Titers and Seroconversion Rates as surrogate endpoints reasonably likely to predict clinical benefit.

Safety & Tolerability Profile

The two primary sources for the safety evaluation are Study P304 and Study P303 Part C, each with approximately 6 months of follow-up. Moderna also conducted an Integrated Safety Summary, pooling data from four Phase 3 studies to support a broader characterization of safety

Overview of Today's Agenda

FDA Introduction | 20 min (incl. Q&A)

5 min | **Introduction**
David C. Kaslow, MD
Director, Office of Vaccines Research and Review (OVRR), CBER

10 min | **Biologics License Application — STN 125869/0**
Joseph Kulinski, PhD
Review Committee Chair, Division of Review Management and Regulatory Review (DRMRR), OVRR

5 min | **Q & A**

Overview of Today's Agenda

CDC Presentation | 40 min (incl. Q&A)

30 min — **Seasonal Influenza Vaccine Surveillance and Effectiveness**
Lisa Grohskopf, MD, MPH
Medical Officer, Epidemiology & Prevention Branch, Influenza Division, CDC

10 min — **Q & A**

External Speaker | 20 min (incl. Q&A)

15 min — **Seasonal Influenza Vaccines: Current Status and Opportunities for Improved Effectiveness**
Richard Webby, PhD
Member, St. Jude Faculty — Dept. of Host-Microbe Interactions, St. Jude Children's Research Hospital

5 min — **Q & A**

Break | 10 min

Overview of Today's Agenda

Sponsor Presentation — Moderna | 60 min (incl. Q&A)

Investigational Influenza Vaccine mRNA-1010 in Adults ≥ 50 Years
Rituparna Das, MD, PhD

Epidemiology of Seasonal Influenza in US Adults ≥ 50 Years and Effectiveness of Current Vaccines
Evan Anderson, MD, FIDSA, FPIDS

Clinical Data: Efficacy and Immunogenicity of mRNA-1010
Rituparna Das, MD, PhD

Clinical Safety
Eleanor Wilson, MD, MHS

Benefit-Risk and Summary
Rituparna Das, MD, PhD

10 min **Q & A**

Overview of Today's Agenda

FDA Presentation | 60 min (incl. Q&A)

50 min

FDA Review of Efficacy, Immunogenicity, and Safety of MFLUSIVA (Influenza Vaccine, mRNA) in Adults 50 Years of Age and Older

Gauri Raval, MD, MPH

Medical Officer, Division of Clinical and Toxicology Review (DCTR), OVRR, CBER

Timothy P. Brennan, MD, PhD, MS — CDR, U.S. Public Health Service

Clinical Reviewer, Division of Clinical and Toxicology Review (DCTR), OVRR, CBER

10 min

Q & A

Lunch | 40 min

Overview of Today's Agenda

Open Public Hearing | 60 min

Additional Q&A | 60 min

- For CDC, FDA, Sponsor, & Other Presenters

Committee Discussion and Voting | 60 min

- Moderna Seasonal Influenza Vaccine

Meeting Adjourned — DFO

Voting Questions for VRBPAC

1. Do the benefits of MFLUSIVA outweigh its risks for the prevention of influenza disease in adults 50 through 64 years of age?

2. Do the benefits of MFLUSIVA outweigh its risks for the prevention of influenza disease in adults 65 years of age and older?


FDA
U.S. FOOD & DRUG
ADMINISTRATION