UWTASP
tele-antimicrobial stewardship program

9/13/22

Agenda

- Speaker: *Influenza and COVID-19 updates*
- Case Discussions
- Open Discussion

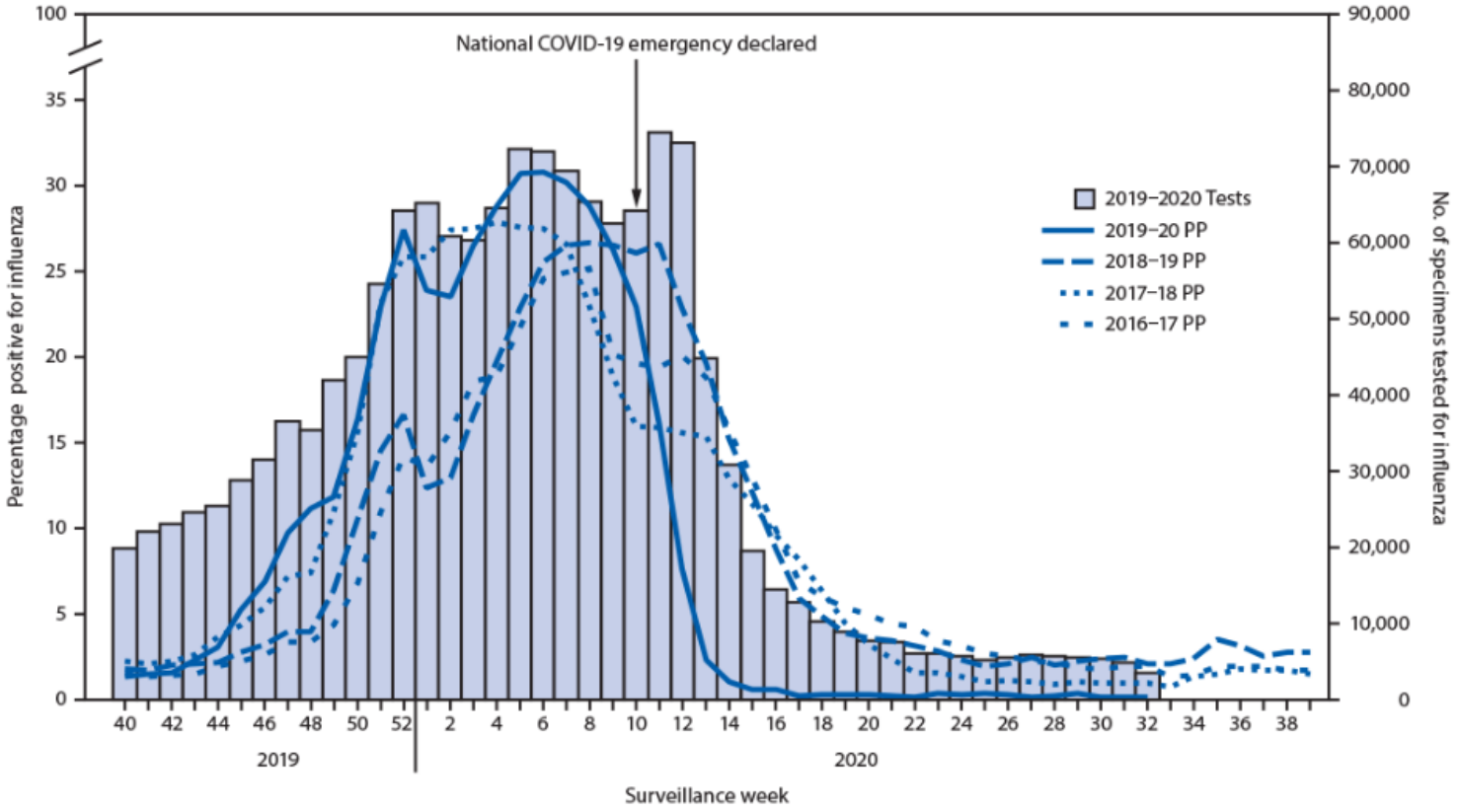
Project ECHO

Agenda

- Influenza Epi update - JBL
- Influenza vaccine-RJ
- COVID Boosters –ZKE
- Respiratory virus testing-CBC

CDC FLU 2016-2020

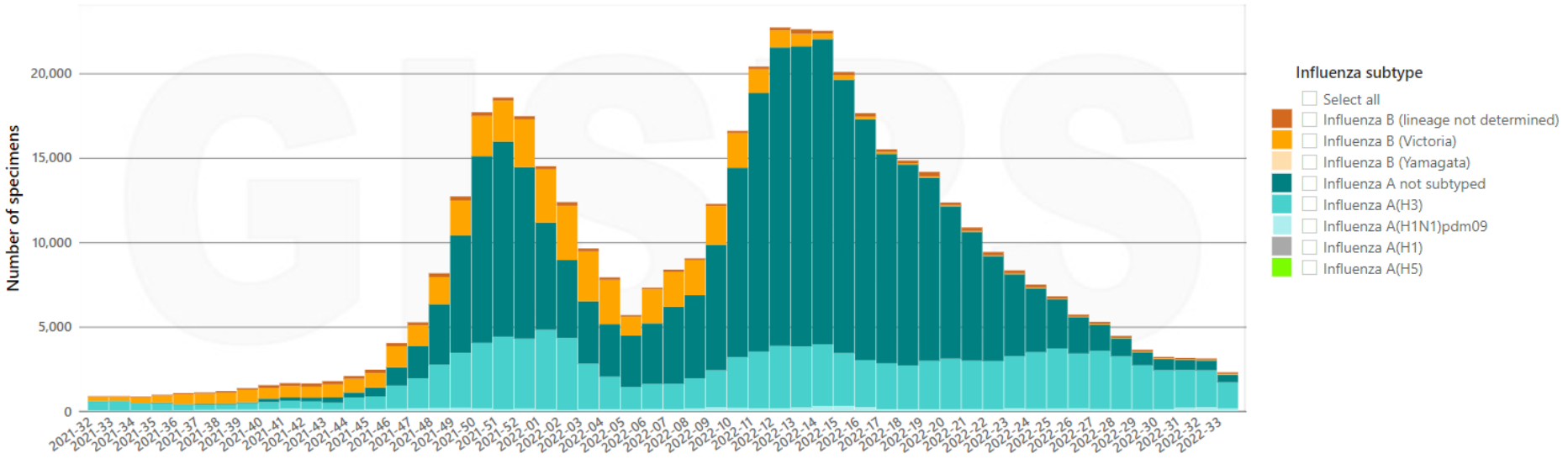
FIGURE 1. Number of respiratory specimens tested and percentage testing positive for influenza, by year — United States, 2016–17 through 2019–20 seasons



Source: FluView Interactive. https://www.cdc.gov/flu/weekly/fluviewinteractive.htm.

WHO FluNet

Virus detections by subtype reported to FluNet

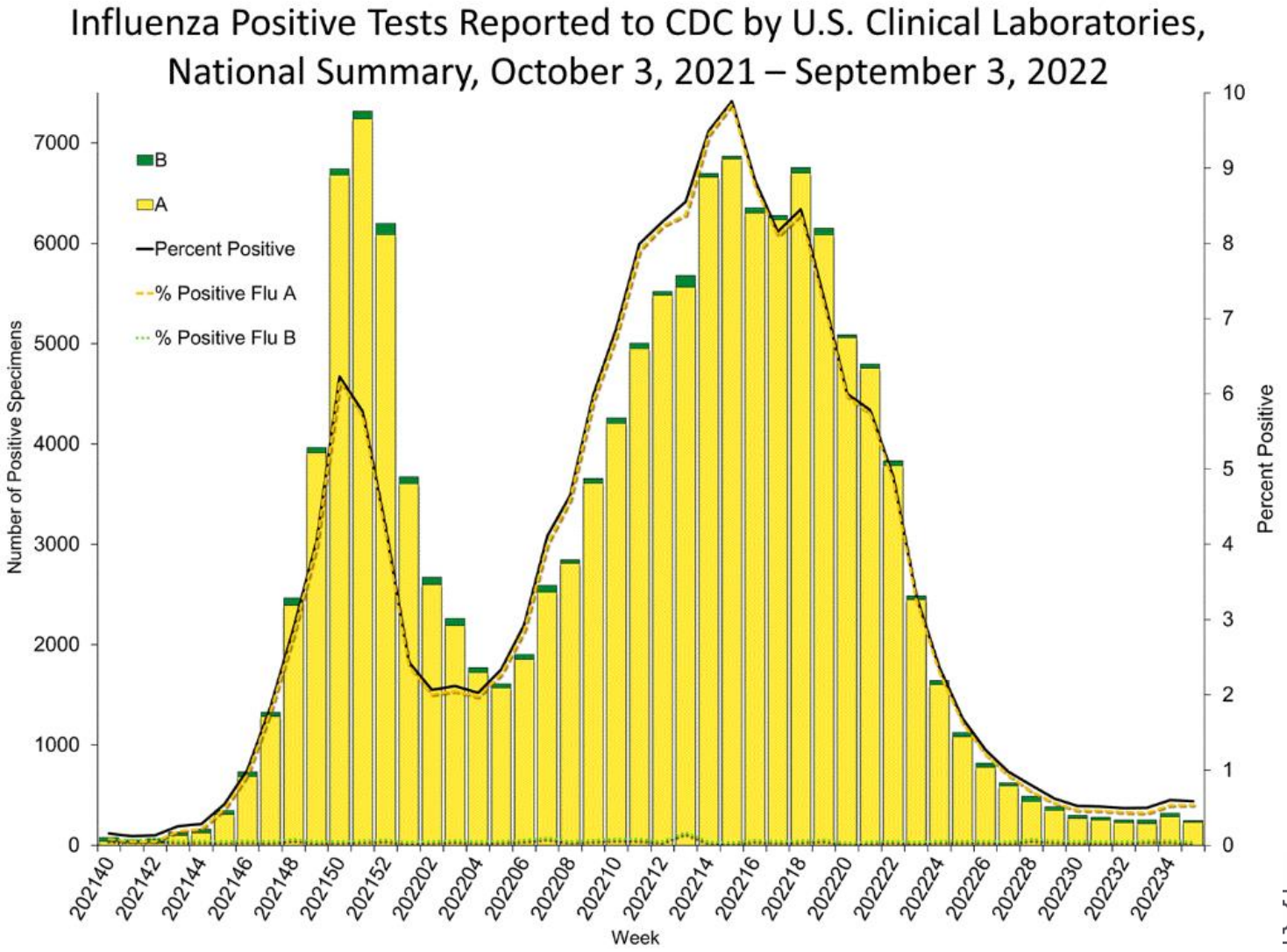


- **Non-sentinel:** Data obtained from non-sentinel systems as indicated by the reporting country. Data reported in this category may include outbreak investigation, universal testing, testing at point of care or other systems apart from sentinel surveillance.
- **Sentinel:** Data obtained from sentinel surveillance as indicated by the reporting country. Sentinel surveillance systems collect high-quality data in a timely manner systematically and routinely from sentinel surveillance sites representatives of the population under surveillance.
- **Type not defined:** Source of data not indicated by the reporting country neither as sentinel nor as non-sentinel surveillance. These data may include sentinel or non-sentinel surveillance sources or both.

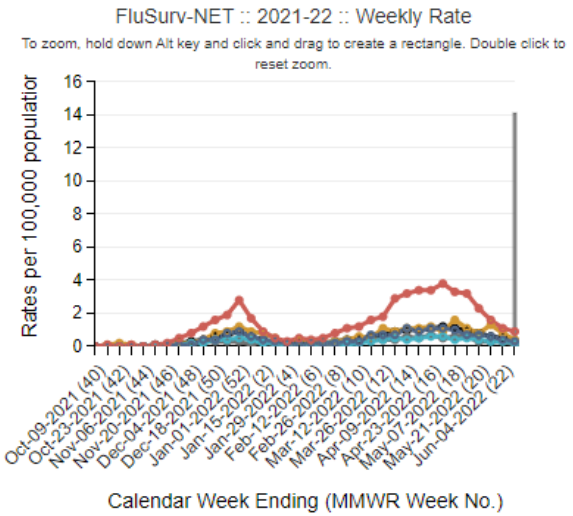
Calendar type: ISO 8601

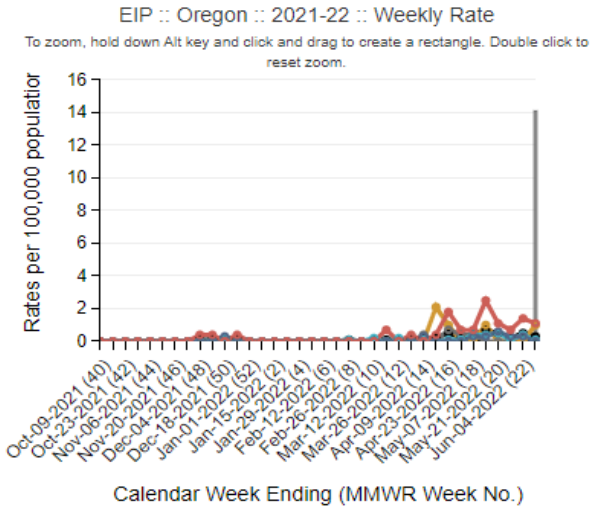
Data source: FluNet (https://www.who.int/tools/flunet)

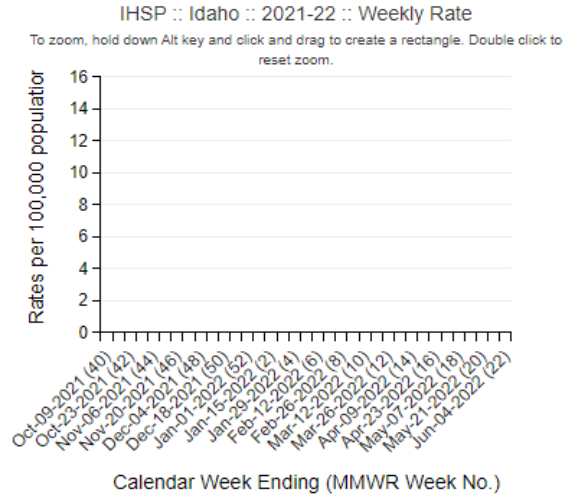
CDC FLUVIEW

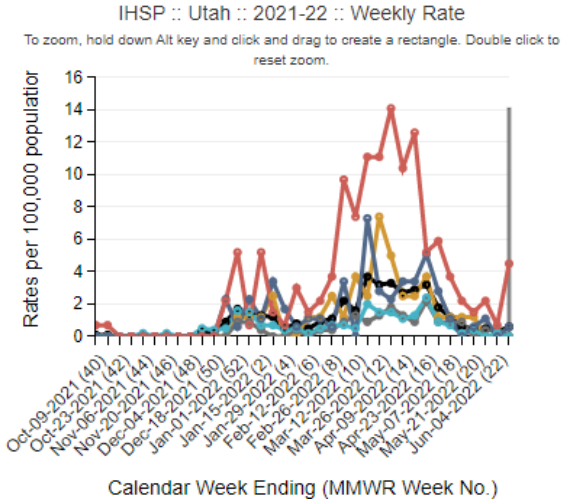

Influenza Positive Tests Reported to CDC by U.S. Clinical Laboratories, National Summary, October 3, 2021 – September 3, 2022
Number of Positive Specimens
Percent Positive
Week
B
A
Percent Positive
% Positive Flu A
% Positive Flu B
0
1000
2000
3000
4000
5000
6000
7000
0
1
2
3
4
5
6
7
8
9
10
202140
202142
202144
202146
202148
202150
202152
202202
202204
202206
202208
202210
202212
202214
202216
202218
202220
202222
202224
202226
202228
202230
202232
202234

CDC FLU Hospitalizations



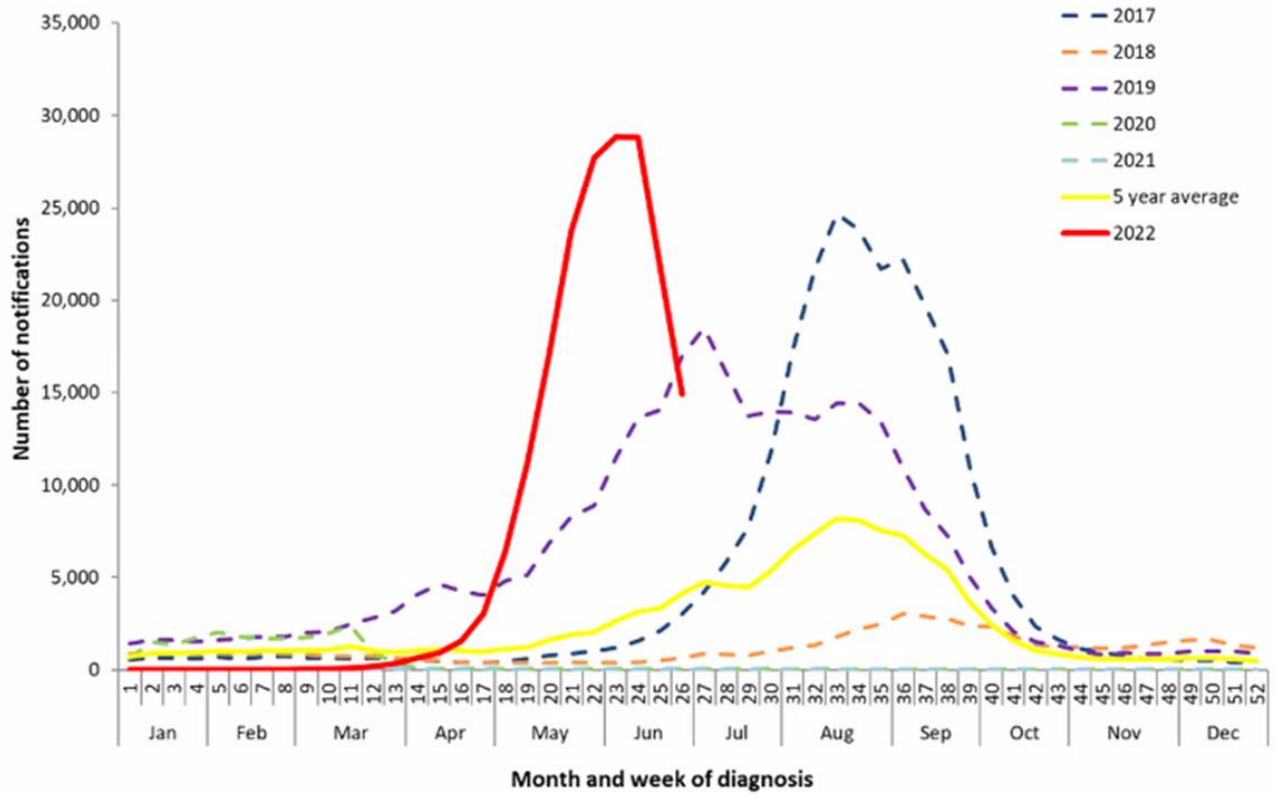






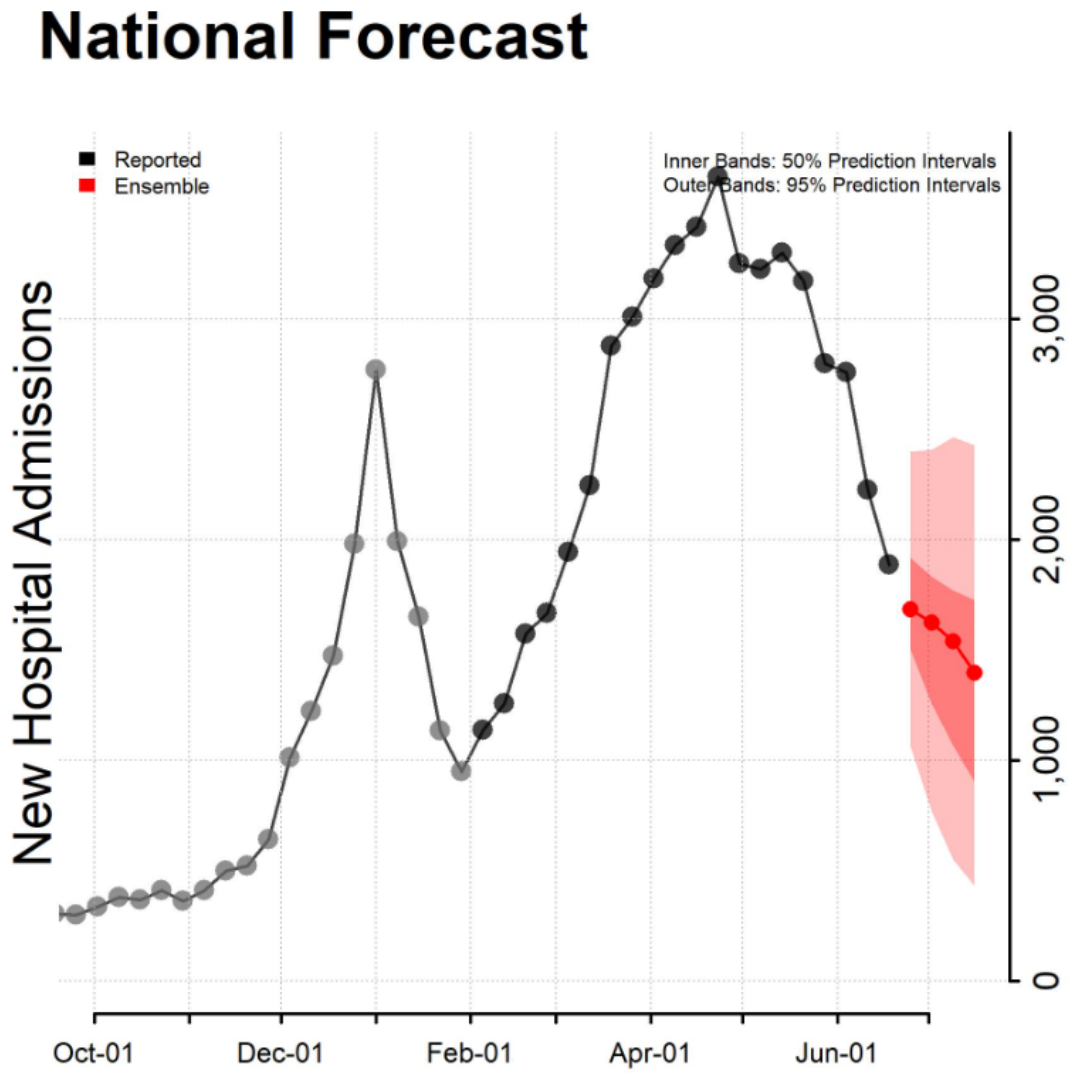
FLU Forecast?

Influenza in Australia in 2022?



[Normal.dot (health.gov.au)]

CDC FLU Forecast (Hospitalizations)



Influenza vaccines

Core recommendation (unchanged):

▪ Annual influenza vaccination is recommended for all persons aged 6 months and older who do not have contraindications.

Updates on the following topics:

• Change in FDA-approved age indication for Flucelvax Quadrivalent from ≥2 years to ≥6 months.

• Updated recommendations for vaccination of persons aged ≥65 years.

https://emergency.cdc.gov/coca/ppt/2022/090822_slides.pdf

Influenza Vaccines by Age Indication, United States, 2022–23 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 (ccIIV4)		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			

Not approved for age group *Egg-based* *Not egg-based*

All vaccines expected for 2022-23 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.

What is adjuvanted mean?

What is MF59?

MF59 is an oil-in-water emulsion of squalene oil. Squalene, a naturally occurring substance found in humans, animals, and plants, is highly purified for the vaccine manufacturing process.

Why are adjuvants added to flu vaccines?

An adjuvant is an ingredient of some vaccines that helps promote a better immune response. Adjuvants also can reduce the amount of virus needed for production of a vaccine, which can allow for greater supplies of vaccine to be manufactured.

https://www.cdc.gov/vaccinesafety/concerns/adjuvants.html

Data for ≥ 65 years

- Overall, there is evidence of greater potential benefit over standard dose.
  - Most evidence for HD-Fluzone.
  - Less evidence for Flubok and FluAD;

- Few studies compare vaccines approved for ≥ 65 years with one another
  - insufficient to conclude that any one vaccine will be superior to the others across seasons.

- Limitations include:
  - Few randomized studies, covering few influenza seasons.
  - More data from observational studies, most are retrospective cohort designs using diagnostic code defined outcomes.
  - No data reflecting currently available formulations.

https://emergency.cdc.gov/coca/ppt/2022/090822_slides.pdf

COVID-19 boosters

On August 31, 2022:

- Moderna COVID-19 Vaccine, Bivalent authorized for use in people ages 18 years and older.
- Pfizer-BioNTech COVID-19 Vaccine, Bivalent authorized for use in people ages 12 years and older

Fall Booster "Reset"

- Recommendations are simplified
- Change from dose counting to 1 bivalent booster for everyone eligible
- If eligible, a bivalent should not be denied based on total number of doses

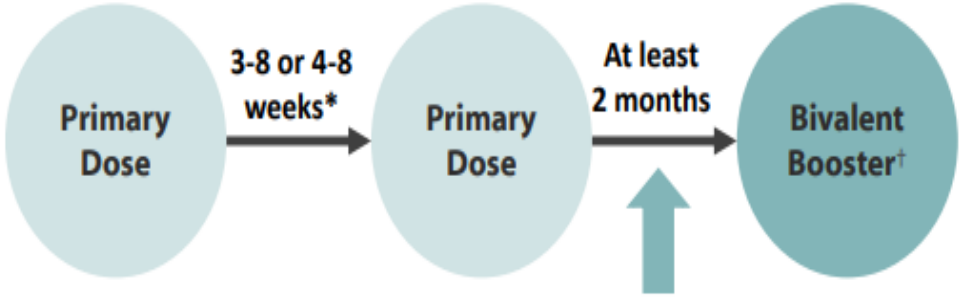
Vaccination history	→	Next dose
Primary series	At least 2 months →	1 bivalent booster dose
Primary series + 1 booster	At least 2 months →	1 bivalent booster dose
Primary series + 2 booster	At least 2 months →	1 bivalent booster dose

https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2022-09-01/09-COVID-Hall-508.pdf

COVID-19 Vaccination Schedule for People who are NOT Moderately or Severely Immunocompromised

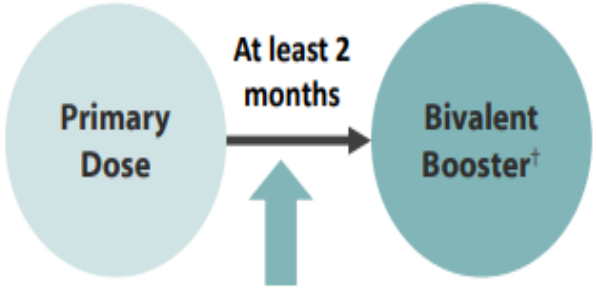
People ages 12 years and older

Moderna, Novavax, or Pfizer-BioNTech Primary Series



People ages 18 years and older

Janssen Primary Series Dose



*3-8 interval for Novavax and Pfizer-BioNTech; 4-8 interval for Moderna

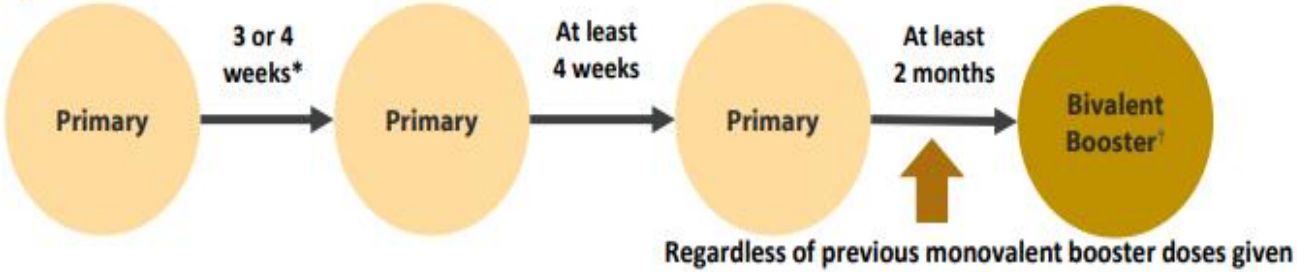
†The bivalent booster dose is administered at least 2 months after completion of the primary series.

For people who previously received a monovalent booster dose(s), the bivalent booster dose is administered at least 2 months after the last monovalent booster dose. The bivalent booster should be age appropriate; Pfizer-BioNTech is authorized for people ages 12 years and older and Moderna is authorized for people ages 18 years and older.

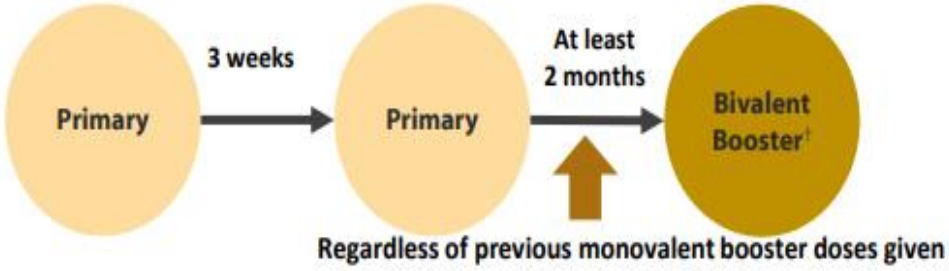
COVID-19 Vaccination Schedule for People who ARE Moderately or Severely Immunocompromised

People ages 12 years and older

Moderna or Pfizer-BioNTech Primary Series

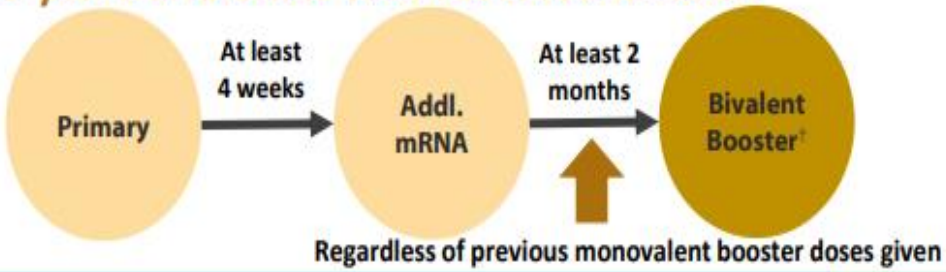


Novavax Primary Series



People ages 18 years and older who received Janssen

Janssen Primary Series Dose



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Timing Considerations for People with Current or Prior SARS-CoV-2 Infection

- At a minimum, defer any COVID-19 vaccination, including bivalent booster vaccination, at least until recovery from the acute illness (if symptoms were present) and criteria to discontinue isolation have been met.
- In addition, people who recently had SARS-CoV-2 infection may consider delaying any COVID-19 vaccination, including bivalent booster vaccination, **by 3 months** from symptom onset or positive test (if infection was asymptomatic).
- Individual factors such as risk of COVID-19 severe disease, COVID-19 community level, or characteristics of the predominant SARS-CoV-2 strain should be taken into account when determining whether to delay getting a COVID-19 vaccination after infection.

Manufacturer	Pfizer [€]	Moderna
Formulation	Bivalent	Bivalent
Age group	≥12yo	≥18yo
Vial image		
Booster Dose	(15 mcg + 15 mcg) /0.3 mL	(25 mcg + 25 mcg) / 0.5 mL
Diluent per vial	No Dilution	No Dilution
Doses per vial	6 doses per vial	5 doses per vial
Protect from light during storage	Yes	Yes
Ultra-Low-Temp Freezer [-90C to -60C]	12 months[†]	Do Not Store
Freezer [-50C to -15C]	Do Not Store	Until expiration date[¥]
Refrigerator (unpunctured) [2C to 8C]	70 days	30 days
Room Temp (unpunctured) [8C to 25C]	12 hours (including thaw time)	24 hours
After First Puncture	Discard after 12 hours (RT or refrigerated)	Discard after 12 hours (RT or refrigerated)

[€]Pfizer vaccine info excerpted from https://www.cvdvaccine-us.com/

[†]Regardless of storage condition, vaccines should not be used after 12 months from the date of manufacture printed on the vial and cartons.

[¥]Confirm Moderna vaccine manufacturer expiration date by looking up lot number at https://eua.modernatx.com/covid19vaccine-eua/providers/vial-lookup?#vialLookUpTool.

Updated 9.6.22 CMW, Harborview Medical Center Pharmacy Services

FAQs

- Monovalent mRNA COVID-19 vaccines are no longer authorized for use as boosters in individuals ≥ 12 years
- Bivalent vaccines contain an mRNA component from the original strain + an mRNA component derived from Omicron BA.4/BA.5
- Immune response to Omicron strains is enhanced in people who receive the bivalent booster compared to the monovalent booster
- Safety data from 800 individuals who received a bivalent vaccine with the original strain + Omicron BA.1
- Most commonly reported side effects included pain, redness and swelling at the injection site, fatigue, headache, muscle pain, chills, joint pain, and fever.

Washington Department of Health. COVID-19 Vaccine Partner Newsletter. September 2, 2022
US Food and Drug Administration. COVID-19 Update: FDA Authorizes Moderna, Pfizer-BioNTech Bivalent COVID-19 Vaccines for Use as a Booster Dose. August 31, 2022

Coadministration of Influenza with COVID-19 Vaccine

- ✓Providers should offer influenza and COVID-19 vaccines at the same visit, if eligible.
  - ✓This includes adjuvanted or high-dose influenza vaccines; administer in separate limbs.
- ✓Extensive experience with non-COVID 19 vaccines has demonstrated that immunogenicity and adverse event profiles are generally similar when vaccines are administered simultaneously as when they are administered alone.
- ✓ With both influenza and SARS-CoV-2 circulating, getting both vaccines is important for prevention of severe disease, hospitalization, and death.

How to Test When SARS-CoV-2 and Influenza are Co-Circulating

Patient with Acute Respiratory Illness			
	Admitted to Hospital	Outpatient	Long-Term Care
SARS-CoV-2	TEST	TEST	TEST
Influenza	TEST	Only if it will change management*	TEST
How?	Multiplex or individually	Multiplex or individually	Multiplex or individually

*Infection control (e.g. lives in congregate setting) OR treatment decisions (e.g. at risk for a complication of influenza)

Testing Guidance for Clinicians When SARS-CoV-2 and Influenza Viruses are Co-circulating (cdc.gov)

Who Should Be Treated for Flu (suspect or confirmed)

Regardless of Duration

- Hospitalized
- Progressive/severe disease
- Chronic medical condition

  BMI >40, immunosuppressed, lung renal heart liver hematologic neuromuscular dz, diabetes
- <2 or ≥ 65 years
- Pregnant or < 2 weeks postpartum

Consider if Sx ≤ 2 days

- Outpatients
- Household contact is a person at high risk of developing a complication (especially immunocompromised)
- Symptomatic healthcare providers

Uyeki TM, et al. Clin Infect Dis, Volume 68, Issue 6, 15 March 2019, Pages 895–902, https://doi.org/10.1093/cid/ciy874