Don't Vacation from Vaccination: Updates on COVID-19, Flu, RSV, and Beyond

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California Department of Public Health
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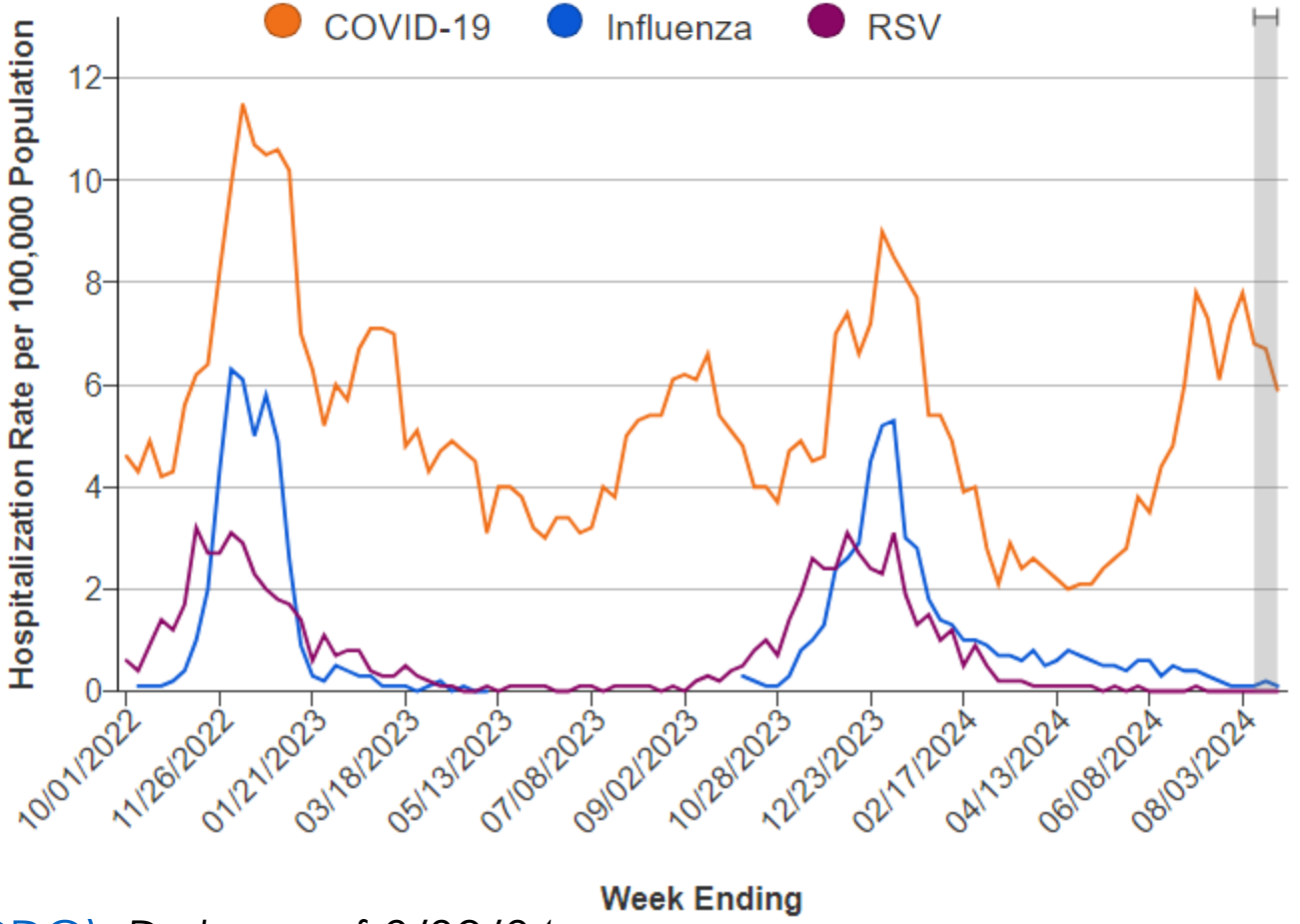
Outline

- Introduction
- Epidemiology
- Vaccine Updates
  - Respiratory Viruses (Influenza, COVID-19, RSV)
  - Pneumococcal
  - Meningococcal
  - Mpox
- Clinical Scenario
- Resources

Respiratory Virus Season Overview

- COVID-19, flu, and RSV disease peak during fall & winter months
- COVID-19 still causes many hospitalizations, although decreased from prior years

Weekly Rates of Respiratory Virus-Associated Hospitalizations in California

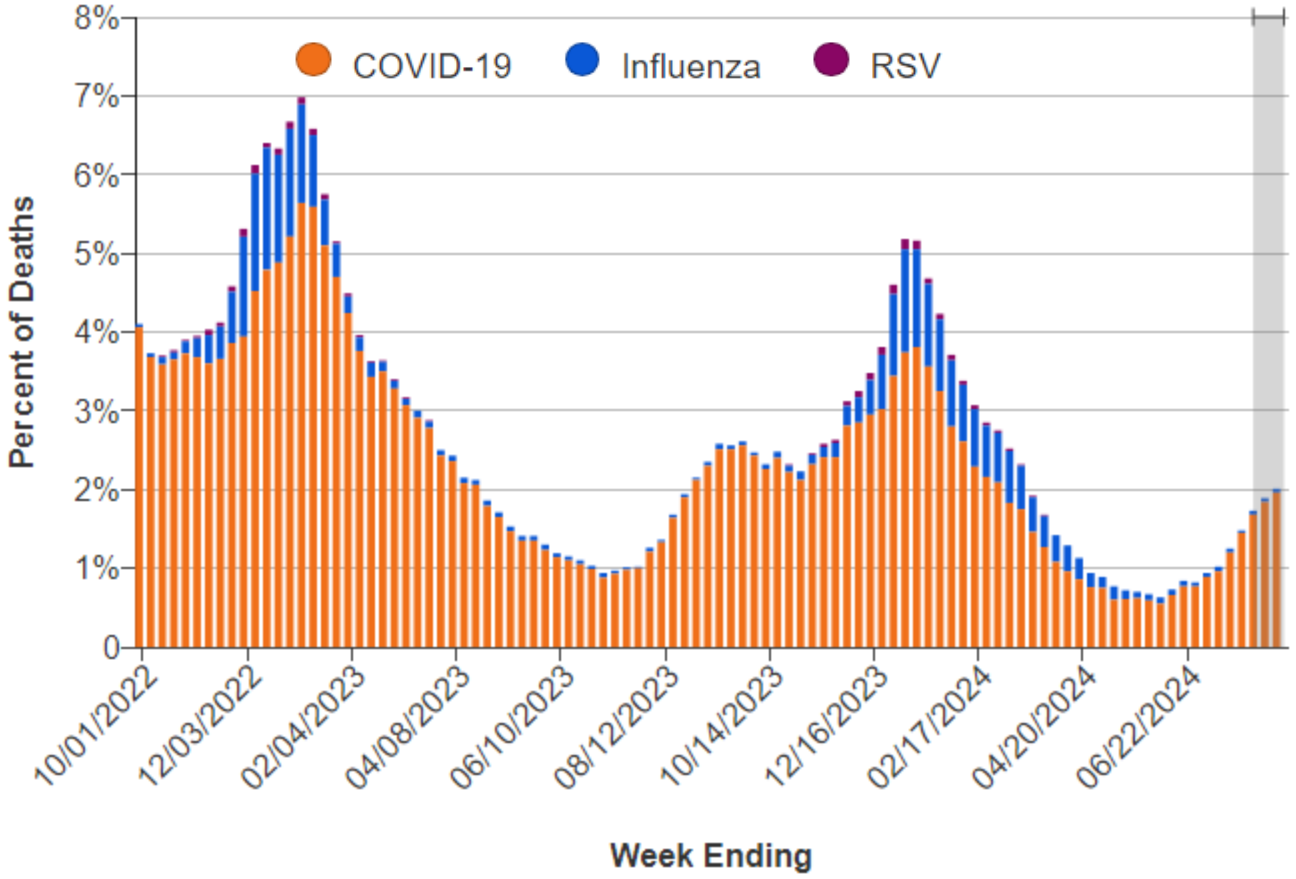


Severe Viral Respiratory Illness Dashboard (CDC), *Data as of 8/29/24*

Trends in Viral Respiratory Deaths in the United States

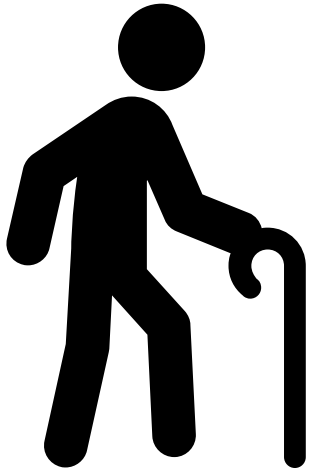
- COVID-19 still causes many deaths, although decreased from prior years
- COVID-19 still causes more deaths than influenza or RSV

Weekly Percent of Total Deaths Associated with COVID-19, influenza, and RSV



Severe Viral Respiratory Illness Dashboard (CDC), *Data as of 8/27/24*

Who's at Risk for Severe Respiratory Viral Infections?



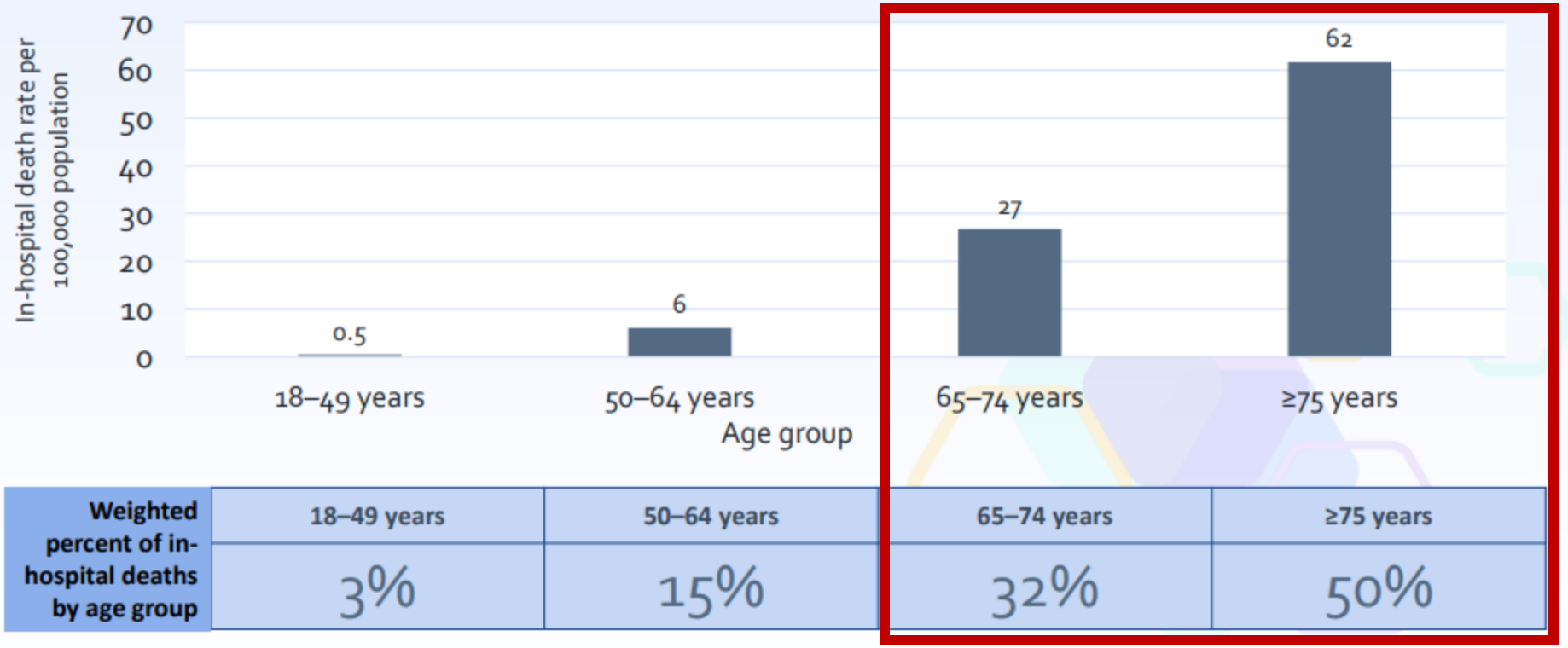
Older People

People with
Chronic Conditions

Image Source: Adobe Stock Images

Most COVID-19 Deaths in 65+

Cumulative In-Hospital Death Rate during COVID-19-Associated Hospitalization per 100,000 Population by Age Group — COVID-NET, October 2023–March 2024



Weighted percent of in-hospital deaths by age group	18–49 years	50–64 years	65–74 years	≥75 years
	3%	15%	32%	50%

[ACIP 6/27/24 Presentation]

General Prevention of Respiratory Viruses

Layering prevention strategies can help prevent severe illness and reduce the potential for strain on the healthcare system.

6 Tips for Staying Healthy this Virus Season

Reduce your risk of catching and spreading respiratory viruses like flu, COVID-19 and RSV.

Stay Up to Date on Vaccines

Vaccines are the best protection against severe illness. Visit MyTurn.ca.gov to schedule your vaccines or contact your health care provider.

- Flu and COVID-19 vaccines are available for everyone 6 months and older.
- RSV immunizations are available for infants and some young children, pregnant people and adults 60 years and older.

Stay Home if You're Sick

Stay home and away from others if you have any symptoms of Flu, COVID-19, or RSV.

Test and Treat

Test for COVID-19 and flu if you have symptoms. If you test positive, contact your health care provider and ask about prescription treatments. Act fast, most of these medications must be taken within the first 5 days of symptoms. Learn more about COVID-19 treatments.

Consider Wearing a Mask

Consider wearing a mask in public indoor or crowded spaces especially if you or your family is at higher-risk for severe illness.

Wash Your Hands

Wash your hands often, with soap and warm water, for at least 20 seconds. If soap and water are not available, use a hand sanitizer with at least 60% alcohol.

Cover Your Cough or Sneeze

Cough or sneeze into your elbow, arm, or a disposable tissue. Make sure to wash your hands or sanitize and dispose of your tissue after.

Scan the QR code to see interactive links on this flyer

[Winter Virus Tips (CDPH)]

HIV and the Vaccine Schedule

- HIV clinical care offers ongoing opportunities to address vaccination.
- Overall vaccination rates are good among people with HIV.
  - 72% of Californians living with HIV received influenza vaccine (2021)
- Many opportunities for improvement; especially to address disparities by race/ethnicity.
- Vaccine fatigue and hesitancy necessitates in-depth conversations on the benefits of vaccination.

Immunization Recommendations for Adults with HIV[1]

Vaccines	Recommended Schedules[1,2]	Additional Considerations
COVID-19	1 updated vaccine, regardless of prior vaccine history. See COVID-19 Vaccine Timing Guide.	Advanced HIV infection: ≥ 1 updated vaccine(s). Additional doses based on clinical factors[3].
Hepatitis A (HepA)[4]	**Havrix®, Vaqta®:** 2 doses, 6 months apart **Twinrix® (HepA/HepB):** 3 doses 0, 1, and 6 months apart	Check titers ≥ 1 month after series completion. If inadequate immune response, consider revaccination after CD4 ≥ 200 cells/mm³.
Hepatitis B (HepB)[5]	**Engerix-B®, PreHevbrio®, Recombivax HB®:** 3 doses 0, 1, and 6 months apart **Heplisav-B®:** 2 doses, 1 month apart **Twinrix®** (HepA/HepB): 3 doses, 0, 1, and 6 months apart	Consider double-dose strategy if using Engerix-B® or Recombivax HB®. Check titers ≥ 1 month after series completion. If inadequate immune response, consider revaccination after CD4 ≥ 200 cells/mm³.
Human papillomavirus (HPV)	**Gardasil 9®:** 3 doses, 0, 1-2, and 6 months apart for ages 15-45 years	Not routinely recommended for ages 27–45 years but some people with HIV in this age range may benefit. Use shared clinical decision-making.
Influenza	1 dose annually	**Live attenuated vaccine is contraindicated.**
Measles, mumps, rubella (MMR)	**M-M-R® II, Priorix®:** 2 doses, 28 days apart[6]	**Contraindicated if CD4 < 200 cells/mm³.**
Meningococcal A, C, W, Y (MenACWY)	**MenQuadfi®, Menveo®**: 2 doses, 2 months apart; booster every 5 years	Meningococcal cases increased among people with HIV 2017–2022; vaccine coverage remains low.
Meningococcal B (MenB)	**Bexsero®:** 2 doses, 1 month apart **Trumenba®:** 2 or 3 doses, at 0, 1-2, and 6 months	Not routinely recommended for all adults with HIV.[7]
Mpox virus[8]	**JYNNEOS®**: 2 doses, 28 days apart	Can be given intradermally or subcutaneously.
Pneumococcal (PCV15, PCV20, PCV21, or PPSV23)	**CAPVAXIVE™** (PCV21), **Prevnar 20®** (PCV20): 1 dose *OR* **Vaxneuvance®** (PCV15) + **Pneumovax 23®**(PPSV23): > 2 months apart	Consider delay of PPSV23 until CD4 ≥ 200 cells/mm³.
Respiratory Syncytial Virus (RSV)	**ABRYSVO®, AREXVY®, mRESVIA®:** 1 dose	Recommended for ages ≥ 75 years and ages ≥ 60-74 years with risk factors. Give ABRYSVO at 32 to 36 weeks of pregnancy during September-January.[9]
Tetanus, diphtheria, pertussis (Tdap/Td)	1 dose Tdap (**Boostrix®, Adacel®**), then Td (**Tenivac®, TDVAX®**) *OR* Tdap booster every 10 years	During each pregnancy, give one dose of Tdap.[10]
Varicella (VAR)	**Varivax®**: 2 doses, 28 days apart[11]	**Contraindicated if CD4 < 200 cells/mm³.**
Zoster (RZV)	**Shingrix®**: 2 doses for ages > 19 years, 2 months apart	Consider delay of Shingrix until CD4 > 200 cells/mm³.

California Department of Public Health | Immunization Branch IMM-1450 (7/24)

Immunization for Adults with HIV Job Aid

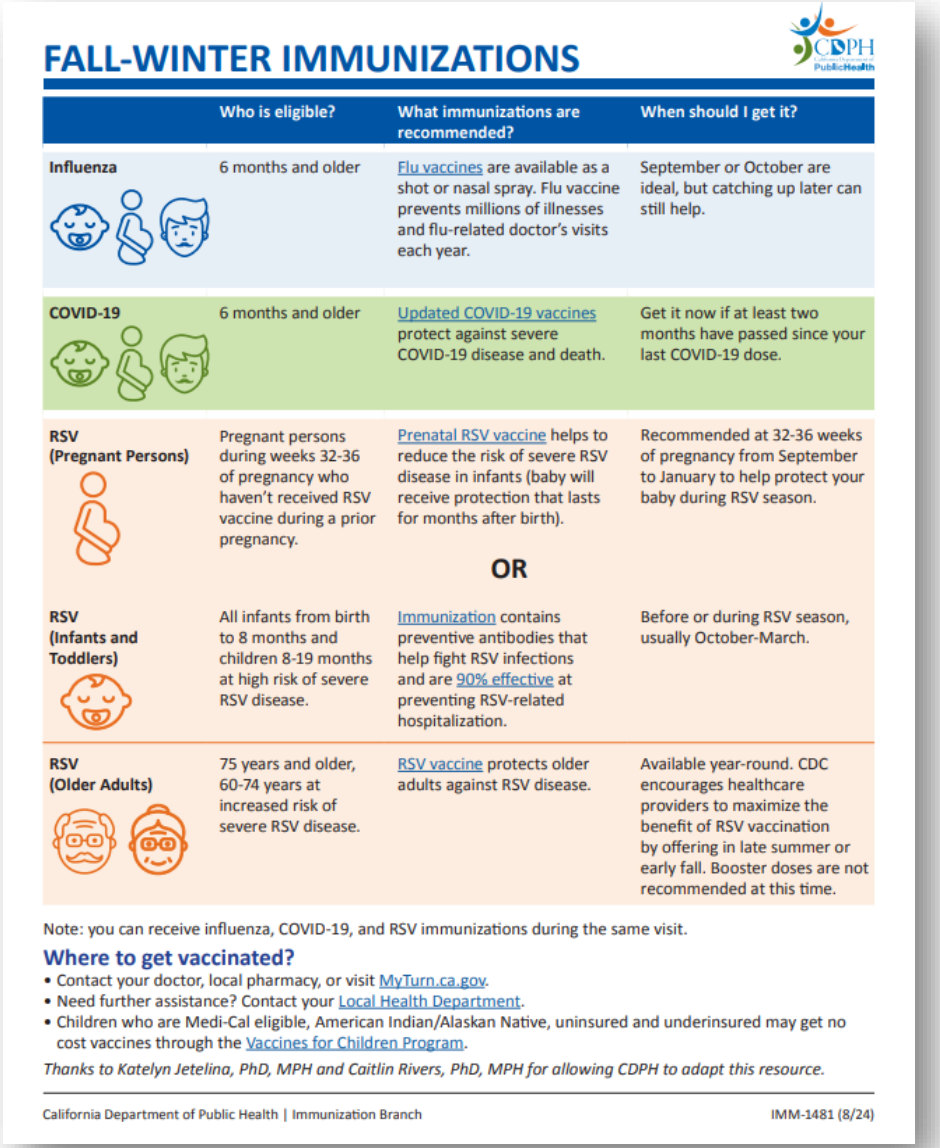
Behavioral and Clinical Characteristics of People Living with Diagnosed HIV in California 2021

Immunizing People with HIV

- Most vaccines are safe for people with HIV but:
  - Live virus vaccines may be contraindicated.
  - Some vaccines have special dosing recommendations.
- People with advanced or untreated HIV are considered **moderately or severely immunocompromised** and may have limited protection from immunization. Advanced HIV is defined as:
  - CD4 count <200 cells/mm^3, *or*
  - History of an AIDS-defining illness without immune reconstitution, *or*
  - Clinical manifestations of symptomatic HIV

Guidelines for the Prevention and Treatment of Opportunistic Infections in Adults and Adolescents With HIV
Description of moderate and severe immunocompromising conditions and treatment (CDC)

Respiratory Virus Vaccine Updates



FALL-WINTER IMMUNIZATIONS

	Who is eligible?	What immunizations are recommended?	When should I get it?
Influenza	6 months and older	Flu vaccines are available as a shot or nasal spray. Flu vaccine prevents millions of illnesses and flu-related doctor's visits each year.	September or October are ideal, but catching up later can still help.
COVID-19	6 months and older	Updated COVID-19 vaccines protect against severe COVID-19 disease and death.	Get it now if at least two months have passed since your last COVID-19 dose.
RSV (Pregnant Persons)	Pregnant persons during weeks 32-36 of pregnancy who haven't received RSV vaccine during a prior pregnancy.	Prenatal RSV vaccine helps to reduce the risk of severe RSV disease in infants (baby will receive protection that lasts for months after birth). **OR**	Recommended at 32-36 weeks of pregnancy from September to January to help protect your baby during RSV season.
RSV (Infants and Toddlers)	All infants from birth to 8 months and children 8-19 months at high risk of severe RSV disease.	Immunization contains preventive antibodies that help fight RSV infections and are 90% effective at preventing RSV-related hospitalization.	Before or during RSV season, usually October-March.
RSV (Older Adults)	75 years and older, 60-74 years at increased risk of severe RSV disease.	RSV vaccine protects older adults against RSV disease.	Available year-round. CDC encourages healthcare providers to maximize the benefit of RSV vaccination by offering in late summer or early fall. Booster doses are not recommended at this time.

Note: you can receive influenza, COVID-19, and RSV immunizations during the same visit.

Where to get vaccinated?

- Contact your doctor, local pharmacy, or visit MyTurn.ca.gov.
- Need further assistance? Contact your Local Health Department.
- Children who are Medi-Cal eligible, American Indian/Alaskan Native, uninsured and underinsured may get no cost vaccines through the Vaccines for Children Program.

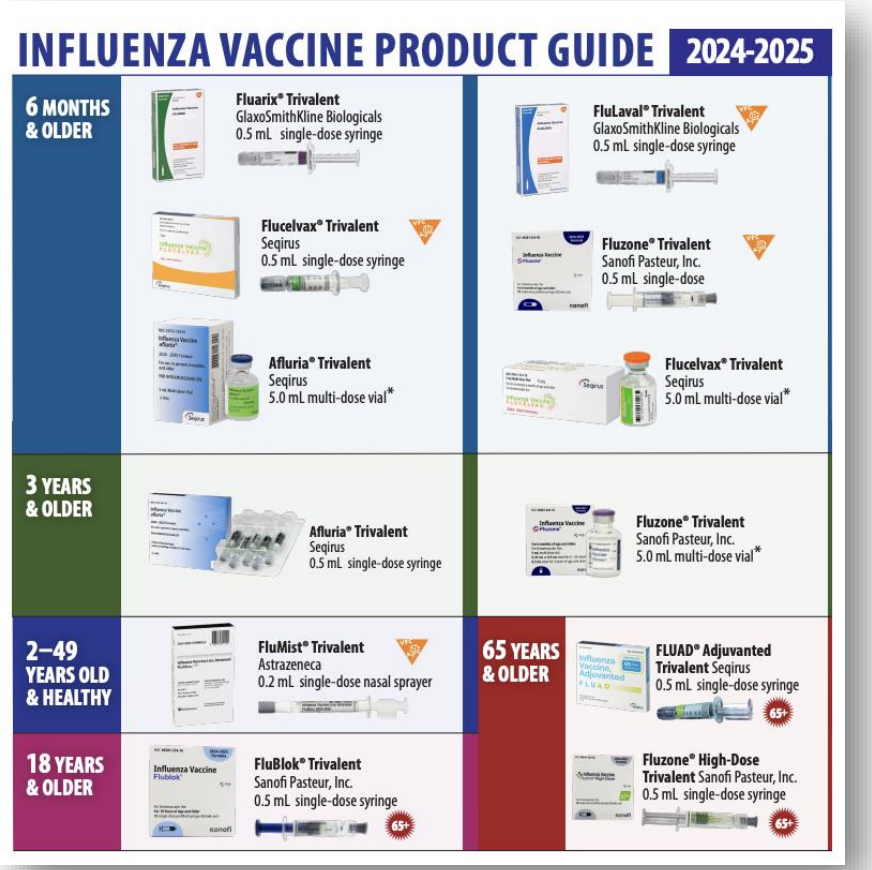
Thanks to Katelyn Jetelina, PhD, MPH and Caitlin Rivers, PhD, MPH for allowing CDPH to adapt this resource.

California Department of Public Health | Immunization Branch IMM-1481 (8/24)

[Fall-Winter Immunizations (CDPH)]

Influenza Vaccine Recommendations 2024-2025

- **Age ≥6 months**: routine annual vaccination
- **Trivalent** 2024-25 Influenza Vaccine Composition
  - Influenza B/Yamagata viruses not detected globally since March 2020. Experts recommended removal of this strain.
  - Flu vaccines now contain 2 A and 1 B virus.
- Live, attenuated influenza vaccine (nasal spray) contraindicated in people with HIV.
- September and October are the best times for most people to get vaccinated.



Flu ID Guide

Seasonal Influenza Vaccination Resources for Health Professionals (CDC)

Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2024–25 Influenza Season

Enhanced Influenza Vaccine Recommendations

- **Enhanced vaccine options include**

Type	Description	Brand Name
Adjuvanted	Contains MF59 adjuvant	FLUAD Adjuvanted
High-dose	Contains 4x hemagglutinin vs standard dose vaccines	Fluzone High-Dose
Recombinant	Contains 3x hemagglutinin vs standard dose vaccines	FluBlok

- **Age 65 years and older:**
  - Preferentially recommended to receive any enhanced vaccine
- **Solid organ transplant recipients 18-64 years** on immunosuppressants:
  - Any age-appropriate vaccine, now including all enhanced options

Seasonal Influenza Vaccination Resources for Health Professionals (CDC)

Influenza Treatment Reminders

- Antiviral treatment is recommended **as soon as possible** for any patient with suspected or confirmed influenza who:
  - is hospitalized
  - has severe, complicated, or progressive illness
  - is at higher risk for influenza complications, including people with HIV
- Do not wait for laboratory confirmation; start empiric antiviral treatment in high-risk patients.
  - Antiviral treatment can have clinical benefit in severe, complicated or progressive illness, and in hospitalized patients when started >48 hours after illness onset
- Oseltamivir recommended for most patients. Additional options available for outpatients with uncomplicated influenza.
  - Oseltamivir may be associated with gastrointestinal symptoms such as nausea and vomiting; risk may be decreased when taken with food

Influenza Antiviral Medications: Summary for Clinicians (CDC)
Diagnosis, Treatment, Chemoprophylaxis, and Institutional Outbreak Management of Seasonal Influenza (IDSA, 2018)

2024-2025 COVID-19 Vaccine Formulation

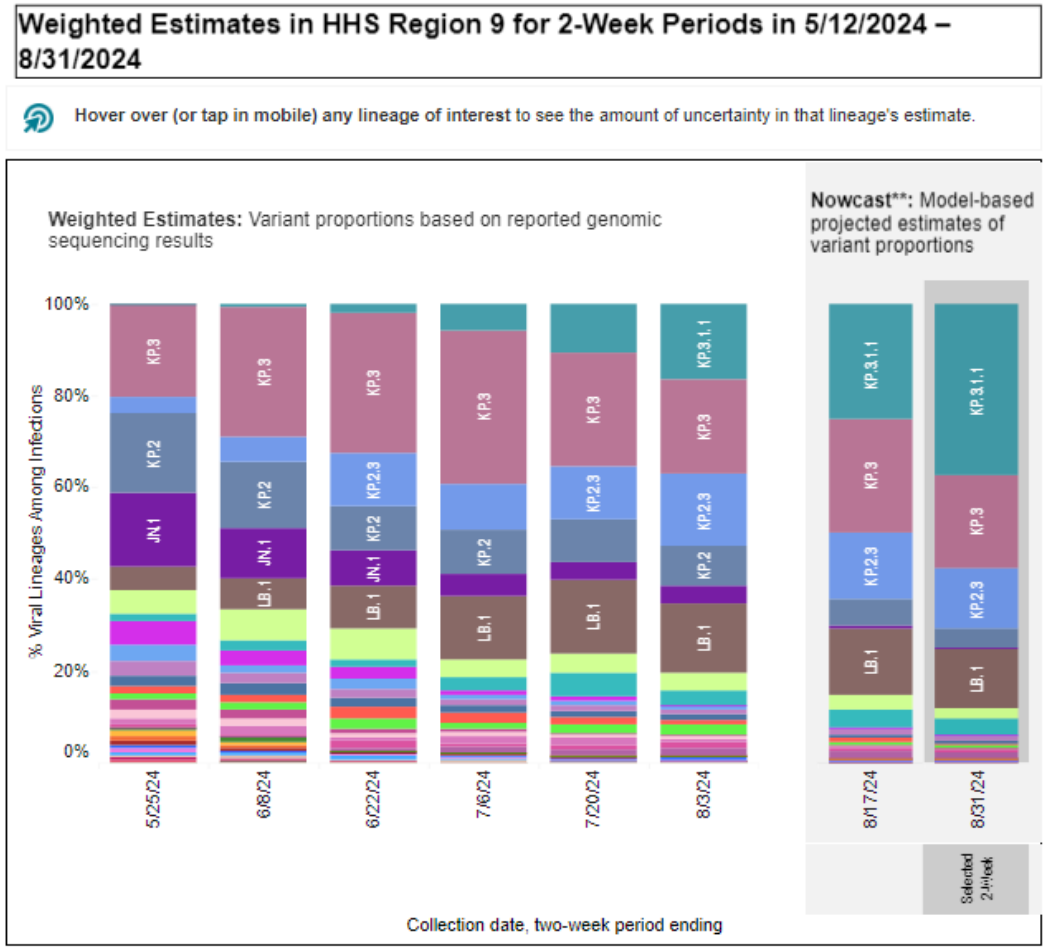
- Updated 2024–2025 COVID-19 vaccines are monovalent:

Manufacturer	Type	Antigen	VIS/Factsheet
Pfizer	mRNA	KP.2	VIS (12+) | EUA factsheet (6m-11y)
Moderna	mRNA	KP.2	VIS (12+) | EUA factsheet (6m-11y)
Novavax	Protein + adjuvant	JN.1	EUA factsheet

- KP.2 is a sublineage of JN.1
- Stop using 2023-2024 COVID-19 vaccines, which are no longer authorized

Interim Clinical Considerations for Use of COVID-19 Vaccines (CDC)

Variants and COVID-19 Vaccines

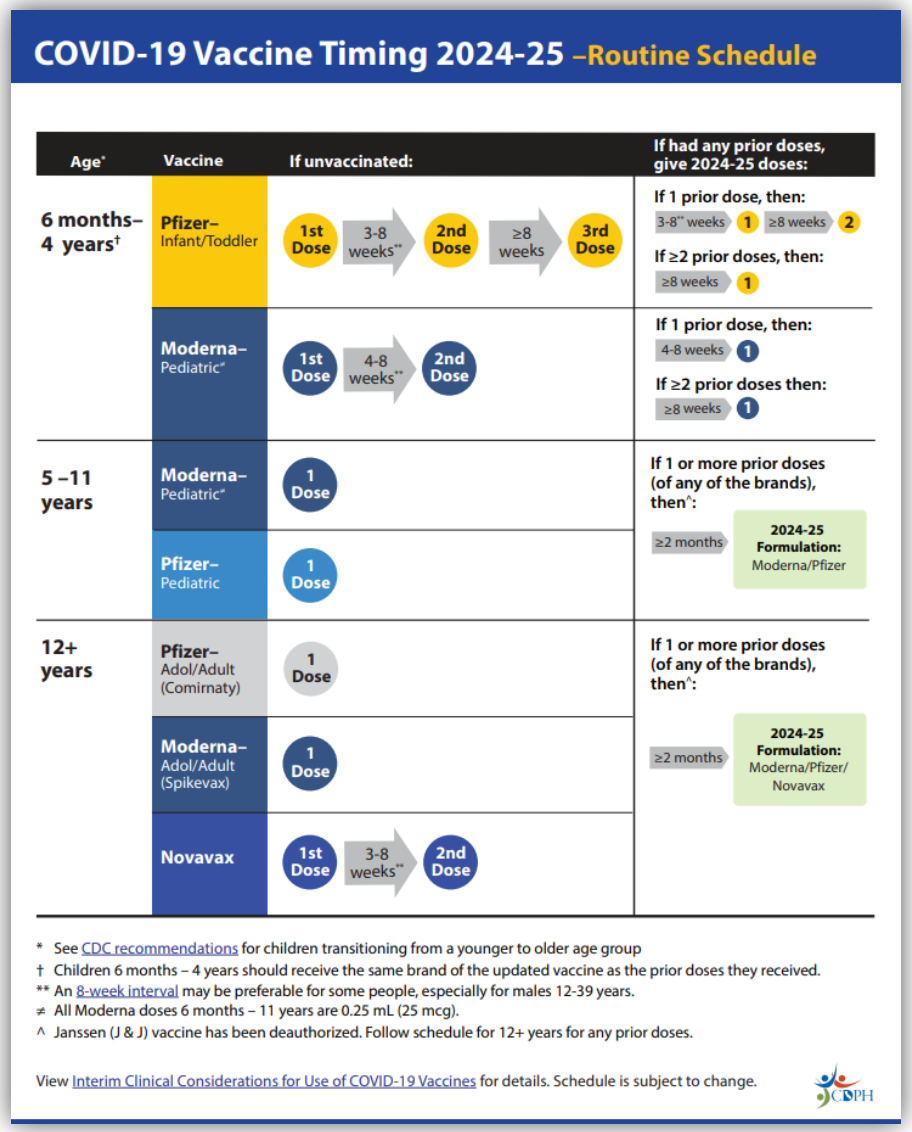


- KP.3.1.1 has been the dominant circulating variant and is an Omicron sub-lineage variant of JN.1, closely related to KP.2.
- 2024-2025 COVID-19 vaccine formulations contain JN.1 or KP.2 variants and are expected to provide protection against current strains.

CDC Variant Tracker; Vaccines and Related Biological Products Advisory Committee Meeting Presentation- Update on Current Epidemiology of COVID-19 and SARS-CoV-2 genomics (fda.gov)

COVID-19 Vaccine Recommendations 2024-2025: Routine Schedule

- **Age 6 months–4 years:** 1 updated dose + additional doses as needed
- **Age ≥5 years:** 1 updated dose
- Additional (second) dose for 65+ is not currently recommended.



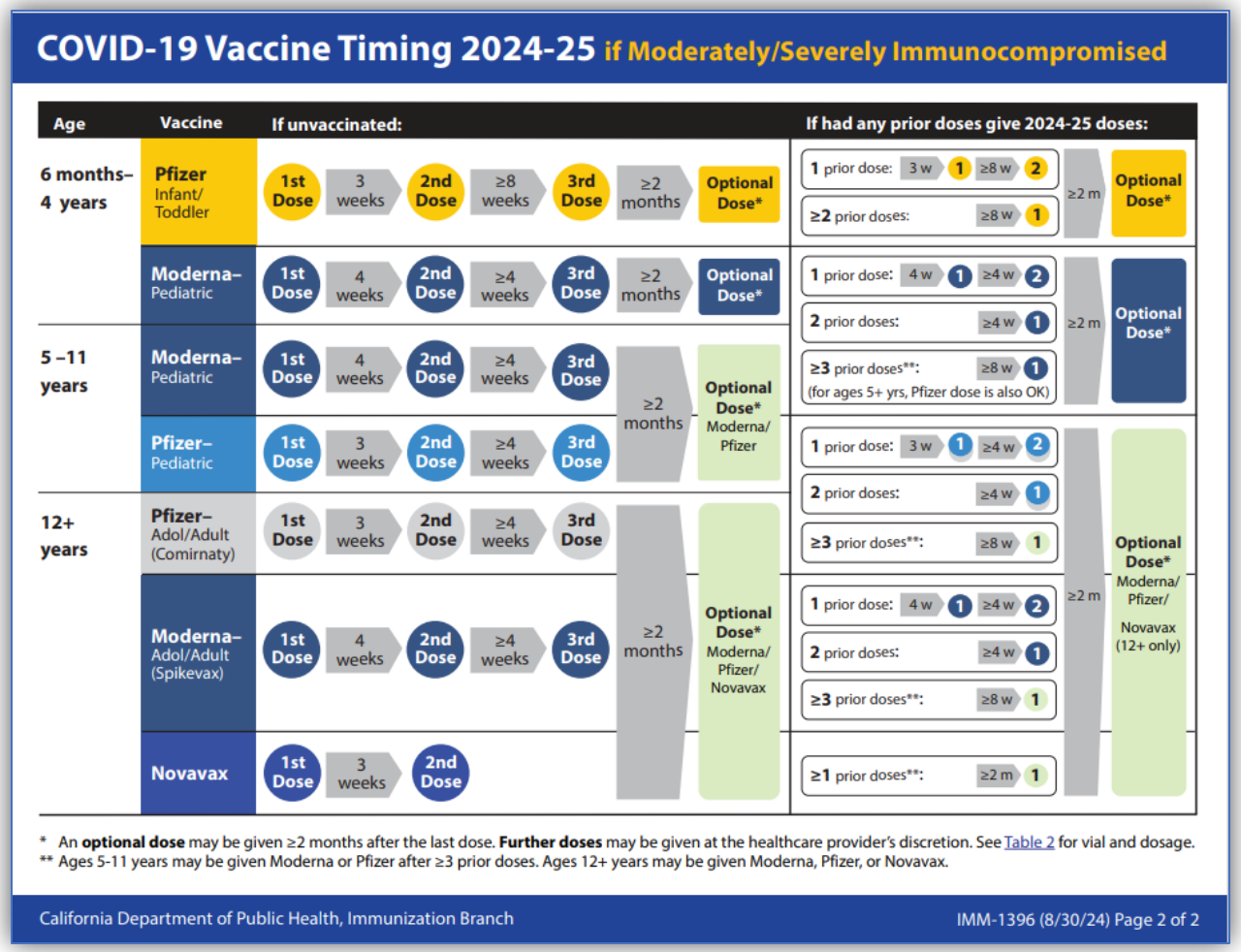
[Interim Clinical Considerations for Use of COVID-19 Vaccines (CDC) Staying Up to Date with COVID-19 Vaccines]

COVID-19 Vaccine Timing Guide: **English**, **Spanish**

COVID-19 Vaccine Recommendations: Immunocompromised

Age ≥6 months who are moderately or severely immunocompromised*:

- Multiple dose initial series. If had prior doses, 1-2 updated doses as needed.
- May receive additional optional updated doses based on clinical judgment.



COVID-19 Vaccine Timing Guide
Immunocompromised: **English**, **Spanish**

*Description of moderate and severe immunocompromising conditions
Staying Up to Date with COVID-19 Vaccines

COVID-19 Vaccine Clinical Guidance Reminders

- A 2024-2025 COVID-19 vaccine should be given at least 2 months since the last dose of any COVID-19 vaccine.
- History of prior SARS-CoV-2 infection: May consider delaying a COVID-19 vaccine dose by 3 months from symptom onset or positive test (if infection was asymptomatic).
- Transitioning from a younger to older age group: CDC recommends that people receive the age-appropriate vaccine product and dosage based on their age on the day of vaccination.

Interim Clinical Considerations for Use of COVID-19 Vaccines (CDC)

COVID-19 Vaccine Benefits

- Restore and enhance protection against the virus variants currently responsible for most infections and hospitalizations in the U.S.
- Reduced risk of Long COVID
- Reduced risk of COVID-19 associated hospitalization and death

CDC Science and Public Health Approach to Long COVID
ACIP 6/27/24 Pres

COVID-19 Therapeutics Key Points

COVID-19 treatments can help prevent severe illness in eligible* patients

CDPH recommends that providers prescribe:

- ✓ Nirmatrelvir/ritonavir (Paxlovid) to non-hospitalized, symptomatic, and eligible patients
- ✓ Remdesivir (Veklury) should be considered when nirmatrelvir/ritonavir (Paxlovid) is clinically contraindicated
- ✓ Molnupiravir (Lagevrio) may be considered if remdesivir is impractical and Paxlovid is clinically contraindicated.

Image Source: Adobe Stock Images

*Eligibility depends on exposure status, symptoms, and risk factors for severe disease

HHS COVID-19 Therapeutics Decision Aid (PDF)

Nirmatrelvir/ritonavir (Paxlovid) Considerations

- Contraindicated in patients with a history of clinically significant hypersensitivity reactions to product components
- Not recommended for patients with severe hepatic or renal impairment; different dosing required for moderate renal impairment
- Check for drug-drug interactions due to ritonavir component. Management strategies may include:
  - Increasing monitoring for potential adverse effects to the concomitant medication.
  - Adjusting the dose or temporarily withholding the concomitant medication.
  - Using an alternative to the concomitant medication.
  - Using alternative COVID-19 therapies
- Paxlovid may be administered with HIV antiretrovirals, including those agents boosted with ritonavir or cobicistat

COVID-19 Drug Interactions (University of Liverpool)
COVID-19 Treatment Information for Providers and Facilities (CDPH)
PAXLOVID (FDA)

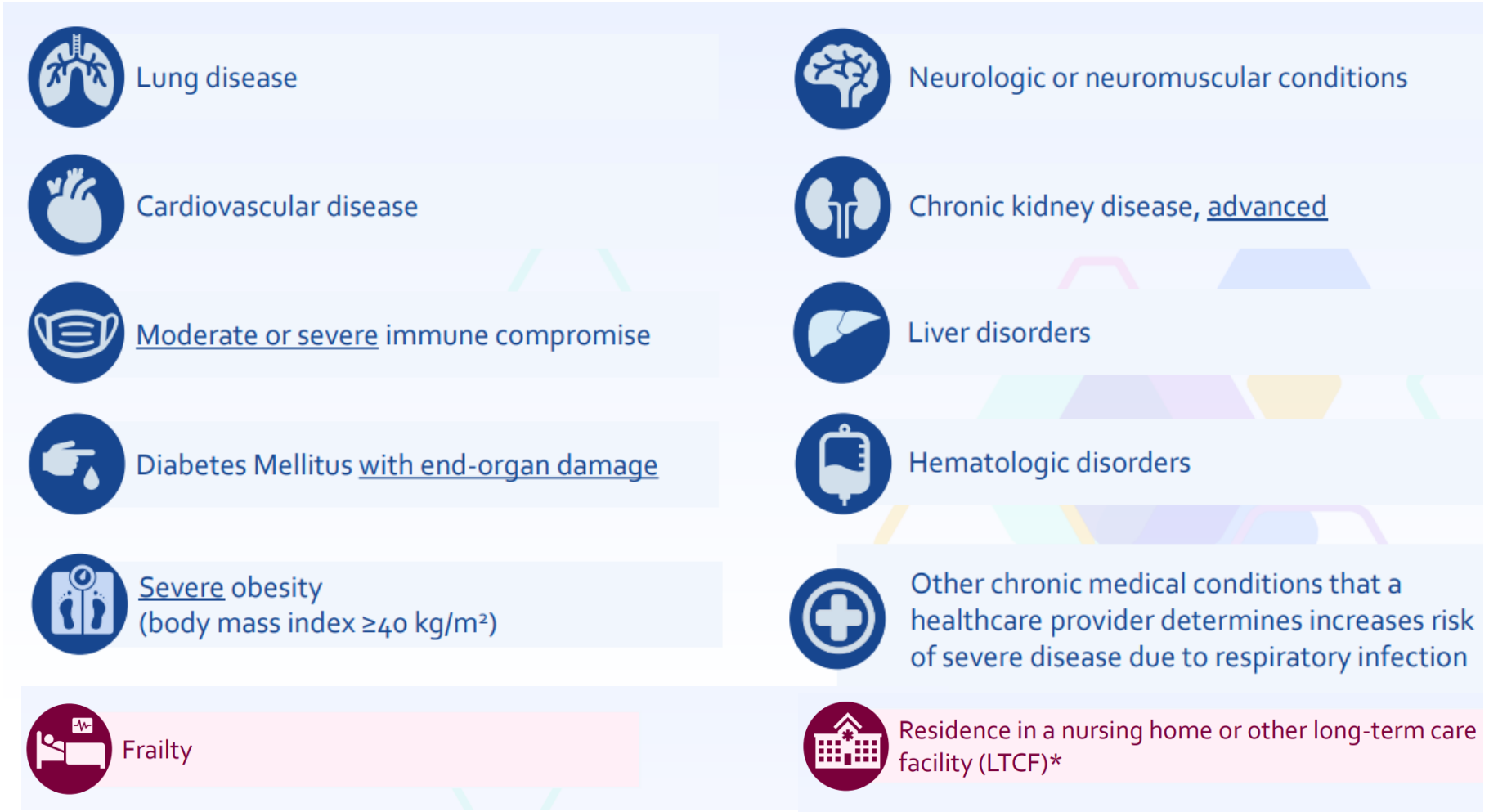
Updated Older Adult RSV Vaccine Recommendations

- ACIP recommends the following older adults **should** receive a single dose of RSV vaccine:
  - Ages 75 years of age and older
  - Ages 60–74 years at increased risk of severe RSV disease
- These recommendations supplant the prior recommendation that adults ≥ 60 years of age **may** receive RSV vaccination, using shared clinical decision-making.
- Insufficient information to currently recommend RSV vaccine for adults 50 – 59 years, but review is ongoing.

RSV Vaccination for Adults 60 Years of Age and Over (CDC)
Evidence to Recommendation Framework: RSV Vaccination (ACIP 6/26/24)

Chronic Medical Conditions Associated with Increased Risk of Severe RSV Disease

- Guidance provides flexibility for clinicians to assess patient risk
- Greatest risk of severe RSV disease in people ages ≥ 75 years and people with ≥ 2 chronic conditions



ACIP 6/26/24: Adult RSV Clinical Considerations

Older Adult RSV Vaccine Timing and Safety

- RSV vaccine is recommended as a **single dose**. Studies are ongoing to assess whether booster(s) are needed.
- May be given year-round; consider giving in late summer or early fall to maximize the benefits of RSV vaccination.
- Risk of Guillain-Barré syndrome (GBS) is rare and continuing to be studied.

ACIP 6/26/24 Presentation

RSV Vaccines – No preferential recommendation

Brand Name	Abrysvo	Arexvy	mRESVIA
Manufacturer	Pfizer	GSK	Moderna
Composition	RSVpreF (protein)	RSVpreF (protein) + adjuvant	mRNA
Recommended groups	-Older Adults - Pregnant at 32-36 weeks GA, from September 1 to January 31	Older Adults*	Older Adults
Year approved	2023	2023	2024

*Arexvy is FDA approved, but not CDC recommended, for adults 50-59 at increased risk of severe RSV

RSV Vaccine Factsheet (CDPH)

RSV Immunization – Maternal/Pediatric

- Recommendation reminders:
  - Maternal RSV vaccine (Abrysvo is the ONLY product approved during pregnancy) for pregnant people at 32–36 weeks' gestation, using seasonal administration (September 1 – January 31), or
  - Monoclonal antibody nirsevimab for infants <8 months of age and infants 8-19 months of age at increased risk for severe RSV disease, from October 1 – March 31.
- Duration of protection is unknown; studies are ongoing.
- For people who previously received maternal RSV vaccine, during future pregnancies:
  - They are not recommended to receive additional doses,
  - Their infants should still receive nirsevimab.

RSV Immunizations (CDC)

Preventing RSV Immunization Administration Errors

- CDC has received reports of errors, including:
  - Arexvy (GSK) given to pregnant people instead of Abrysvo (Pfizer)
  - Adult vaccines administered to children
- Ensure use of the correct RSV prevention product in the correct population.
- Take actions to prevent vaccine administration errors, including automating error prevention alerts in electronic health record systems, ensuring proper education and training on vaccine recommendations
- Healthcare providers are strongly encouraged to report vaccine administration errors to VAERS.

YOU CALL THE SHOTS

Vaccine Administration: Preventing Vaccine Administration Errors

A vaccine administration error is any preventable event that may cause or lead to inappropriate medication use or patient harm.[1] Vaccine administration errors can have many consequences, including inadequate immunological protection, possible injury to the patient, cost, inconvenience, and reduced confidence in the health care delivery system. Take preventive actions to avoid vaccine administration errors and establish an environment that values reporting and investigating errors as part of risk management and quality improvement.

Vaccine administration errors may be due to causes such as:

- Insufficient staff training
- Distraction
- Changes in recommendations
- Lack of standardized protocols
- Patient misidentification
- Using nonstandard or error-prone abbreviations
- Easily misidentified products (e.g. DTaP, DT, Tdap, Td)

If an error occurs, determine how it occurred and take the appropriate actions to put strategies in place to prevent it from happening in the future. The following table outlines common vaccine administration errors and possible preventive actions you can take to avoid errors.

Error(s)	Possible Preventive Actions
Wrong vaccine, route, site, or dosage (amount); or improperly prepared.	Circle important information on the packaging to emphasize the difference between the vaccines.
	Include the brand name with the vaccine abbreviation whenever possible (e.g., PCV13 [Prevnar13]) in orders, medical screens, etc.
	Separate vaccines into bins or other containers according to type and formulation. Use color-coded identification labels on vaccine storage containers.
	Store look-alike vaccines in different areas of the storage unit (e.g., pediatric and adult formulations of the same vaccine on different shelves in the unit).
	Do not list vaccines with look-alike names sequentially on computer screens, order forms, or medical records, if possible.
	Consider using "name alert" or "look-alike" stickers on packaging and areas where these vaccines are stored.
	Consider purchasing products with look-alike packaging from different manufacturers, if possible.
	Establish "Do NOT Disturb" or no-interruption areas or times when vaccines are being prepared or administered.
	Prepare vaccine for one patient at a time. Once prepared, label the syringe with vaccine name.
	Do not administer vaccines prepared by someone else.
	Triple-check work before administering a vaccine and ask another staff member to check.
	Keep reference materials on recommended sites, routes, and needle lengths for each vaccine used in your facility in the medication preparation area.
	Clearly identify diluents if the manufacturer's label could mislead staff into believing the diluent is the vaccine itself.
	Integrate vaccine administration training into orientation and other appropriate education requirements.
	Provide education when new products are added to inventory or recommendations are updated.
	Use standing orders, if appropriate.

1. National Coordinating Council for Medication Error Reporting and Prevention, https://www.nccmerp.org/about-medication-errors

01/05/2021 CS 322053-A

Vaccine Administration: Preventing Vaccine Administration Errors

Assess For Other Needed Vaccines

Respiratory virus season is also a good time to review and ensure your patients are up-to-date with all other vaccines.

Immunization Recommendations for Adults with HIV[1]

Vaccines	Recommended Schedules[1,2]	Additional Considerations
COVID-19	1 updated vaccine, regardless of prior vaccine history. See COVID-19 Vaccine Timing Guide.	Advanced HIV infection: ≥ 1 updated vaccine(s). Additional doses based on clinical factors[3].
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Pneumococcal (PCV15, PCV20, PCV21, or PPSV23)	**CAPVAXIVE™** (PCV21), **Prevnar 20®** (PCV20): 1 dose *OR* **Vaxneuvance®** (PCV15) + **Pneumovax 23®**(PPSV23): > 2 months apart	Consider delay of PPSV23 until CD4 ≥ 200 cells/mm³.
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CDPH California Department of Public Health | Immunization Branch IMM-1450 (7/24)

Immunization Recommendations for Adults with HIV Job Aid

New Pneumococcal Vaccine Available

- ACIP recommends PCV21 (Capvaxive) as an option for adults ≥ 19 years who currently have a recommendation to receive a dose of PCV.
- No current preference for PCV21 over other adult pneumococcal vaccine options (PCV20 or PCV15+PPSV23)
- Pneumococcal vaccine guidance reminder:
  - Pneumococcal vaccination recommended for all people with HIV
  - For people who have previously received doses, see pneumococcal timing guides (CDC | CDPH)

Use of 21-Valent Pneumococcal Conjugate Vaccine Among U.S. Adults (ACIP)

PCV21 Serotypes Differ from Other Vaccines

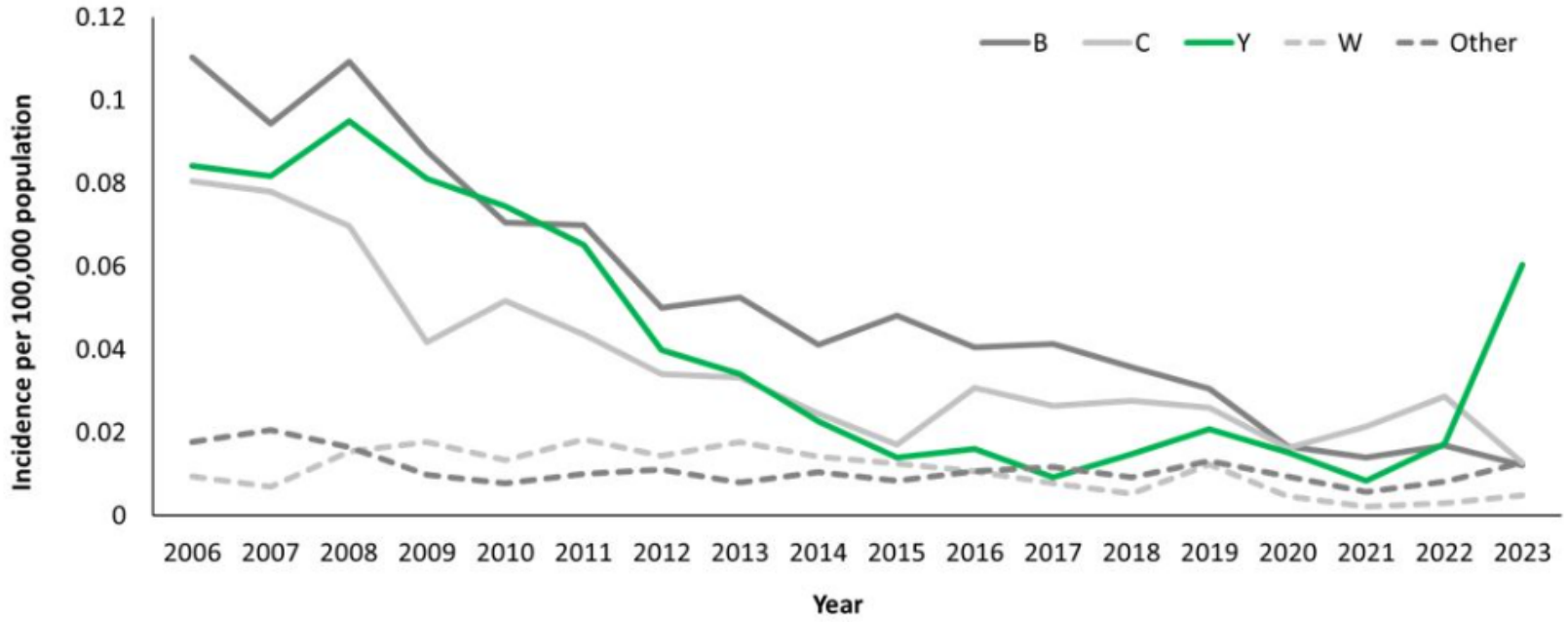
	1	3	4	5	6A	6B	7F	9V	14	18C	19A	19F	23F	22F	33F	8	10A	11A	12F	15B	2	9N	17F	20	15A	15C	16F	23A	23B	24F	31	35B
PCV15																																
PCV20																																
PPSV23																																
PCV21																																

- Covers serotypes that cause 77 – 85% of invasive pneumococcal disease (IPD) in adults
- Does *not* contain serotype 4 (included in PCV20 and PCV15), which is causing increased IPD in some American Indian and Alaska Native (AIAN) communities and people experiencing homelessness

ACIP Slides 6/27/24: Pneumococcal Vaccines

Increase in Invasive Serogroup Y Meningococcal Disease in the U.S.

Figure: Trends in meningococcal disease incidence per 100,000 population, by serogroup—United States, 2006–2023. Incidence of *Neisseria meningitidis* serogroup Y is shown in green. Source: National Notifiable Diseases Surveillance System, with additional serogroup data from Active Bacterial Core surveillance (ABCs) and state health departments. 2022 and 2023 data are preliminary.



- Many patients presented without typical meningitis symptoms
- Disproportionately affected:
  - Ages 30-60 years
  - Black/African American
  - People with HIV
- Keep your patients up to date with meningococcal vaccination

[CDC Health Advisory Network: Increase in Invasive Serogroup Y Meningococcal Disease in the United States](#) (3/28/24)

New Meningococcal Vaccine Available

- Pentavalent meningococcal vaccine (MenABCWY) is an option when both MenACWY and MenB vaccines are indicated at the same visit
- MenABCWY vaccine options:
  - Penbraya (Pfizer)
  - GSK MenABCWY vaccine -- *recommendation expected early 2025*
- Meningococcal vaccine guidance reminder:
  - MenACWY recommended for all people with HIV; booster every 5 years
  - MenB recommended for people with HIV who are at increased risk or ages 16-23 years using shared clinical decision-making
- Adolescent meningococcal vaccine schedule update expected in 2025

Penbraya (FDA)

Meningococcal Vaccine Timing: Routine | High-risk

Mpox Vaccination Reminders

- Encourage patients at-risk of mpox infection to complete 2-dose series
  - Gay, bisexual, or other same-gender loving man who has sex with men or are transgender, gender non-binary, or gender-diverse.
  - Persons with HIV are at particular risk for severe mpox
- ≥ 1 dose of JYNNEOS vaccine for mpox reduces hospitalization risk
- JYNNEOS now commercially available

Mpox Vaccination Basics (CDC)

Announcement from HRSA

- JYNNEOS (mpox) vaccine from SNS (strategic national stockpile) available for free to RWHAP clinics and FQHCs
- Doses that expire 10/31/2024 can be requested by emailing sns.ops@hhs.gov with the following information:
  - Receiving Location Name
  - Receiving Location Address
  - Receiving Location Hours of Operation
  - Site Points of Contact (name, email, phone number), primary and alternate
  - Quantity of Vials Requested
  - Date Ready to Receive
  - Any special instructions (hours available to receive, etc.)
- HRSA HIV/AIDS Bureau Update: Special Bulletin | HIV.gov

Clinical Scenarios

Image Source: Adobe Stock Images

Scenario 1

Image Source: Adobe Stock Images

Deborah is a 55-year-old woman with a history of chronic obstructive pulmonary disease (COPD) and HIV infection on ART (CD4 count >200 cells/mm^3) who comes for a routine appointment.

Which vaccines do you recommend this fall?

☑ Knowledge Check 1

Question: Which vaccines do you recommend this fall?

Options:

a. COVID-19 only

b. Influenza only

c. COVID-19 and influenza

d. COVID-19, influenza, and RSV

Knowledge Check 1

Question: Which vaccines do you recommend this fall?

Options:

a. COVID-19 only

b. Influenza only

✓ c. COVID-19 and influenza

d. COVID-19, influenza, and RSV

Which vaccines do you recommend this fall?

- **Guidance**
  - Deborah should receive COVID-19 and influenza vaccines this fall.
  - RSV vaccine not currently recommended for people aged 50-59 years.
- **Considerations**
  - Deborah has chronic conditions that increase her risk of severe disease from COVID-19 and influenza.
  - Arexvy (GSK) is FDA approved for people 50-59 years at increased risk of severe disease, but there is no ACIP recommendation for people aged 50-59 years
  - Co-administration of respiratory vaccines is a recommended option

ACIP Slides 6/26/24: RSV Vaccine in Adults

Scenario 1, continued

Image Source: Adobe Stock Images

"I'll get the flu vaccine, but I don't want the COVID vaccine."

How would you respond?

Motivational Interviewing

- Consider **motivational interviewing** for patients with vaccine concerns
- 4 steps for applying motivational interviewing rapidly:
  - Be empathetic
  - Ask permission
  - Apply interviewing questions
  - Respond to questions

Talking with Patients about COVID-19 Vaccine (CDC)

Scenario 2

Image Source: Adobe Stock Images

Albert is a 64-year-old man with a history of hypertension, diabetes, coronary artery disease, and HIV infection on ART (CD4 count >200 cells/mm^3) who comes for a routine appointment.

Should you recommend RSV vaccine?

☑ Knowledge Check 2

Question: Should you recommend RSV vaccine?

Options:

a. Yes. He has risk factors for severe RSV disease.

b. No. He's not old enough for RSV vaccine.

c. No. He's not at risk for severe RSV disease.

Image Source: Adobe Stock Images

Knowledge Check 2

Question: Should you recommend RSV vaccine?

Options:

a. Yes. He has risk factors for severe RSV disease.

b. No. He's not old enough for RSV vaccine.

c. No. He's not at risk for severe RSV disease.

Image Source: Adobe Stock Images

Should I recommend RSV vaccine?

- **Guidance**
  - 1 dose of RSV vaccine recommended for adults ≥ 75 years and 60-74 with risk factors
  - Possible that Albert may have previously received RSV vaccine; check immunization registry for prior doses
- **Considerations**
  - Albert has multiple risk factors for severe RSV disease
  - Discuss: Benefits likely outweigh risks for his situation
  - Influenza and COVID-19 vaccines also recommended, and can be co-administered with RSV vaccine

Scenario 2, continued

Image Source: Adobe Stock Images

"I had a bad reaction to the COVID-19 vaccine. Is it safe for me to get the RSV vaccine?"

How would you respond?

RSV Vaccine Safety

- Common side effects after vaccination include:
  - Pain, redness, and swelling where the shot is given
  - Fatigue, headache, muscle/joint pain
- People with a history of severe allergic reaction to any component of the RSV vaccine should not get the vaccine.
- Serious neurologic conditions, including Guillain-Barré syndrome (GBS), have been reported after RSV vaccination in clinical trials of older adults.
- ACIP assessment: benefits outweigh risks for RSV vaccine

RSV Vaccine: What You Need to Know (CDC)

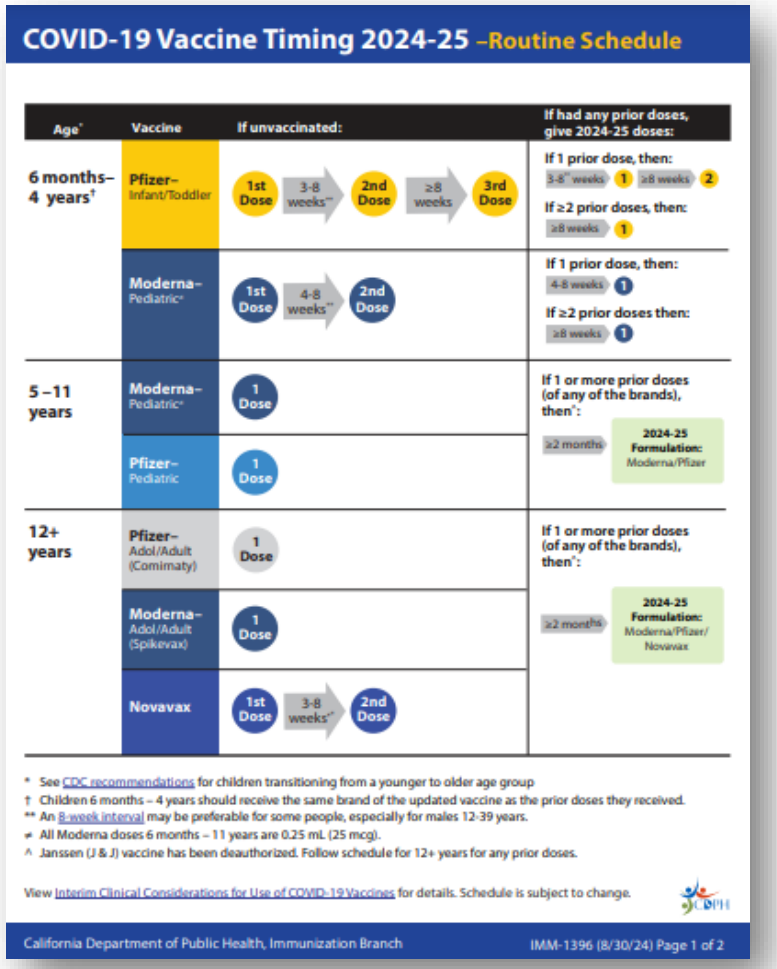
Key Messages

- **Recommend** updated influenza and COVID-19 vaccines for all your patients.
- **Recommend** RSV vaccine for people 75 years and older and 60-74 years who have risk factors.
- Your strong recommendation is critical.
- Influenza, COVID-19, and RSV vaccines can be co-administered.
- Additional meningococcal and pneumococcal vaccine options are now available.

Resources

- Flu and Respiratory Disease Prevention Resources (CDPH)
- RSV Immunization Resources (CDPH)
- Vaccine Resources for Providers and People with HIV (CDPH)
- Respiratory Viruses Page (CDC)
- COVID-19, Flu, and RSV Page (FDA)
- If You Have HIV/AIDS, Take Care of Yourself. Get a Flu Shot poster (CDC)
- Make a Statement This Flu Season poster (CDC)
- Thriving with HIV? poster (CDPH)

COVID-19 Vaccine Timing Guide 2024-2025



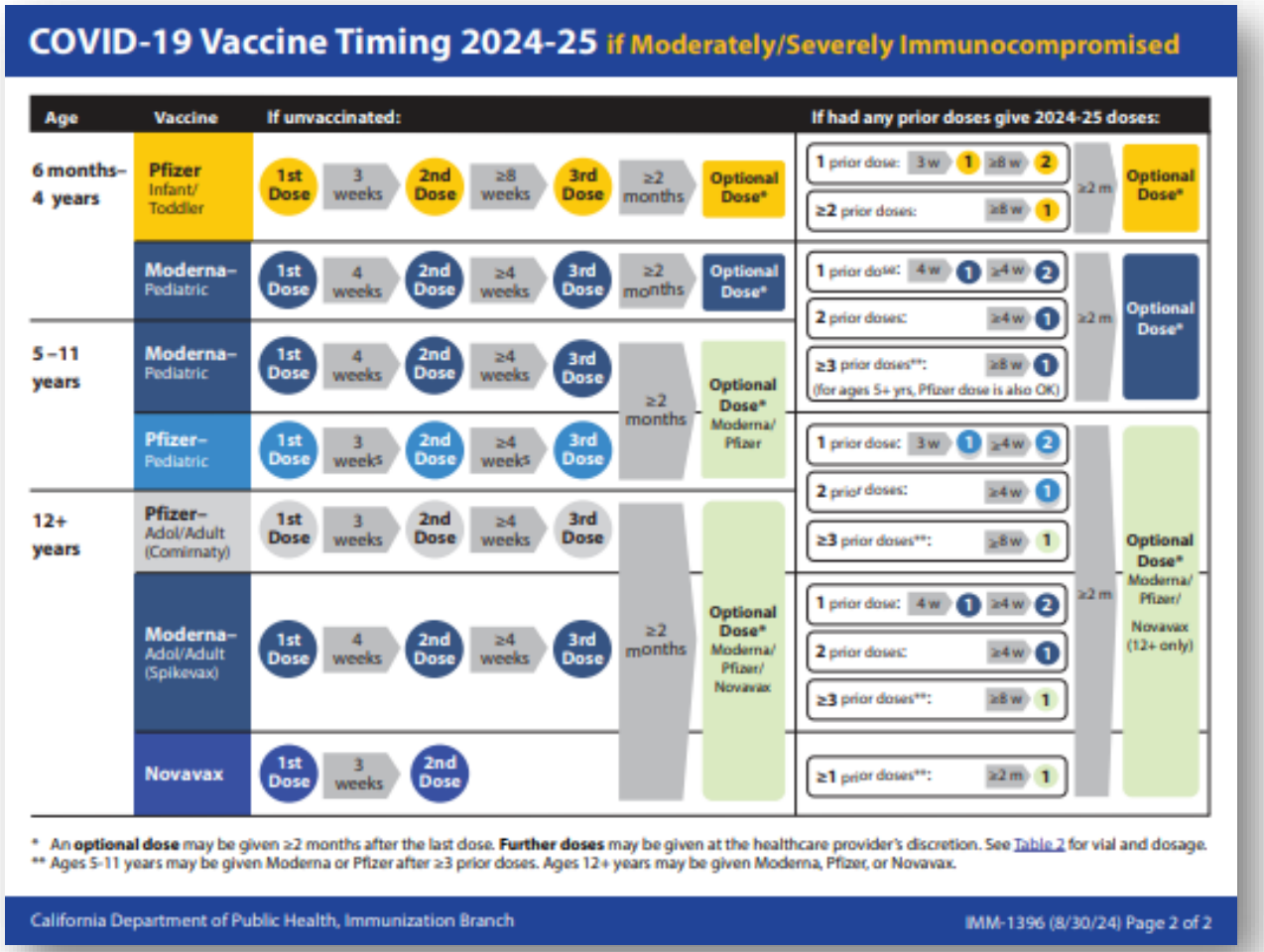
COVID-19 Vaccine Timing 2024-25 –Routine Schedule

Age*	Vaccine	If unvaccinated:	If had any prior doses, give 2024-25 doses:
6 months–4 years†	Pfizer–Infant/Toddler	1st Dose → 3-8 weeks** → 2nd Dose → ≥8 weeks → 3rd Dose	If 1 prior dose, then: 3-8** weeks → 1 → ≥8 weeks → 2 If ≥2 prior doses, then: ≥8 weeks → 1
	Moderna–Pediatric^	1st Dose → 4-8 weeks** → 2nd Dose	If 1 prior dose, then: 4-8 weeks → 1 If ≥2 prior doses then: ≥8 weeks → 1
5–11 years	Moderna–Pediatric^	1 Dose	If 1 or more prior doses (of any of the brands), then^: ≥2 months → 2024-25 Formulation: Moderna/Pfizer
	Pfizer–Pediatric	1 Dose	
12+ years	Pfizer–Adol/Adult (Comirnaty)	1 Dose	If 1 or more prior doses (of any of the brands), then^: ≥2 months → 2024-25 Formulation: Moderna/Pfizer/Novavax
	Moderna–Adol/Adult (Spikevax)	1 Dose	
	Novavax	1st Dose → 3-8 weeks** → 2nd Dose	

* See CDC recommendations for children transitioning from a younger to older age group
† Children 6 months – 4 years should receive the same brand of the updated vaccine as the prior doses they received.
** An 8-week interval may be preferable for some people, especially for males 12-39 years.
^ All Moderna doses 6 months – 11 years are 0.25 mL (25 mcg).
^ Janssen (J & J) vaccine has been deauthorized. Follow schedule for 12+ years for any prior doses.

View Interim Clinical Considerations for Use of COVID-19 Vaccines for details. Schedule is subject to change.

California Department of Public Health, Immunization Branch — IMM-1396 (8/30/24) Page 1 of 2



COVID-19 Vaccine Timing 2024-25 if Moderately/Severely Immunocompromised

Age	Vaccine	If unvaccinated:	If had any prior doses give 2024-25 doses:
6 months–4 years	Pfizer Infant/Toddler	1st Dose → 3 weeks → 2nd Dose → ≥8 weeks → 3rd Dose → ≥2 months → Optional Dose*	1 prior dose: 3 w → 1 → ≥8 w → 2 ≥2 prior doses: ≥8 w → 1 ≥2 m → Optional Dose*
	Moderna–Pediatric	1st Dose → 4 weeks → 2nd Dose → ≥4 weeks → 3rd Dose → ≥2 months → Optional Dose*	1 prior dose: 4 w → 1 → ≥4 w → 2 2 prior doses: ≥4 w → 1 ≥3 prior doses**: ≥8 w → 1 (for ages 5+ yrs, Pfizer dose is also OK) ≥2 m → Optional Dose*
5–11 years	Moderna–Pediatric	1st Dose → 4 weeks → 2nd Dose → ≥4 weeks → 3rd Dose → ≥2 months → Optional Dose* Moderna/Pfizer	
	Pfizer–Pediatric	1st Dose → 3 weeks → 2nd Dose → ≥4 weeks → 3rd Dose	1 prior dose: 3 w → 1 → ≥4 w → 2 2 prior doses: ≥4 w → 1 ≥3 prior doses**: ≥8 w → 1 ≥2 m → Optional Dose* Moderna/Pfizer/Novavax (12+ only)
12+ years	Pfizer–Adol/Adult (Comirnaty)	1st Dose → 3 weeks → 2nd Dose → ≥4 weeks → 3rd Dose → ≥2 months → Optional Dose* Moderna/Pfizer/Novavax	
	Moderna–Adol/Adult (Spikevax)	1st Dose → 4 weeks → 2nd Dose → ≥4 weeks → 3rd Dose	1 prior dose: 4 w → 1 → ≥4 w → 2 2 prior doses: ≥4 w → 1 ≥3 prior doses**: ≥8 w → 1 ≥2 m → Optional Dose* Moderna/Pfizer/Novavax (12+ only)
	Novavax	1st Dose → 3 weeks → 2nd Dose	≥1 prior doses**: ≥2 m → 1

* An **optional dose** may be given ≥2 months after the last dose. **Further doses** may be given at the healthcare provider's discretion. See Table 2 for vial and dosage.
** Ages 5-11 years may be given Moderna or Pfizer after ≥3 prior doses. Ages 12+ years may be given Moderna, Pfizer, or Novavax.

California Department of Public Health, Immunization Branch — IMM-1396 (8/30/24) Page 2 of 2

COVID-19 Vaccine Timing Guide 2024-25

COVID-19 Vaccine Resources on EZIZ.org

COVID-19 Vaccine Product Guide 2024-2025

COVID-19 Vaccine Product Guide

Check vaccine labels and FDA materials before use to avoid mix-ups.

Package inserts and EUA fact sheets supersede info on vials and carton.

	Pfizer			
	Infant/Toddler 6 months–4 years	Pediatric 5-11 years	Comirnaty 12+ years	Comirnaty 12+ years
	 2024-25 Formula	 2024-25 Formula	Single-Dose Vial 2024-25 Formula image not available	 2024-25 Formula
Packaging	Yellow Cap	Blue Cap		
Doses Per Vial	3 doses	1 dose	1 dose	1 dose/syringe
Carton Size	30 doses	10 doses	10 doses	10 doses
NDC-Unit of Sale (carton)	59267-4426-02	59267-4438-02	00069-2403-10	00069-2432-10
NDC-Unit of Use (vial/syringe)	59267-4426-01	59267-4438-01	00069-2403-01	00069-2432-01
CVX Code	308	310	309	309
CPT Code	91318	91319	91320	91320
Program Availability	VFC	VFC	Not available	VFC
Min. Standard Order*	30 doses	10 doses	N/A	10 doses
Storage Limits Before Puncture: Label vaccine with expiration and use-by dates.				
Shipping	Ships from manufacturer with dry ice between -90°C and -60°C (-130°F to -76°F)			**2° to 8°C (36°F to 46°F)**
ULT	Until expiration date at -90°C to -60°C (-130°F to -76°F)			🚫
Thermal Shipper	🚫			🚫
Freezer	🚫			🚫
Refrigerator	Up to 10 weeks at 2°C to 8°C (36°F to 46°F). Do not refreeze. Write the use-by date on carton--not to exceed expiration.			Until expiration at 2°C to 8°C
Expiration Date	Check the date on the product/carton, or for thawed products refer to the written use-by date.			Check label.
Administration				
Diluent (supplied)	1.1 mL per vial	Do not dilute	Do not dilute	N/A
Dose Volume & Dose	0.3 mL 3 mcg dose	0.3 mL 10 mcg dose	0.3 mL 30 mcg dose	0.3 mL 30 mcg dose
Refrigerator Thaw Time	Carton/Vial: Up to 2 hours at 2° to 8°C (36°F to 46°F) (Do not refreeze)			N/A
Room Temp Thaw Time	Vial: 30 minutes at up to 25°C (77°F) (Do not refreeze)			N/A
Total Time at Room Temp	Up to 12 hours (including thaw time) at 8°C to 25°C (46°F to 77°F)			
Storage Limits After Puncture (Mult-dose vials): Record puncture and use-by time on vial label.				
Use-By Limit (Discard Time After 1st Puncture)	Discard 12 hours after dilution. Keep at 2°C to 25°C (35°F to 77°F)	N/A	N/A	Use immediately after removing cap, within 4 hours.

* Orders for privately purchased vaccines may have different order minimums.

COVID-19 Vaccine Product Guide

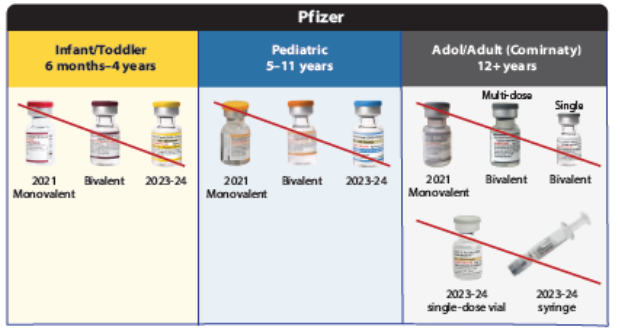
	Moderna			Novavax
	Pediatric 6 months–11 years	Spikevax 12+ years	Spikevax 12+ years	Adol/Adult 12+ years
	Pre-Filled Syringe 2024-25 Formula image not available	 2024-25 Product	Single-Dose Vial 2024-25 Formula image not available	Pre-Filled Syringe 2024-25 Formula image not available
Packaging				
Doses Per Vial	1 dose/syringe	1 dose/syringe	1 dose	1 dose/syringe
Carton Size	10 doses	10 doses	10 doses	10 doses
NDC-Unit of Sale (carton)	80777-0291-80, Blister-sealed: 80777-0291-81	80777-0110-96, Blister-sealed: 80777-0110-93	80777-0110-95	80631-0107-10
NDC-Unit of Use (vial/syringe)	80777-0291-09	80777-0110-01	80777-0110-04	80631-0107-01
CVX Code	311	312	312	313
CPT Code	91321	91322	91322	91304
Program Availability	VFC	VFC	Not available	VFC
Min. Standard Order*	10 doses	10 doses	N/A	10 doses
Storage Limits Before Puncture: Label vaccine with expiration and use-by dates.				
Shipping	Ships frozen between -50°C and -15°C (-58°F and 5°F)			2° to 8°C (36° to 46°F)
ULT	🚫			🚫
Thermal Shipper	🚫			🚫
Freezer	Until expiration at -50°C to -15°C (-58°F to 5°F)			🚫
Refrigerator	Up to 60 days (not to exceed expiration date) at 2–8°C (36-46°F)			Until expiration at 2–8°C (36-46°F)
Expiration Date	Check Moderna product website or QR code.			Check product website.
Administration				
Diluent (supplied)	Do not dilute			N/A
Dose Volume & Dose	0.25 mL 25 mcg	0.5 mL 50 mcg	0.5 mL 50 mcg	0.5 mL 5 mcg
Refrigerator Thaw Time at 2°C to 8°C (36°F to 46°F) (Do not refreeze)	Syringe: 1 hour Carton: 2.5 hours		Vial: 45 minutes, Carton: 1 hour and 45 minutes	N/A
Room Temp Thaw Time at 15° to 25°C (59° to 77°F) (Do not refreeze)	Syringe: 45 minutes, Carton: 2 hours and 15 minutes		Vial: 15 minutes Carton: 45 minutes	N/A
Total Room Temp Time	Store up to 12 hours at 8°C to 25°C (46°F to 77°F)			N/A
Storage Limits After Puncture (Mult-dose vials)				
Use-By Limit	N/A. Discard after single use.			N/A. Discard after single use.

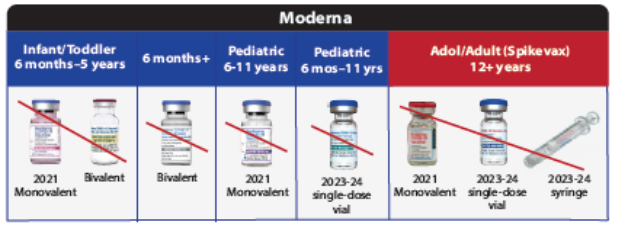
* Orders for privately purchased vaccines may have different order minimums.

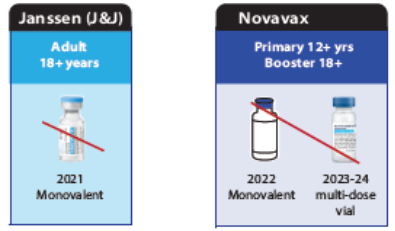
COVID-19 Vaccine Product Guide

Do Not Use Deauthorized Products:

Use only COVID-19 vaccine products updated for 2024-25.



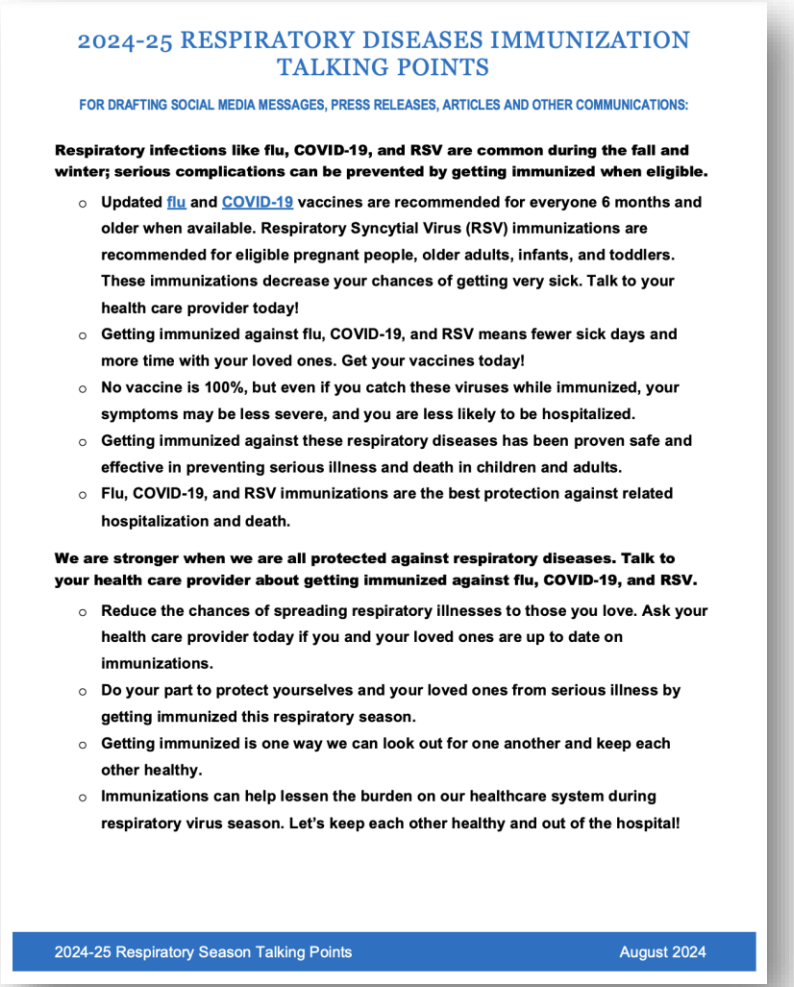




Updated COVID-19 Vaccine Product Guide

Updated: Respiratory Virus Season Talking Points

- Found on EZIZ Flu and Respiratory Disease Page Under "Toolkits and Campaigns"
- Tool to help draft communications for vaccinating against flu, COVID-19, and RSV
- Messaging is around "respiratory virus season" in fall and winter, bundling all three



2024-25 RESPIRATORY DISEASES IMMUNIZATION TALKING POINTS

FOR DRAFTING SOCIAL MEDIA MESSAGES, PRESS RELEASES, ARTICLES AND OTHER COMMUNICATIONS:

Respiratory infections like flu, COVID-19, and RSV are common during the fall and winter; serious complications can be prevented by getting immunized when eligible.

- Updated flu and COVID-19 vaccines are recommended for everyone 6 months and older when available. Respiratory Syncytial Virus (RSV) immunizations are recommended for eligible pregnant people, older adults, infants, and toddlers. These immunizations decrease your chances of getting very sick. Talk to your health care provider today!
- Getting immunized against flu, COVID-19, and RSV means fewer sick days and more time with your loved ones. Get your vaccines today!
- No vaccine is 100%, but even if you catch these viruses while immunized, your symptoms may be less severe, and you are less likely to be hospitalized.
- Getting immunized against these respiratory diseases has been proven safe and effective in preventing serious illness and death in children and adults.
- Flu, COVID-19, and RSV immunizations are the best protection against related hospitalization and death.

We are stronger when we are all protected against respiratory diseases. Talk to your health care provider about getting immunized against flu, COVID-19, and RSV.

- Reduce the chances of spreading respiratory illnesses to those you love. Ask your health care provider today if you and your loved ones are up to date on immunizations.
- Do your part to protect yourselves and your loved ones from serious illness by getting immunized this respiratory season.
- Getting immunized is one way we can look out for one another and keep each other healthy.
- Immunizations can help lessen the burden on our healthcare system during respiratory virus season. Let's keep each other healthy and out of the hospital!

2024-25 Respiratory Season Talking Points August 2024

Additional Resources

[Public Health Communications Collaborative]

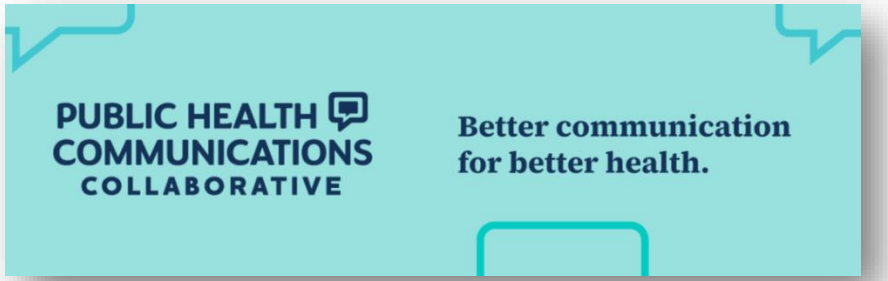
- [Guide] for Communicating More Effectively About Vaccines
- Approaches to effective vaccine communication, webinars, and more [here]!

Messages That Connected More Strongly

- **Scientific Rigor:** Challenges concerns about the development process, vaccines being rushed, or limited data about long-term outcomes.
- **Proven Track Record:** Offers a good reminder of vaccines' historical effectiveness at reducing illness and eradicating diseases.
- **Serious Consequence of Illness:** Grabs attention and reminds people about the seriousness of diseases.

Messages That Connected Less Strongly

- **Caring for Oneself/Others:** The community benefit of vaccines is understood, but it fails to alleviate personal worries about vaccine safety and effectiveness.
- **Healthy is Better Than Sick:** This message insufficiently addresses personal assessment of vaccine safety and effectiveness.
- **Financial Cost:** Large medical bills from diseases are not a top concern when it comes to vaccines.
- **Misinformation Harms Health:** People have a lot of confidence in their own research and experiences and think their information and sources are reliable.



Thank You!

Questions?

Unsplash (2021)

References

- "Severe Viral Respiratory Illness Dashboard" Centers for Disease Control and Prevention (CDC), 2024.
- Havers, Fiona. "COVID-19–Associated Hospitalizations among Children and Adults — COVID-NET" CDC ACIP Meeting. June 27, 2024.
- California Department of Public Health. *Behavioral and Clinical Characteristics of People Living with Diagnosed HIV in California 2021.*
- Panel on Guidelines for the Prevention and Treatment of Opportunistic Infections in Adults and Adolescents With HIV. Guidelines for the Prevention and Treatment of Opportunistic Infections in Adults and Adolescents With HIV. National Institutes of Health, Centers for Disease Control and Prevention, HIV Medicine Association, and Infectious Diseases Society of America. Available at https://clinicalinfo.hiv.gov/en/guidelines/adult-and-adolescent-opportunistic-infection. Accessed 08/14/2024.
- "Description of moderate and severe immunocompromising conditions and treatment" CDC, 2024.
- "Seasonal Influenza Vaccination Resources for Health Professionals" CDC, 2024.
- Grohskopf et al. "Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2024–25 Influenza Season" (2024)
- U.S. Centers for Disease Control and Prevention. (2023, December 8). *Influenza Antiviral Medications: Summary for Clinicians.* https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm
- Uyeki, T. et al. "Clinical Practice Guidelines by the Infectious Diseases Society of America: 2018 Update on Diagnosis, Treatment, Chemoprophylaxis, and Institutional Outbreak Management of Seasonal Influenza." (2018)
- "Use of COVID-19 Vaccines in the United States" CDC 2024.
- "Variant Proportions" CDC, 2024.
- Thornburg, N. J. (2024, June 5). *Update on Current Epidemiology of COVID-19 and SARS CoV-2 genomics*. Food and Drug Administration. https://www.fda.gov/media/179141/download
- U.S. Centers for Disease Control and Prevention. (2024, July 12). *CDC Science and the Public Health Approach to Long COVID.* https://www.cdc.gov/covid/php/long-covid/index.html

References

- "COVID-19 Outpatient Therapeutics Clinical Decision Aid" HHS, 2024.
- "COVID-19 Treatment Information for Providers and Facilities" CDPH, 2024.
- "PAXLOVID" FDA, 2024.
- "Healthcare Providers: RSV Vaccination for Adults 60 Years of Age and Over" CDC, 2024.
- Britton, A., Melgar, M. & Roper L. "Evidence to Recommendations Framework (EtR): RSV Vaccination in Adults Aged 50–59 years, 60–74 years, and 75 years and older" (6/26/24).
- Melgar, M. & Britton, A. "ACIP Adult RSV Work Group Clinical Considerations" (6/26/24).
- "Respiratory Syncytial Virus (RSV) Immunizations" CDC, 2024.
- "Vaccine Administration: Preventing Vaccine Administration Errors" CDC, 2021.
- "ACIP Recommendations" CDC, 2024.
- "Use of 21-Valent Pneumococcal Conjugate Vaccine Among U.S. Adults" CDC, 2024.
- Loehr, J. "Pneumococcal Vaccines" (6/27/24).
- "Increase in Invasive Serogroup Y Meningococcal Disease in the United States" CDC, 2024.
- "Penbraya" FDA, 2024.
- "Mpox Vaccination Basics" CDC, 2024.
- "RSV Vaccine: What You Need to Know" CDC, 2024.
- "Talking with Patients about COVID-19 Vaccination" CDC, 2021.

Extra Slides

PEMGARDA (pemivibart) for Immunocompromised

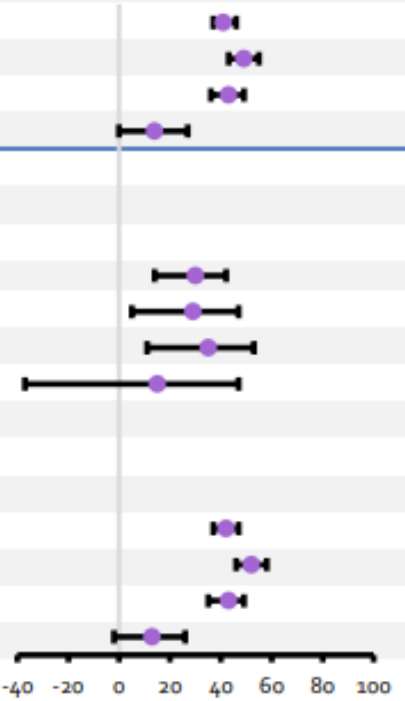
- Recombinant monoclonal antibody with FDA Emergency Use Authorization for **pre-exposure prophylaxis** of COVID-19 in adults and adolescents with moderate to severe immune compromise.
  - Initial dose: 4500 mg IV over 60 or more minutes
  - Repeat dosing can be given every 3 months
- Not a substitute for COVID-19 vaccination. If a patient receives COVID-19 vaccine, defer administration of pemivibart for at least 2 weeks.
- For additional information, refer to FDA and CDC guidance

FDA Emergency Use Authorizations for Drugs and Non-Vaccine Biological Products
CDC COVID-19 Vaccines Interim Clinical Considerations Pemivibart

VISION: VE of *2023-2024 COVID-19 vaccine* against *hospitalization* among immunocompetent adults aged ≥18 years, by age group

September 2023 – May 2024

Age group/2023-2024 COVID-19 vaccination status/days since dose	Total encounters	SARS-CoV-2-test-positive, N (%)	Median interval since last dose among those vaccinated, days (IQR)	Adjusted VE (95% CI)
≥18 years				
No 2023-2024 COVID-19 dose (ref)	63,908	6,484 (10)	693 (448-852)	**Ref**
2023-2024 COVID-19 dose, ≥7 days	13,195	912 (7)	84 (46-127)	**41 (37-46)**
2023-2024 COVID-19 dose, 7-59 days earlier	4,458	345 (8)	34 (20-47)	**49 (43-55)**
2023-2024 COVID-19 dose, 60-119 days earlier	4,928	362 (7)	88 (73-104)	**43 (36-49)**
2023-2024 COVID-19 dose, 120-179 days earlier	3,809	205 (5)	146 (133-162)	**14 (0-27)**
18-64 years				
No 2023-2024 COVID-19 dose (ref)	25,209	1,644 (7)	743 (544-888)	**Ref**
2023-2024 COVID-19 dose, ≥7 days	2,363	114 (5)	80 (42-121)	**30 (14-42)**
2023-2024 COVID-19 dose, 7-59 days earlier	870	52 (6)	33 (20-45)	**29 (5-47)**
2023-2024 COVID-19 dose, 60-119 days earlier	887	43 (5)	88 (74-103)	**35 (11-53)**
2023-2024 COVID-19 dose, 120-179 days earlier	606	19 (3)	146 (134-160)	**15 (-37-47)***
≥65 years				
No 2023-2024 COVID-19 dose (ref)	38,699	4,840 (13)	651 (419-827)	**Ref**
2023-2024 COVID-19 dose, ≥7 days	10,832	798 (7)	85 (47-128)	**42 (37-47)**
2023-2024 COVID-19 dose, 7-59 days earlier	3,588	293 (8)	34 (20-47)	**52 (46-58)**
2023-2024 COVID-19 dose, 60-119 days earlier	4,041	319 (8)	88 (73-104)	**43 (35-49)**
2023-2024 COVID-19 dose, 120-179 days earlier	3,203	186 (6)	147 (133-162)	**13 (-2-26)**



*Some estimates are imprecise, which might be due to a relatively small number of persons in each level of vaccination or case status. This imprecision indicates that the actual VE could be substantially different from the point estimate shown, and estimates should therefore be interpreted with caution. Additional data accrual could increase precision and allow more precise interpretation.
https://www.cdc.gov/mmwr/volumes/73/wr/mm7308a5.htm (Results updated with additional data since publication.) VE was calculated as (1 – odds ratio) x 100%, estimated using a test-negative case-control design, adjusted for age, sex, race and ethnicity, geographic region, and calendar time.

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