# Pediatric Immunization Update

## Annual Immunize Nebraska 2023 Conference
## Creighton University

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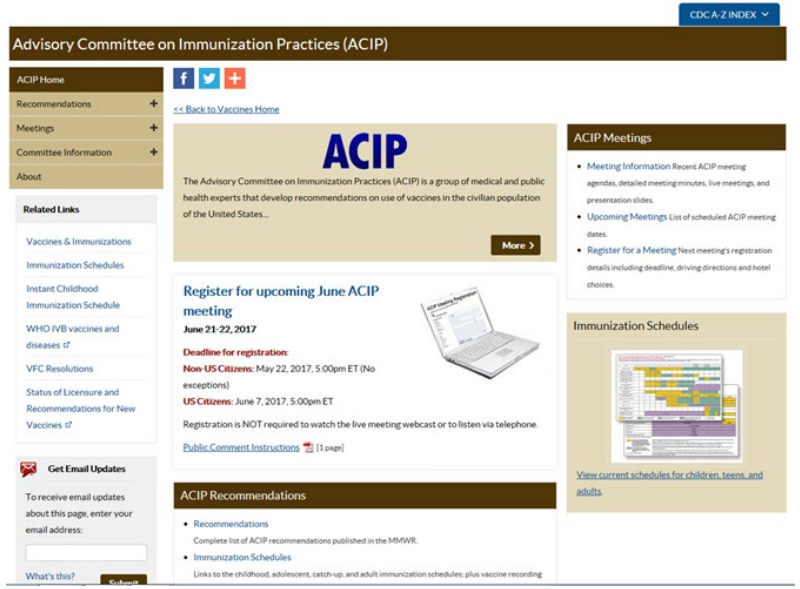
# Disclosures

- Andrew Kroger is a federal government employee with no financial interest or conflict with the manufacturer of any product named in this presentation.
- I will discuss MMR vaccine use in a manner consistent with CDC guidance but not authorized by the FDA.
- I will discuss COVID-19 vaccines authorized but not approved by FDA.
- The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.

# Disclosures

- The recommendations to be discussed are primarily those of the Advisory Committee on Immunization Practices (ACIP).
  - Composed of 15 experts in clinical medicine and public health
  - Provides guidance on use of vaccines and other biologic products to DHHS, CDC, and the U.S. Public Health Service




Next ACIP Meeting
June 21-22, 2023

http://www.cdc.gov/vaccines/acip/meetings/upcoming-dates.html

# Overview

- ACIP Child/Adolescent Immunization Schedule
- COVID-19 vaccine updates
- Influenza vaccine updates
- Pediatric pneumococcal vaccine updates
- Adolescent vaccine revisions
  - MenACWY-CRM formulation revision
  - MMR-II approval changes

# 1

# Immunization Schedules

# Recommended Child and Adolescent Immunization Schedule
## for ages 18 years or younger

UNITED STATES
2023

### Vaccines in the Child and Adolescent Immunization Schedule*

| Vaccine | Abbreviation(s) | Trade name(s) |
|---|---|---|
| COVID-19 | **1vCOV-mRNA** | Comirnaty®/Pfizer-BioNTech COVID-19 Vaccine |
| | | SPIKEVAX®/Moderna COVID-19 Vaccine |
| | **2vCOV-mRNA** | Pfizer-BioNTech COVID-19 Vaccine, Bivalent |
| | | Moderna COVID-19 Vaccine, Bivalent |
| | **1vCOV-aPS** | Novavax COVID-19 Vaccine |
| Dengue vaccine | **DEN4CYD** | Dengvaxia® |
| Diphtheria, tetanus, and acellular pertussis vaccine | **DTaP** | Daptacel®<br>Infanrix® |
| Diphtheria, tetanus vaccine | **DT** | No trade name |
| *Haemophilus influenzae* type b vaccine | **Hib (PRP-T)** | ActHIB®<br>Hiberix®<br>PedvaxHIB® |
| | **Hib (PRP-OMP)** | |
| Hepatitis A vaccine | **HepA** | Havrix®<br>Vaqta® |
| Hepatitis B vaccine | **HepB** | Engerix-B®<br>Recombivax HB® |
| Human papillomavirus vaccine | **HPV** | Gardasil 9® |
| Influenza vaccine (inactivated) | **IIV4** | Multiple |
| Influenza vaccine (live, attenuated) | **LAIV4** | FluMist® Quadrivalent |
| Measles, mumps, and rubella vaccine | **MMR** | M-M-R II®<br>Priorix® |
| Meningococcal serogroups A, C, W, Y vaccine | **MenACWY-D** | Menactra® |
| | **MenACWY-CRM** | Menveo® |
| | **MenACWY-TT** | MenQuadfi® |
| Meningococcal serogroup B vaccine | **MenB-4C** | Bexsero® |
| | **MenB-FHbp** | Trumenba® |
| Pneumococcal conjugate vaccine | **PCV13**<br>**PCV15** | Prevnar 13®<br>Vaxneuvance™ |
| Pneumococcal polysaccharide vaccine | **PPSV23** | Pneumovax 23® |
| Poliovirus vaccine (inactivated) | **IPV** | IPOL® |
| Rotavirus vaccine | **RV1**<br>**RV5** | Rotarix®<br>RotaTeq® |
| Tetanus, diphtheria, and acellular pertussis vaccine | **Tdap** | Adacel®<br>Boostrix® |
| Tetanus and diphtheria vaccine | **Td** | Tenivac®<br>Tdvax™ |
| Varicella vaccine | **VAR** | Varivax® |
| **Combination vaccines** *(use combination vaccines instead of separate injections when appropriate)* | | |
| DTaP, hepatitis B, and inactivated poliovirus vaccine | **DTaP-HepB-IPV** | Pediarix® |
| DTaP, inactivated poliovirus, and *Haemophilus influenzae* type b vaccine | **DTaP-IPV/Hib** | Pentacel® |
| DTaP and inactivated poliovirus vaccine | **DTaP-IPV** | Kinrix®<br>Quadracel® |
| DTaP, inactivated poliovirus, *Haemophilus influenzae* type b, and hepatitis B vaccine | **DTaP-IPV-Hib-HepB** | Vaxelis® |
| Measles, mumps, rubella, and varicella vaccine | **MMRV** | ProQuad® |

*Administer recommended vaccines if immunization history is incomplete or unknown. Do not restart or add doses to vaccine series for extended intervals between doses. When a vaccine is not administered at the recommended age, administer at a subsequent visit. The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.

## How to use the child and adolescent immunization schedule

**1** Determine recommended vaccine by age **(Table 1)**

**2** Determine recommended interval for catch-up vaccination **(Table 2)**

**3** Assess need for additional recommended vaccines by medical condition or other indication **(Table 3)**

**4** Review vaccine types, frequencies, intervals, and considerations for special situations **(Notes)**

**5** Review contraindications and precautions for vaccine types **(Appendix)**

Recommended by the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/acip) and approved by the Centers for Disease Control and Prevention (www.cdc.gov), American Academy of Pediatrics (www.aap.org), American Academy of Family Physicians (www.aafp.org), American College of Obstetricians and Gynecologists (www.acog.org), American College of Nurse-Midwives (www.midwife.org), American Academy of Physician Associates (www.aapa.org), and National Association of Pediatric Nurse Practitioners (www.napnap.org).

### Report

- Suspected cases of reportable vaccine-preventable diseases or outbreaks to your state or local health department
- Clinically significant adverse events to the Vaccine Adverse Event Reporting System (VAERS) at www.vaers.hhs.gov or 800-822-7967

### Questions or comments

Contact www.cdc.gov/cdc-info or 800-CDC-INFO (800-232-4636), in English or Spanish, 8 a.m.–8 p.m. ET, Monday through Friday, excluding holidays

Download the CDC Vaccine Schedules app for providers at www.cdc.gov/vaccines/schedules/hcp/schedule-app.html

### Helpful information

- Complete Advisory Committee on Immunization Practices (ACIP) recommendations: www.cdc.gov/vaccines/hcp/acip-recs/index.html
- *General Best Practice Guidelines for Immunization* (including contraindications and precautions): www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html
- Vaccine information statements: www.cdc.gov/vaccines/hcp/vis/index.html
- Manual for the Surveillance of Vaccine-Preventable Diseases (including case identification and outbreak response): www.cdc.gov/vaccines/pubs/surv-manual
- ACIP Shared Clinical Decision-Making Recommendations www.cdc.gov/vaccines/acip/acip-scdm-faqs.html

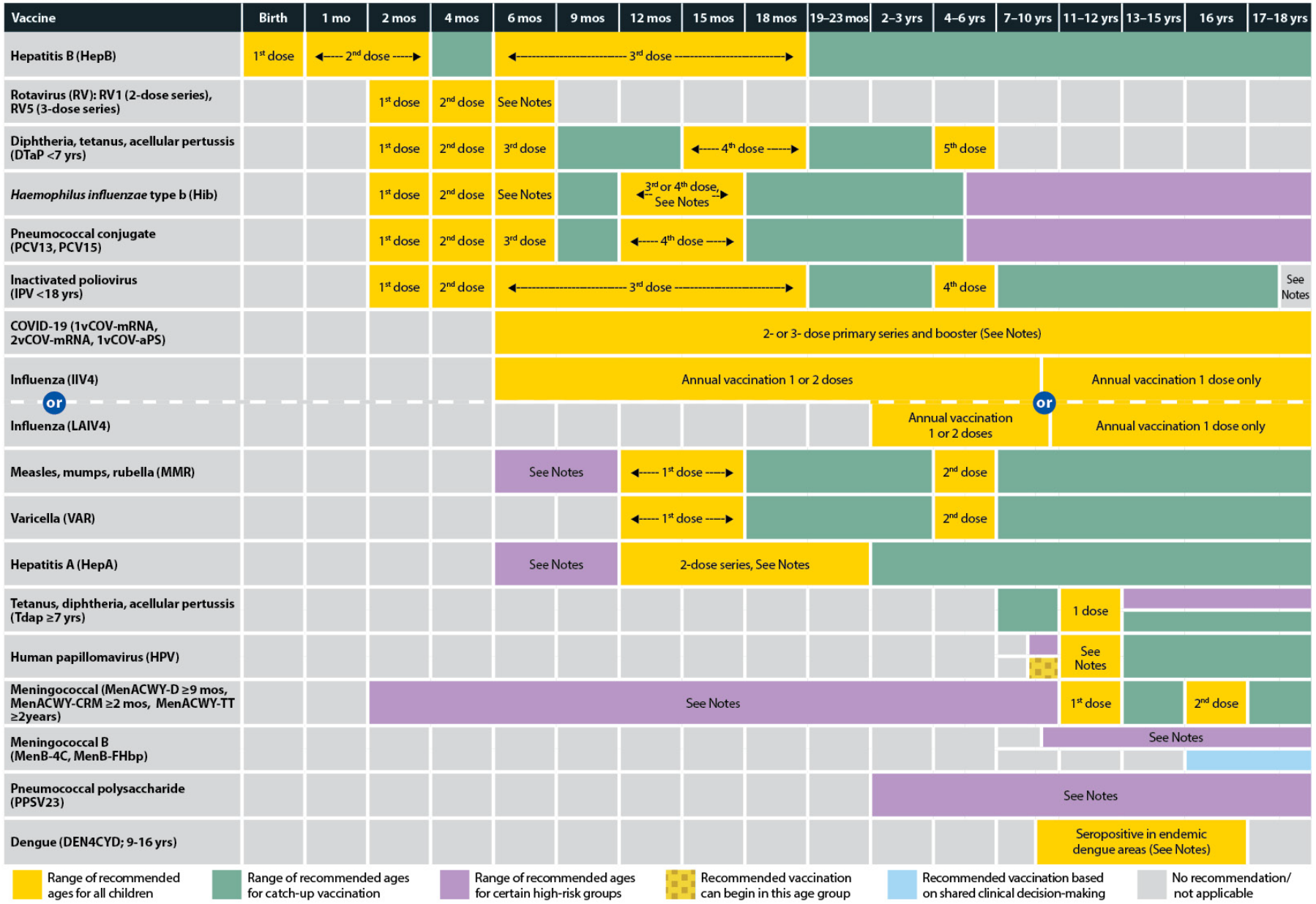
**U.S. Department of Health and Human Services**
Centers for Disease Control and Prevention

Scan QR code for access to online schedule

CS310020-C

# Table 1 Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2023

**These recommendations must be read with the notes that follow.** For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars.
To determine minimum intervals between doses, see the catch-up schedule (Table 2).



# Table 2 Recommended Catch-up Immunization Schedule for Children and Adolescents Who Start Late or Who Are More than 1 Month Behind, United States, 2023

The table below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age. **Always use this table in conjunction with Table 1 and the Notes that follow.**

| Vaccine | Minimum Age for Dose 1 | Minimum Interval Between Doses | | | |
|---|---|---|---|---|---|
| | | Dose 1 to Dose 2 | Dose 2 to Dose 3 | Dose 3 to Dose 4 | Dose 4 to Dose 5 |
| **Children age 4 months through 6 years** | | | | | |
| Hepatitis B | Birth | **4 weeks** | **8 weeks *and* at least 16 weeks after first dose**<br>minimum age for the final dose is 24 weeks | | |
| Rotavirus | 6 weeks<br>Maximum age for first dose is 14 weeks, 6 days. | **4 weeks** | **4 weeks**<br>maximum age for final dose is 8 months, 0 days | | |
| Diphtheria, tetanus, and acellular pertussis | 6 weeks | **4 weeks** | **4 weeks** | **6 months** | **6 months** |
| *Haemophilus influenzae* type b | 6 weeks | **No further doses needed**<br>if first dose was administered at age 15 months or older.<br>**4 weeks**<br>if first dose was administered before the 1st birthday.<br>**8 weeks (as final dose)**<br>if first dose was administered at age 12 through 14 months. | **No further doses needed**<br>if previous dose was administered at age 15 months or older<br>**4 weeks**<br>if current age is younger than 12 months ***and*** first dose was administered at younger than age 7 months ***and*** at least 1 previous dose was PRP-T (ActHib®, Pentacel®, Hiberix®), Vaxelis® or unknown<br>**8 weeks *and* age 12 through 59 months (as final dose)**<br>if current age is younger than 12 months ***and*** first dose was administered at age 7 through 11 months;<br>OR<br>if current age is 12 through 59 months ***and*** first dose was administered before the 1st birthday ***and*** second dose was administered at younger than 15 months;<br>OR<br>if both doses were PedvaxHIB® and were administered before the 1st birthday | **8 weeks (as final dose)**<br>This dose only necessary for children age 12 through 59 months who received 3 doses before the 1st birthday. | |
| Pneumococcal conjugate | 6 weeks | **No further doses needed** for healthy children if first dose was administered at age 24 months or older<br>**4 weeks**<br>if first dose was administered before the 1st birthday<br>**8 weeks (as final dose for healthy children)**<br>if first dose was administered at the 1st birthday or after | **No further doses needed**<br>for healthy children if previous dose was administered at age 24 months or older<br>**4 weeks**<br>if current age is younger than 12 months and previous dose was administered at <7 months old<br>**8 weeks (as final dose for healthy children)**<br>if previous dose was administered between 7–11 months (wait until at least 12 months old);<br>OR<br>if current age is 12 months or older and at least 1 dose was administered before age 12 months | **8 weeks (as final dose)**<br>this dose is only necessary for children aged 12 through 59 months regardless of risk, or age 60 through 71 months with any risk, who received 3 doses before age 12 months. | |
| Inactivated poliovirus | 6 weeks | **4 weeks** | **4 weeks**<br>if current age is <4 years<br>**6 months (as final dose)**<br>if current age is 4 years or older | **6 months (minimum age 4 years for final dose)** | |
| Measles, mumps, rubella | 12 months | **4 weeks** | | | |
| Varicella | 12 months | **3 months** | | | |
| Hepatitis A | 12 months | **6 months** | | | |
| Meningococcal ACWY | 2 months MenACWY-CRM<br>9 months MenACWY-D<br>2 years MenACWY-TT | **8 weeks** | See Notes | See Notes | |
| **Children and adolescents age 7 through 18 years** | | | | | |
| Meningococcal ACWY | Not applicable (N/A) | **8 weeks** | | | |
| Tetanus, diphtheria; tetanus, diphtheria, and acellular pertussis | 7 years | **4 weeks** | **4 weeks**<br>if first dose of DTaP/DT was administered before the 1st birthday<br>**6 months (as final dose)**<br>if first dose of DTaP/DT or Tdap/Td was administered at or after the 1st birthday | **6 months**<br>if first dose of DTaP/DT was administered before the 1st birthday | |
| Human papillomavirus | 9 years | **Routine dosing intervals are recommended.** | | | |
| Hepatitis A | N/A | **6 months** | | | |
| Hepatitis B | N/A | **4 weeks** | **8 weeks *and* at least 16 weeks after first dose** | | |
| Inactivated poliovirus | N/A | **4 weeks** | **6 months**<br>A fourth dose is not necessary if the third dose was administered at age 4 years or older and at least 6 months after the previous dose. | A fourth dose of IPV is indicated if all previous doses were administered at <4 years or if the third dose was administered <6 months after the second dose. | |
| Measles, mumps, rubella | N/A | **4 weeks** | | | |
| Varicella | N/A | **3 months** if younger than age 13 years.<br>**4 weeks** if age 13 years or older | | | |
| Dengue | 9 years | **6 months** | 6 months | | |

# Table 3 Recommended Child and Adolescent Immunization Schedule by Medical Indication, United States, 2023

**Always use this table in conjunction with Table 1 and the Notes that follow.**

| VACCINE | INDICATION | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pregnancy | Immunocompromised status (excluding HIV infection) | HIV infection CD4+ count[a]: <15% or total CD4 cell count of <200/mm³ | HIV infection CD4+ count[a]: ≥15% and total CD4 cell count of ≥200/mm³ | Kidney failure, end-stage renal disease, or on hemodialysis | Heart disease or chronic lung disease | CSF leak or cochlear implant | Asplenia or persistent complement component deficiencies | Chronic liver disease | Diabetes |
| Hepatitis B | | | | | | | | | | |
| Rotavirus | | SCID[b] | | | | | | | | |
| Diphtheria, tetanus, and acellular pertussis (DTaP) | | | | | | | | | | |
| *Haemophilus influenzae* type b | | | | | | | | | | |
| Pneumococcal conjugate | | | | | | | | | | |
| Inactivated poliovirus | | | | | | | | | | |
| COVID-19 | | See Notes | See Notes | | | | | | | |
| Influenza (IIV4) | | | | | | | | | | |
| or | | | | | | | | | | |
| Influenza (LAIV4) | | | | | | Asthma, wheezing: 2–4yrs[c] | | | | |
| Measles, mumps, rubella | * | | | | | | | | | |
| Varicella | * | | | | | | | | | |
| Hepatitis A | | | | | | | | | | |
| Tetanus, diphtheria, and acellular pertussis (Tdap) | | | | | | | | | | |
| Human papillomavirus | * | | | | | | | | | |
| Meningococcal ACWY | | | | | | | | | | |
| Meningococcal B | | | | | | | | | | |
| Pneumococcal polysaccharide | | | | | | | | | | |
| Dengue | | | | | | | | | | |

Vaccination according to the routine schedule recommended

Recommended for persons with an additional risk factor for which the vaccine would be indicated

Vaccination is recommended, and additional doses may be necessary based on medical condition or vaccine. See Notes.

Precaution–vaccine might be indicated if benefit of protection outweighs risk of adverse reaction

Contraindicated or not recommended–vaccine should not be administered

*Vaccinate after pregnancy

No recommendation/not applicable

a. For additional information regarding HIV laboratory parameters and use of live vaccines, see the *General Best Practice Guidelines for Immunization*, "Altered Immunocompetence," at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/immunocompetence.html and Table 4-1 (footnote J) at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html.
b. Severe Combined Immunodeficiency
c. LAIV4 contraindicated for children 2–4 years of age with asthma or wheezing during the preceding 12 months

# 2

## COVID-19 Vaccine

# COVID-19 Vaccination Current Highlights

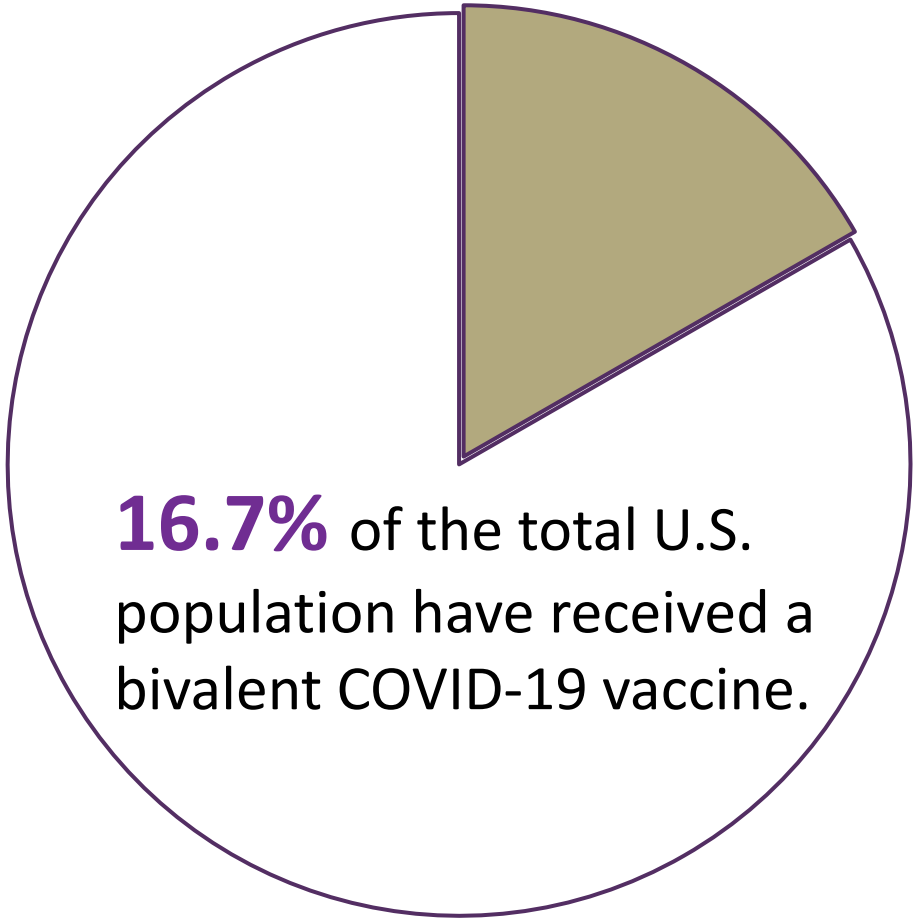
- Public health emergency ended May 11, 2023
- The only mRNA authorized by FDA currently is bivalent
- Vaccine recommendations simplified for persons 6 years old and older
- Catch-up recommendations for persons younger than 6 years

# COVID-19 Vaccination: Available Vaccines

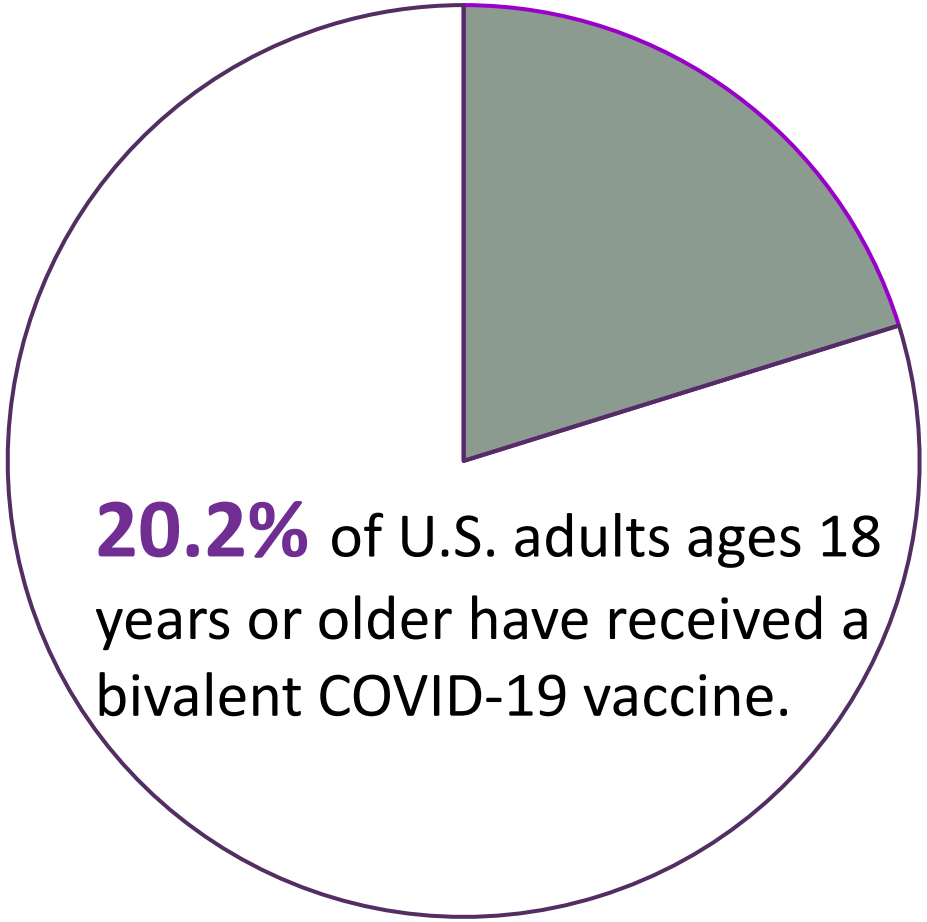
- 2vCOV-mRNA
  - Pfizer-BioNTech COVID-19 vaccine (bivalent)
  - Moderna COVID-19 vaccine (bivalent)

- 1vCOV-aPS
  - Novavax COVID-19 vaccine (monovalent)

# Bivalent COVID-19 Vaccination Coverage Rates Are Low



**16.7%** of the total U.S. population have received a bivalent COVID-19 vaccine.



**20.2%** of U.S. adults ages 18 years or older have received a bivalent COVID-19 vaccine.

COVID-19 Data Tracker, last updated April 13, 2023, CDC COVID Data Tracker: Vaccinations in the US

# COVID-19 Recommendations

- Routine: Persons 6 years old and older
  - One dose of bivalent vaccine regardless of previous doses of monovalent vaccine received
  - Bivalent vaccines (mRNA vaccines)
    - Pfizer-BioNTech COVID-19 vaccine
    - Moderna COVID-19 vaccine
  - Novavax vaccine – remains authorized as a primary series and 1 booster (12 years old and older)
    - for the booster dose, mRNA vaccines are preferred unless mRNA vaccines are not wanted or unavailable
    - one and only one Novavax booster

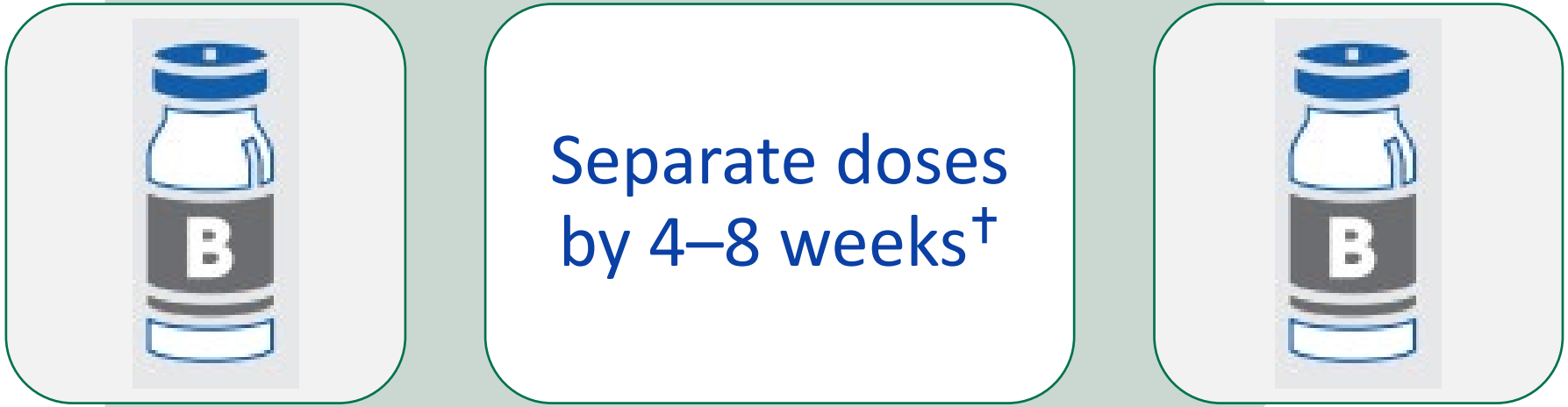
[1] National Childhood Vaccine Injury Act
[2] The Reportable Events Table reflects what is reportable by law (42 USC 300aa-25) to the Vaccine Adverse Event Reporting System (VAERS).
https://vaers.hhs.gov/resources/VAERS_Table_of_Reportable_Events_Following_Vaccination.pdf

# COVID-19 Catch-up Vaccination

- Children 6 months through 5 years of age may require more than one dose of bivalent vaccine to be protected.
- Children in this age group received a variable number of previous doses of vaccine (anywhere between zero and 3 doses)

[1] National Childhood Vaccine Injury Act
[2] The Reportable Events Table reflects what is reportable by law (42 USC 300aa-25) to the Vaccine Adverse Event Reporting System (VAERS).
https://vaers.hhs.gov/resources/VAERS_Table_of_Reportable_Events_Following_Vaccination.pdf

# Unvaccinated Children* 6 Months Through 5 Years of Age: Moderna COVID-19 Vaccine




**Use the blue capped vial with the gray labeled border**

*Not immunocompromised.

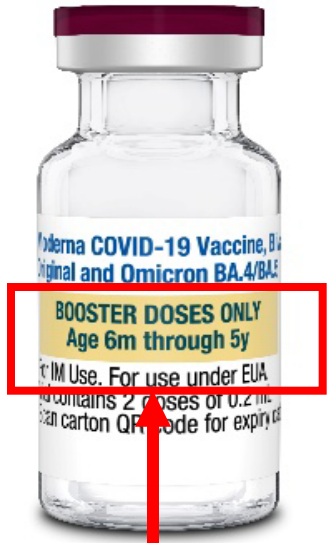
†An 8-week interval between doses 1 and 2 may be optimal for some people ages 6 months–64 years, especially for males ages 12–39 years, as it may reduce the small risk of myocarditis and pericarditis associated with these vaccines

# Clinical Considerations for Moderna Bivalent Vaccine Vial with the Blue Cap and Gray-Bordered Label


- **Ages: 6 months and older**
- **Dosage: Varies by age**
  - 6 months through 11 years: 0.25 mL/25 µg
  - 12 years and older: 0.5 mL/50 µg
- **Use for persons never vaccinated with bivalent vaccine, including:**
  - 6 months and older: Unvaccinated
  - 6 months through 5 years previously vaccinated with only 1 dose of monovalent vaccine
  - 6 years and older vaccinated with 1 or more doses of monovalent vaccine

# Clinical Considerations for Moderna Bivalent Vaccine Vial with the Dark Pink Cap and Yellow Box Label

- Ages: 6 months through 5 years
- Dosage: 0.2 mL/10µg
- Route: Intramuscular injection
- Multidose vial = 2 doses
- Use for children 6 months through 5 years previously vaccinated with 2 or more doses of monovalent vaccine




**“Booster Doses Only” does not apply**

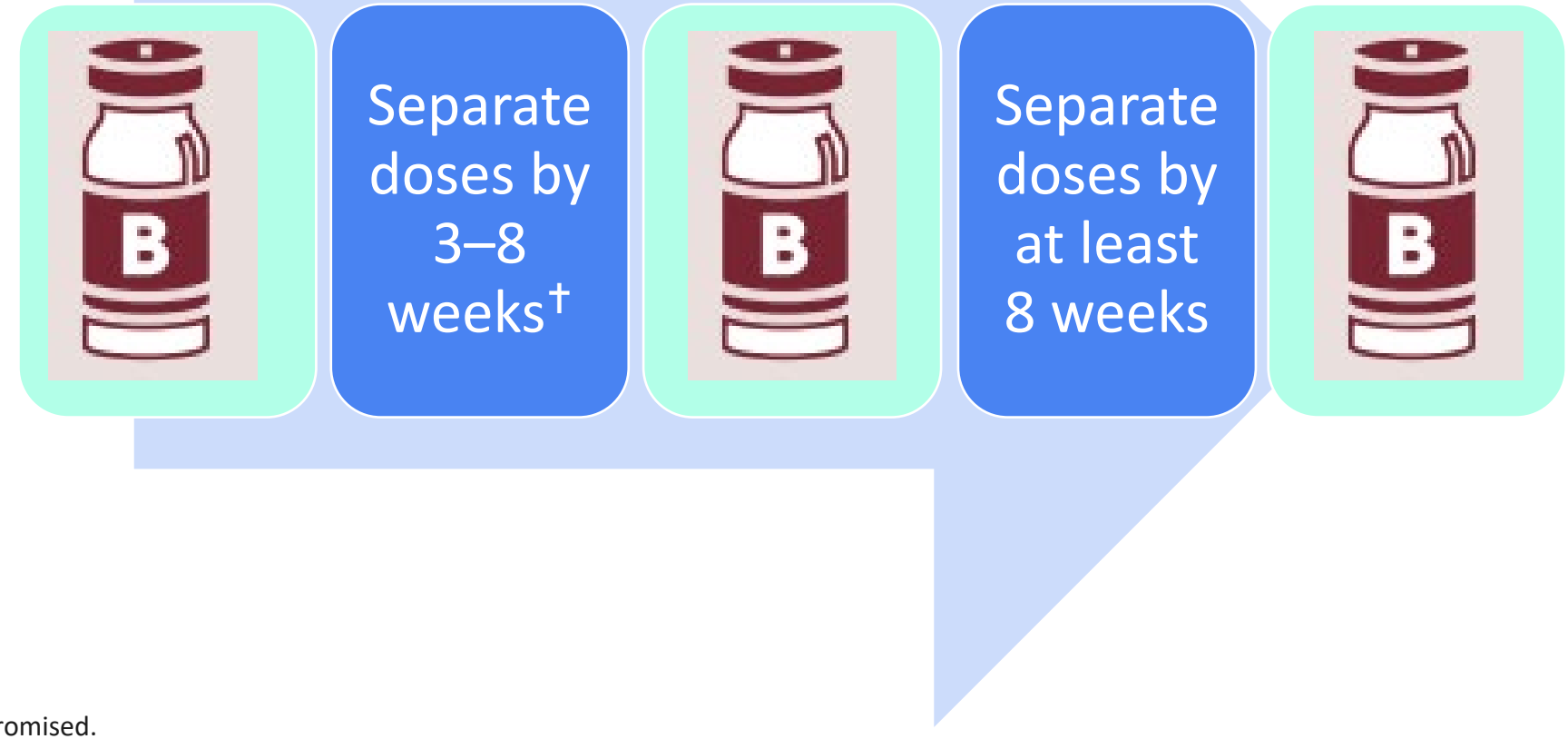
# Children 6 Months Through 4 Years of Age:* Previously Vaccinated with Moderna Monovalent Vaccine

| Vaccination | Administer | Schedule | Vial |
|---|---|---|---|
| 1 dose of monovalent Moderna vaccine | Moderna | 1 dose 4–8 weeks after the previous dose | Blue cap |
| 2 doses of monovalent Moderna vaccine | Moderna | 1 dose 8 weeks after the previous dose | Pink cap |
| 2 doses monovalent Moderna and 1 dose bivalent Moderna | **No dose! Previously received bivalent vaccine** | | |

*without immunocompromise

Clinical Guidance for COVID-19 Vaccination | CDC

# Unvaccinated Children* 6 Months Through 4 Years of Age: Pfizer-BioNTech COVID-19 Vaccine




*Not immunocompromised.

†An 8-week interval between doses 1 and 2 may be optimal for some people ages 6 months–64 years, especially for males ages 12–39 years, as it may reduce the small risk of myocarditis and pericarditis associated with these vaccines

# Clinical Considerations for Pfizer-BioNTech Bivalent Vaccine


- Ages 6 months through 4 years
- 0.2 mL/3 µg
- Mix with diluent
- Unvaccinated and previously vaccinated persons


- Ages 5 through 11 years
- 0.2 mL/10 µg
- Mix with diluent
- Unvaccinated and previously vaccinated persons


- Ages 12 years and older
- 0.3 mL/30 µg
- Do NOT mix with diluent
- Unvaccinated and previously vaccinated persons

# Children 6 Months Through 4 Years of Age:* Previously Vaccinated with Pfizer-BioNTech Monovalent Vaccine

| Vaccination | Administer | Schedule | Vial |
|---|---|---|---|
| 1 dose of monovalent Pfizer-BioNTech vaccine | Pfizer-BioNTech | 2 doses.<br>Dose 2: 3–8 weeks after monovalent dose 1.<br>Separate Dose 2 and Dose 3 by at least 8 weeks. | Maroon cap |
| 2 doses of monovalent Pfizer-BioNTech | Pfizer-BioNTech | 1 dose at least 8 weeks after monovalent Dose 2. | Maroon cap |
| 3 doses of monovalent Pfizer-BioNTech | Pfizer-BioNTech | 1 dose at least 8 weeks after monovalent Dose 3. | Maroon cap |
| 2 doses monovalent Pfizer-BioNTech and 1 dose bivalent Pfizer-BioNTech | **No dose! Previously received bivalent vaccine** | | |

*without immunocompromise

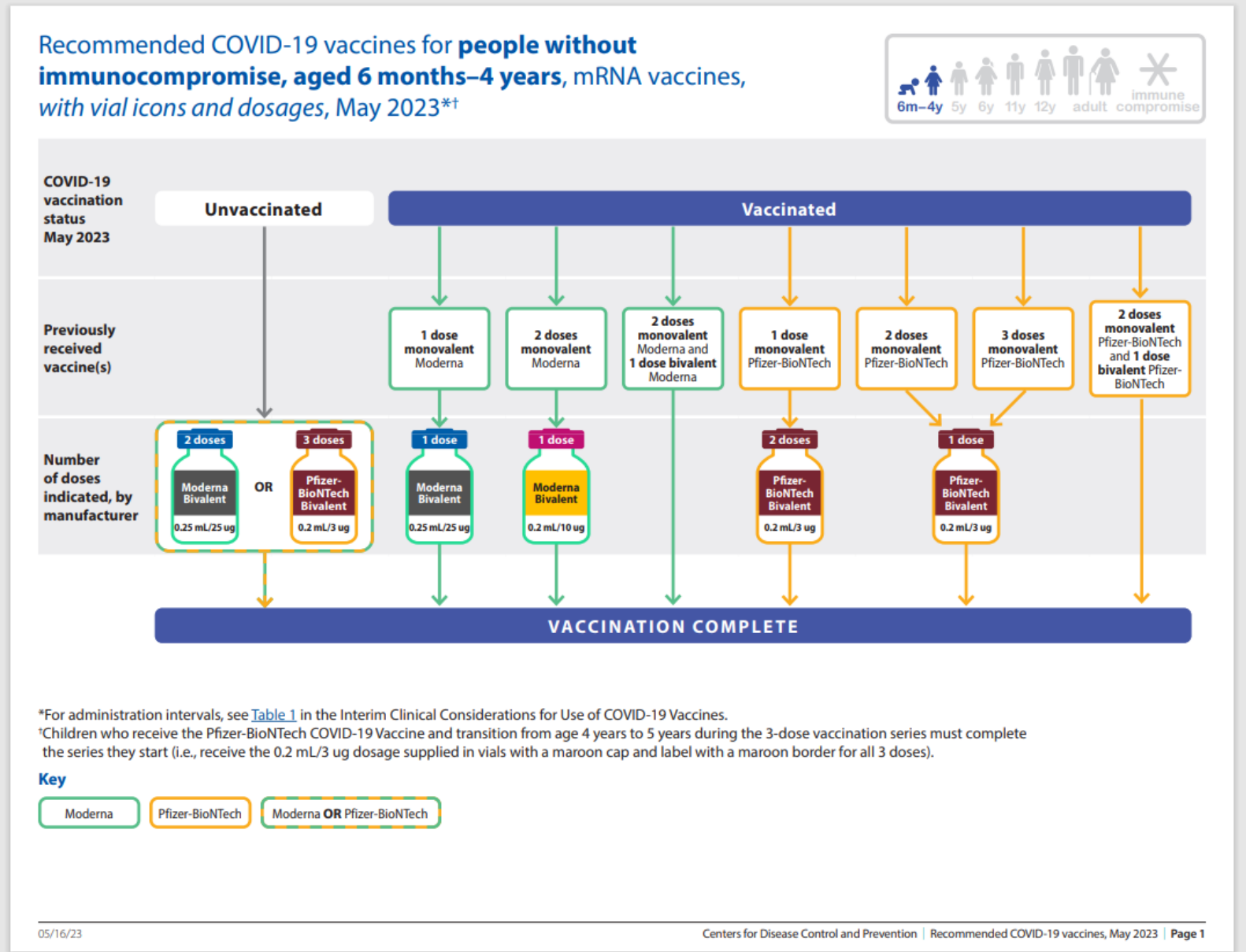
Clinical Guidance for COVID-19 Vaccination | CDC

# Children 5 Years of Age:*
# Previously Vaccinated with Monovalent Vaccine

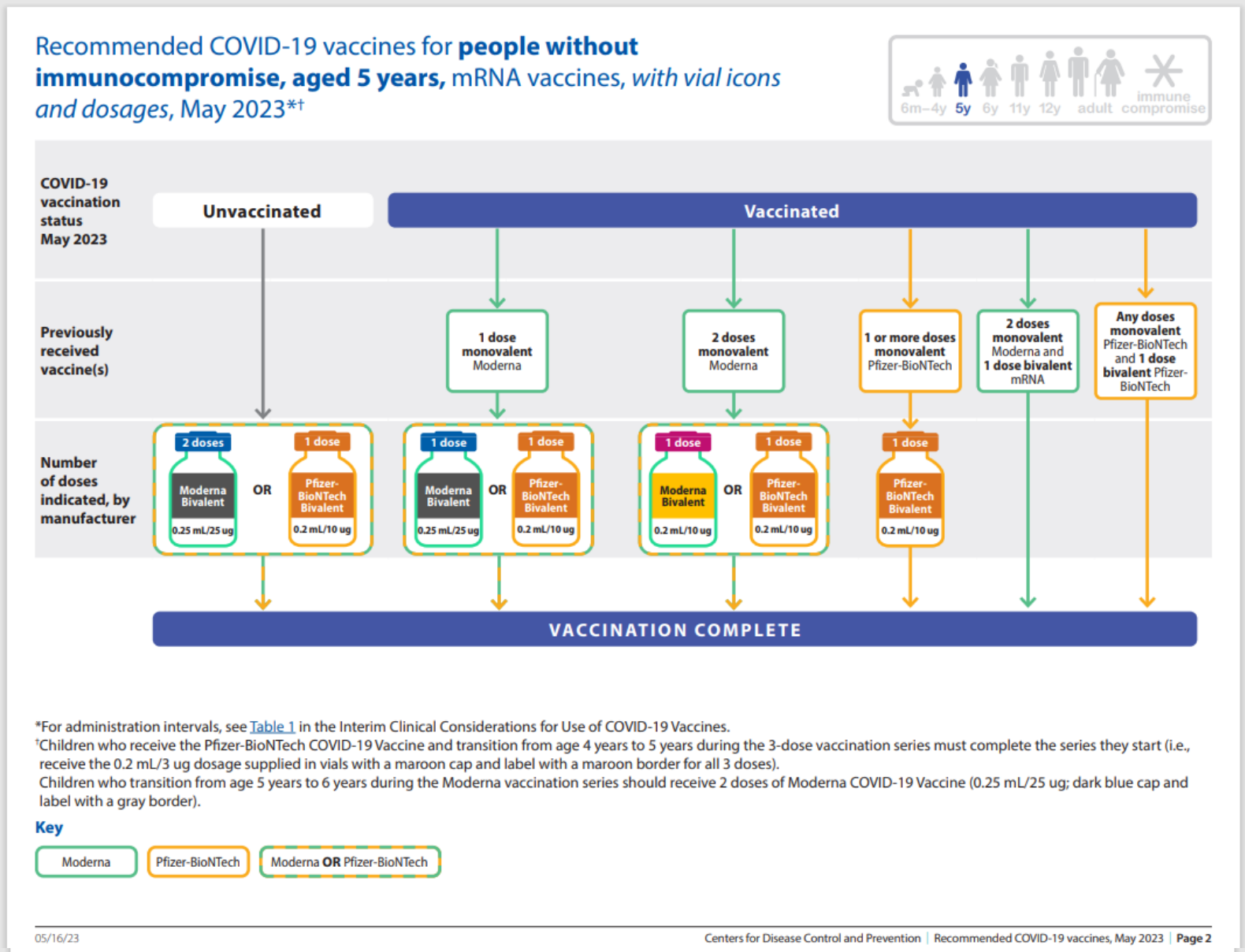
| Vaccination | Administer | Schedule | Vial |
|---|---|---|---|
| Unvaccinated | Moderna<br>OR<br>Pfizer-BioNTech | 2 doses separated by 4–8 weeks | Blue cap |
| | | 1 dose | Orange cap |
| 1 dose of monovalent Moderna vaccine | Moderna<br>OR<br>Pfizer-BioNTech | 1 dose 4–8 weeks after the previous dose | Blue cap |
| | | 1 dose at least 8 weeks after the previous dose | Orange cap |
| 2 doses of monovalent Moderna vaccine | Moderna<br>OR<br>Pfizer-BioNTech | 1 dose 8 weeks after the previous dose | Blue cap |
| | | | Orange cap |
| 1 or more doses of monovalent Pfizer-BioNTech | Pfizer-BioNTech | 1 dose at least 8 weeks after the previous dose | Orange cap |
| At least 1 dose bivalent of Pfizer-BioNTech (regardless of monovalent vaccine history) | **No dose! Previously received bivalent vaccine** | | |

*without immunocompromise

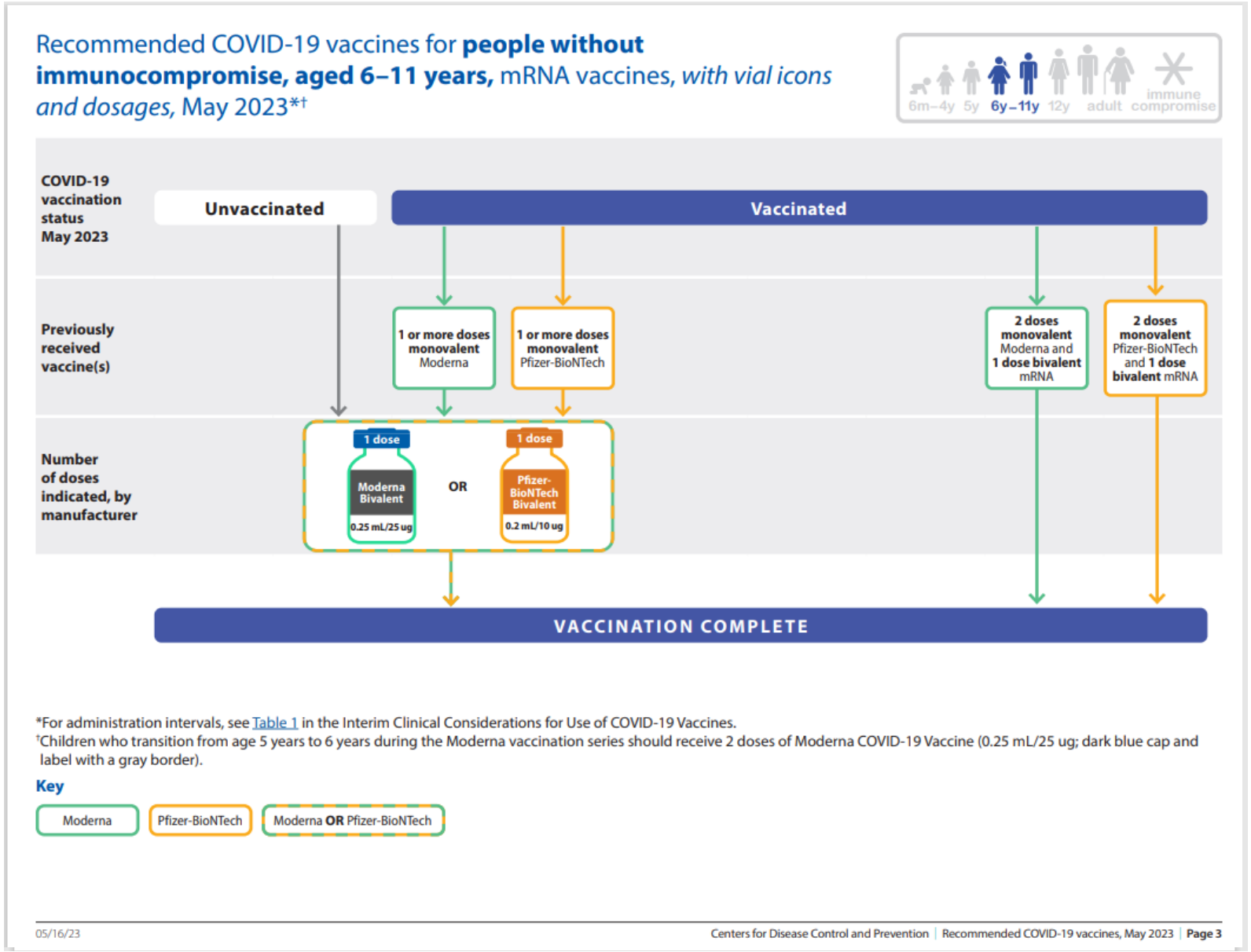
Clinical Guidance for COVID-19 Vaccination | CDC




[COVID-19 vaccines infographic May 2023 (cdc.gov)]

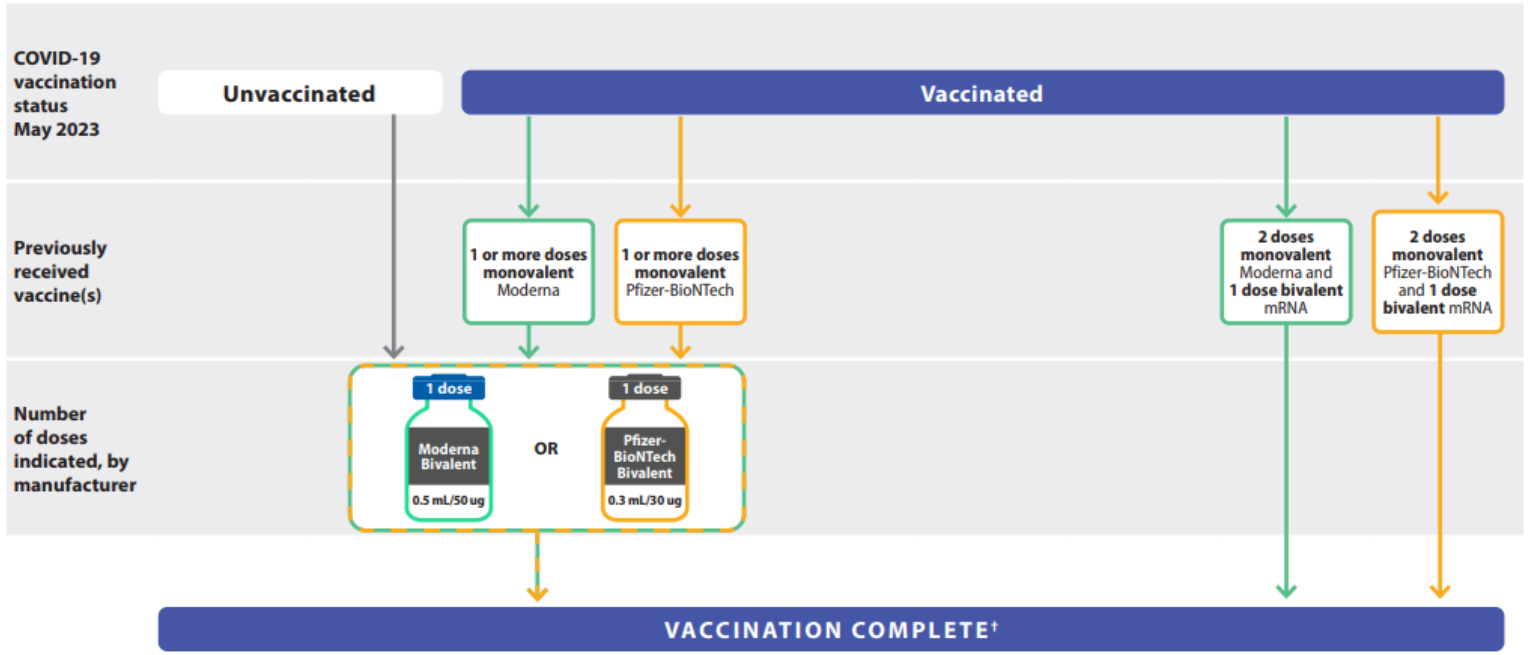



[COVID-19 vaccines infographic May 2023 (cdc.gov)]




[COVID-19 vaccines infographic May 2023 (cdc.gov)]

## Recommended COVID-19 vaccines for **people without immunocompromise, aged 12 years and older,** mRNA vaccines, *with vial icons and dosages,* May 2023*†




*For administration intervals, see Table 1 in the Interim Clinical Considerations for Use of COVID-19 Vaccines.
†People ages 65 years and older have the option to receive 1 additional bivalent mRNA dose at least 4 months after the first dose of a bivalent mRNA vaccine; see Table 1 in the Interim Clinical Considerations for Use of COVID-19 Vaccines.

**Key**

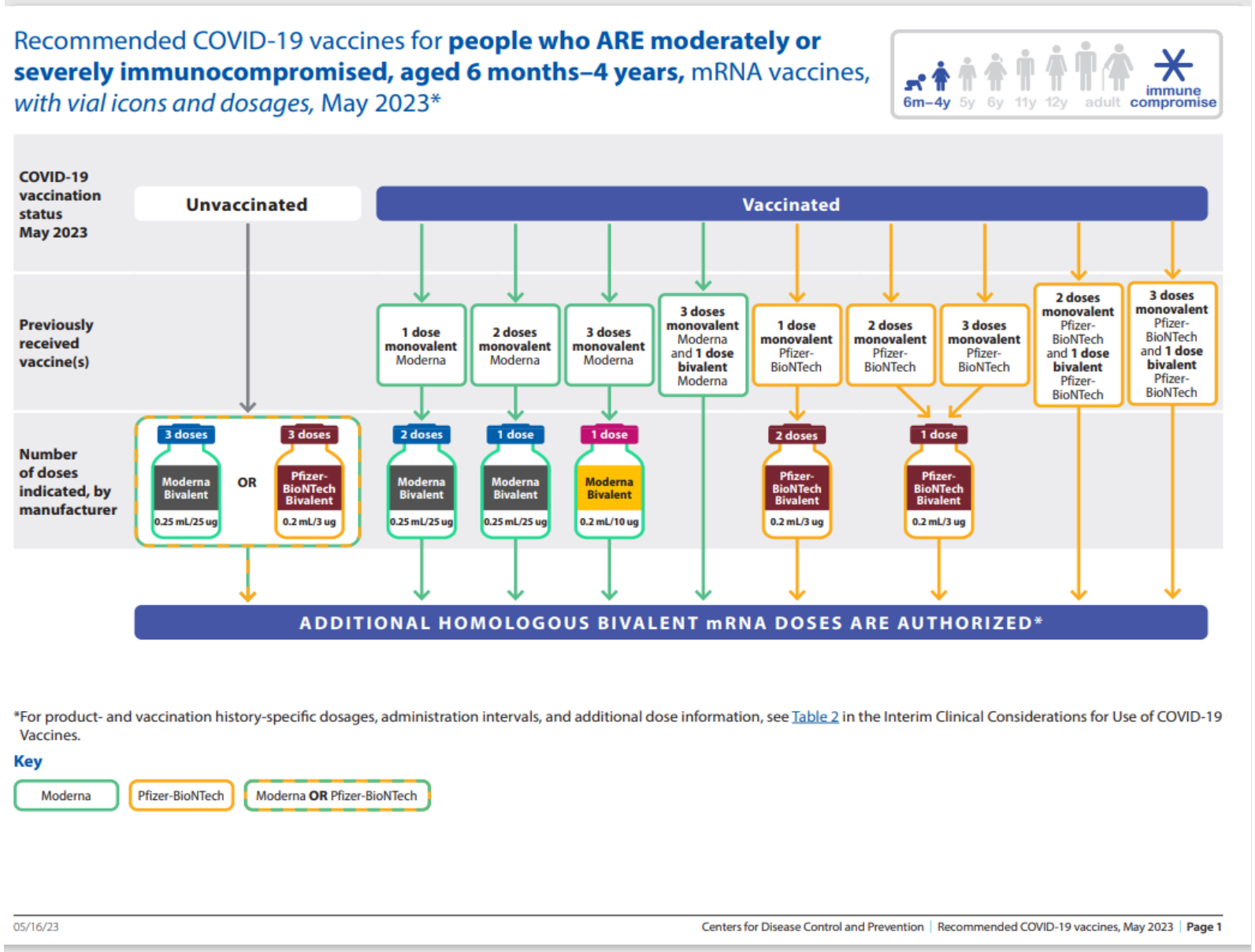
Moderna | Pfizer-BioNTech | Moderna **OR** Pfizer-BioNTech



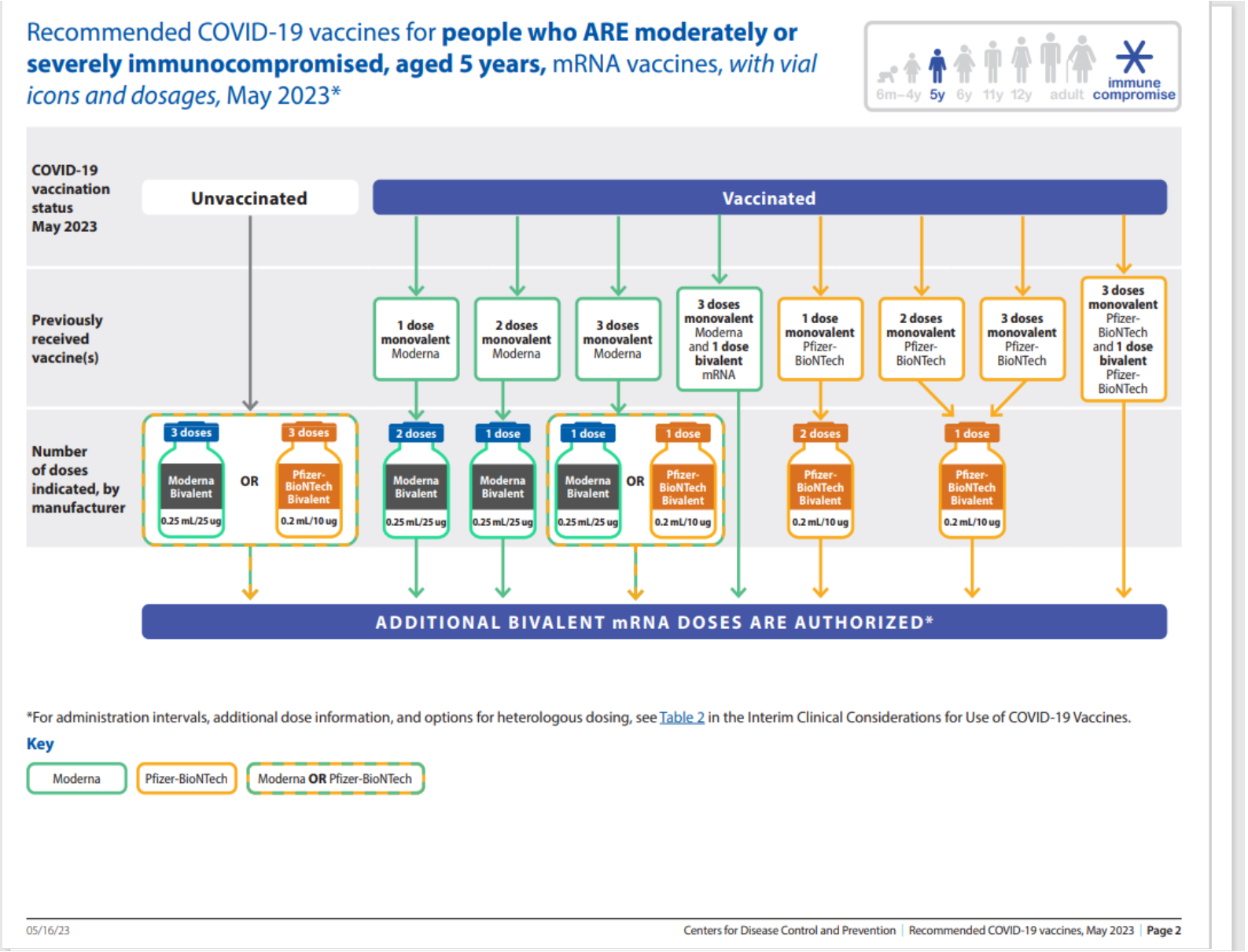
COVID-19 vaccines infographic May 2023 (cdc.gov)

# Immunosuppressed Persons

- Immunosuppressed persons who have already received a bivalent booster may receive a second bivalent booster 2 months after the first bivalent booster.
- This permissive guidance applies to those who are currently immunosuppressed
- Providers have maximal flexibility to administer a second bivalent booster even if it has not been 2 months since the first booster.
- Providers have maximal flexibility to administer ongoing boosters (presumably at 2 month intervals)

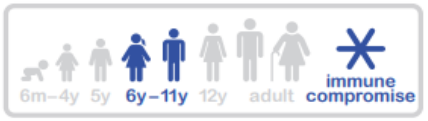


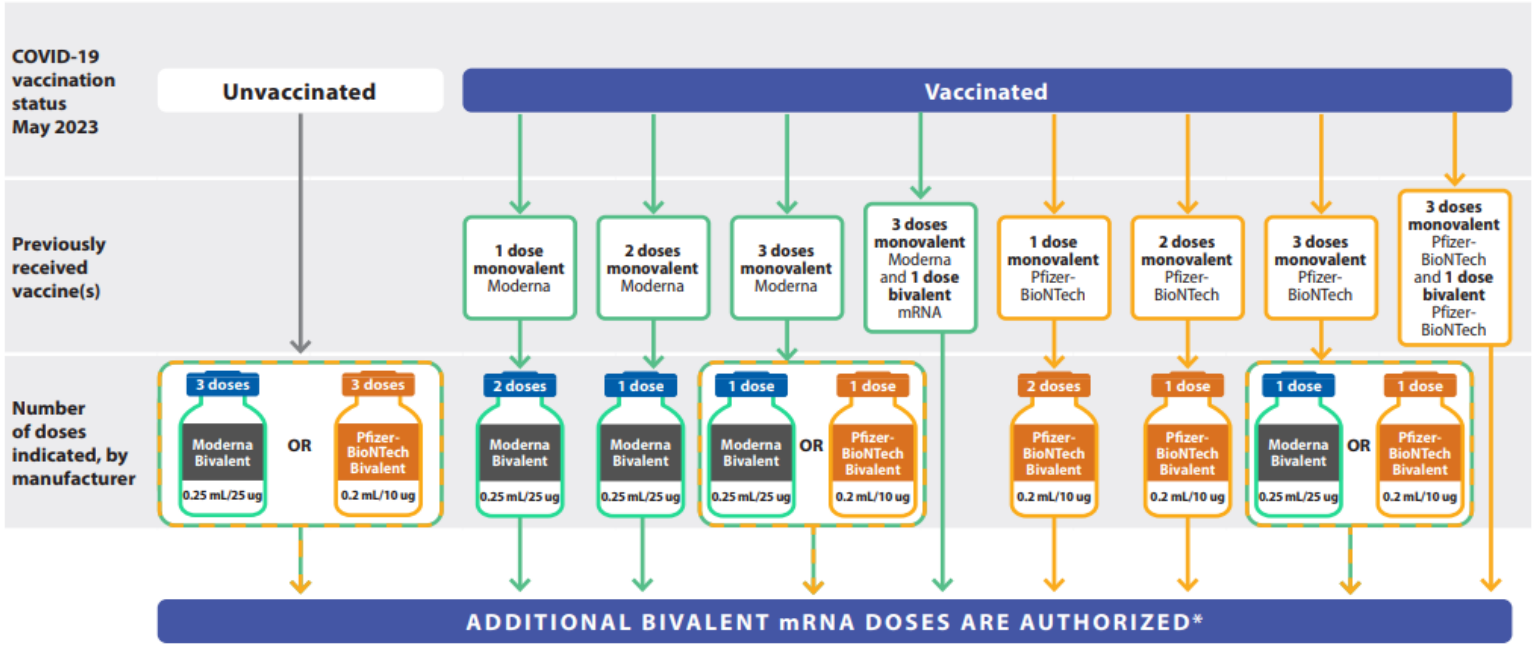

[COVID-19 vaccines infographic May 2023 (cdc.gov)]




[COVID-19 vaccines infographic May 2023 (cdc.gov)]

## Recommended COVID-19 vaccines for **people who ARE moderately or severely immunocompromised, aged 6–11 years,** mRNA vaccines, *with vial icons and dosages,* May 2023*




*For product-specific dosages, administration intervals, additional dose information, and options for heterologous dosing, see Table 2 in the Interim Clinical Considerations for Use of COVID-19 Vaccines.

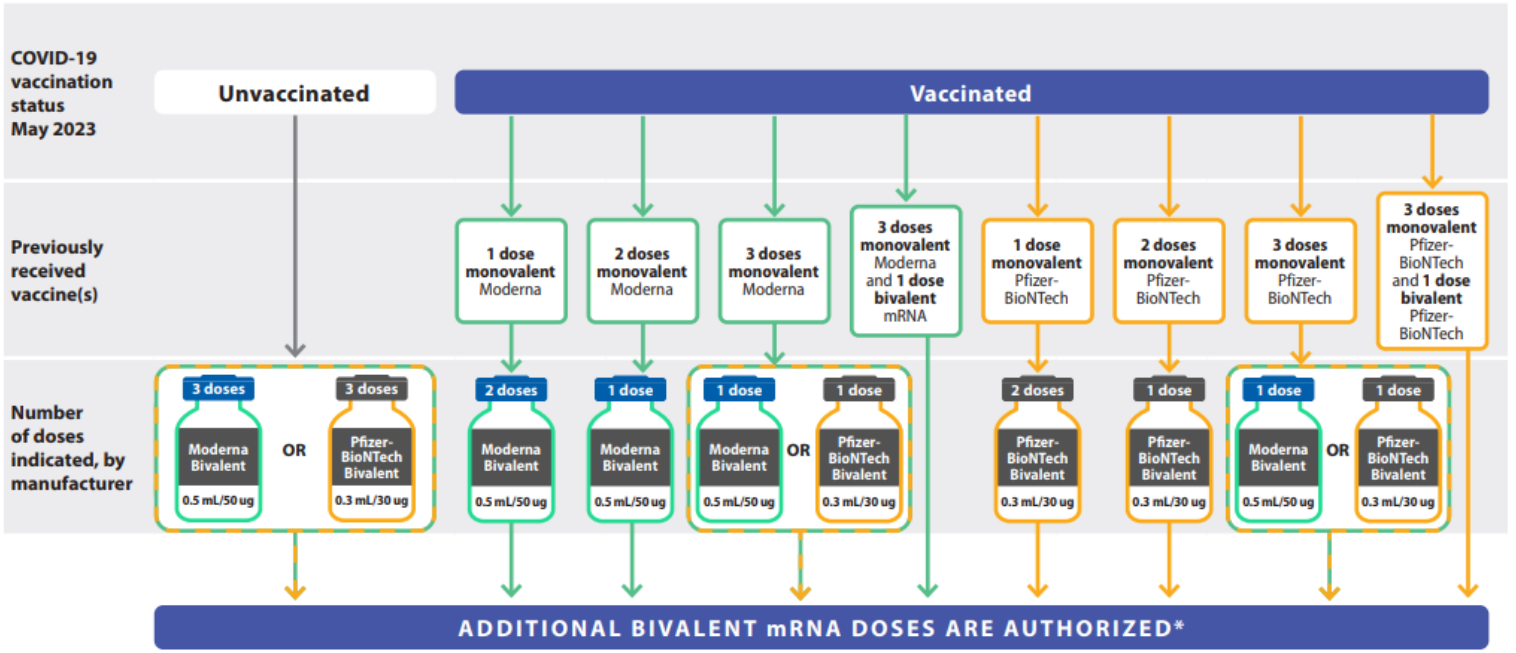
**Key**

Moderna | Pfizer-BioNTech | Moderna **OR** Pfizer-BioNTech



[COVID-19 vaccines infographic May 2023 (cdc.gov)]

## Recommended COVID-19 vaccines for **people who ARE moderately or severely immunocompromised, aged 12 years and older,** *mRNA vaccines, with vial icons and dosages,* May 2023*




*For administration intervals, additional dose information, and options for heterologous dosing, see Table 2 in the Interim Clinical Considerations for Use of COVID-19 Vaccines.

**Key**

Moderna | Pfizer-BioNTech | Moderna **OR** Pfizer-BioNTech



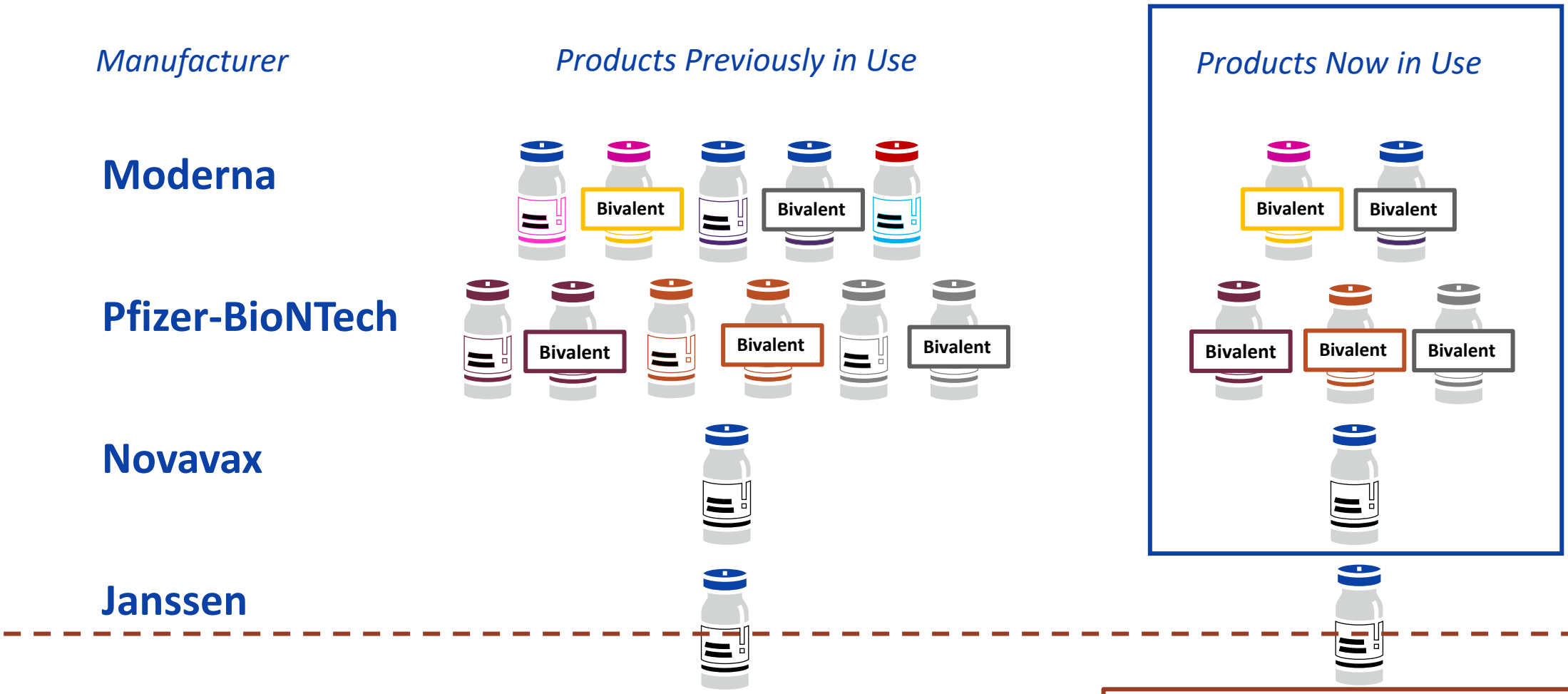
COVID-19 vaccines infographic May 2023 (cdc.gov)

# Timing and Spacing – Pediatric COVID-19 Vaccines

NOT ADDRESSED IN ANY INFOGRAPHIC

- Mix and match of prior primary series doses, this was a historic provider error, but it does happen, and further doses are recommended
- Ageing up – no column has a header: “age at dose”
  - Every dose given is during the time period described in the Table Header, not the Column Header

# Fewer COVID-19 Vaccine Products in Your Storage Unit

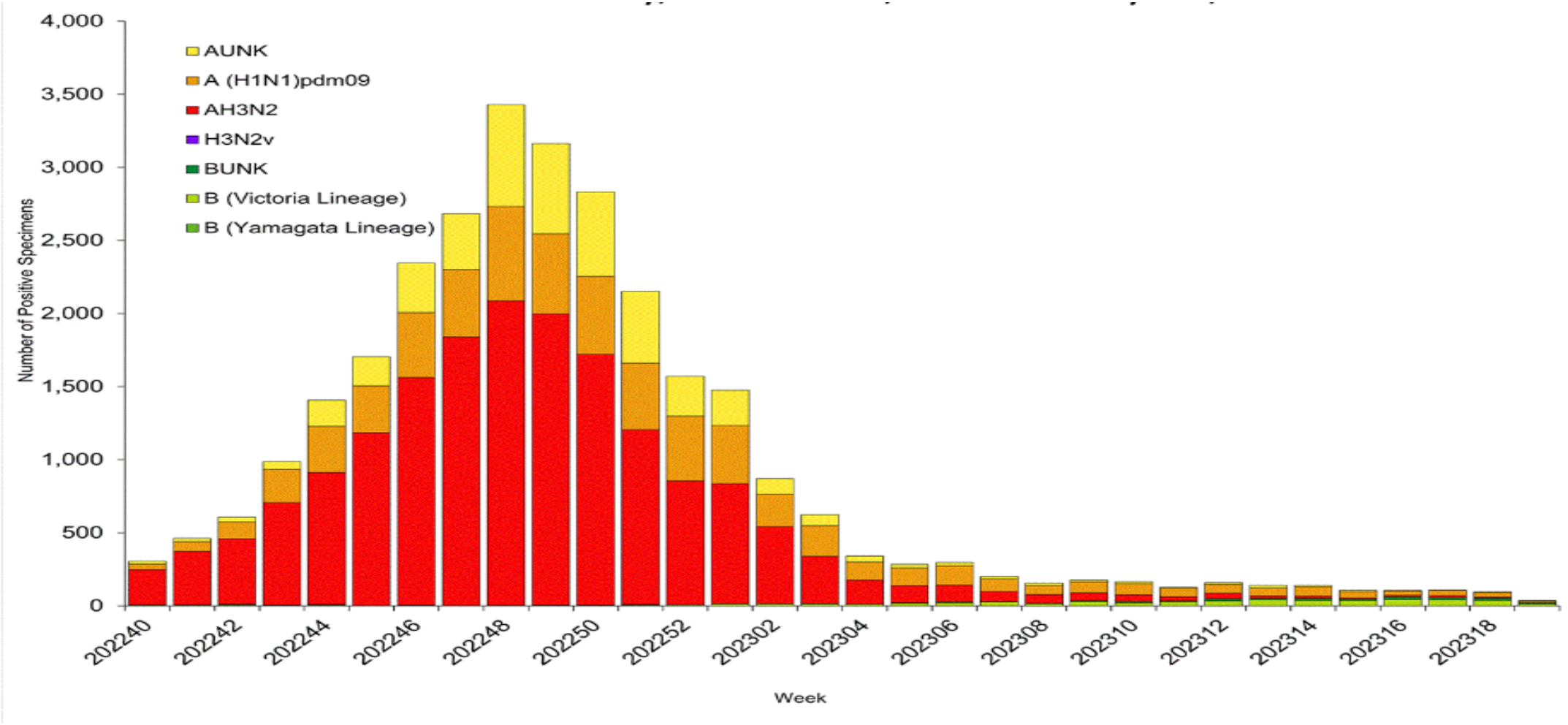


# 3

## Influenza Vaccination

# 2022-2023 Influenza Season

## Week ending May 13, 2023




[Weekly U.S. Influenza Surveillance Report | CDC]


Time to Prepare for
Next Flu Season!

# Influenza Vaccine Strains 2023–24

## Egg Based

- A/Darwin/9/2021 (H3N2)-like
- A/Victoria/4897/2022 (H1N1)pdm09like - NEW
  - 2022-2023 : A/Victoria/2570/2019 (H1N1)pdm09like
- B/Phuket/3073/2013 (Yamagata lineage)-like
- B/Austria/1359417/2021 (Victoria lineage)-like

## Cell-culture and Recombinant

- A/Darwin/6/2021 (H3N2)-like
- A/Wisconsin/67/2022(H1N1)pdm09-like - NEW
  - 2022-2023: A/Wisconsin/588/2019 (H1N1)pdm09-like
- B/Phuket/3073/2013 (Yamagata lineage)-like
- B/Austria/1359417/2021 (Victoria lineage)-like

Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2022–23 Influenza Season | MMWR (cdc.gov)

# 2022–2023 ACIP Recommendations: Influenza

- Annual influenza vaccination is recommended for persons 6 months of age and older without contraindications or precautions
- Note: Influenza vaccine products vary with different age-indications contraindications, and recommendations.

# Children Need Flu Vaccine, Too!

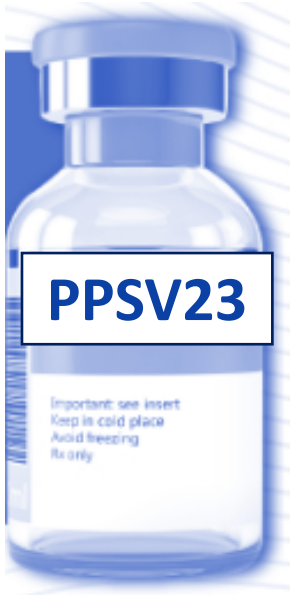
- 154 influenza-associated pediatric deaths occurring during the 2022–23 season have been reported.
- Children younger than 5 years old–especially those younger than 2 years–are at higher risk of developing serious flu-related complications.

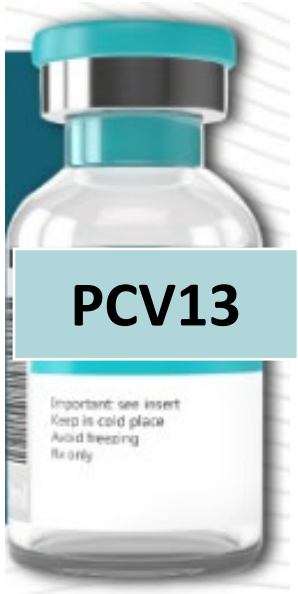
Influenza Vaccination: A Summary for Clinicians | CDC

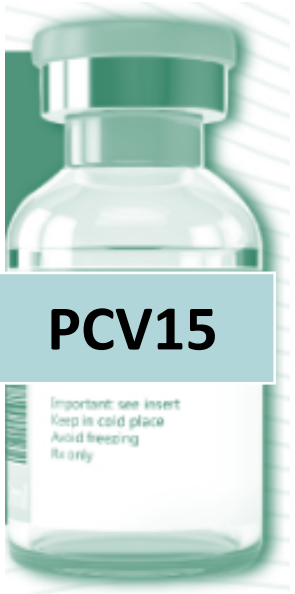
4

**Pneumococcal Vaccine**

# Pneumococcal Vaccine Products




# Pneumococcal Conjugate Vaccines

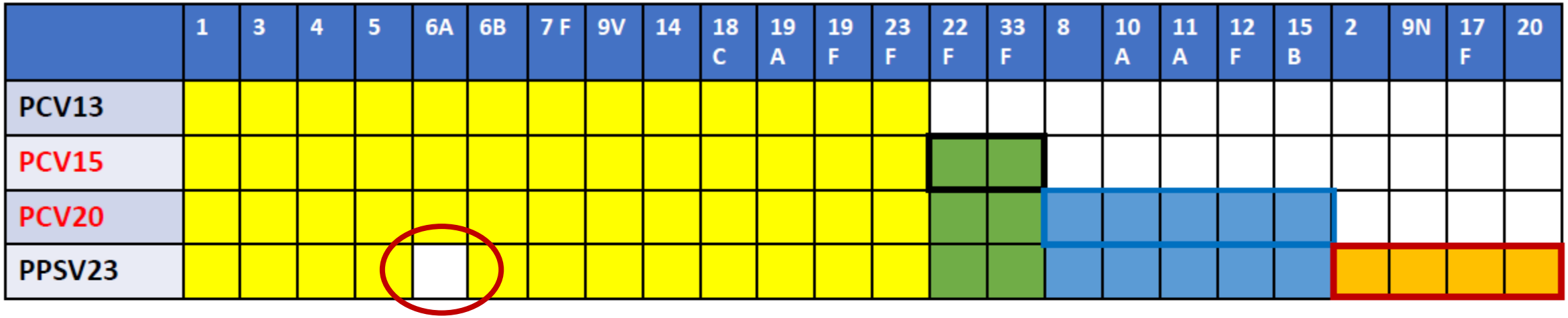
- Non-live vaccine
- Purified capsular polysaccharide antigens linked to CRM197 protein
- No preservative or antibiotics
- Aluminum phosphate adjuvant

# 23- valent Pneumococcal Polysaccharide Vaccine (PPSV23)


- Non-live vaccine
- Purified capsular polysaccharide antigen from 23 serotypes
- Contains phenol as a preservative
- No antibiotic or adjuvant
- Licensed for adults 50 years and older; children

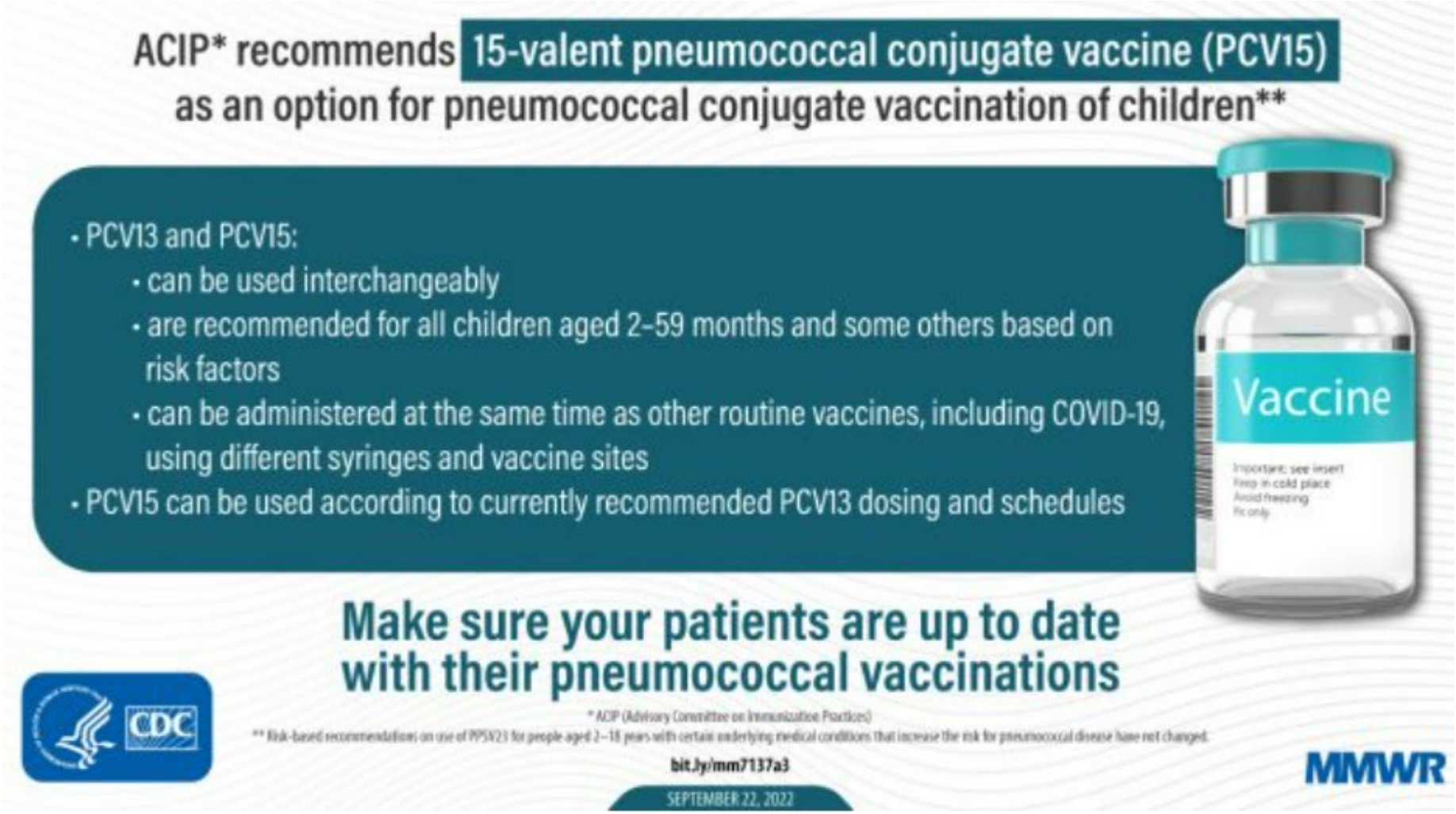
  ≥ 2 years who are at increased risk

# Serotypes in Pneumococcal Vaccine Products




- **PCV15 non-PCV13**: includes serotypes **22F and 33F**
- **PCV20 non-PCV13**: includes serotypes **22F, 33F, 8, 10A, 11A, 12F, and 15B**
- **PPSV23 non-PCV20**: includes serotypes **2, 9N, 17F, and 20**

# Updated Recommendation: PCV15 as an Option for Vaccination of Children



# General Recommendations

- PCV13 or PCV15 is routinely recommended for infants and children ages 2 months—59 months
  - 4 dose series at age 2, 4, 6, and 12 to 15 months
  - Fewer doses required if series started at age 7 months or older
- Either can be administered as a high-risk dose for PCV13/15 naïve children 5 years and older

# 4

# Adolescent Vaccine Issues

# Recommended Adolescent Vaccines

- Routine
  - Tetanus-reduced diphtheria-reduced acellular pertussis (Tdap)
  - Human papillomavirus vaccine (HPV)
  - Meningococcal conjugate vaccine (MenACWY)
- Seasonal
  - Influenza
  - COVID-19
- Catch-up
  - Measles-mumps-rubella (MMR)
  - Varicella (Var)
  - Hepatitis A (HepA)
  - Hepatitis B (HepB)
- Shared clinical decision-making
  - Serogroup B meningococcal vaccine (MenB)

# Recent Updates to FDA Approvals

- MenACWY-CRM (Menveo)
  - New formulation that does not require reconstitution
  - Only approved for ages 10 through 55 years (need to use old formulation for 2 months through 9 years of age)

- MMR-II, Var (Varivax)
  - Now may be administered either Subcut or IM
    - previously was specified as Subcut

# QUESTIONS (DURING PANEL)?