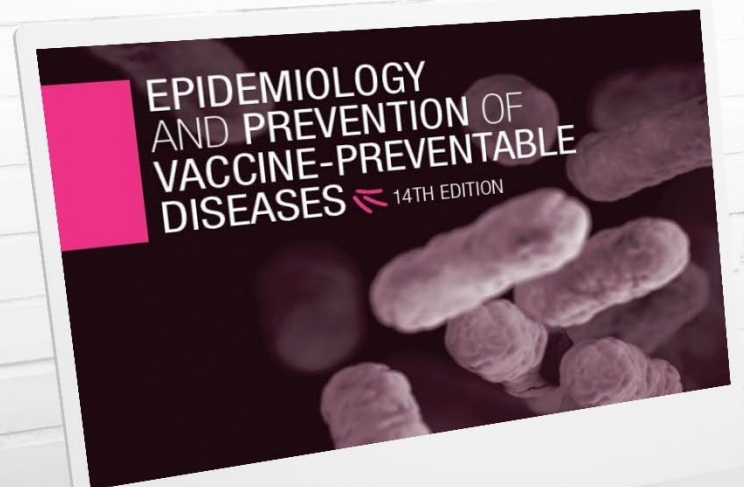


## DTaP and Tdap/Td Vaccines

Pink Book Web-on-Demand Series

Bindu Mayi, MSc., PhD, MPH  
Health Education Specialist  
Immunization Services Division





## Learning Objectives

- Describe the fundamental principles of the immune response.
- Describe immunization best practices.
- Describe an emerging immunization issue.
- For each vaccine-preventable disease, identify those for whom routine immunization is recommended.
- For each vaccine-preventable disease, describe characteristics of the vaccine used to prevent the disease.
- Locate current immunization resources to increase knowledge of team's role in program implementation for improved team performance.

# Continuing Education Information

- To claim continuing education (CE) for this course, please follow the steps below by July 1, 2026.
- Search and register for course **WD4810-072524** in **CDC TRAIN**.
- Pass the post-assessment at 80%.
- Complete the evaluation.
- Visit “Your Learning” to access your certificates and transcript.
- If you have any questions, contact **CDC TRAIN** at [train@cdc.gov](mailto:train@cdc.gov) or CE Coordinator, Melissa Barnett, at [MBarnett2@cdc.gov](mailto:MBarnett2@cdc.gov)

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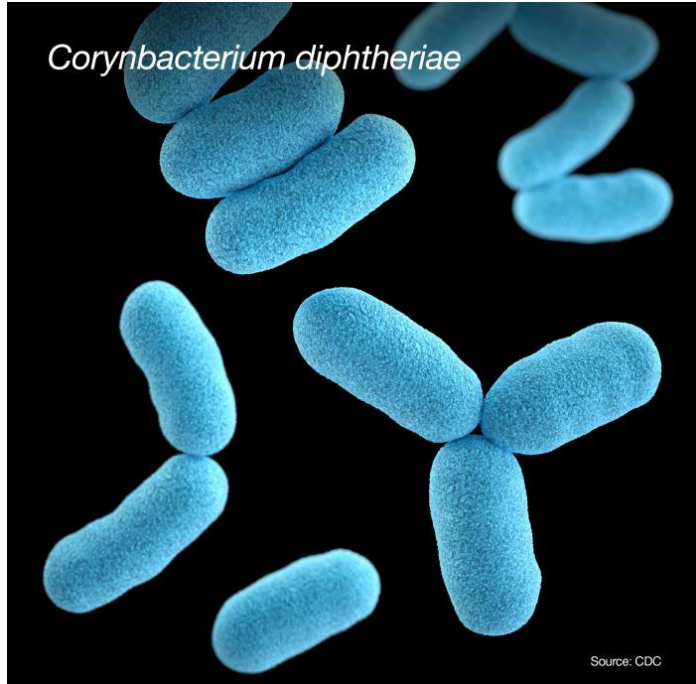
# Disclosure Statements

The findings and conclusions in this presentation are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

**1**

# **Diphtheria Disease**

# Diphtheria (1)



Toxin-mediated disease

# Diphtheria (2)

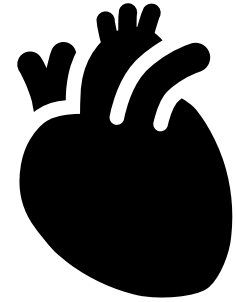
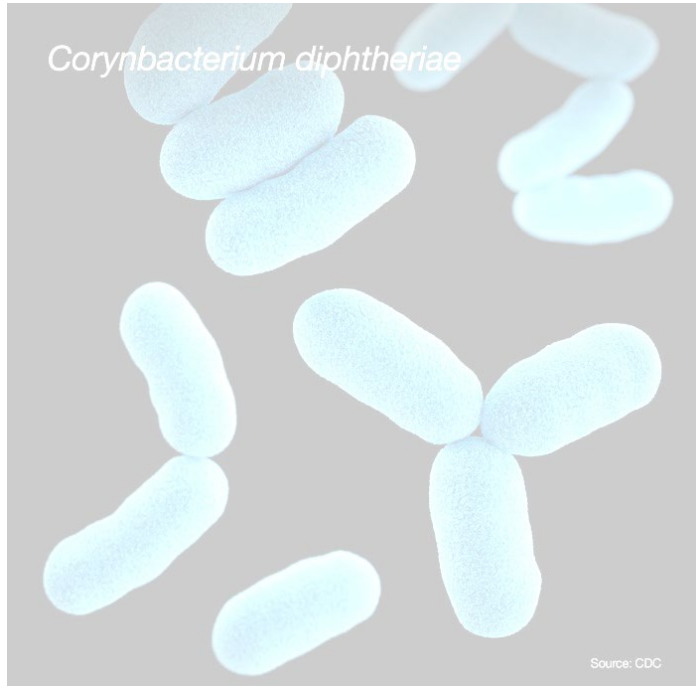


Pseudomembrane





# Diphtheria (3)



Myocarditis

# Diphtheria (4)



Case fatality:  
5% – 10%

# Diphtheria Clinical Features (1)

- Incubation period: 2–5 days (range: 1–10 days)



# Diphtheria Clinical Features (2)

- **May involve any mucous membrane**
- **Classified based on site of disease**
  - Respiratory:
    - Anterior nasal
    - Pharyngeal and tonsillar
    - Laryngeal
  - Cutaneous
  - Otic
  - Other Mucosal Sites:
    - Ocular
    - Genital

# Diphtheria Clinical Features (3)

- May involve any mucous membrane
- Classified based on site of disease
  - **Respiratory:**
    - **Anterior nasal**
    - Pharyngeal and tonsillar
    - Laryngeal
  - Cutaneous
  - Otic
  - Other Mucosal Sites:
    - Ocular
    - Genital



# Diphtheria Clinical Features (4)

- May involve any mucous membrane
- Classified based on site of disease
  - **Respiratory:**
    - Anterior nasal
    - **Pharyngeal and tonsillar**
    - Laryngeal
  - Cutaneous
  - Otic
  - Other Mucosal Sites:
    - Ocular
    - Genital



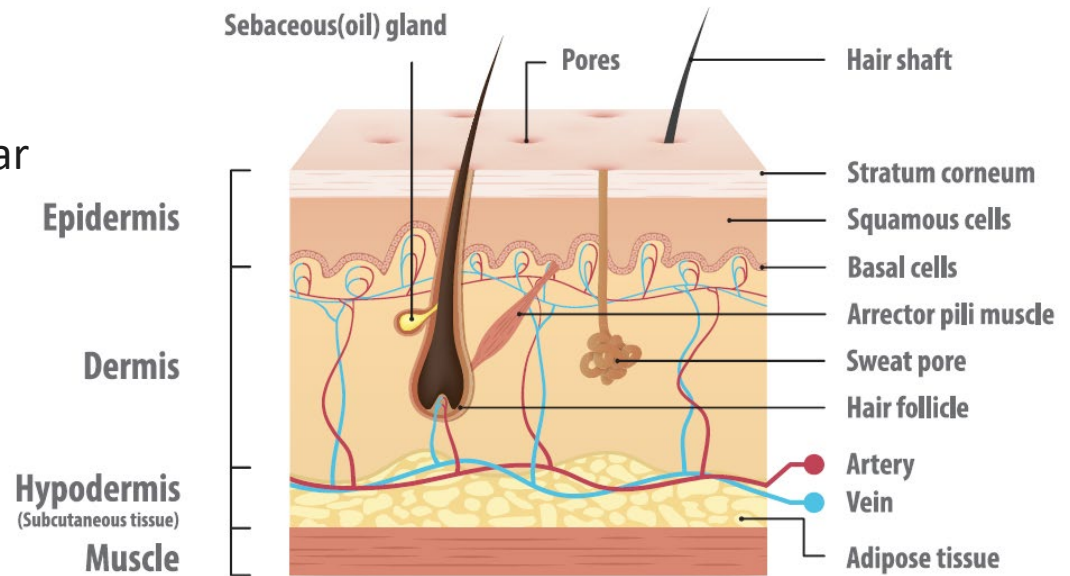
# Diphtheria Clinical Features (5)

- May involve any mucous membrane
- Classified based on site of disease
  - **Respiratory:**
    - Anterior nasal
    - Pharyngeal and tonsillar
    - **Laryngeal**
  - Cutaneous
  - Otic
  - Other Mucosal Sites:
    - Ocular
    - Genital



# Diphtheria Clinical Features (6)

- May involve any mucous membrane
- Classified based on site of disease
  - Respiratory:
    - Anterior nasal
    - Pharyngeal and tonsillar
    - Laryngeal
  - **Cutaneous**
  - Otic
  - Other Mucosal Sites:
    - Ocular
    - Genital





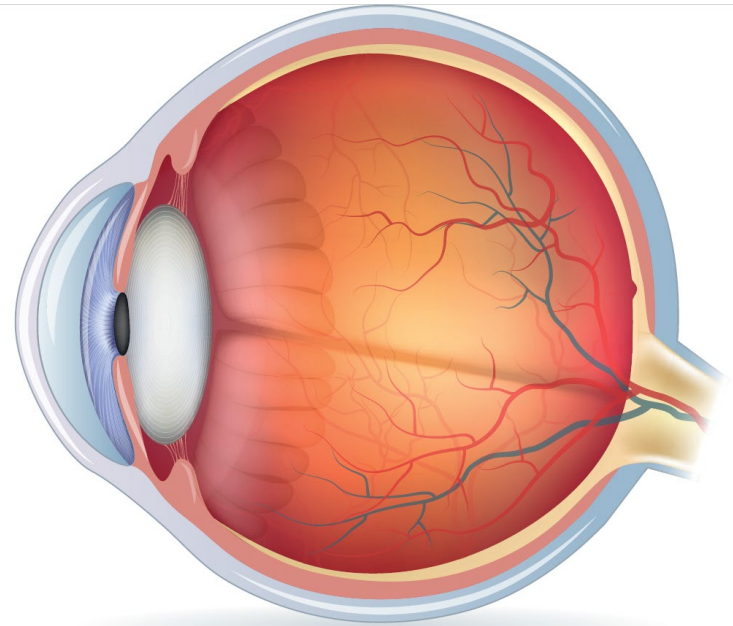
# Diphtheria Clinical Features (7)

- May involve any mucous membrane
- Classified based on site of disease
  - Respiratory:
    - Anterior nasal
    - Pharyngeal and tonsillar
    - Laryngeal
  - Cutaneous
  - **Otic**
  - Other Mucosal Sites:
    - Ocular
    - Genital



# Diphtheria Clinical Features (8)

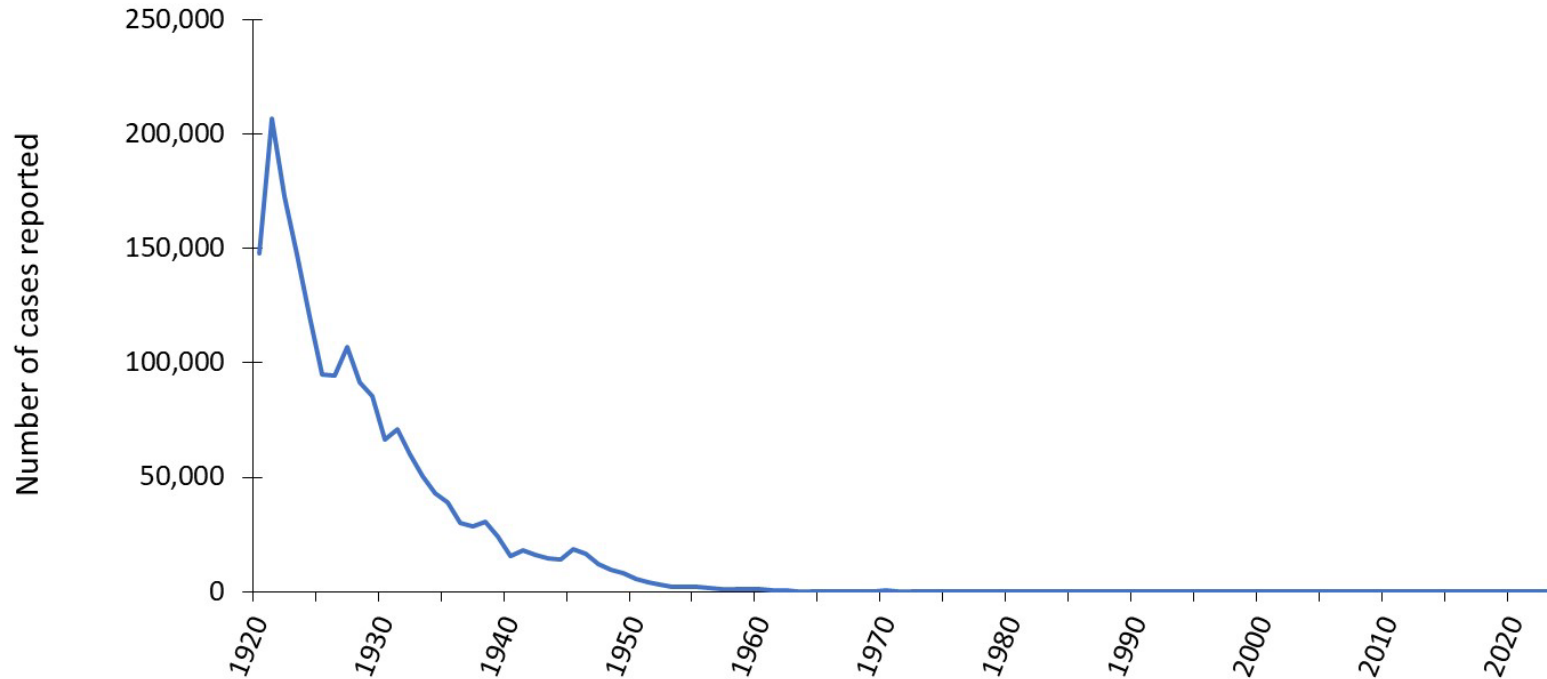
- May involve any mucous membrane
- Classified based on site of disease
  - Respiratory:
    - Anterior nasal
    - Pharyngeal and tonsillar
    - Laryngeal
  - Cutaneous
  - Otic
  - **Other Mucosal Sites:**
    - **Ocular**
    - **Genital**



# Diphtheria in the Late 19th–Early 20th Century



# Number of Reported Diphtheria Cases — United States, 1920–2023\*



\*2023 data are provisional, National Notifiable Diseases Surveillance System

[National Notifiable Diseases Surveillance System | CDC](#)

2

## Tetanus Disease

# Tetanus (1)



*Clostridium tetani*





## Tetanus (2)



*Clostridium tetani*



# Tetanus (3)





# Tetanus (4)

- **Two exotoxins produced with growth of bacteria**
  - Tetanospasmin
  - Tetanolysin

# Tetanus (5)

- **Two exotoxins produced with growth of bacteria**
  - Tetanospasmin
  - Tetanolysin

# Tetanus (6)

- Two exotoxins produced with growth of bacteria
  - Tetanospasmin
  - Tetanolysin
- **Tetanospasmin is one of the most potent toxins known to humans.**



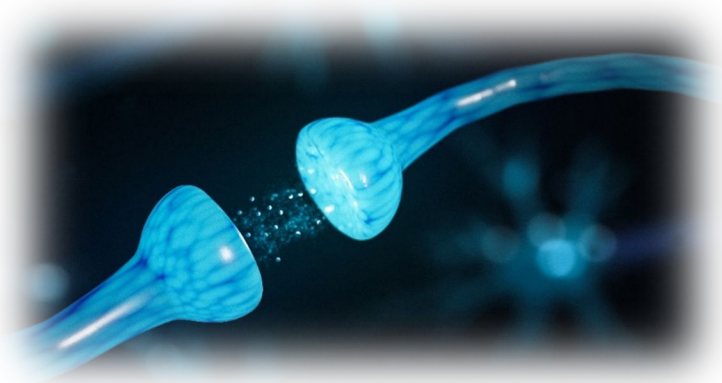
# Tetanus Pathophysiology (1)



# Tetanus Pathophysiology (2)



# Tetanus Pathophysiology (3)



# Tetanus Clinical Features (1)

- Incubation period: 8 days (range: 3–21 days)



# Tetanus Clinical Features (2)

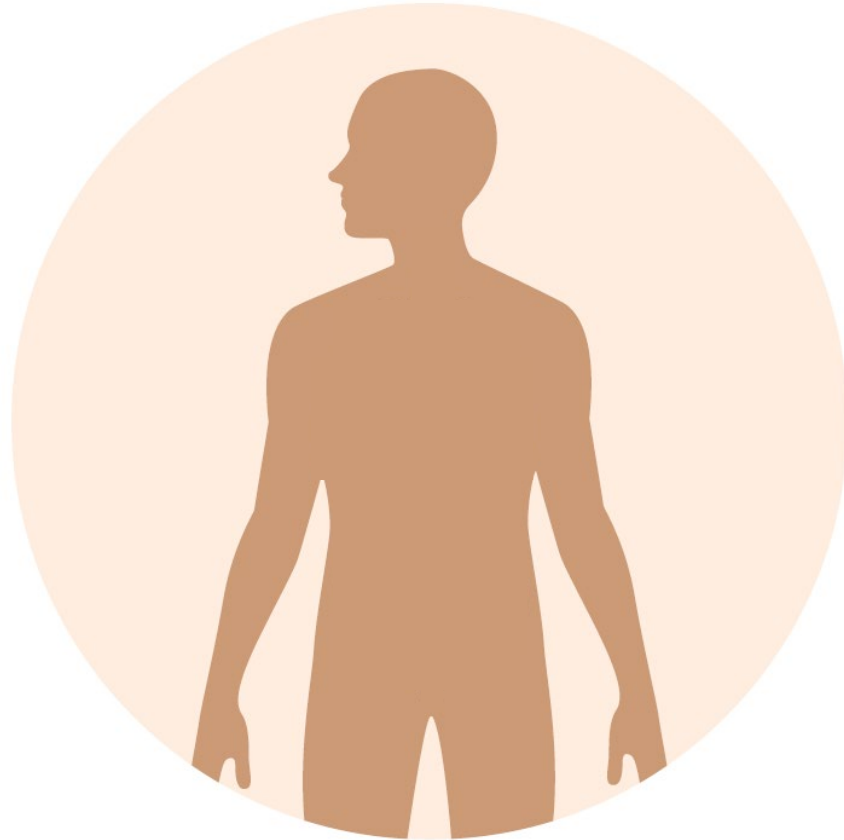
- **Three clinical forms:**
  - Local
  - Cephalic
  - Generalized



# Tetanus Clinical Features (3)

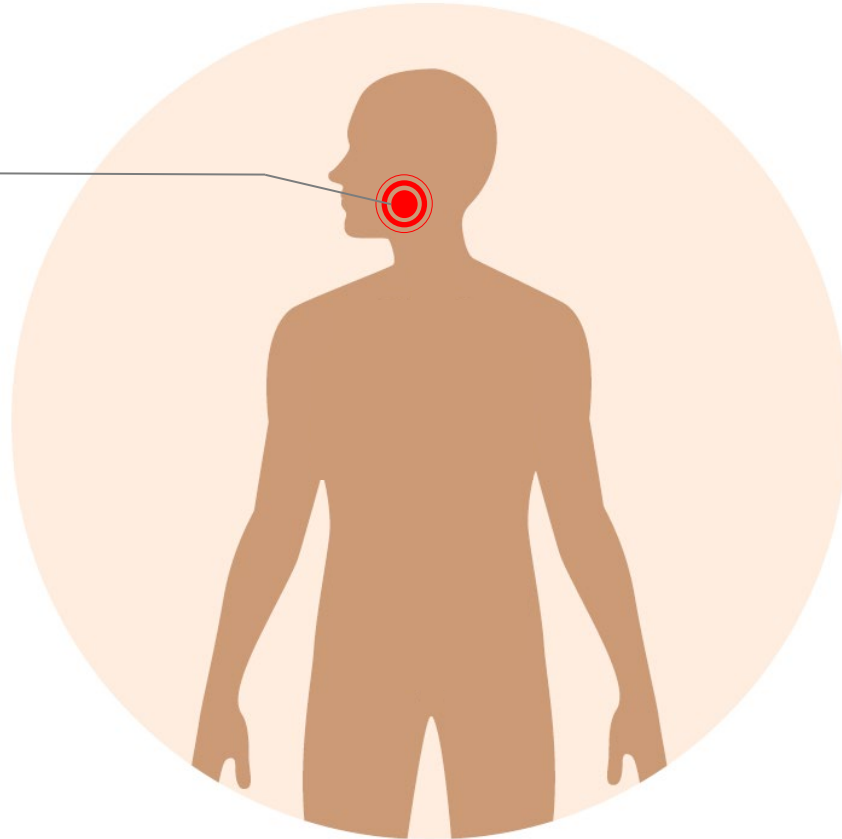
- **Three clinical forms:**
  - Local
  - Cephalic
  - Generalized – the most common type of reported tetanus

# Tetanus Clinical Features (4)

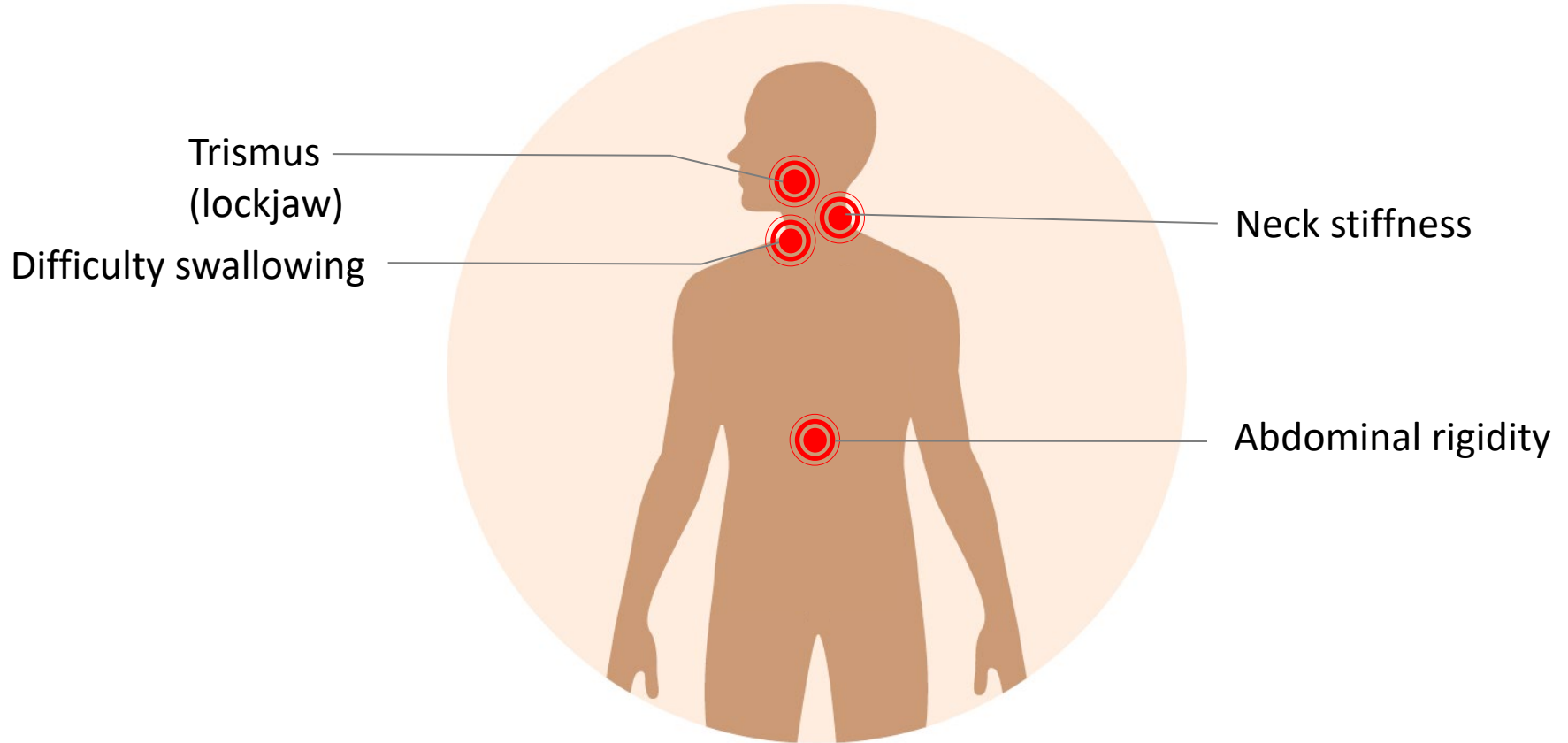


# Tetanus Clinical Features (5)

Trismus  
(lockjaw)



# Tetanus Clinical Features (6)



# Tetanus Clinical Features (7)

- **Spasms**
  - Occur frequently and last several minutes
  - Continue for 3–4 weeks
  - Respiratory arrest
  - May break bones
- **Complete recovery may take months**
- **Even with modern intensive care, generalized tetanus results in death in 1 in 10 cases.**



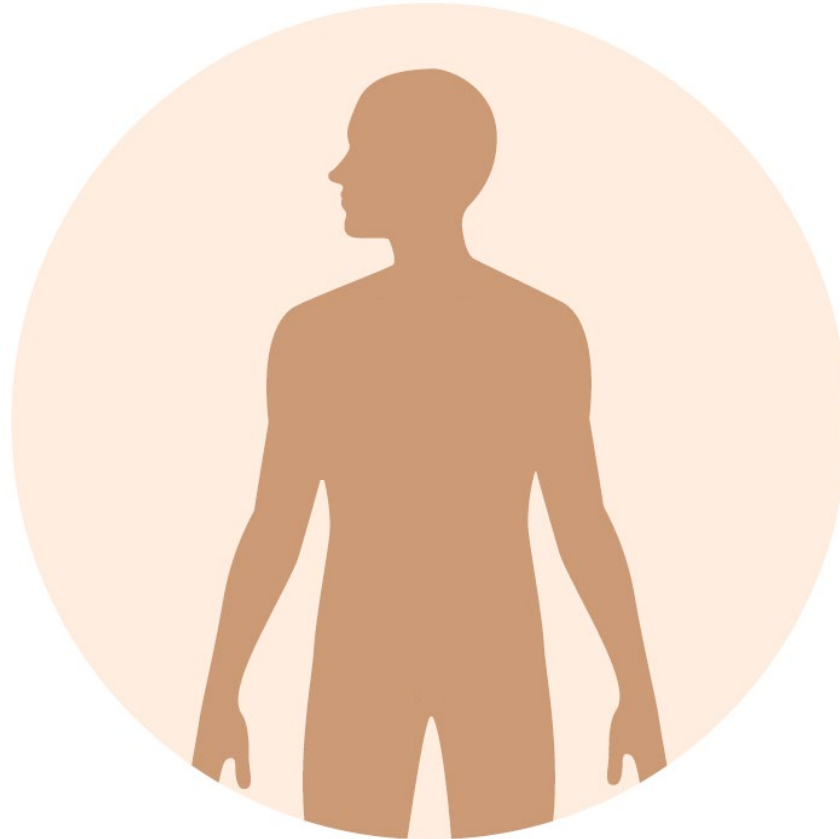
# Tetanus Clinical Features (8)



Fever



Diaphoresis  
(sweating)



Hypertension



Tachycardia

# Tetanus Clinical Features (9)

- **Neonatal tetanus**
  - Generalized tetanus in newborn infant
  - Infant born without protective passive immunity
- **Case fatality rate:**
  - 100% without treatment
  - 10%–20% with intensive care



# Morbidity and Mortality Weekly Report (*MMWR*)

[CDC](#) > [MMWR](#)

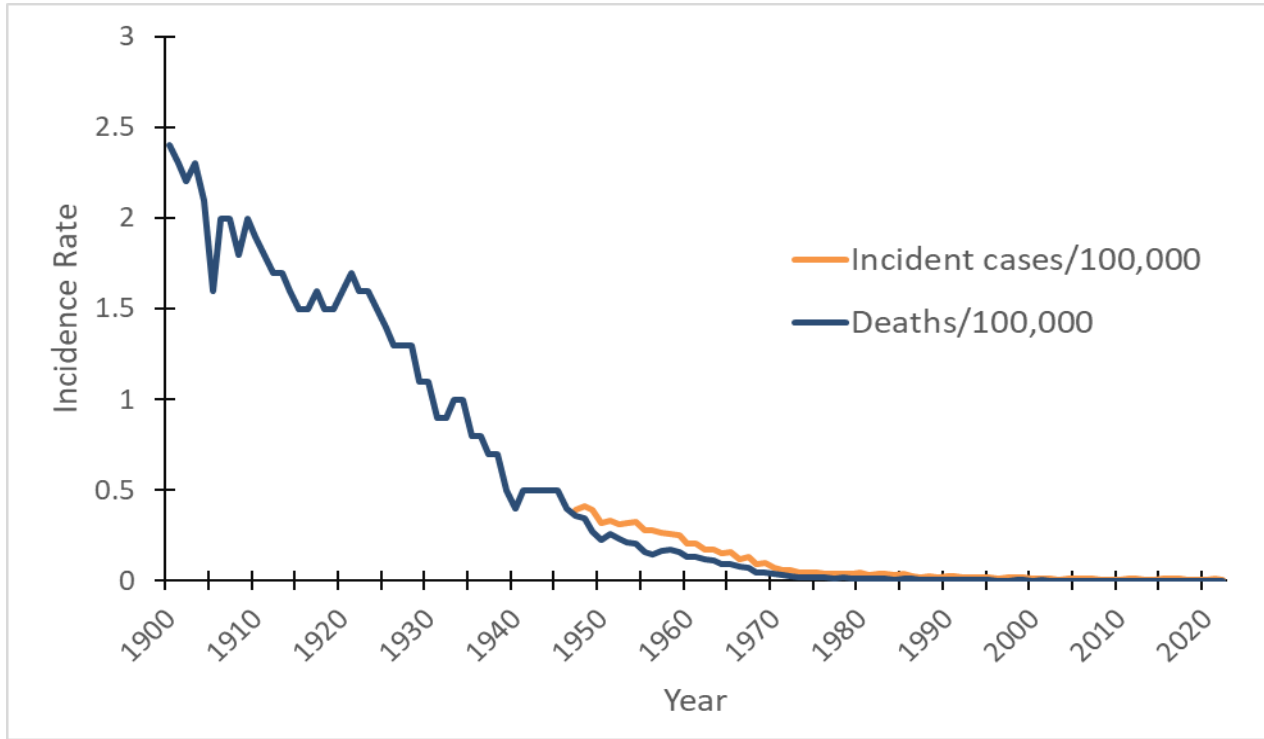
## *Notes from the Field: Tetanus in an Unvaccinated Child – Oregon, 2017*

*Weekly* / March 8, 2019 / 68(9);231–232

- Required 57 days' inpatient acute care, including 47 days in intensive care unit
- The inpatient charges totaled \$811,929 (excluding air transport, inpatient rehabilitation, and ambulatory follow-up costs)



# Annual Incidence and Deaths Due to Tetanus — United States, 1900–2023\*



\*2023 data are provisional, National Notifiable Diseases Surveillance System

[National Notifiable Diseases Surveillance System | CDC](https://www.cdc.gov/nndss/)

3

## Pertussis Disease

# Pertussis



# Pertussis Global Burden

- **24.1 million cases**
- **160,700 deaths**



# Pertussis Clinical Features (1)

- Incubation period: 7–10 days
  - Range: 4–21 days



# Pertussis Clinical Features (2)

## 1. Catarrhal

- Insidious onset
- Low-grade fever
- Mild occasional cough
- Similar to common cold
- 1–2 weeks

## 2. Paroxysmal

- Numerous, rapid coughs
- High-pitched “whoop”
- Cyanosis
- Vomiting and fatigue
- Attacks occur at night
- 1–6 weeks

## 3. Convalescent

- Gradual recovery
- Cough disappears
- Paroxysms can recur with subsequent respiratory infections
- Weeks to months

# Pertussis Clinical Features (3)

## 1. Catarrhal

- Insidious onset
- Low-grade fever
- Mild occasional cough
- Similar to common cold
- 1–2 weeks

## 2. Paroxysmal

- Numerous, rapid coughs
- High-pitched “whoop”
- Cyanosis
- Vomiting and fatigue
- Attacks occur at night
- 1–6 weeks

## 3. Convalescent

- Gradual recovery
- Cough disappears
- Paroxysms can recur with subsequent respiratory infections
- Weeks to months

# Pertussis Clinical Features (4)

## 1. Catarrhal



- Insidious onset
- Low-grade fever
- Mild occasional cough
- Similar to common cold
- 1–2 weeks

## 2. Paroxysmal



- Numerous, rapid coughs
- High-pitched “whoop”
- Cyanosis
- Vomiting and fatigue
- Attacks occur at night
- 1–6 weeks

## 3. Convalescent

- Gradual recovery
- Cough disappears
- Paroxysms can recur with subsequent respiratory infections
- Weeks to months



# Pertussis Clinical Features (5)

## 1. Catarrhal



- Insidious onset
- Low-grade fever
- Mild occasional cough
- Similar to common cold
- 1-2 weeks

## 2. Paroxysmal

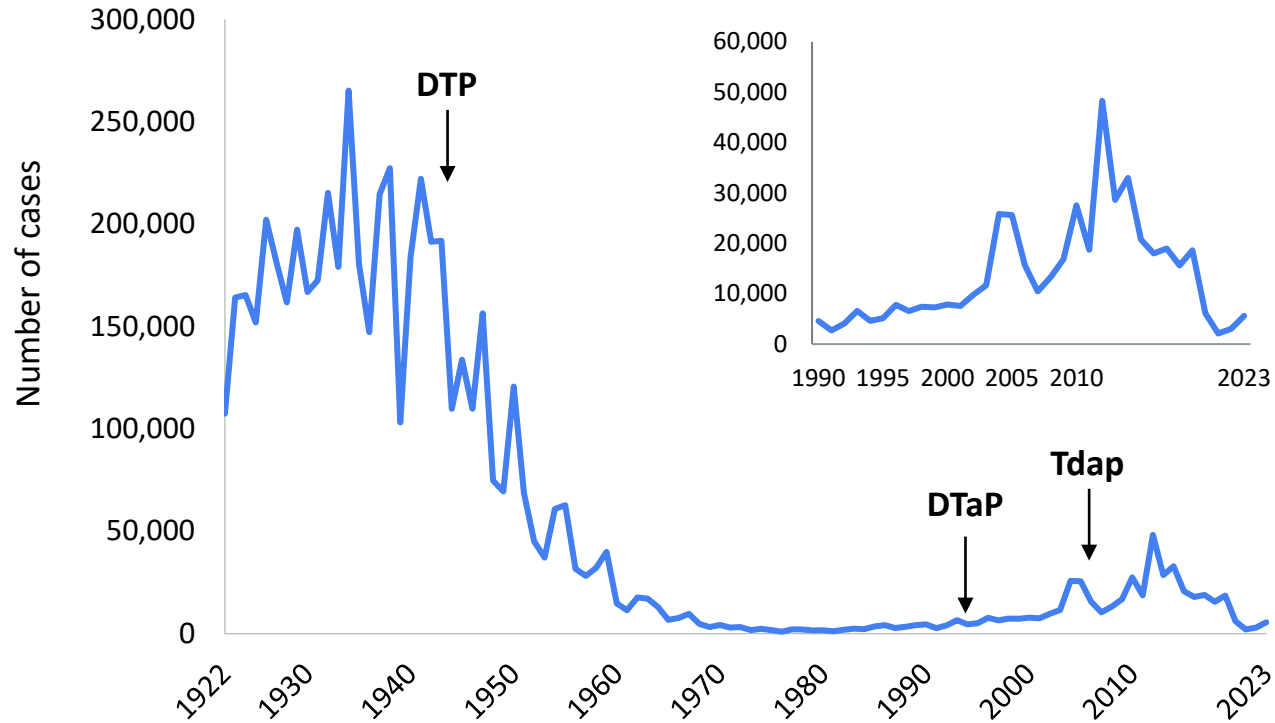


- Numerous, rapid coughs
- High-pitched “whoop”
- Cyanosis
- Vomiting and fatigue
- Attacks occur at night
- 1-6 weeks

## 3. Convalescent

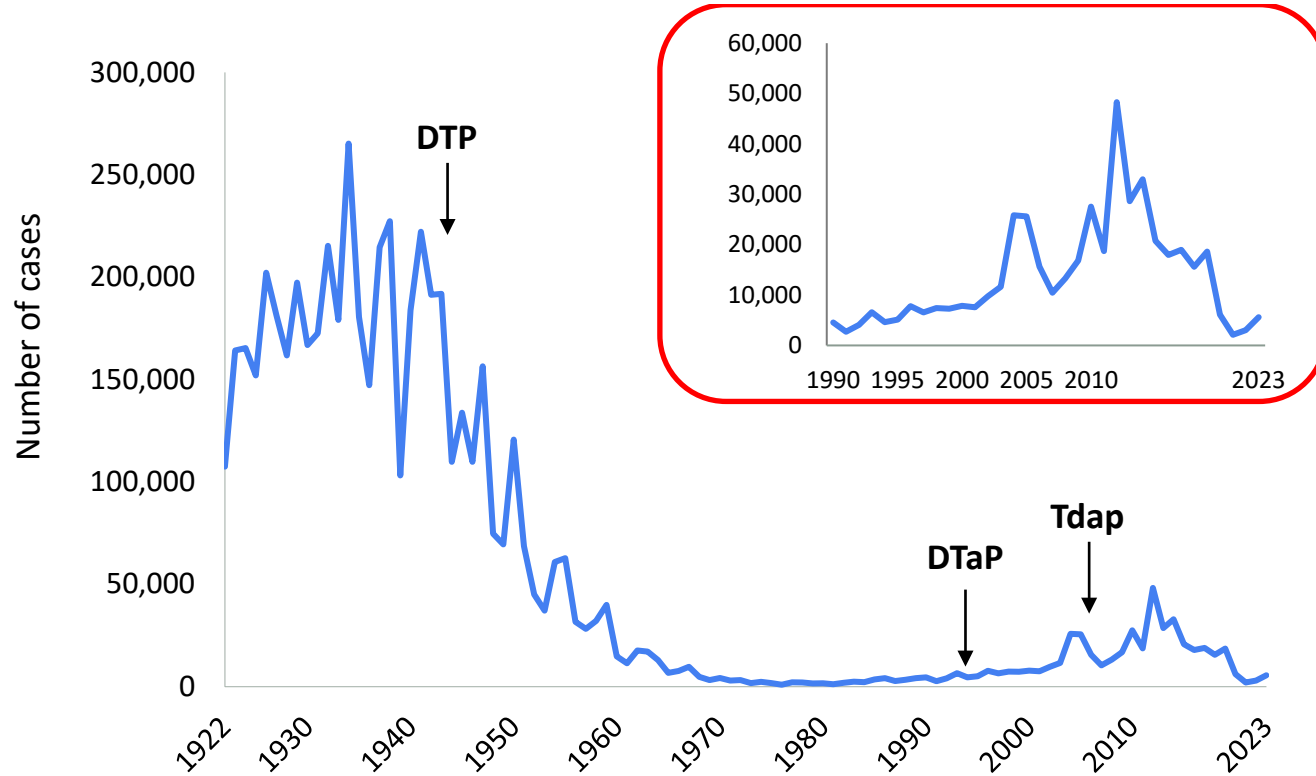
- Gradual recovery
- Cough disappears
- Paroxysms can recur with subsequent respiratory infections
- Weeks to months

# Reported Pertussis Cases — United States, 1922–2023\* (1)



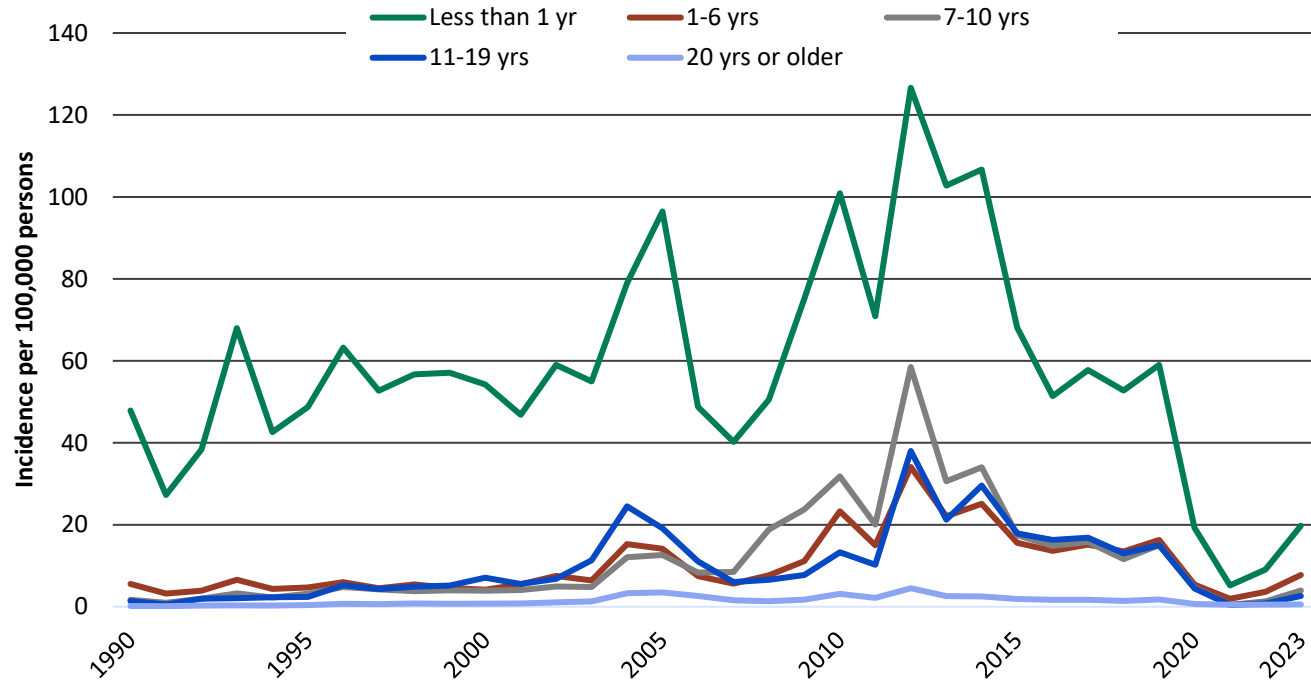
\*2023 data are provisional, National Notifiable Diseases Surveillance System

# Reported Pertussis Cases — United States, 1922–2023\* (2)



\*2023 data are provisional, National Notifiable Diseases Surveillance System

# Reported Pertussis Incidence by Age Group — United States, 1990–2023\*

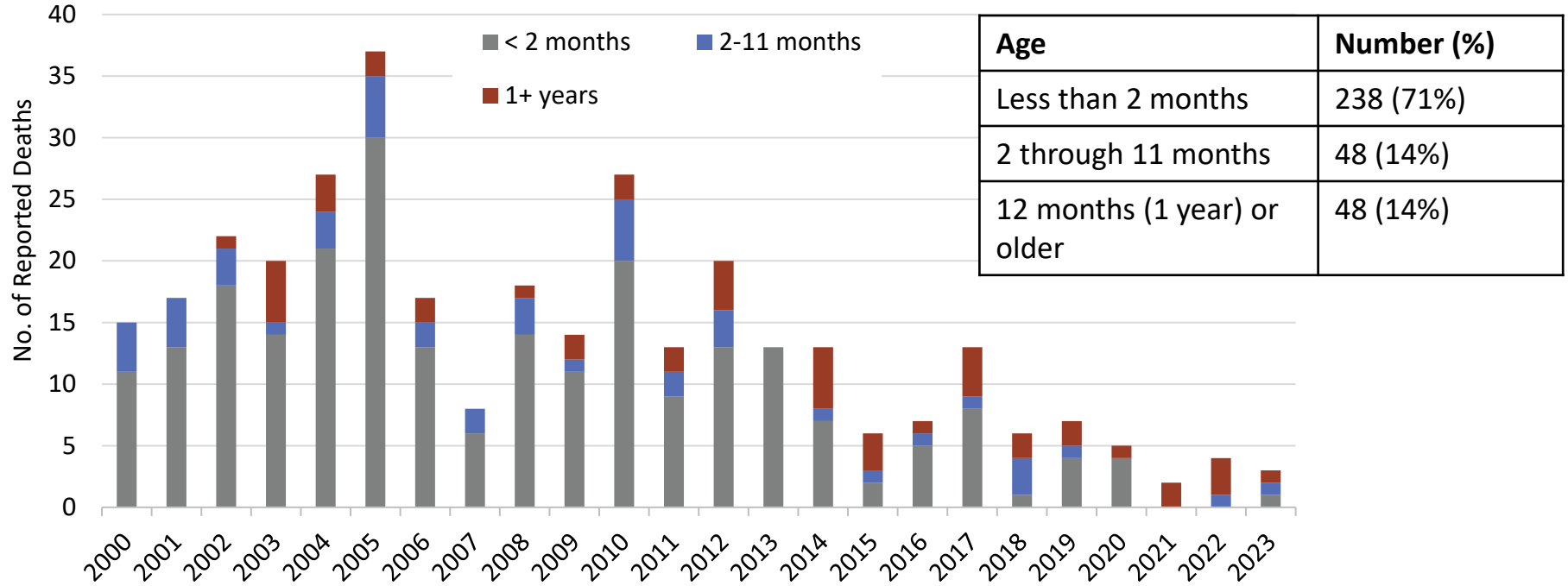


\*2023 data are provisional. National Notifiable Diseases Surveillance System

[National Notifiable Diseases Surveillance System | CDC](#); [Pertussis Surveillance and Trends | Whooping Cough | CDC](#)

Skoff TH, et al. US Infant Pertussis Incidence Trends Before and After Implementation of the Maternal Tetanus, Diphtheria, and Pertussis Vaccine. JAMA Pediatr. 2023 Apr 1;177(4):395-400

# Pertussis Deaths in the United States, 2012–2023\*



\*2023 data are provisional

National Notifiable Diseases Surveillance System | CDC

<https://www.cdc.gov/pertussis/php/surveillance/index.html>

# Pertussis in Infants



# Pertussis Complications (1)



Prolonged cough



Post-tussive vomiting



Rib Fracture

## Pertussis Complications (2)



Prolonged cough



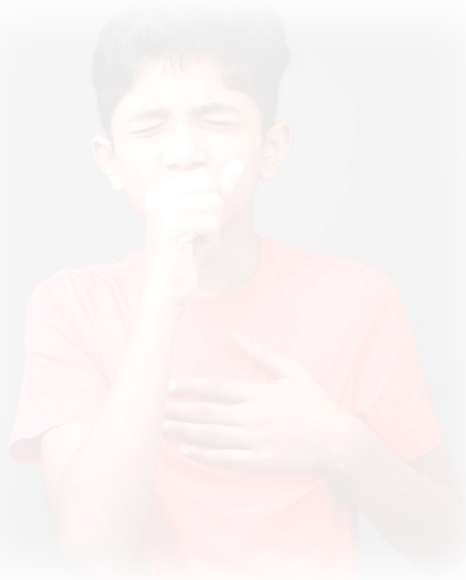
Post-tussive vomiting



Rib Fracture



# Pertussis Complications (3)



Prolonged cough

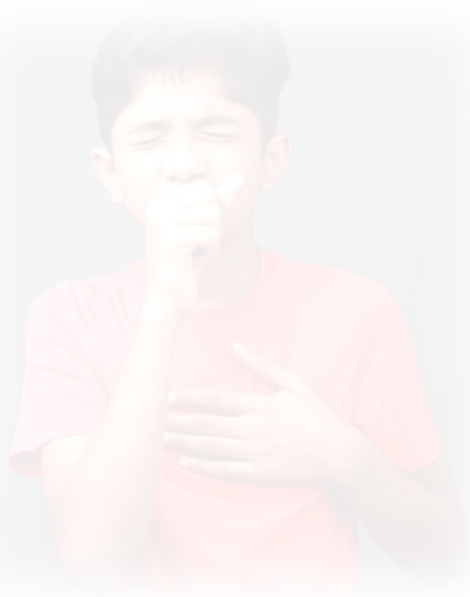


Post-tussive vomiting



Rib Fracture

# Pertussis Complications (4)



Prolonged cough



Post-tussive vomiting



Rib Fracture

# Challenges in Pertussis Diagnosis in Adolescents and Adults



# Why Adolescents and Adults Need Pertussis Vaccine

- **Of over 5000 pertussis cases reported in the U.S. in 2023**
  - 44% cases were in those 11 years of age and older



# Vaccinate Throughout the Lifetime!



# 4

## DTaP and Tdap/Td Vaccines

# DT Vaccine

Vaccine product	Component(s)	Age Indication	Dose in DTaP Series
DT	DT	6 weeks–6 years	1–5

**DISCONTINUED**





# DTaP and Tdap/Td Vaccines

- **Non-live vaccines**
- **Administered by IM (intramuscular) injection**
- **DTaP contains more diphtheria component than Tdap/Td**
  - Hence, uppercase “D”
- **DTaP contains more pertussis component than Tdap**
  - Hence, uppercase “P”





# DTaP Vaccines

Vaccine Product	Component(s)	Age Indication	Dose in DTaP Series
 Daptacel	DTaP	6 weeks–6 years	1–5
 Infanrix	DTaP	6 weeks–6 years	1–5

# DTaP – Combination Vaccines

Vaccine Product	Component(s)	Age Indication	Dose in DTaP Series
<b>Pediarix (GSK)</b>	DTaP-HepB-IPV	6 wks–6 yrs	1–3
<b>Pentacel (SP)</b>	DTaP-IPV/Hib	6 wks–4 yrs	1–4
<b>Vaxelis (Merck)</b>	DTaP-IPV-Hib-HepB	6 wks–4 yrs	1–3
<b>Kinrix (GSK), Quadracel (SP)</b>	DTaP-IPV	4 yrs–6 yrs	5

# DTaP Vaccine Efficacy

- **A complete 5-dose vaccine series has efficacy of:**
  - Greater than 99% against tetanus
  - 97% against diphtheria
  - 98% against pertussis within first year after last dose, 71% at 5 years after last dose
- **There is no preference for one DTaP vaccine over the other.**



**6 Weeks Through 6 Years**



**7 years  
or older**

- DTaP should not be administered to anyone 7 years or older.
  - Should receive the Tdap or Td vaccines

# DTaP Vaccine Recommendations



[Print](#)



2024 Immunization Schedules are now available and effective immediately.

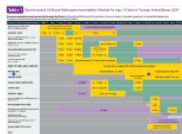
Reminder: the schedules summarize final recommendations that were previously adopted and made official by the CDC director.

- [Child and Adolescent Recommended Immunization Schedule, 2024](#)
- [Adult Recommended Immunization Schedule, 2024](#)

### For Healthcare Providers

#### Child and Adolescent Schedule

Recommended vaccination schedule for ages 18 years or younger



[Birth to 18 Years](#)

#### Clinical Vaccination Resources

[Download Schedule App for Healthcare Providers](#)

[Vaccination Resources for Healthcare Providers](#)

#### Adult Schedule

Recommended vaccination schedule for ages 19 years or older



[19 Years or Older](#)

#### Interim COVID-19 Immunization Schedule for Ages 6 months and older

Guidance for COVID-19 vaccination schedules based on age and medical condition


[COVID-19 Vaccination Schedule](#)


# DTaP Vaccination Schedule (1)


**Table 1** Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

**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).

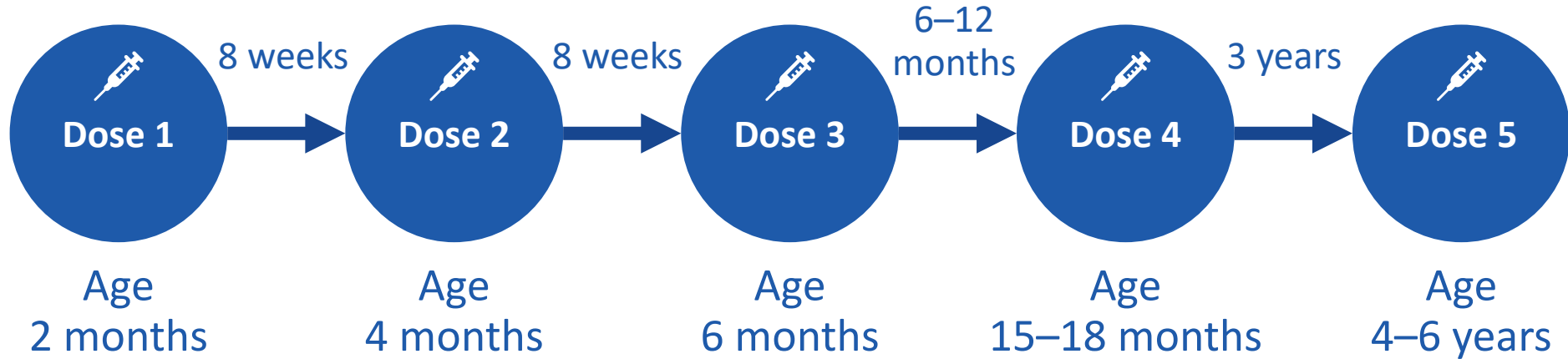
Vaccine and other immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs
Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	3 <sup>rd</sup> dose			← 4 <sup>th</sup> dose →				5 <sup>th</sup> dose					

 Range of recommended ages for all children

 Range of recommended ages for catch-up vaccination

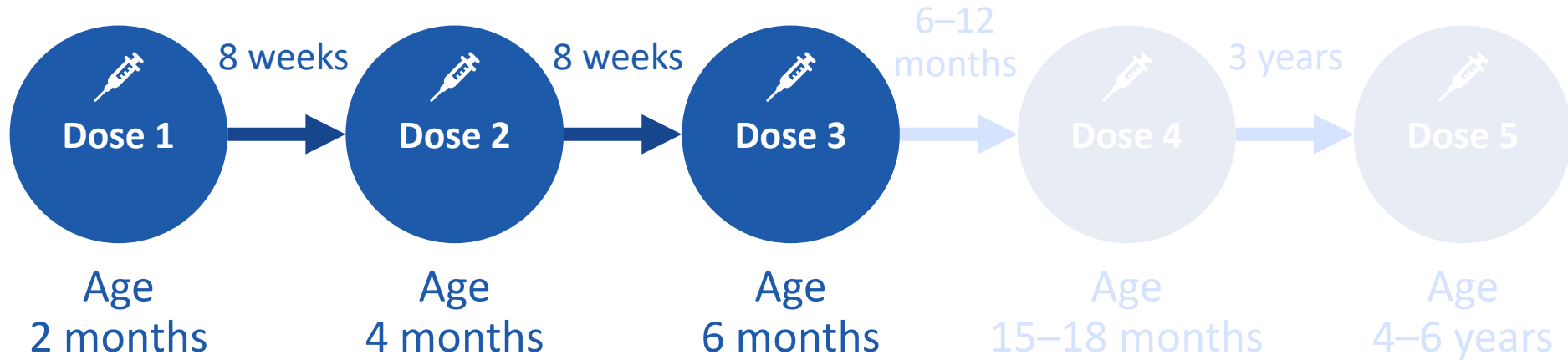
 No recommendation/ not applicable

# DTaP Vaccination Schedule with Intervals

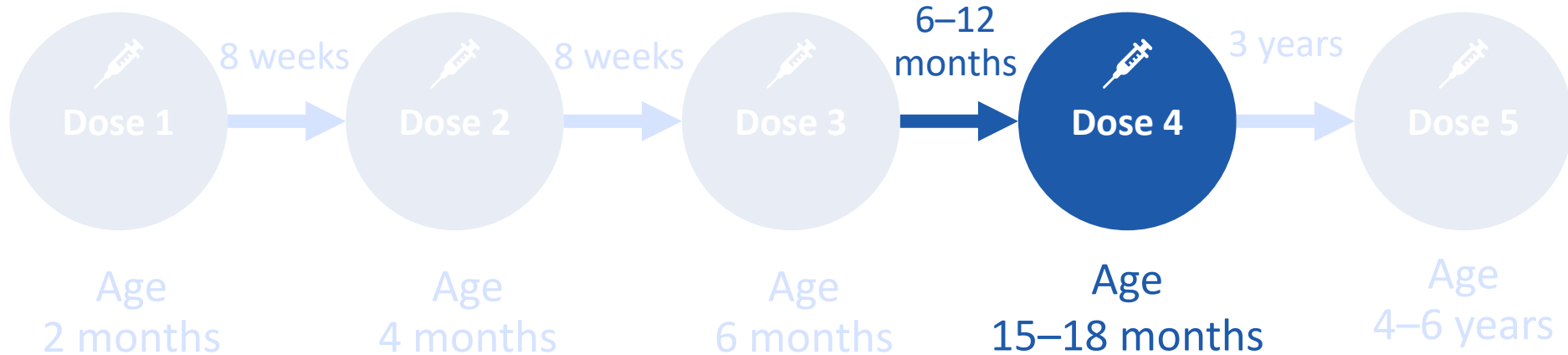




# DTaP Vaccination Schedule – Doses 1 through 3



# DTaP Vaccination Schedule – Dose 4



# DTaP Vaccination – Dose 4 Considerations

**Table 1** Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

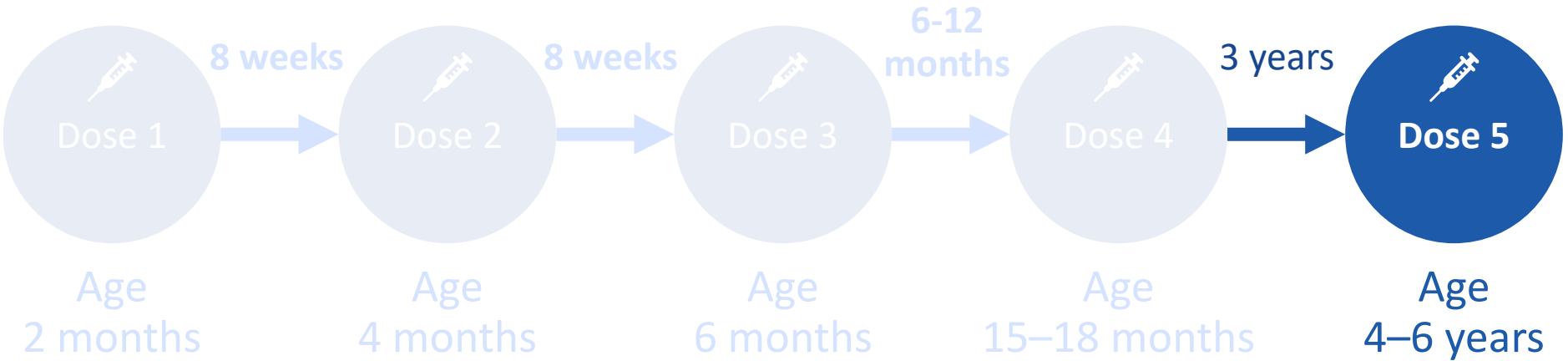
**These recommendations must be read with the notes that follow.** For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars. To determine minimum intervals between doses, see the catch-up schedule (Table 2).

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Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	3 <sup>rd</sup> dose			← 4 <sup>th</sup> dose →				5 <sup>th</sup> dose					

Range of recommended ages for all children
  Range of recommended ages for catch-up vaccination
  No recommendation/ not applicable

- **4<sup>th</sup> dose may be given earlier if**
  - Child is at least 12 months of age, **and**
  - At least 6 months since DTaP dose 3, **and**
  - Child unlikely to return at 15–18 months of age

# DTaP Vaccination Schedule – Dose 5





# DTaP Vaccine – Dose 5 Considerations (1)


**Table 1** Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

**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).

Vaccine and other immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs
Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	3 <sup>rd</sup> dose			← 4 <sup>th</sup> dose →				5 <sup>th</sup> dose					

 Range of recommended ages for all children

 Range of recommended ages for catch-up vaccination

 No recommendation/ not applicable


- For those under 7 years of age, 5<sup>th</sup> dose of DTaP is not necessary if
  - 4<sup>th</sup> dose administered anytime at 4 years of age or older
 and
  - 4<sup>th</sup> dose at least 6 months after the 3<sup>rd</sup> dose


# DTaP Vaccine – Dose 5 Considerations (2)


**Table 1** Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

**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).

Vaccine and other immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs
Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	3 <sup>rd</sup> dose			← 4 <sup>th</sup> dose →				5 <sup>th</sup> dose					

 Range of recommended ages for all children

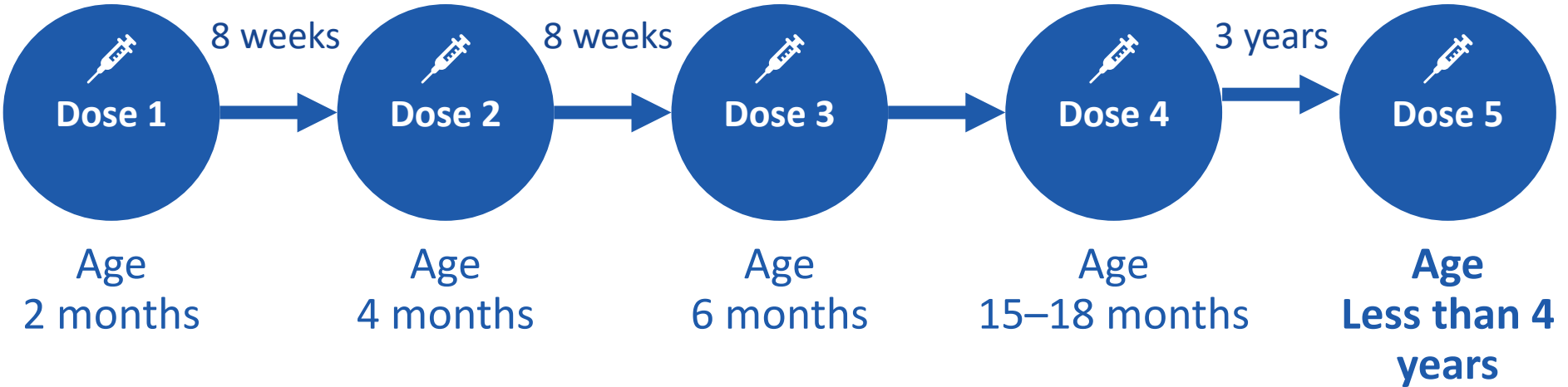
 Range of recommended ages for catch-up vaccination

 No recommendation/ not applicable

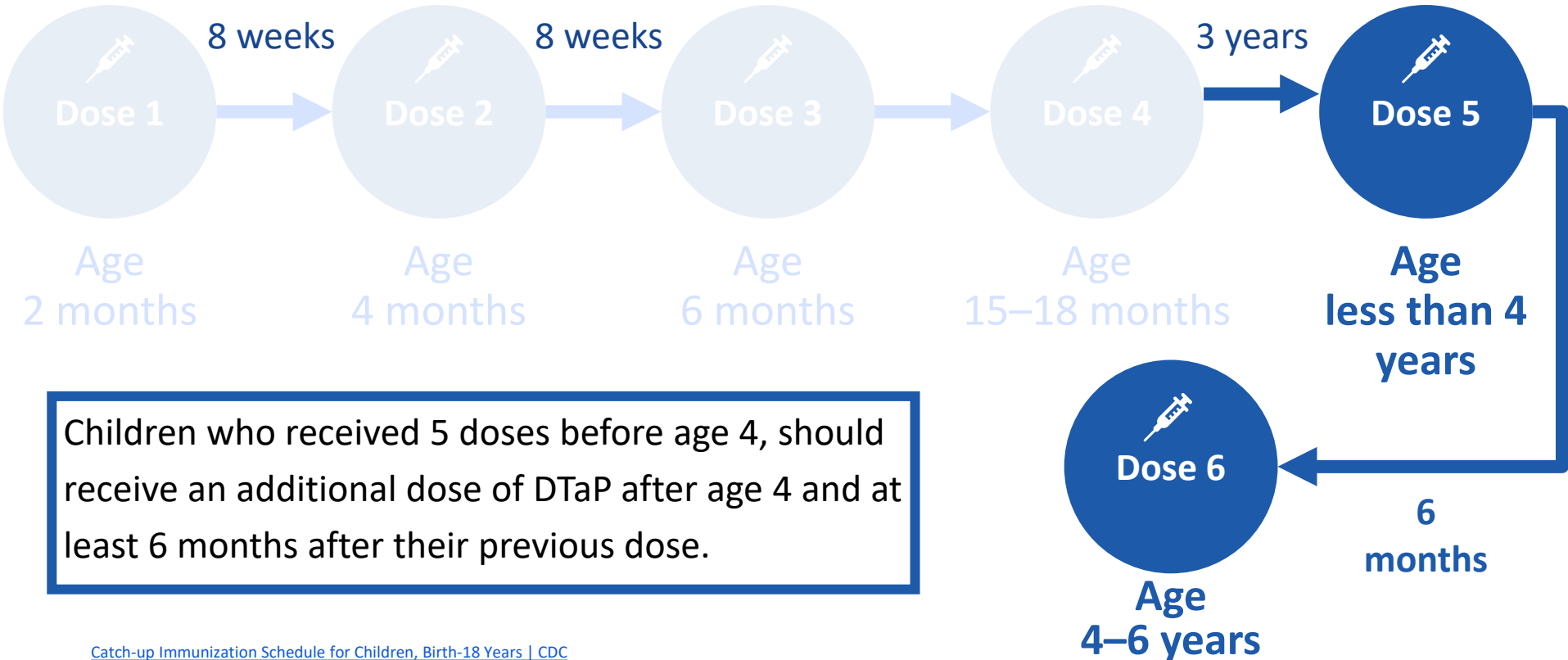
DTaP products **not approved** for 5<sup>th</sup> dose:



# DTaP Vaccine – Dose 5 Considerations (3)



# DTaP Vaccine – Dose 5 Considerations (4)







# DTaP Vaccination Schedule – Catch-up Vaccination


**Table 1** Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

**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).

Vaccine and other immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs
Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	3 <sup>rd</sup> dose			← 4 <sup>th</sup> dose →				5 <sup>th</sup> dose					

 Range of recommended ages for all children

 Range of recommended ages for catch-up vaccination

 No recommendation/ not applicable

# DTaP Accelerated Schedule

Dose	Routine Age	Minimum Interval to Next Dose
<b>Primary 1</b>	2 months	4 weeks
<b>Primary 2</b>	4 months	4 weeks
<b>Primary 3</b>	6 months	6 months

# DTaP – Combination Vaccine Considerations

Vaccine Product	Component(s)	Age Indication	Dose in DTaP Series
<b>Pediarix (GSK)</b>	DTaP-HepB-IPV	6 wks–6 yrs	1–3
<b>Pentacel (SP)</b>	DTaP-IPV/Hib	6 wks–4 yrs	1–4
<b>Vaxelis (Merck)</b>	DTaP-IPV-Hib-HepB	6 wks–4 yrs	1–3
<b>Kinrix (GSK), Quadracel (SP)</b>	DTaP-IPV	4 yrs–6 yrs	5

# DTaP Vaccine - Pediarix

Vaccine Product	Component(s)	Age Indication	Dose in DTaP Series
<b>Pediarix (GSK)</b>	DTaP-HepB-IPV	6 wks–6 yrs	1–3
Pentacel (SP)	DTaP-IPV/Hib	6 wks–4 yrs	1–4
Vaxelis (Merck)	DTaP-IPV-Hib-HepB	6 wks–4 yrs	1–3
Kinrix (GSK), Quadracel (SP)	DTaP-IPV	4 yrs–6 yrs	5

# Pediarix

- **Components: DTaP, HepB, and IPV**
- **Licensed for:**
  - Children 6 weeks through 6 years of age
  - Doses 1–3
- **Do not use for dose 4 or 5**
- **Minimum age is 6 weeks**
  - Cannot be used for the birth dose of HepB
- **Can be given to infants who received a birth dose of hepatitis B vaccine**
  - Total of 4 doses of HepB vaccine

# DTaP Vaccine - Pentacel

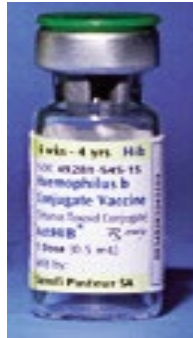
Vaccine Product	Component(s)	Age Indication	Dose in DTaP Series
Pediarix (GSK)	DTaP-HepB-IPV	6 wks–6 yrs	1–3
<b>Pentacel (SP)</b>	DTaP-IPV/Hib	6 wks–4 yrs	<b>1–4</b>
Vaxelis (Merck)	DTaP-IPV-Hib-HepB	6 wks–4 yrs	1–3
Kinrix (GSK), Quadracel (SP)	DTaP-IPV	4 yrs–6 yrs	5

# Pentacel

- **Components: DTaP, IPV, and Hib**
- **Licensed for:**
  - Children 6 weeks through 4 years of age
  - Doses 1–4
- **Do not use for dose 5**

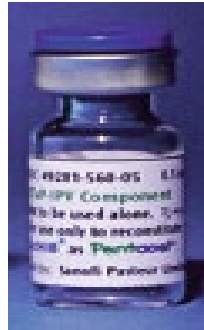
# Vaccine Preparation: DTaP-IPV/Hib (Pentacel)

- Must be reconstituted (mixed) prior to administration
- Use *ONLY* the *manufacturer-supplied* vaccine diluent (DTaP-IPV)



Hib vaccine

+



DTaP-IPV diluent

=



Pentacel vaccine



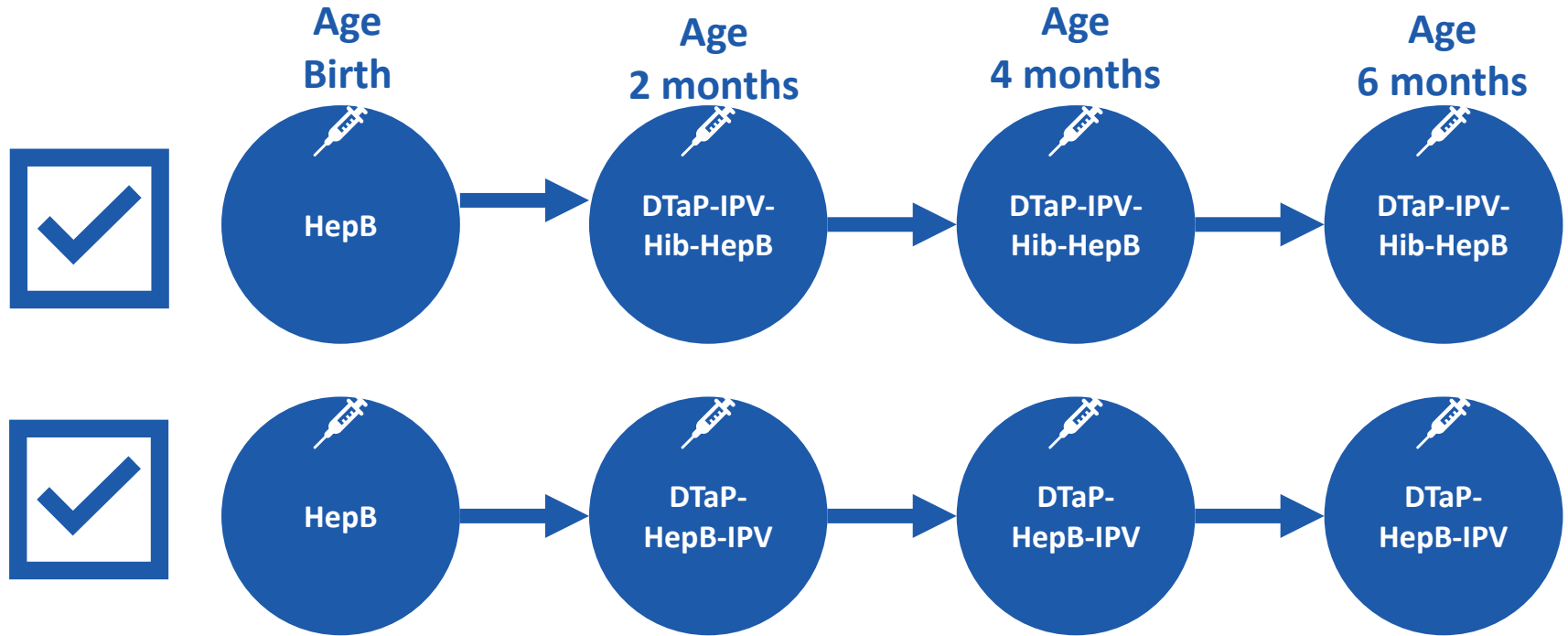
# DTaP Vaccine - Vaxelis

Vaccine Product	Component(s)	Age Indication	Dose in DTaP Series
Pediarix (GSK)	DTaP-HepB-IPV	6 wks–6 yrs	1–3
Pentacel (SP)	DTaP-IPV/Hib	6 wks–4 yrs	1–4
<b>Vaxelis (Merck)</b>	DTaP-IPV-Hib-HepB	6 wks–4 yrs	1–3
Kinrix (GSK), Quadracel (SP)	DTaP-IPV	4 yrs–6 yrs	5

# Vaxelis

- **Components: DTaP, IPV, Hib, HepB**
- **Licensed for:**
  - Children 6 weeks through 4 years
  - Doses 1–3
- **Do not use for dose 4 or 5**
- **Minimum age is 6 weeks**
  - Cannot be used for the birth dose of HepB
- **Can give to infants who received a birth dose of HepB vaccine**
  - Total of 4 doses of HepB vaccine

# DTaP Vaccination Schedule – Pediarix and Vaxelis



DTaP-IPV-Hib-HepB = Vaxelis

DTaP-HepB-IPV = Pediarix

# DTaP Vaccines - Kinrix and Quadracel

Vaccine Product	Component(s)	Age Indication	Dose in DTaP Series
Pediarix (GSK)	DTaP-HepB-IPV	6 wks–6 yrs	1–3
Pentacel (SP)	DTaP-IPV/Hib	6 wks–4 yrs	1–4
Vaxelis (Merck)	DTaP-IPV-Hib-HepB	6 wks–4 yrs	1–3
<b>Kinrix (GSK), Quadracel (SP)</b>	DTaP-IPV	4 yrs–6 yrs	5

# DTaP-IPV (Kinrix and Quadracel)

- **Components: DTaP and IPV**
- **Licensed for:**
  - Children 4 through 6 years of age
  - Dose 5 only
- **Do not use for dose 1, 2, 3, or 4.**

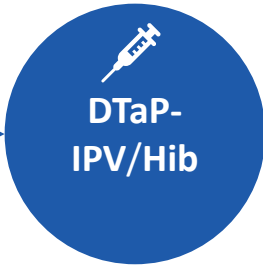
# DTaP Vaccination Schedule – Pentacel, Kinrix, Quadracel



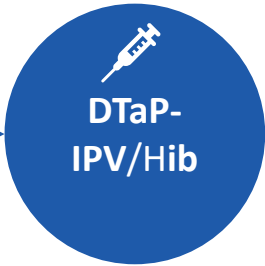
Age  
2 months



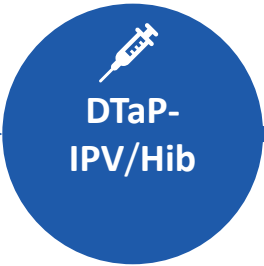
Age  
4 months



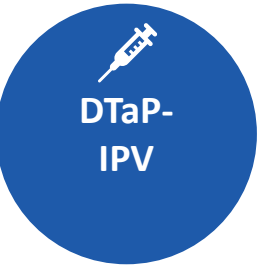
Age  
6 months



Age  
15–18 months



Age  
4–6 years



DTaP-IPV/Hib = Pentacel

DTaP-IPV = Kinrix or Quadracel

# Interchangeability of Different DTaP Vaccine Brands

- **Whenever feasible, the same DTaP vaccine should be used for all doses of the series.**
- **Limited data suggest that “mix and match” DTaP schedules do not adversely affect safety and immunogenicity.**
- **If the vaccine used for earlier doses is not known or not available, any brand may be used to complete the series.**



## Knowledge Check

A 4-month-old infant presents for a routine well child visit and inadvertently receives Tdap instead of DTaP.

Does this dose need to be repeated?

A. Yes

B. No





## Answer

A 4-month-old infant presents for a routine well child visit and inadvertently receives Tdap instead of DTaP.

Does this dose need to be repeated?

**A. Yes** ←

B. No

# Vaccine Administration Errors (1)

**Table 1** Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

**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).

Vaccine and other immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs
Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	3 <sup>rd</sup> dose			← 4 <sup>th</sup> dose →				5 <sup>th</sup> dose					



Tdap

- If Tdap is inadvertently administered as Dose 1, 2 or 3 of DTaP series
  - Tdap dose is not valid
  - Repeat with DTaP

# Vaccine Administration Errors (2)

**Table 1** Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

**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).

Vaccine and other immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs
Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	3 <sup>rd</sup> dose			←←← 4 <sup>th</sup> dose →→→				5 <sup>th</sup> dose					

- If Tdap is inadvertently administered as Dose 4 of the DTaP series
  - Dose is valid and need not be repeated
  - DTaP should be administered as Dose 5.

# Vaccine Administration Errors (3)

**Table 1** Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

**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).

Vaccine and other immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs
Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	3 <sup>rd</sup> dose			← 4 <sup>th</sup> dose →				5 <sup>th</sup> dose					

- If Tdap is inadvertently administered as Dose 5 of the DTaP series
  - Dose is valid and need not be repeated

## Vaccine Administration Errors (4)

- Health care providers are strongly encouraged to report vaccine administration errors to VAERS.

The logo for the Vaccine Adverse Event Reporting System (VAERS) consists of the letters "VAERS" in a bold, blue, sans-serif font. The letters are closely spaced and have a slight shadow effect.

Vaccine Adverse Event Reporting System

[www.vaers.hhs.gov](http://www.vaers.hhs.gov)



# Tdap/Td Vaccines (1)

Vaccine Product	Component(s)	Use for Ages
Boostrix	Tdap	10 years and older
Adacel	Tdap	10 through 64 years
TDVAX	Td	7 years and older
TENIVAC	Td	7 years and older

## Tdap/Td Vaccines (2)

Vaccine Product	Component(s)	FDA Approved Ages
➔ Boostrix	Tdap	10 years and older
➔ Adacel	Tdap	10 through 64 years
TDVAX	Td	7 years and older
TENIVAC	Td	7 years and older

## Tdap/Td Vaccines (3)

Vaccine Product	Component(s)	FDA Approved Ages
Boostrix	Tdap	10 years and older
Adacel	Tdap	10 through 64 years
 TDVAX	Td	7 years and older
 TENIVAC	Td	7 years and older

- **TdVax has been discontinued**
  - Sanofi trying to augment Tenivac supply
  - U.S. Td supply constrained throughout 2024



# Tdap/Td Vaccination Schedules

**Table 1** Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

**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).

Vaccine and other immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs
Tetanus, diphtheria, acellular pertussis (Tdap ≥7 yrs)	No recommendation/not applicable												1 dose	Range of recommended ages for certain high-risk groups			

Range of recommended ages for all children
  Range of recommended ages for catch-up vaccination
  Range of recommended ages for certain high-risk groups
  No recommendation/not applicable

**Table 1** Recommended Adult Immunization Schedule by Age Group, United States, 2024

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
Tetanus, diphtheria, pertussis (Tdap or Td)	1 dose Tdap each pregnancy; 1 dose Td/Tdap for wound management (see notes)			
	1 dose Tdap, then Td or Tdap booster every 10 years			


Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of immunity
  Recommended vaccination for adults with an additional risk factor or another indication


# Tdap Child and Adolescent Vaccination Schedule


**Table 1** Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024


**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).

Vaccine and other immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs
Tetanus, diphtheria, acellular pertussis (Tdap ≥7 yrs)	No recommendation/not applicable												1 dose	Range of recommended ages for certain high-risk groups			

 Range of recommended ages for all children

 Range of recommended ages for catch-up vaccination

 Range of recommended ages for certain high-risk groups


 No recommendation/not applicable


# Tdap Vaccine Child and Adolescent Booster Dose


**Table 1** Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024


**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).

Vaccine and other immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs	
Tetanus, diphtheria, acellular pertussis (Tdap ≥7 yrs)	No recommendation/not applicable													1 dose	Range of recommended ages for certain high-risk groups			

 Range of recommended ages for all children

 Range of recommended ages for catch-up vaccination

 Range of recommended ages for certain high-risk groups

 No recommendation/not applicable

- A single dose of Tdap is routinely recommended for adolescents 11 or 12 years of age.

# Tdap – Catch-up Vaccination (1)

**Table 1** Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

**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).

Vaccine and other immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs
Tetanus, diphtheria, acellular pertussis (Tdap ≥7 yrs)	No recommendation/not applicable												Range of recommended ages for catch-up vaccination	Range of recommended ages for all children (1 dose)	Range of recommended ages for certain high-risk groups		

Range of recommended ages for all children

Range of recommended ages for catch-up vaccination

Range of recommended ages for certain high-risk groups

No recommendation/not applicable


- Children 7 through 10 years of age who are not up to date
  - Recommended for catch-up vaccination with Tdap


# Tdap – Catch-up Vaccination (2)


**Table 1** Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024


**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).

Vaccine and other immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs
Tetanus, diphtheria, acellular pertussis (Tdap ≥7 yrs)	No recommendation/not applicable												1 dose	Range of recommended ages for catch-up vaccination			

 Range of recommended ages for all children

 Range of recommended ages for catch-up vaccination

 Range of recommended ages for certain high-risk groups

 No recommendation/not applicable


- Catch-up recommendations are available for adolescents 13 through 18 years of age.


# Tdap Vaccine – Additional Considerations


**Table 1** Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024


**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).

Vaccine and other immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs
Tetanus, diphtheria, acellular pertussis (Tdap ≥7 yrs)	No recommendation/not applicable													1 dose	Range of recommended ages for certain high-risk groups		

 Range of recommended ages for all children

 Range of recommended ages for catch-up vaccination

 Range of recommended ages for certain high-risk groups


 No recommendation/not applicable


- Tdap is recommended during each pregnancy.
- Tdap or Td may be recommended for wound management.

# Tdap/Td Vaccine Adult Vaccination Schedule (1)

**Table 1** Recommended Adult Immunization Schedule by Age Group, United States, 2024

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
Tetanus, diphtheria, pertussis (Tdap or Td)	1 dose Tdap each pregnancy; 1 dose Td/Tdap for wound management (see notes)			
	1 dose Tdap, then Td or Tdap booster every 10 years			


 Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of immunity


 Recommended vaccination for adults with an additional risk factor or another indication

# Tdap/Td Vaccine Adult Vaccination Schedule (2)

**Table 1** Recommended Adult Immunization Schedule by Age Group, United States, 2024

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
Tetanus, diphtheria, pertussis (Tdap or Td)	1 dose Tdap each pregnancy; 1 dose Td/Tdap for wound management (see notes)			
	1 dose Tdap, then Td or Tdap booster every 10 years			

 Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of immunity

 Recommended vaccination for adults with an additional risk factor or another indication


- **1 dose of Tdap recommended for adults**
  - Who did not previously receive a dose of Tdap
- **Booster dose of Td or Tdap**
  - Every 10 years for all adults throughout the adult lifespan




# Tdap/Td Vaccine Recommendations

**Table 1** Recommended Adult Immunization Schedule by Age Group, United States, 2024

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
Tetanus, diphtheria, pertussis (Tdap or Td)	1 dose Tdap each pregnancy; 1 dose Td/Tdap for wound management (see notes)			
	1 dose Tdap, then Td or Tdap booster every 10 years			

 Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of immunity

 Recommended vaccination for adults with an additional risk factor or another indication

- **For pregnant persons**
  - 1 dose Tdap recommended during each pregnancy
    - Preferably in early part of gestational weeks 27–36
- **For wound management**
  - 1 dose of Tdap or Td may be recommended

# Tdap Recommendations: Adolescents

- **Routinely recommended**
  - Age 11 or 12 years
- **Catch-up**
  - Ages 13 years and older  
not already vaccinated



# Tdap Recommendations: Non-Pregnant Adults

- **1 dose Tdap:**
  - Not previously vaccinated with Tdap or
  - Unknown vaccination status
- **Then, 1 dose Tdap or Td every 10 years**





## Knowledge Check

A 21-year-old woman has a history of a complete series of DTaP vaccine and a dose of Tdap at 11 years of age. She is not pregnant.

May she receive a dose of Tdap at her next well visit?

- A. Yes
- B. No



## Knowledge Check

A 21-year-old woman has a history of a complete series of DTaP vaccine and a dose of Tdap at 11 years of age. She is not pregnant.

May she receive a dose of Tdap at her next well visit?

**A. Yes** ←

B. No



## Knowledge Check

A 45-year-old woman taking Infliximab for Crohn's Disease presents for a Tdap/Td booster.

May she receive a dose of Tdap/Td at this visit?

- A. Yes
- B. No



## Answer

A 45-year-old woman taking Infliximab for Crohn's Disease presents for a Tdap/Td booster.

May she receive a dose of Tdap/Td at this visit?

**A. Yes** ←

B. No

Tdap/Td are non-live vaccines and may be administered either simultaneously with or at any interval before or after receipt of an antibody-containing product.

**5**

## **Clinical Considerations**



# Tdap Recommendations: Children 7 Through 10 Years of Age

- **Children 7–10 years of age who have not completed a primary DTaP series should receive Tdap.\***
- **For those who received Tdap at 7–9 years of age, they need the routine adolescent Tdap dose at 11 or 12 years of age.**
- **Children who get Tdap at age 10 do not need a further dose.**



\*Off-label ACIP recommendation among children 7-9 years of age

# Tdap Recommendations: Pregnant People

- **Administer 1 dose Tdap**
  - Each pregnancy
  - Regardless of prior vaccination history
  - During weeks 27 through 36 of pregnancy, preferably early in that range
- **Antibodies provide protection to the infant that lasts after infant is born.**
- **Postpartum mother who is unvaccinated or vaccination status is unknown:**
  - Administer Tdap

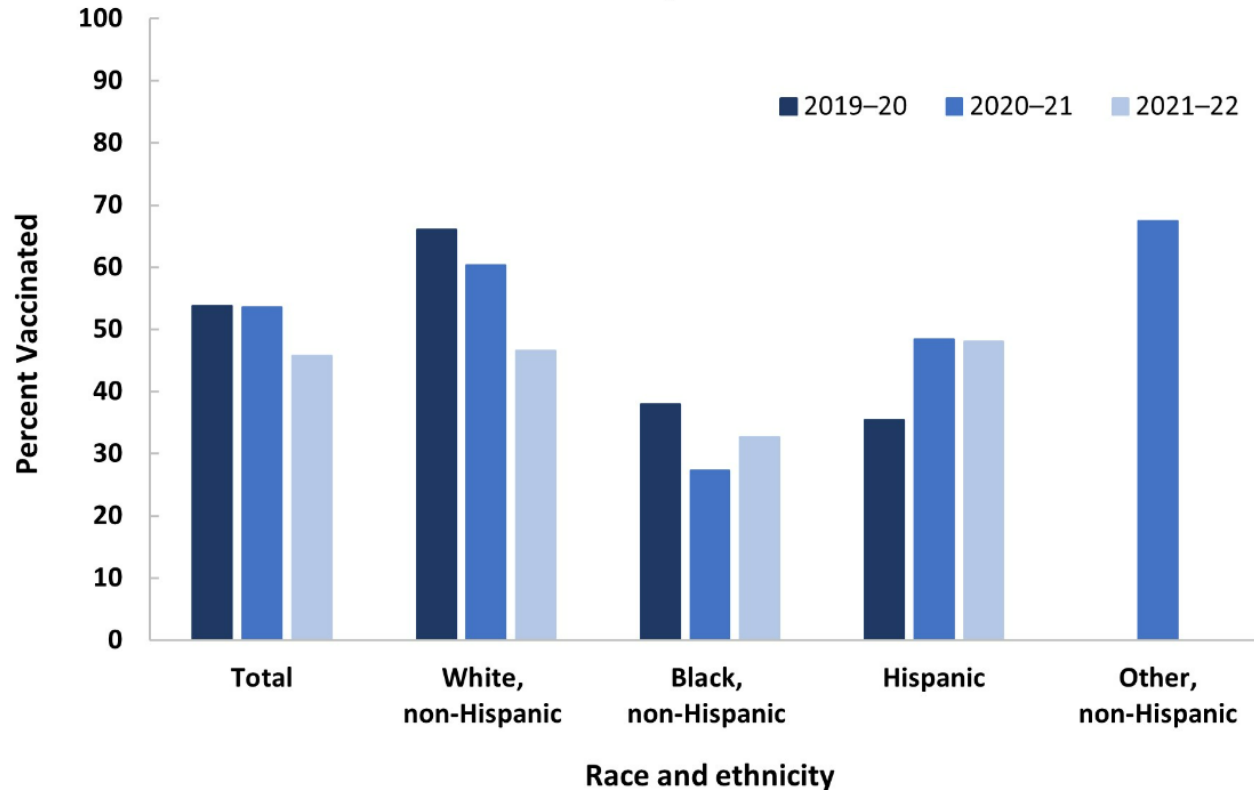


# Tdap Recommendations to Protect Infants

- Tdap vaccination during pregnancy protects infants too young for routine DTaP vaccination.
- Maternal vaccination during pregnancy is 69%–93% effective at preventing disease in young infants.
- During 2022-2023, only 55.4% received Tdap during pregnancy.
- People who will have close contact with infants should be up to date with their pertussis vaccinations.



# Tdap Vaccination Coverage Among Pregnant People Varies by Race and Ethnicity



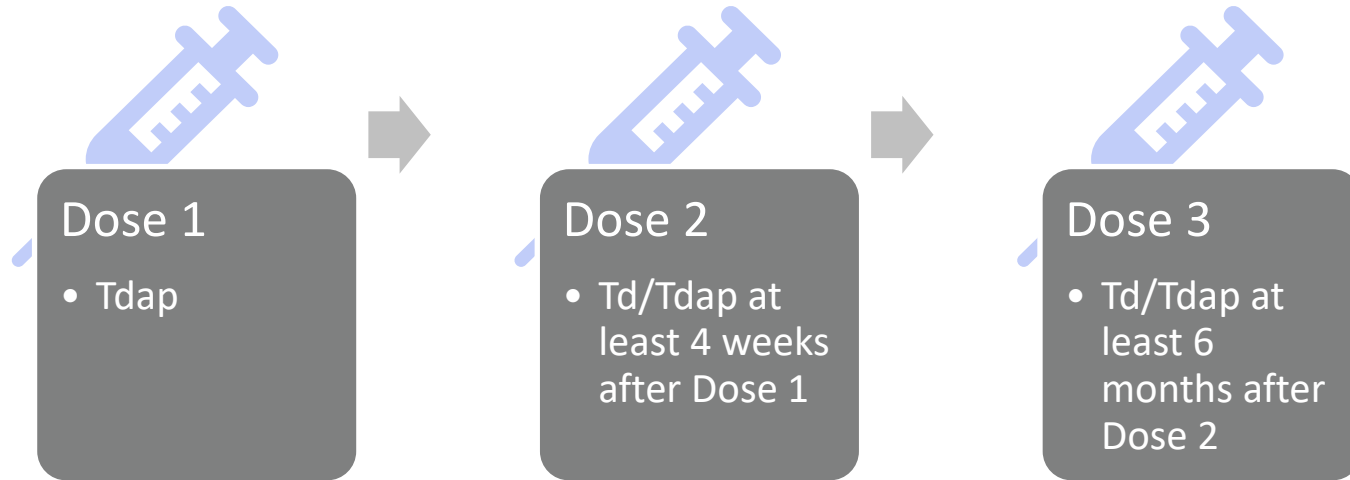
# Tdap for Adolescents or Adults Without History of DTP or DTaP

- All adolescents and adults should have documentation of a primary series of DTaP, DTP, or Tdap.
  - Td is acceptable only for those with a contraindication for pertussis vaccine.
- **Persons without documentation or who have never been vaccinated or have unknown status should receive a 3-dose primary series.**
  - 1 dose, preferably the first, should be Tdap.



# Tdap for Older Children and Adults Without History of DTaP

- Preferred schedule:



- Booster Td/Tdap every 10 years

# Tetanus Vaccination in Routine Wound Management (1)

- **The best ways to prevent tetanus are vaccination and wound management.**
- **There are steps healthcare providers can take during wound care to minimize the risk of tetanus.**
  - Provide appropriate wound care.
  - Evaluate the patient's tetanus vaccination status.
  - Assess the need for prophylactic tetanus immune globulin (TIG).
- **Antibiotics (topical or systemic) aren't recommended during wound care to protect against tetanus.**

# Tetanus Vaccination in Routine Wound Management (2)

- **Wounds can be categorized based on their tetanus exposure risk.**
- **Clean and minor wounds don't pose a major risk.**
- **Dirty or major wounds pose an increased risk.**
  - Penetrating or puncture wounds
  - Wounds containing dirt, soil, feces, or saliva (e.g., animal or human bites)
  - Wounds containing devitalized tissue:
    - Burns
    - Compound fractures
    - Crush injuries
    - Frostbite
    - Necrotic or gangrenous wounds



# Tetanus Vaccination in Routine Wound Management: Not Recommended



- **Regardless of wound type, no tetanus vaccination is needed if the patient meets both criteria below:**
  - Received last tetanus vaccination less than 5 years ago
  - Completed the primary vaccine series

# Tetanus Vaccination in Routine Wound Management: Recommended

- **For all wounds**
  - Unknown vaccine history
  - Unvaccinated people
  - Incomplete tetanus primary series
- **For clean and minor wounds**
  - People with complete tetanus primary series who received last tetanus vaccine 10 or more years ago
- **For dirty or major wounds**
  - People with complete tetanus primary series who received last tetanus vaccine 5 or more years ago

# Prophylactic Tetanus Immune Globulin (TIG) in Routine Wound Management

- **For clean and minor wounds**
  - TIG is never indicated for clean and minor wounds.
- **For dirty or major wounds**
  - People with an unknown tetanus vaccine history
  - People who have never received tetanus vaccines
  - People with an incomplete tetanus vaccine primary series
  - People with HIV
  - People with a severe immunodeficiency

6

**Safety**



## DTaP and Tdap Vaccines: Contraindications

- Severe allergic reaction (e.g., anaphylaxis) to vaccine component or following a prior dose
- Encephalopathy not due to another identifiable cause occurring within 7 days after pertussis vaccination

# DTaP and Tdap Vaccines: Precautions

- **Moderate or severe illness**
- **Guillain-Barré syndrome within 6 weeks after previous dose (tetanus vaccine specific)**
- **Arthus-type hypersensitivity reaction after a previous dose (diphtheria or tetanus vaccine specific)**
- **Progressive or unstable neurologic disorder (pertussis vaccine specific)**
  - Infantile spasms
  - Uncontrolled seizures
  - Progressive encephalopathy until a treatment regimen has been established and condition has stabilized

# Adverse Reactions



## Local reactions (pain, redness, swelling)

- DTaP: Up to 40%
- Tdap\*: 21– 66%

## Fever

- DTaP: Up to 27%
- Tdap: 1.4% (Tdap), 1.1% (Td)

\*Adverse reactions occur at approximately the same rate as Td alone (without acellular pertussis component).

# Adverse Reactions

- **Headache**
- **Fatigue**
- **Gastrointestinal symptoms**
- **Brachial neuritis**



# Adverse Reactions

- Headache
- Fatigue
- Gastrointestinal symptoms
- Brachial neuritis – **0.00075%**

# Adverse Reactions Following DTaP Dose 4 or 5

- **Local adverse reactions and fever increased**
- **Reports of swelling of entire limb**
  - Self-limited and resolves without sequelae
- **Limb swelling after dose 4 not a contraindication to dose 5**



**7**

## **Storage and Handling**

# DTaP and Tdap Vaccine Storage and Handling (1)


- Store DTaP and Tdap vaccines refrigerated between 2°C and 8°C (36°F and 46°F).

**Tenivac (Td)**

Store between 2°C and 8°C (35°F and 46°F)

**Ages:** 7 years and older  
**Presentation:** Single-dose vial or manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024




**Daptacel (DTaP)**

Store between 2°C and 8°C (36°F and 46°F)

**Ages:** 6 weeks through 6 years  
**Presentation:** Single-dose vial  
**Do Not Freeze**

Updated 3/6/2024




**Adacel (Tdap)**

Store between 2°C and 8°C (35°F and 46°F)

**Ages:** 7 years and older  
**Presentation:** Single-dose vial or manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024




**Boostrix (Tdap)**

Store between 2°C and 8°C (36°F and 46°F)

**Ages:** 7 years and older  
**Presentation:** Single-dose vial or manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024




**Infanrix (DTaP)**

Store between 2°C and 8°C (36°F and 46°F)

**Ages:** 6 weeks through 6 years  
**Presentation:** Manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024




**Quadracel (DTaP-IPV)**

Store between 2°C and 8°C (35°F and 46°F)

**Ages:** 4 through 6 years  
**Presentation:** Single-dose vial  
**Do Not Freeze**

Updated 3/6/2024




**Pentacel (DTaP-IPV-Hib)**

Store between 2°C and 8°C (35°F and 46°F)

**Ages:** 6 weeks through 4 years  
**Presentation:** Single-dose vial DTaP-IPV component and single-dose vial lyophilized ActHIB component  
**Do Not Freeze**  
**Beyond Use Time:** Use immediately after reconstitution

Updated 3/6/2024




**Kinrix (DTaP-IPV)**

Store between 2°C and 8°C (36°F and 46°F)

**Ages:** 4 through 6 years  
**Presentation:** Manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024




**Pediarix (DTaP-IPV-HepB)**

Store between 2°C and 8°C (36°F and 46°F)

**Ages:** 6 weeks through 6 years  
**Presentation:** Manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024




**Vaxelis (DTaP-IPV-HepB-Hib)**

Store between 2°C and 8°C (36°F and 46°F)

**Ages:** 6 weeks through 4 years  
**Presentation:** Single-dose vial OR manufacturer-filled syringe  
**Protect From Light**  
**Do Not Freeze**

Updated 3/6/2024



# DTaP and Tdap Vaccine Storage and Handling (2)


- Do not freeze vaccine or expose to freezing temperatures.

**Tenivac (Td)**

Store between 2°C and 8°C (35°F and 46°F)

**Ages:** 7 years and older  
**Presentation:** Single-dose vial or manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024




**Daptacel (DTaP)**

Store between 2°C and 8°C (36°F and 46°F)

**Ages:** 6 weeks through 6 years  
**Presentation:** Single-dose vial  
**Do Not Freeze**

Updated 3/6/2024




**Adacel (Tdap)**

Store between 2°C and 8°C (35°F and 46°F)

**Ages:** 7 years and older  
**Presentation:** Single-dose vial or manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024




**Boostrix (Tdap)**

Store between 2°C and 8°C (36°F and 46°F)

**Ages:** 7 years and older  
**Presentation:** Single-dose vial or manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024




**Infanrix (DTaP)**

Store between 2°C and 8°C (36°F and 46°F)

**Ages:** 6 weeks through 6 years  
**Presentation:** Manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024




**Quadracel (DTaP-IPV)**

Store between 2°C and 8°C (35°F and 46°F)

**Ages:** 4 through 6 years  
**Presentation:** Single-dose vial  
**Do Not Freeze**

Updated 3/6/2024




**Pentacel (DTaP-IPV-Hib)**

Store between 2°C and 8°C (35°F and 46°F)

**Ages:** 6 weeks through 4 years  
**Presentation:** Single-dose vial DTaP-IPV component and single-dose vial lyophilized ActHIB component  
**Do Not Freeze**  
**Beyond Use Time:** Use immediately after reconstitution

Updated 3/6/2024




**Kinrix (DTaP-IPV)**

Store between 2°C and 8°C (36°F and 46°F)

**Ages:** 4 through 6 years  
**Presentation:** Manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024




**Pediarix (DTaP-IPV-HepB)**

Store between 2°C and 8°C (36°F and 46°F)

**Ages:** 6 weeks through 6 years  
**Presentation:** Manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024




**Vaxelis (DTaP-IPV-HepB-Hib)**

Store between 2°C and 8°C (36°F and 46°F)

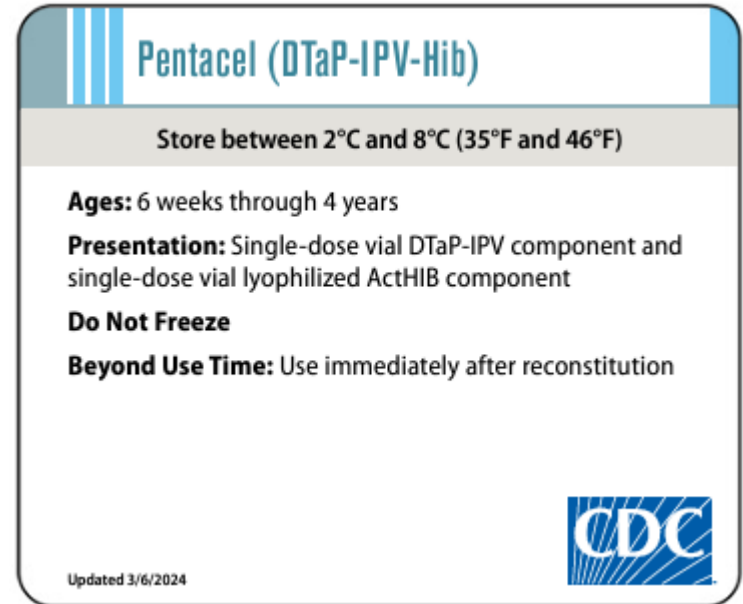
**Ages:** 6 weeks through 4 years  
**Presentation:** Single-dose vial OR manufacturer-filled syringe  
**Protect From Light**  
**Do Not Freeze**

Updated 3/6/2024



# DTaP and Tdap Vaccine Storage and Handling (3)

- For Pentacel only – requires reconstitution, the diluent and vaccine come packaged together.
  - Store them together in the refrigerator



**Pentacel (DTaP-IPV-Hib)**

Store between 2°C and 8°C (35°F and 46°F)


**Ages:** 6 weeks through 4 years

**Presentation:** Single-dose vial DTaP-IPV component and single-dose vial lyophilized ActHIB component

**Do Not Freeze**

**Beyond Use Time:** Use immediately after reconstitution

Updated 3/6/2024




# DTaP and Tdap Vaccine Storage and Handling (4)

- Store in the original packaging.

**Tenivac (Td)**

Store between 2°C and 8°C (35°F and 46°F)


**Ages:** 7 years and older  
**Presentation:** Single-dose vial or manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024 

**Daptacel (DTaP)**

Store between 2°C and 8°C (36°F and 46°F)


**Ages:** 6 weeks through 6 years  
**Presentation:** Single-dose vial  
**Do Not Freeze**

Updated 3/6/2024 

**Adacel (Tdap)**

Store between 2°C and 8°C (35°F and 46°F)


**Ages:** 7 years and older  
**Presentation:** Single-dose vial or manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024 

**Boostrix (Tdap)**

Store between 2°C and 8°C (36°F and 46°F)


**Ages:** 7 years and older  
**Presentation:** Single-dose vial or manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024 

**Infanrix (DTaP)**

Store between 2°C and 8°C (36°F and 46°F)


**Ages:** 6 weeks through 6 years  
**Presentation:** Manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024 

**Quadracel (DTaP-IPV)**

Store between 2°C and 8°C (35°F and 46°F)


**Ages:** 4 through 6 years  
**Presentation:** Single-dose vial  
**Do Not Freeze**

Updated 3/6/2024 

**Kinrix (DTaP-IPV)**

Store between 2°C and 8°C (36°F and 46°F)


**Ages:** 4 through 6 years  
**Presentation:** Manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024 

**Pediarix (DTaP-IPV-HepB)**

Store between 2°C and 8°C (36°F and 46°F)


**Ages:** 6 weeks through 6 years  
**Presentation:** Manufacturer-filled syringe  
**Do Not Freeze**

Updated 3/6/2024 

**Vaxelis (DTaP-IPV-HepB-Hib)**

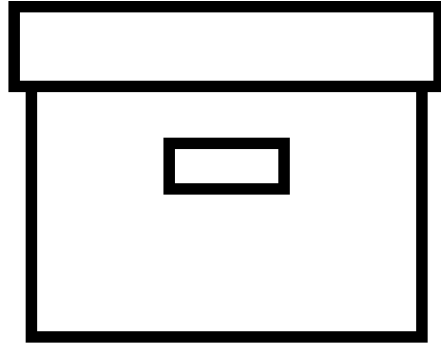
Store between 2°C and 8°C (36°F and 46°F)

**Ages:** 6 weeks through 4 years  
**Presentation:** Single-dose vial OR manufacturer-filled syringe  
**Protect From Light**  
**Do Not Freeze**

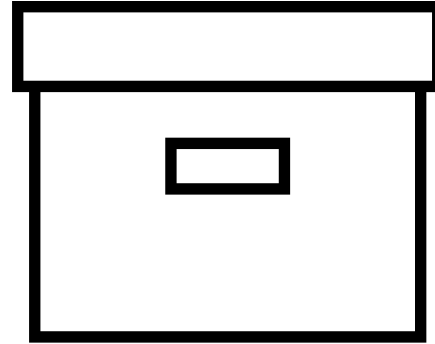
Updated 3/6/2024 

# DTaP and Tdap Vaccine Storage and Handling (5)

**DTaP**

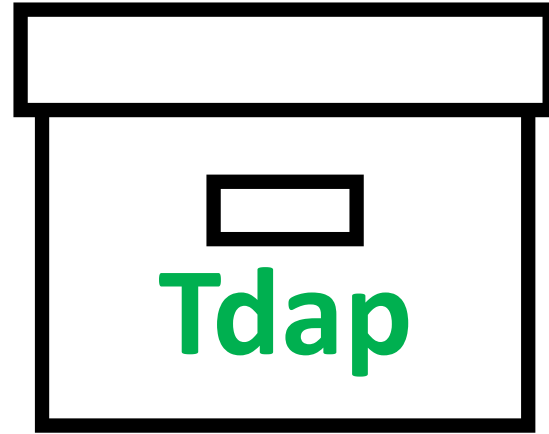
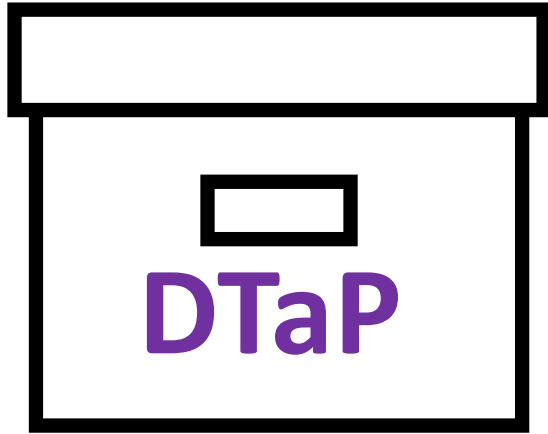


**Tdap**





# DTaP and Tdap Vaccine Storage and Handling (6)



# Continuing Education Information

- To claim continuing education (CE) for this course, please follow the steps below by July 1, 2026.
- Search and register for course **WD4810-072524** in **CDC TRAIN**.
- Pass the post-assessment at 80%.
- Complete the evaluation.
- Visit “Your Learning” to access your certificates and transcript.
- If you have any questions, contact **CDC TRAIN** at [train@cdc.gov](mailto:train@cdc.gov) or CE Coordinator, Melissa Barnett, at [MBarnett2@cdc.gov](mailto:MBarnett2@cdc.gov)



# Email Us Your Immunization Questions



**[nipinfo@cdc.gov](mailto:nipinfo@cdc.gov)**

# Thank You From Atlanta!

For more information, contact CDC  
1-800-CDC-INFO (232-4636)  
TTY: 1-888-232-6348 [www.cdc.gov](http://www.cdc.gov)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

