SOUTH DAKOTA DEPARTMENT OF HEALTH

The webinar will begin shortly.

Pertussis Awareness Webinar

Presenters

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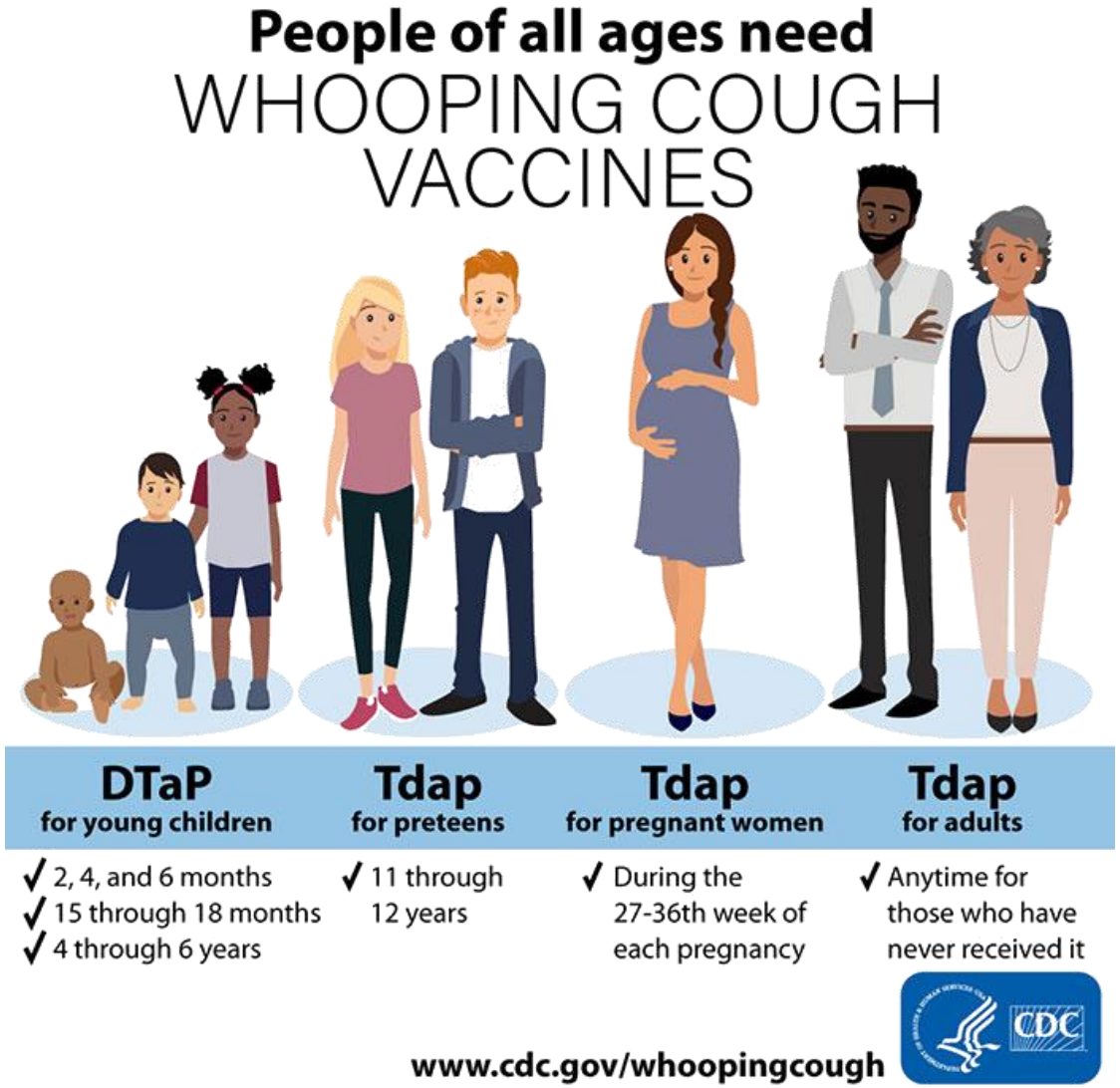
Disclaimer: If you are a member of the media, please disconnect now. Communication requests can be handled by emailing DOHmedia@state.sd.us

Epidemiology

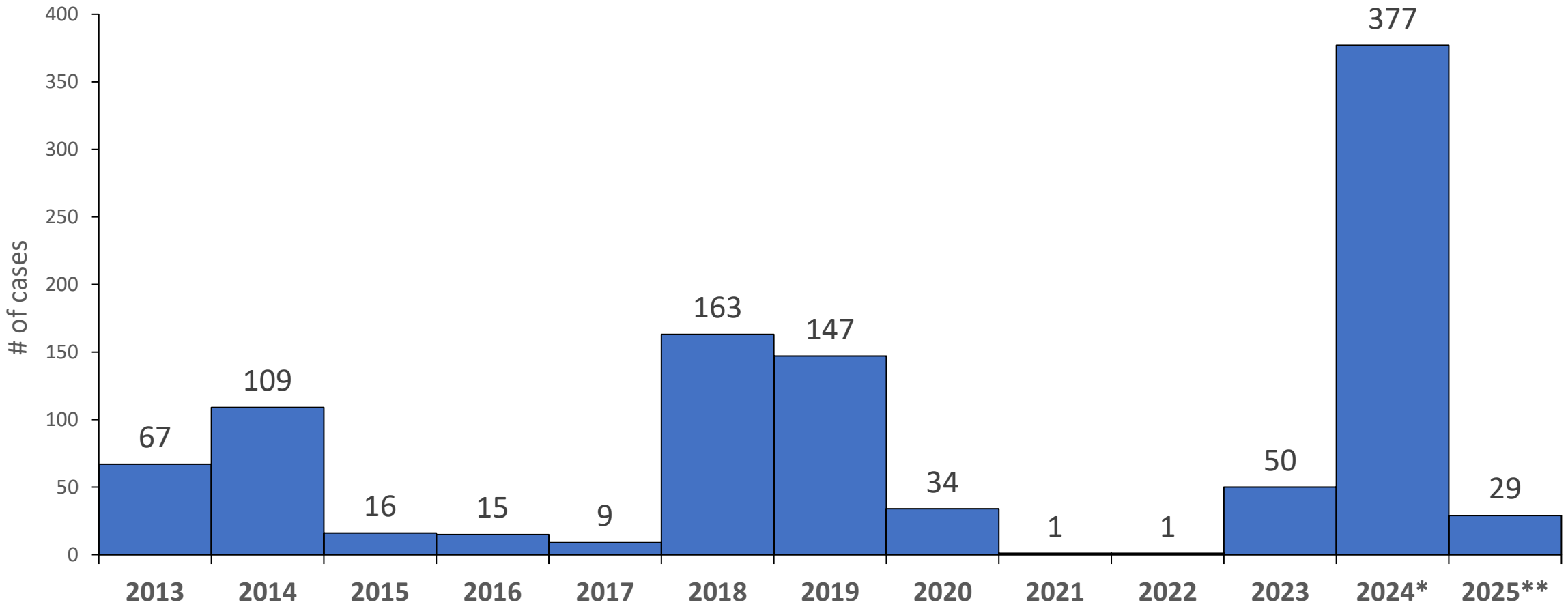
Pertussis

- Commonly known as **whooping cough**
- Respiratory disease caused by ***Bordetella pertussis***
  - The bacteria produces a toxin which damages the cilia in the respiratory tract, causing cough and other symptoms.
- **Incubation period:** 7−10 days (range: 5−21 days)
- **Symptoms:**
  - *Early*: Runny nose, low-grade fever if present, cough
  - *Later*: Coughing fits (paroxysm), high-pitched “whoop” (gasping), vomiting, struggling to breathe, turning blue from lack of oxygen (babies)
- **Treatment:** Antibiotics like azithromycin, clarithromycin, or erythromycin
- **Exclusion:** Exclude cases and symptomatic close contacts until:
  - After 5 days of antibiotics
  - After 21 days from cough onset (if no antibiotic treatment given)

Pertussis Vaccination



Pertussis – South Dakota, 2013–2025YTD



*Provisional Data
**YTD, as of Jan. 10

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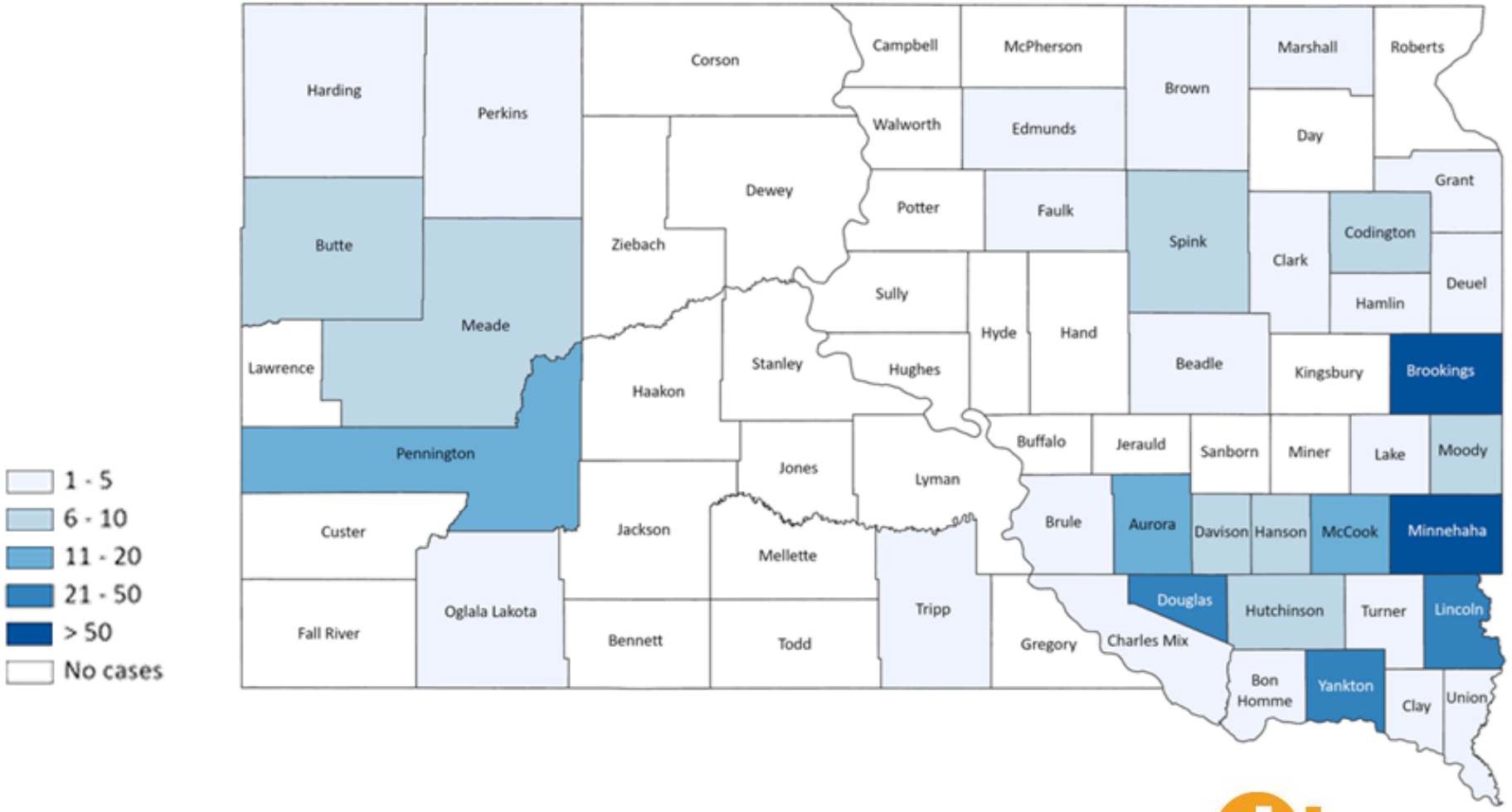
Pertussis – South Dakota 2024–2025YTD (*as of Jan. 10*)

Cases by County



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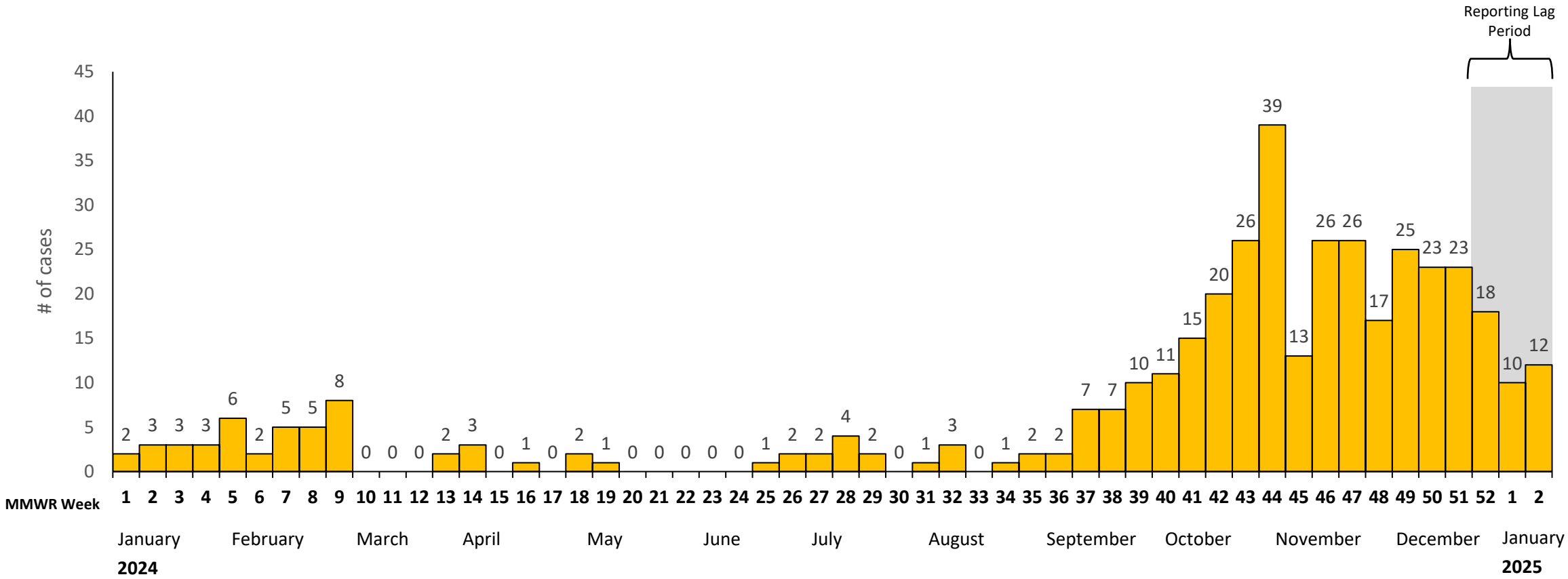
Pertussis – South Dakota 2024–2025YTD (*as of Jan. 10*)

Cases by Week



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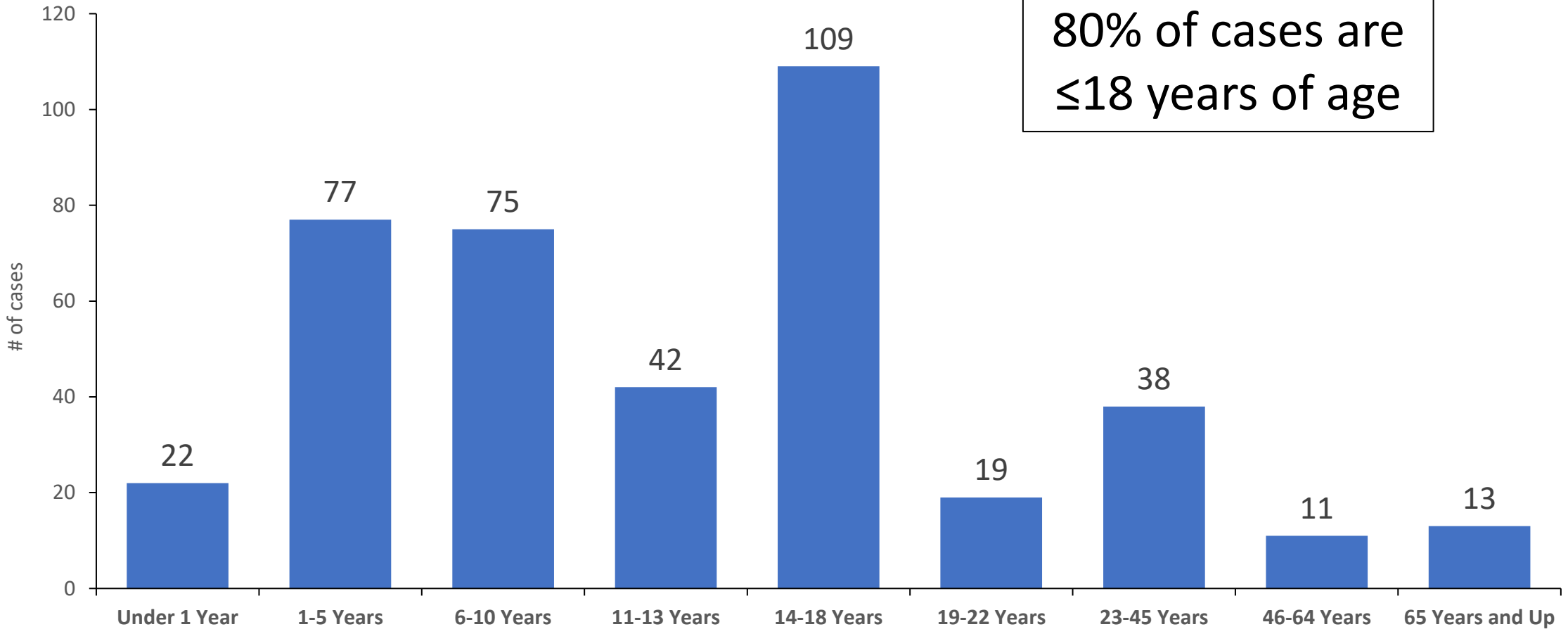
Pertussis – South Dakota 2024–2025YTD *(as of Jan. 10)*

Cases by Age



80% of cases are ≤18 years of age

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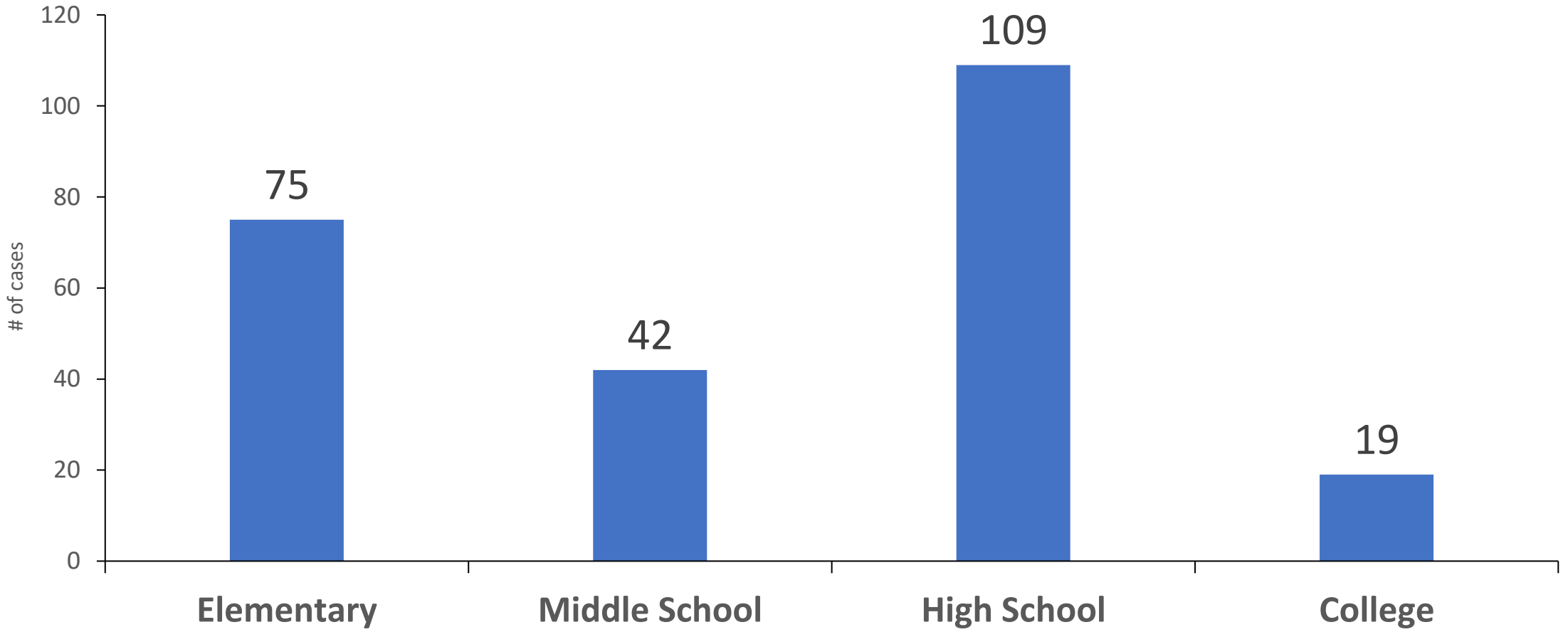
Pertussis – South Dakota 2024–2025YTD (*as of Jan. 10*)

Cases by School-Age Cohort



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Pertussis – South Dakota 2024–2025YTD (*as of Jan. 10*)

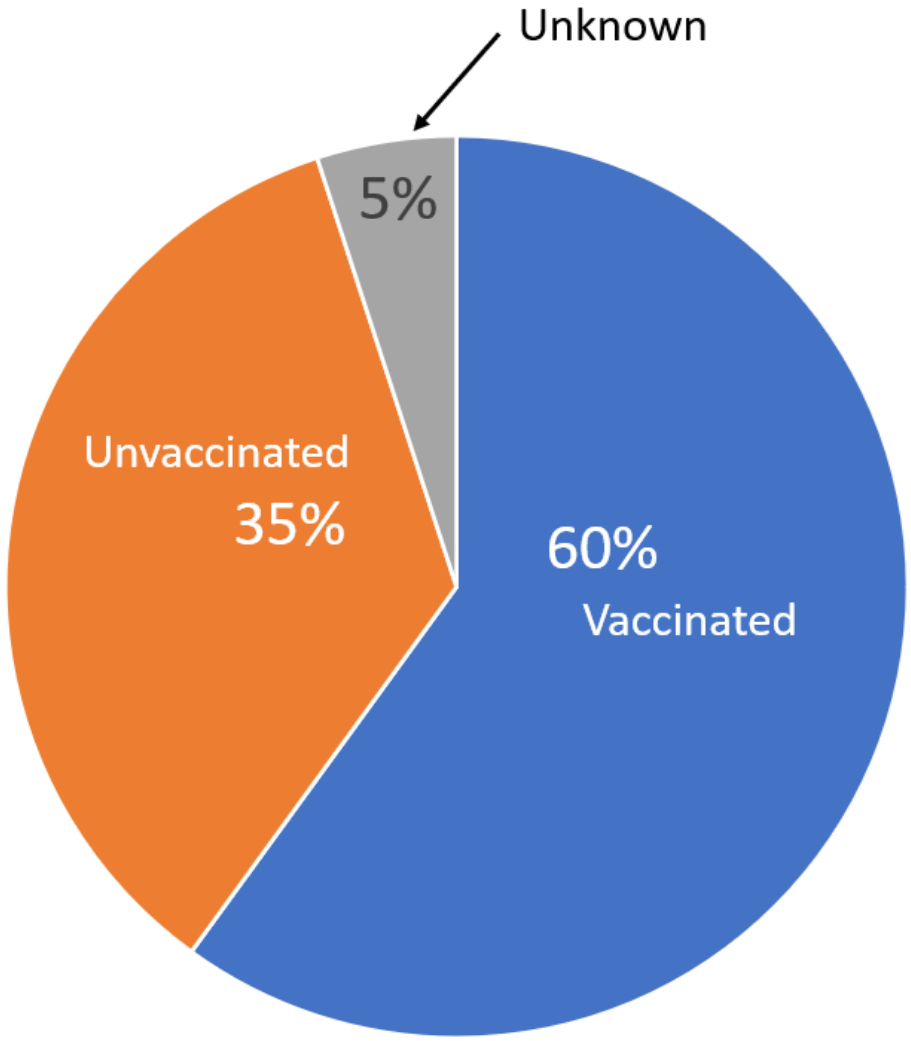
Outcomes

- **Hospitalizations:** 12
  - Includes 6 cases in children ≤18 years of age (83% not vaccinated)
- **Cases of pneumonia:** 14
  - 11/14 (78%) were children ≤18 years of age
- **Deaths:** 0
  - The most recent death occurred in 2023, in an infant <1 year of age

Pertussis – South Dakota 2024–2025YTD (*as of Jan. 10*)

Vaccination Status

- 35% unvaccinated



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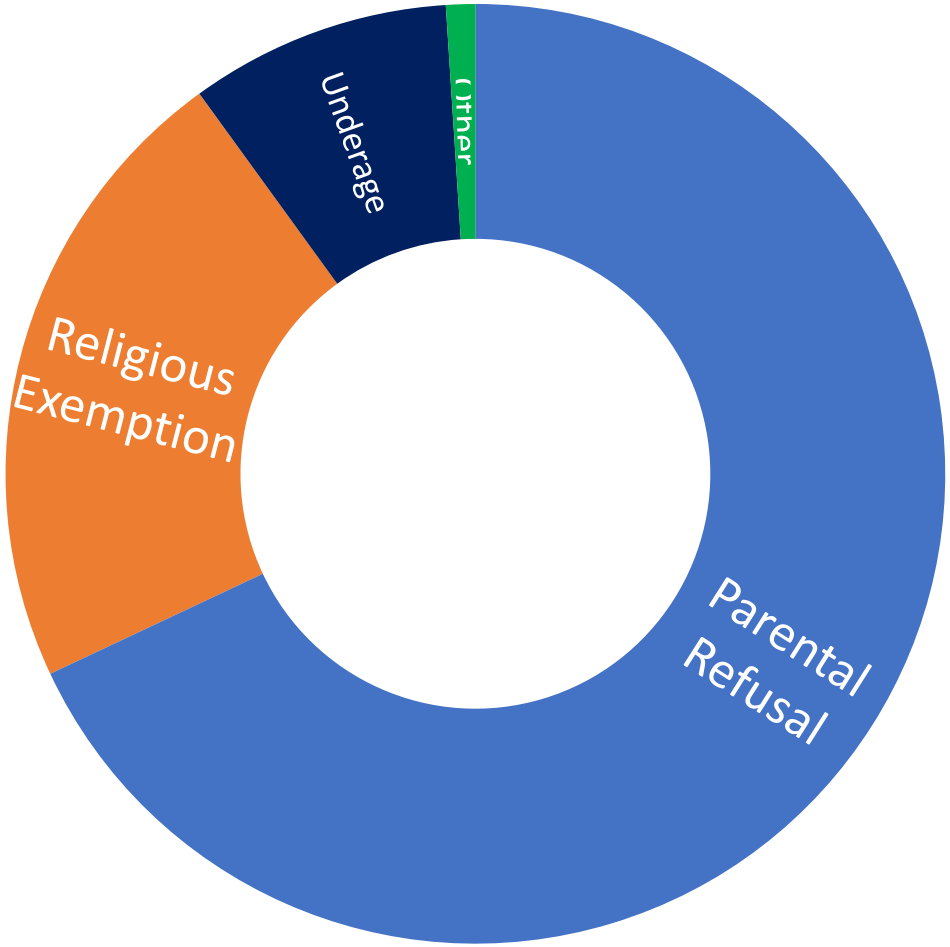
Pertussis – South Dakota 2024–2025YTD (*as of Jan. 10*)

Reasons for Not Vaccinating

- 142 cases investigated provided specific reason(s) for not vaccinating
- Most common reasons:
  - Religious or philosophical exemption (22%)
  - Parental refusal (68%)



Prophylaxis Considerations for Close Contacts

- Targeted **post-exposure prophylaxis (PEP)** is recommended to people at high risk of developing severe pertussis, as well as people who will have close contact with others at high risk of developing severe pertussis:
  - Providing PEP to all household contacts of a pertussis case
  - Providing PEP to high risk people within 21 days of exposure to an infectious pertussis case. High risk people include:
    - Infants and women in their third trimester of pregnancy
    - Persons with pre-existing health conditions that may be exacerbated by a pertussis infection (e.g., immunocompromised and patients with moderate to severe medically treated asthma)
    - Contacts who themselves have close contact with either infants, pregnant women, or individuals with pre-existing health conditions at risk for severe illness or complications
    - All contacts in high-risk settings that include infants or women in the third trimester of pregnancy (e.g., neonatal intensive care units, childcare settings, and maternity wards)

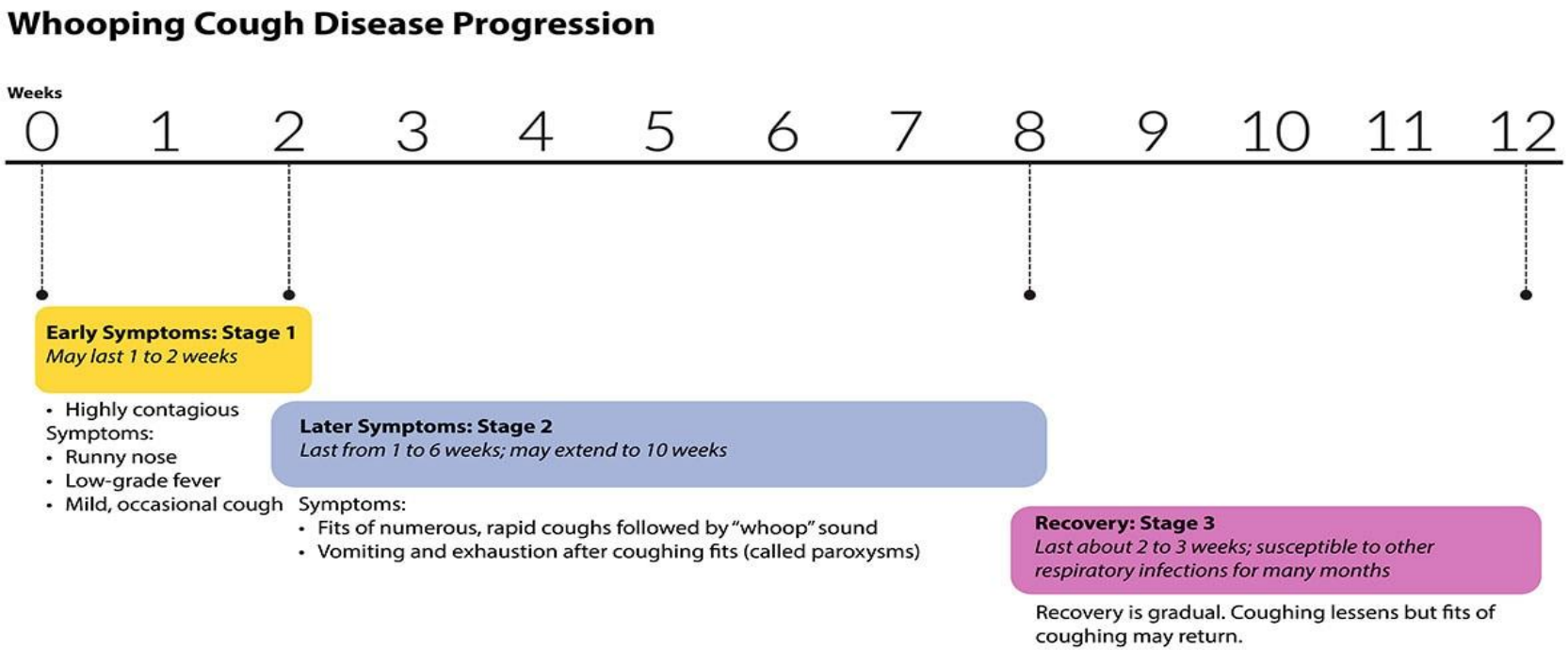
- Other close contacts who do not receive prophylaxis should monitor for symptoms for 21 days past their most recent contact with the case

Laboratory

Pertussis Testing and Diagnosis

- Whooping cough can be difficult to diagnose because the signs and symptoms are often similar to other respiratory illnesses.
- Knowing when and who to test is critical.

When to Test


Whooping Cough Disease Progression
Weeks
0 1 2 3 4 5 6 7 8 9 10 11 12
Early Symptoms: Stage 1
May last 1 to 2 weeks
• Highly contagious
Symptoms:
• Runny nose
• Low-grade fever
• Mild, occasional cough
Later Symptoms: Stage 2
Last from 1 to 6 weeks; may extend to 10 weeks
Symptoms:
• Fits of numerous, rapid coughs followed by "whoop" sound
• Vomiting and exhaustion after coughing fits (called paroxysms)
Recovery: Stage 3
Last about 2 to 3 weeks; susceptible to other respiratory infections for many months
Recovery is gradual. Coughing lessens but fits of coughing may return.
cdc.gov/whoopingcough
CDC
U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Testing Methods

Clinical and Reference laboratories commonly use several types of diagnostic tests to identify *Bordetella pertussis:*

Culture

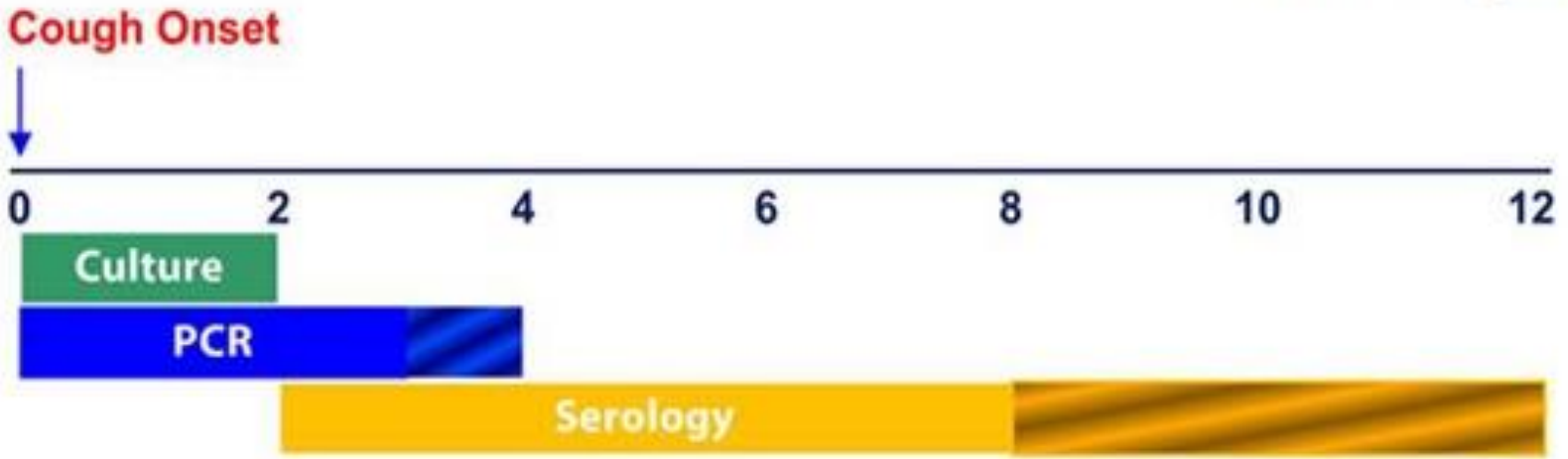
PCR

Serology

Method	Advantages	Disadvantages
Culture	• Gold standard for pertussis diagnosis • The only 100% specific method for identification • Better specificity than PCR	• Plating should occur within 24 hours of NP swab or aspirate collection • Takes up to 7 days to obtain results
PCR	• Most rapid test available • Excellent sensitivity • PCR assays that include multiple target sequences allow for speciation among Bordetella species	• Tests can vary in specificity • High sensitivity increases risk of false-positivity but best practices can reduce risk of inaccurate results
Serology	• Can be performed much later in the course of disease than culture and PCR	• Some commercially available tests have unproven or unknown clinical accuracy

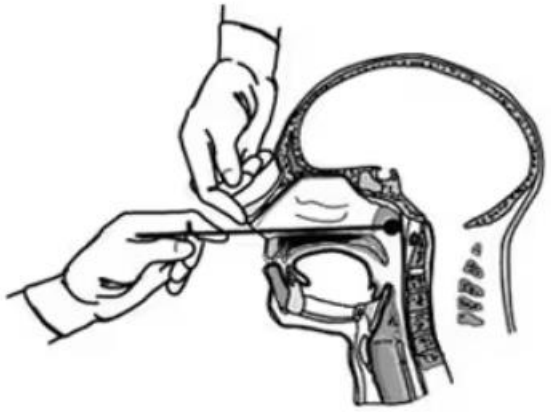
Optimal timing (in weeks) for each diagnostic test for Pertussis

—from cdc.gov



Specimen Collection

A properly obtained NP swab or aspirate is needed for optimal diagnostic results.



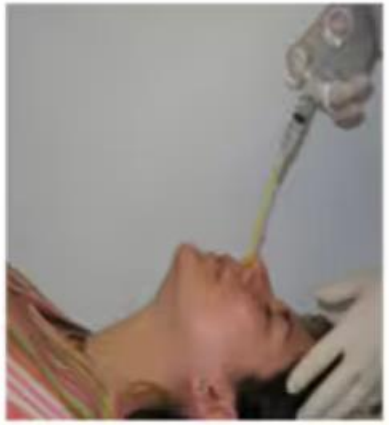


Illustration from the Manual for the Surveillance of Vaccine-Preventable Diseases, 2015
Image is courtesy of CDC

Packaging and Shipping

Infection, Prevention, and Control

Adherence to strict infection control practices will protect patients, staff, and visitors from acquiring and transmitting infections.

Signs and Symptoms

Early symptoms may resemble common cold. May last up to 2 weeks or longer.

-Runny or stuffed up nose.
-Sneezing, watery eyes
-Low grade fever (less than 100.4)
-Mild, occasional cough

Later symptoms... Typically last 1-6 weeks but some even longer.

-Coughing fits- high pitched “whoop” when they inhale after a coughing episode. Cough is dry and harsh.
-Vomit during or after coughing episode.
-Difficulty sleeping.
-Difficulty breathing- watch lips, tongue, nailbeds.

Treatment

Treat with antibiotics. Usually azithromycin, clarithromycin, or erythromycin. Start as soon as possible after diagnosis is made.

-Keeping breathing passages clear.
-Monitor breathing and giving oxygen if needed.
-Preventing and treating dehydration.

Managing symptoms at home.

-Use antibiotics exactly as prescribed for the intended duration.
-Keep home free for respiratory triggers like smoke, dust, and fumes.
-Use cool, clean mist humidifier to loosen mucus and soothe cough.
-Eat small meals every few hours.
-Get plenty of fluids including water, juices, and fruit.

Key Infection Prevention Recommendations:

1. Early Identification
2. Use of Personal Protective Equipment
3. Hand Hygiene
4. Respiratory Etiquette/Cough Hygiene
5. Cleaning and Disinfection
6. Minimize Crowding
7. Promote Vaccination
8. Education

Droplet Precautions + Standard Precautions

Prevents transmission of diseases spread by large respiratory droplets through coughing, sneezing, or talking. Examples of conditions requiring Droplet Precautions include seasonal influenza and B. pertussis

If suspected or proven pertussis:

- Healthcare settings should use droplet precautions in addition to standard precautions.
- Health care workers should wear surgical masks and eye protection when evaluating patients.
- Droplet precautions should be maintained until the patient has completed five days of appropriate antibiotic therapy.

Pertussis (whooping cough)	Droplet + Standard	Until 5 days after initiation of effective antibiotic therapy	Single patient room preferred. Cohorting an option. Postexposure chemoprophylaxis for household contacts and HCWs with prolonged exposure to respiratory secretions [863]. Recommendations for Tdap vaccine in adults under development. **Tdap Vaccine Recommendations [2018]** ⚠ **Update:** Current recommendations can be found at Tdap / Td ACIP Vaccine Recommendations (accessed September 2018).

Appendix A: Type and Duration of Precautions Recommended for Selected Infections and Conditions | Infection Control | CDC

Early Identification

-Early identification and screening is key.
-Take a thorough history if able and plan ahead.
-Upon arrival, put patient in exam room that is well ventilated as soon as possible. Clean room after patient leaves and leave empty as long as possible.
-Ask patient/family to wear mask.
-Try to minimize overcrowding in waiting room.

Droplet Precautions and PPE

-Face mask is worn on room entry.

-Standard precautions when handling items contaminated with respiratory secretions.

-PPE must be removed at the point of exit; do not reuse masks or gloves.

-Hand hygiene follows PPE removal.

Hand Hygiene

-**ABHS** is preferred over soap and water in most clinical situations because it is more effective at killing germs on hands than soap.
-Is easier to use when providing care, especially when moving from soiled to clean activities on the same patient or when moving between care of patients in shared rooms.
-ABHS should be at 60% alcohol and hands should dry thoroughly before applying gloves.

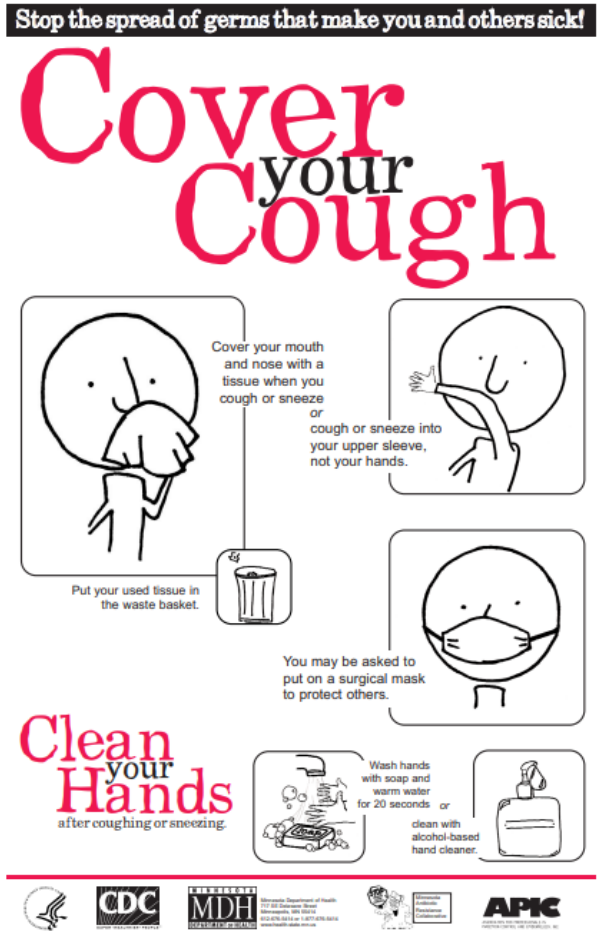
How to use ABHS:

-Put product on hands and rub hands together. The effectiveness of alcohol-based hand sanitizer depends on the volume applied to the hands. Use the **right amount** of alcohol-based hand sanitizer product to clean your hands.
-Cover all surfaces and rub until hands feel **dry**. Approximately a palmful! This should take around **20 seconds**.
-Pay **attention** to the areas providers frequently miss:

1. Thumbs
2. Fingertips
3. Between fingers

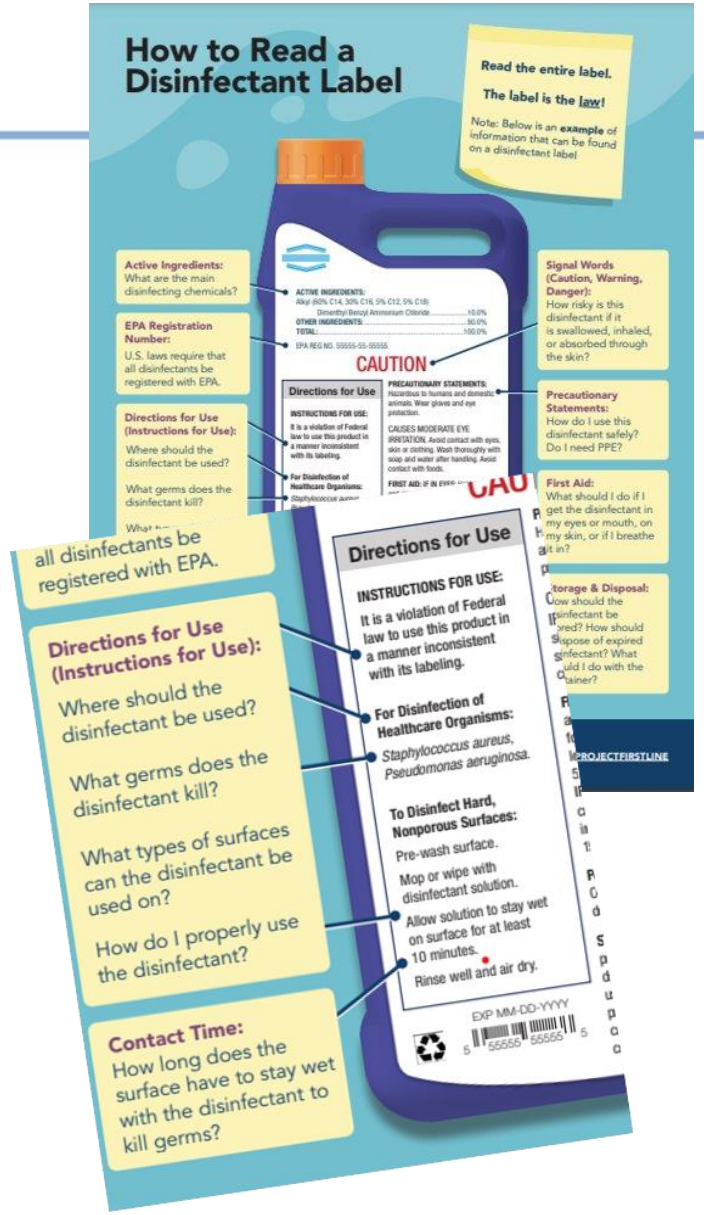
Respiratory Etiquette/Cough Hygiene

- Educate on respiratory hygiene practices.
- Encourage use of tissues to cover coughs and sneezes followed by hand hygiene.
- Provide masks, tissues, and no touch receptables.
- Provide hand hygiene supplies at entrance and throughout facility.
- Reinforce staying home when sick.



Cleaning and Disinfection Principles

- Clean top to bottom
- Outside to inside
- Know the contact time
- Know what your product is effective against. Use EPA approved products.
- Pay attention to high touch surfaces



www.epa.gov/pesticide-registration/selected-epa-registered-disinfectants#pathogens

www.sdprojectfirstline.org/_files/ugd/468cf6_c0a1d7309f04425eb2419ea196fc61b9.pdf

Minimize Crowding

-Encourage physical distancing.

-Posting signs to notify staff at check in if they have respiratory symptoms.

-Use telemedicine when available and appropriate.

-Stagger appointment times.

Promote Vaccination

-Advocate for pertussis vaccination among eligible patients, caregivers, and healthcare personnel as a primary prevention strategy.
-Ensure adherence to recommended vaccination schedules.
-Encourage booster doses to adults as appropriate.

Education

-Provide regular education and training session on infection control practices.
-Education on proper hand hygiene, PPE use, and isolation precautions.
-Encourage open communication and collaboration.

Q & A