DEPARTAMENTO DE SALUD
GOBIERNO DE PUERTO RICO

Nueva Autorización para la Vacuna Antineumocócica en Niños

Sanet Torres Torres, MD, FAAP
Pediatric Infectious Diseases Specialist
University Pediatric Hospital Dr. Antonio Ortiz

Assistant professor, Department of Pediatrics
University of Puerto Rico – Medical Sciences Campus, School of Medicine

Clinical Advisor, Epidemiology & Investigation Office
Puerto Rico Department of Health

FEDERAL FUNDS

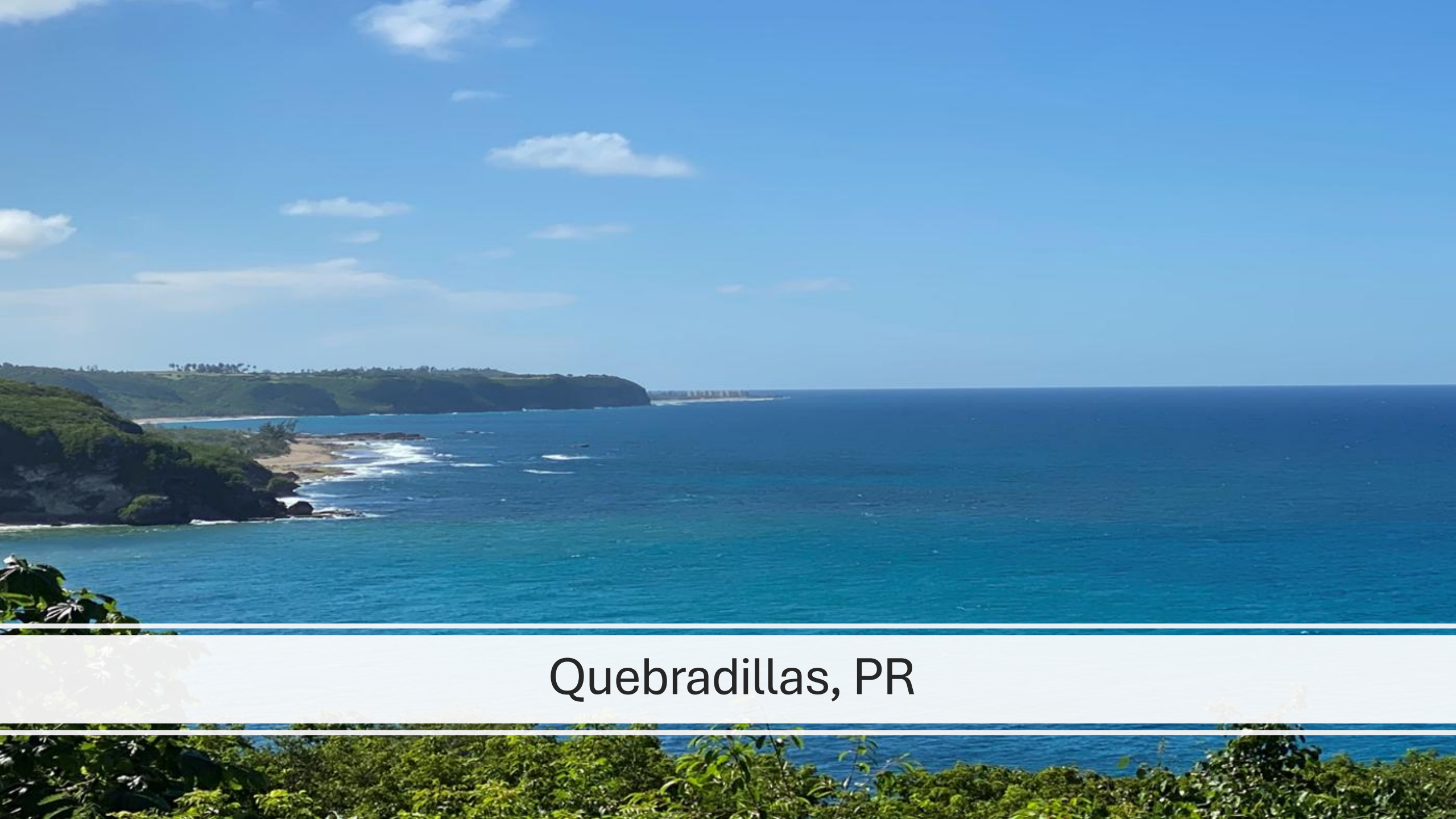
Disclosures

- Merck speaker
  - HPV vaccines

- I do promote immunization and judicious use of antimicrobials

Objectives

- Discuss the epidemiology and clinical significance of *Streptococcus pneumoniae* infection in children
- Identify spectrum of pneumococcal disease
- Differentiate available pneumococcal vaccines
- Describe the impact of pneumococcal vaccination
- Explain the new FDA-approved indication for PCV21 in pediatrics



Quebradillas, PR

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Case Presentation

7-month-old immunized, previously healthy male presents in late October with fever and right arm swelling

On examination, he was febrile (T39.5C) with nasal secretions and significant swelling of the right arm

Initial labs showed:

- Leukocytosis
- Elevated inflammatory markers (CRP and ESR)
- Positive rapid Flu testing for Influenza A

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Case Presentation

The patient was admitted and initiated on PO oseltamivir and empiric IV ceftriaxone

Persistent fever and worsening swelling prompted addition of clindamycin

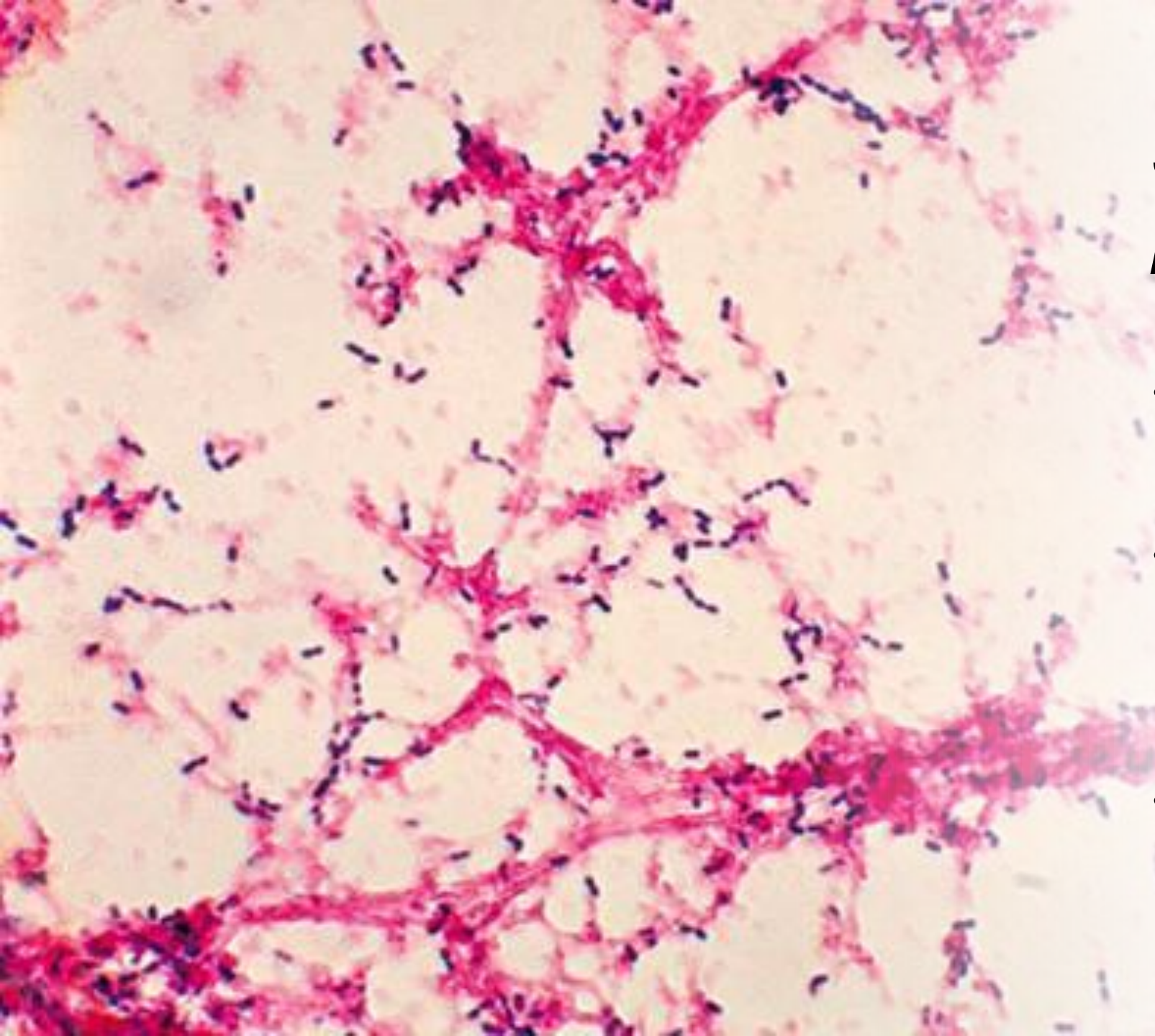
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Case Presentation

Facility:
Date:
Patient ID:
Name:
Birth Date:
Sex:
Physician:
Medicaid No:
Guardian:

Phone:
Street:
City:
State:
Zip Code:
Country:
WIC ID:

Vaccine Group	Dose 1	Dose 2	Dose 3	Dose 4
DTaP/Tdap/Td	06/23/2025 4 months	09/11/2025 6 months		
HepB	02/24/2025 3 days	09/11/2025 6 months		
Hib	05/05/2025 10 weeks	07/09/2025 4 months	09/11/2025 6 months	
Pneumo (PCV)	05/05/2025 10 weeks	07/09/2025 4 months	09/11/2025 6 months	
Polio	06/23/2025 4 months	09/11/2025 6 months		
Rotavirus	06/23/2025 4 months	09/11/2025 6 months		

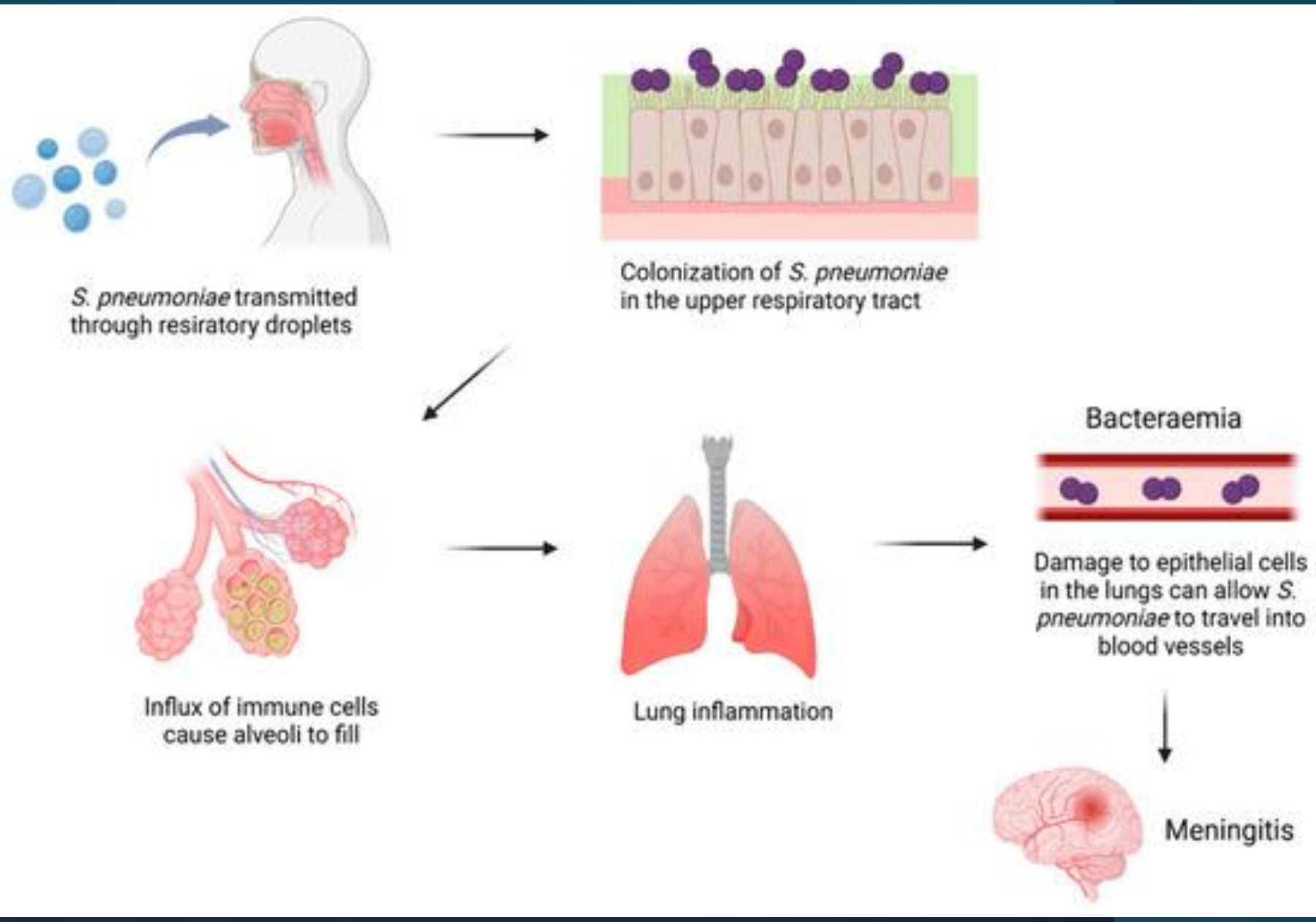


Streptococcus pneumoniae

- Lancet-shaped, Gram (+) diplococci
- Most pneumococci are encapsulated, and their surfaces are composed of complex polysaccharides
- 100 serotypes documented as of 2020

Pneumococcal Disease Pathogenesis

- Most serotypes cause serious disease, only a few cause most pneumococcal infections
- Pneumococci are common inhabitants of the respiratory tract
- Asymptomatic carriage varies
  - School-age children 20% to 60%
  - Adults 5% to 10%
- Over 100 serotypes are identified, but only ~ 23 serotypes cause 80-90% of severe, IPD
  - 14, 19A, 19F, 23F, 6B, and 3


S. pneumoniae transmitted through resiratory droplets
Colonization of S. pneumoniae in the upper respiratory tract
Bacteraemia
Influx of immune cells cause alveoli to fill
Lung inflammation
Damage to epithelial cells in the lungs can allow S. pneumoniae to travel into blood vessels
Meningitis

Pneumococcal Epidemiology

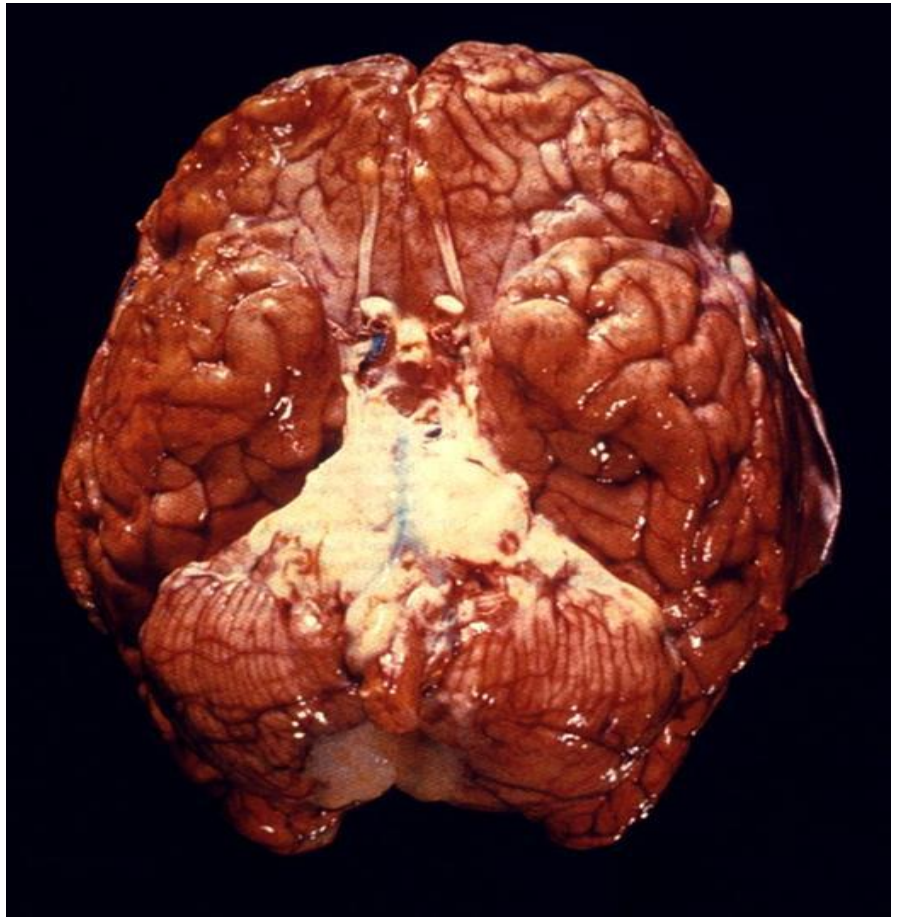
- Transmission is from person to person by respiratory droplet contact
- Viral upper respiratory tract infections, including influenza and RSV, can predispose to pneumococcal infection and transmission
- Pneumococcal infections are most prevalent during winter months.

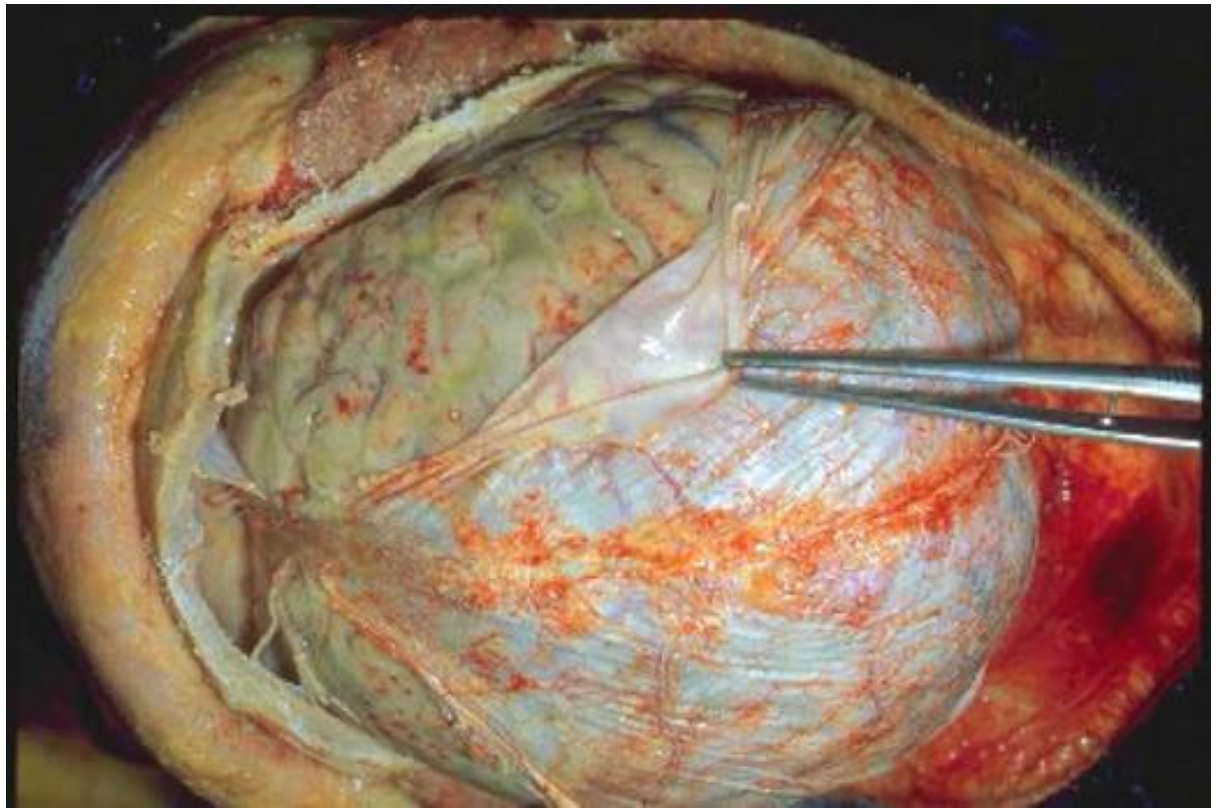
Clinical Spectrum of Pneumococcal Infections

- Invasive Pneumococcal Disease (IPD)
  - Meningitis
  - Bacteremia
  - Pneumonia
  - Osteomyelitis/septic arthritis

- Non-invasive Infections
  - Otitis media
  - Sinusitis

Pneumococcal meningitis





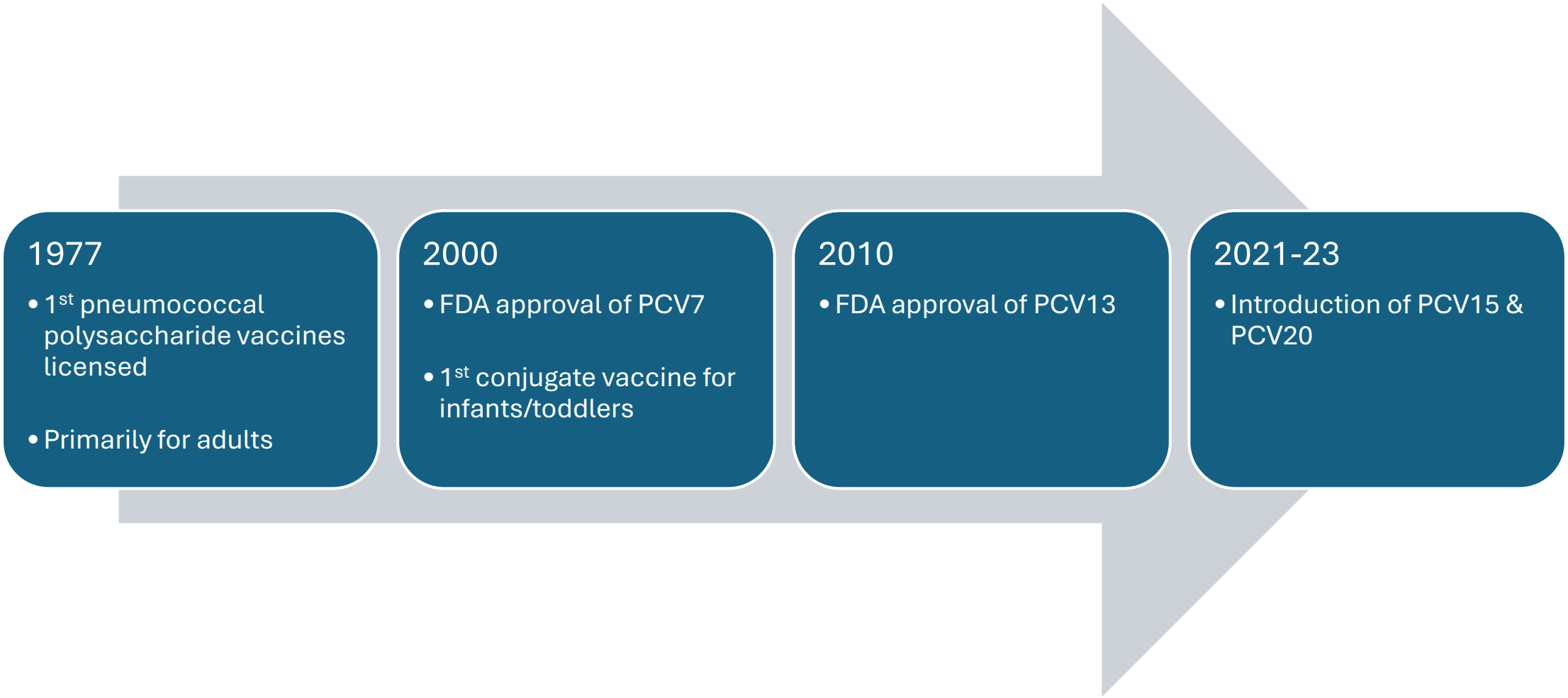
Pneumococcal Disease Burden

- Cause of > 50% of all cases of bacterial meningitis in US
- Over 150,000 hospitalizations from pneumococcal pneumonia are estimated to occur annually
- Groups with higher infection rates:
  - Infants/young children, elderly
  - Black, Alaska native, some American Indians

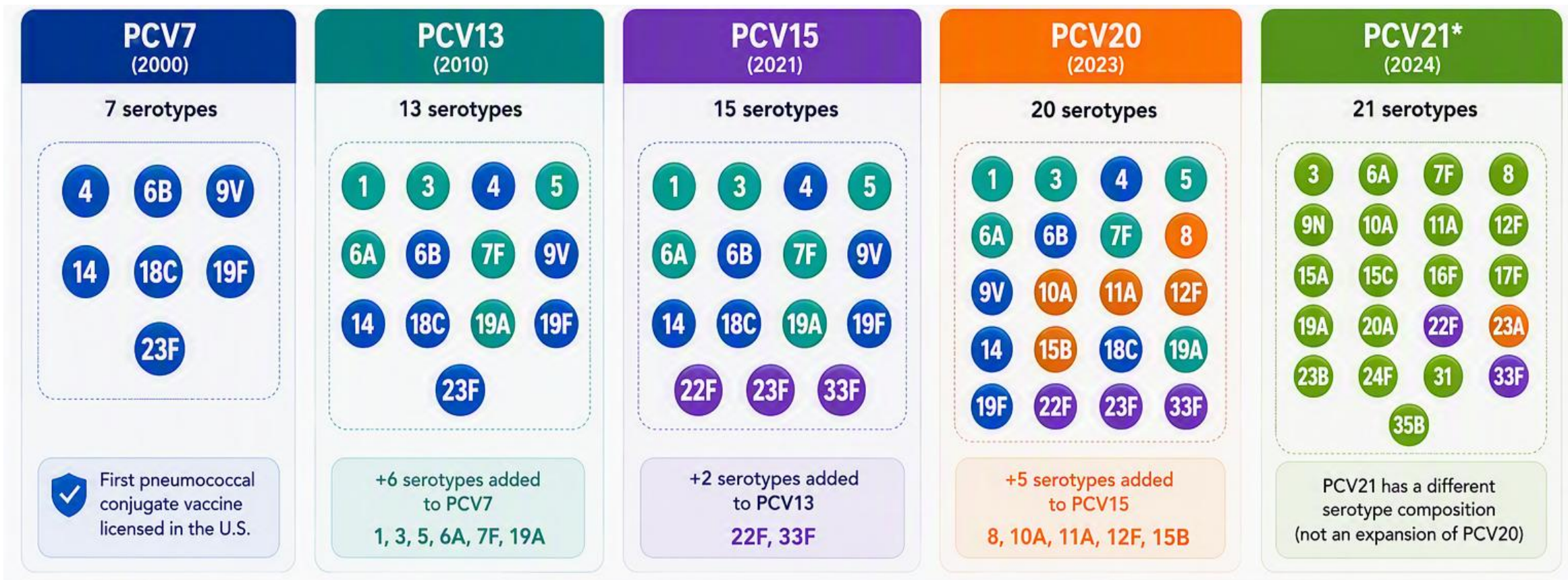
Groups at Higher Risk for IPD

Congenital or acquired humoral immunodeficiency
HIV infection
Absent/Deficient splenic function (e.g., sickle cell disease, congenital or surgical asplenia)
Certain complement deficiencies
Diabetes mellitus
Chronic liver disease
Chronic renal failure, nephrotic syndrome
Cochlear implants, CSF leaks - meningitis

Pneumococcal Vaccine History



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Pneumococcal Vaccines Available in US

Vaccine	Vaccine type	Brand Name	Manufacturer	Minimum age
PCV15	Conjugate	Vaxneuvance®	Merck	≥6 weeks
PCV20	Conjugate	Prevnar 20®	Pfizer	≥6 weeks
PCV21	Conjugate	Capvaxive™	Merck	≥18yo
PPSV23	Polysaccharide	Pneumovax 23®	Merck	≥2yo

Pneumococcal Disease Burden

- Before routine use of PCV, the burden of pneumococcal disease among children younger than age 5 years was significant:
  - 17K cases of IPD annually
    - ~700 were meningitis
  - 200 deaths annually from IPD
  - 5 million cases of AOM

Pneumococcal Disease Trends

- Since use of PCV in children, invasive disease caused by serotypes in PCV7 declined 99% in children

- Since introduction of PCV13, invasive disease caused by PCV13 serotypes declined 90% in children

- Following implementation of PCV, pediatric pneumonia-related hospitalizations went down between 66 – 79%

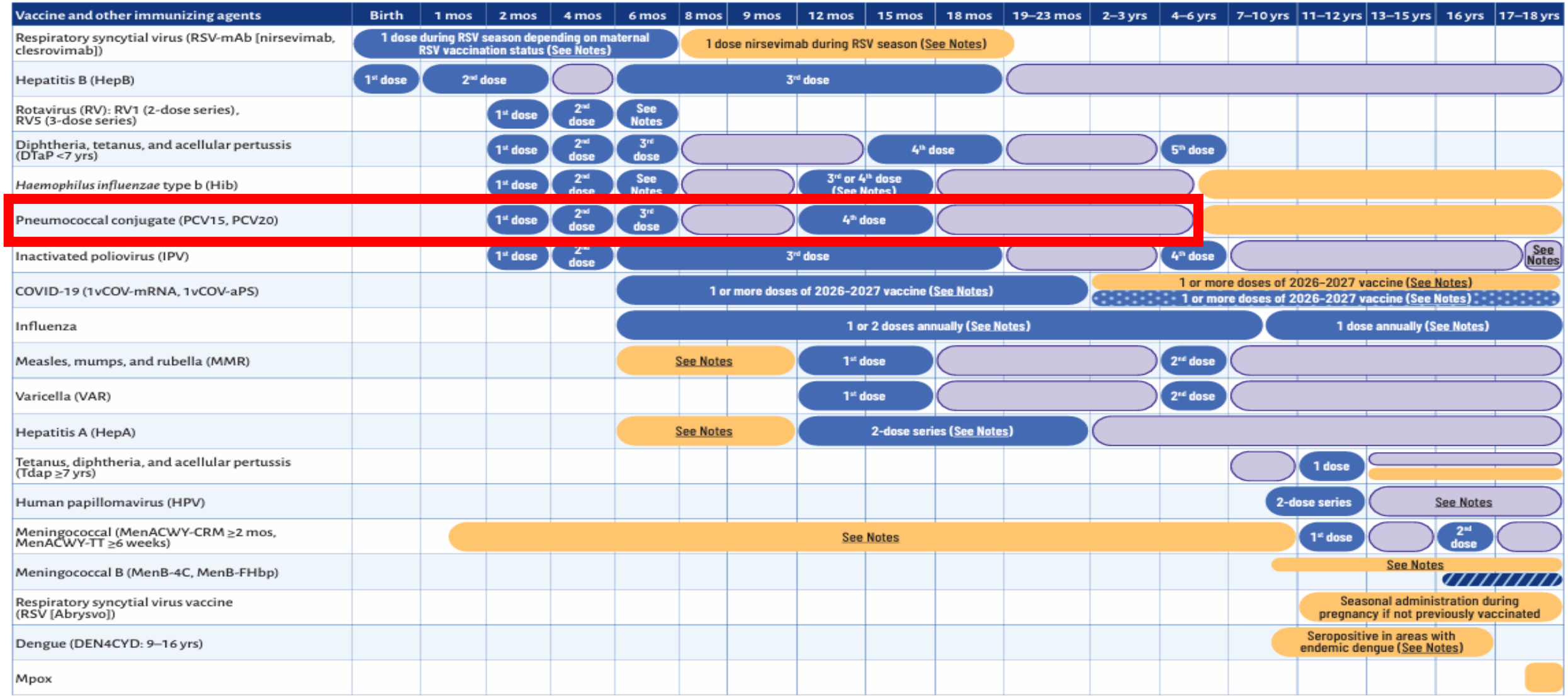

Playa Combate
Cabo Rojo, PR

Table 1
PAGE 2

Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2026

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN®

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 outlined purple bars. To determine minimum intervals between doses, see the catch-up schedule (Table 2).
To assess need for additional recommended vaccines by medical condition, see Table 3.



Range of recommended ages for all children

Range of recommended ages for catch-up vaccination

Range of recommended ages for certain high-risk groups or populations

Recommended vaccination for those who desire protection

Recommended vaccination based on shared clinical decision-making

Routine Pneumococcal Vaccination

- 4-dose series at 2, 4, 6 & 12-15 mo
- PCV15 or PCV20

Capvaxive™

- 21-valent PCV

- Created to provide targeted, modernized protection against the serotypes causing adult pneumococcal disease
  - 8 unique serotypes: 15A, 15C, 16F, 23A, 23B, 24F, 31 and 35B

- Current indications:
  - Prevention of pneumonia and IPD in individuals 18yo and older

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MERCK

U.S. FDA Approves an Additional Indication for CAPVAXIVE® (Pneumococcal 21-valent Conjugate Vaccine) in Children and Adolescents Aged 2 through 17 at Increased Risk for Pneumococcal Disease

June 18, 2026 6:45 am EDT

Capvaxive™

- The FDA added a new use for children and teens:
  - 2 – 17 years old
  - who have finished their primary pneumococcal series
  - have a medical conditions that raise their risk of pneumococcal disease
- Most commonly reported adverse reactions in this group:
  - Injection-site pain, erythema, swelling
  - fatigue

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Case Presentation (cont.)

Back to our 7mo male with fever and arm swelling

Due to minimal clinical improvement, he underwent right elbow arthrotomy yielding 5 mL of purulent fluid.

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Case Presentation (cont.)

ORDERED: Abscess Cul &GS
COMMENTS: Comment right elbow

Procedure	Result
Gram Stain *Final*	
Result	10/04/25 GRAM STAIN: NO ORGANISMS SEEN SUBCULTURE WILL FOLLOW TO CONFIRM
Abscess Culture *Final*	
REPORTED TO DRA CABEZAS BY LLUGO 10/8/25 0904 AM	
Organism 1	**Streptococcus pneumoniae**



	S pneumoni M.I.C.	 RX
* Cefotaxime (meningitis)	<=0.12	S
* Cefotaxime (other)	<=0.12	S
* Ceftriaxone (Meningitis)	<=0.12	S
* Ceftriaxone (other)	<=0.12	S
* Clindamycin	0.5	I
* Erythromycin	2	R
* Levofloxacin	<=0.25	S
* Linezolid	<=2	S
* Moxifloxacin	0.12	S
* Benzylpenicillin (Meningitis)	<=0.06	S
* Benzylpenicillin (Other)	<=0.06	S
* Benzylpenicillin (Oral)	<=0.06	S
* Benzylpenicillin (pneumoniae)	<=0.06	S
* Tetracycline	<=0.25	S
* Tigecycline	<=0.06	S
* Trimethoprim/Sulfamethoxazole	<=10	S

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Case Presentation (cont.)

Isolate was sent for multilocus sequencing typing (MLST) and genotyping

- Reported as serotype 38, ST393 with inferred to be antibiotic susceptible

Imaging demonstrated no evidence of osteomyelitis

His therapy was narrowed to IV ampicillin

He completed 3 weeks of antibiotics, from time of surgery, with excellent clinical and lab response.

Questions?

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