Washington State Department of HEALTH

Invasive *Haemophilus influenzae* Type b Among Adults in Washington State: Findings from Provisional Statewide Surveillance, 2026



Cami Rencken, PhD & Nicholas Graff, MPH

Thursday, 15 October 2026

Washington State Public Health Association Annual Conference

Agenda

01

Learning Goals

What we hope you will take away today

02

Outbreak Emergence

How an adult Hib signal surfaced, 2024–2025

03

Nine Months of Statewide Surveillance

Building the system and what we found, Jan–Sep 2026

04

Looking Ahead

Implications, limitations, and next steps

Learning Goals

GOAL 1

A rare adult Hib outbreak

What we know about this evolving outbreak of a vaccine-preventable disease in an adult population, where evidence to guide response is more limited than in children.

GOAL 2

Emerging risk factors

GOAL 3

Using genomics to understand transmission

GOAL 4

Adapting the public health response

Learning Goals

GOAL 1

A rare adult Hib outbreak

GOAL 2

Emerging risk factors

What we are learning about housing instability and substance use among affected adults, and the challenges of capturing these factors through surveillance.

GOAL 3

Using genomics to understand transmission

GOAL 4

Adapting the public health response

Learning Goals

GOAL 1

A rare adult Hib outbreak

GOAL 2

Emerging risk factors

GOAL 3

Using genomics to understand transmission

How whole-genome sequencing (WGS) complemented epidemiologic surveillance to identify related cases across jurisdictions and better characterize the outbreak.

GOAL 4

Adapting the public health response

Learning Goals

GOAL 1

A rare adult Hib outbreak

GOAL 2

Emerging risk factors

GOAL 3

Using genomics to understand transmission



GOAL 4

Adapting the public health response

How public health partners are applying existing evidence and adapting recommendations as new information becomes available.

SECTION 02

Outbreak Emergence

How an adult Hib signal surfaced, 2024–2025

01 Learning Goals

02 **Outbreak Emergence**

03 Nine Months of Statewide Surveillance

04 Looking Ahead

What is Hib?

Haemophilus influenzae (*H. influenzae*)

A gram-negative bacterium that **can cause invasive disease**, including:

- **Meningitis**
- **Bacteremia**
- **Epiglottitis**
- **Septic arthritis**
- **And others**

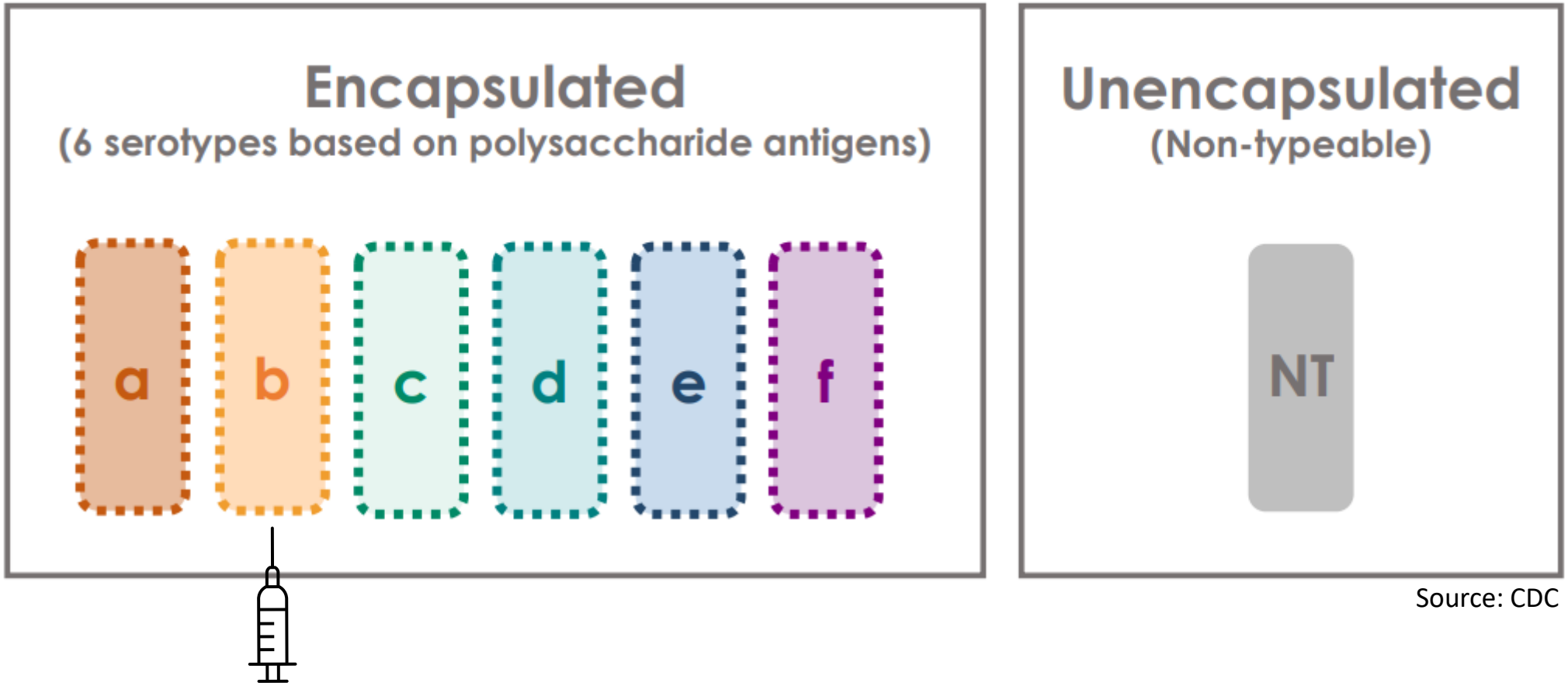
Haemophilus influenzae spreads through **respiratory droplets**

Haemophilus influenzae type b (Hib) was historically the **largest cause of bacterial meningitis in young children**.

H. influenzae can colonize the respiratory tract **without causing symptoms.**

Nontypeable *H. influenzae* (NTHi) is now the **most common type** of *H. influenzae* causing invasive disease.

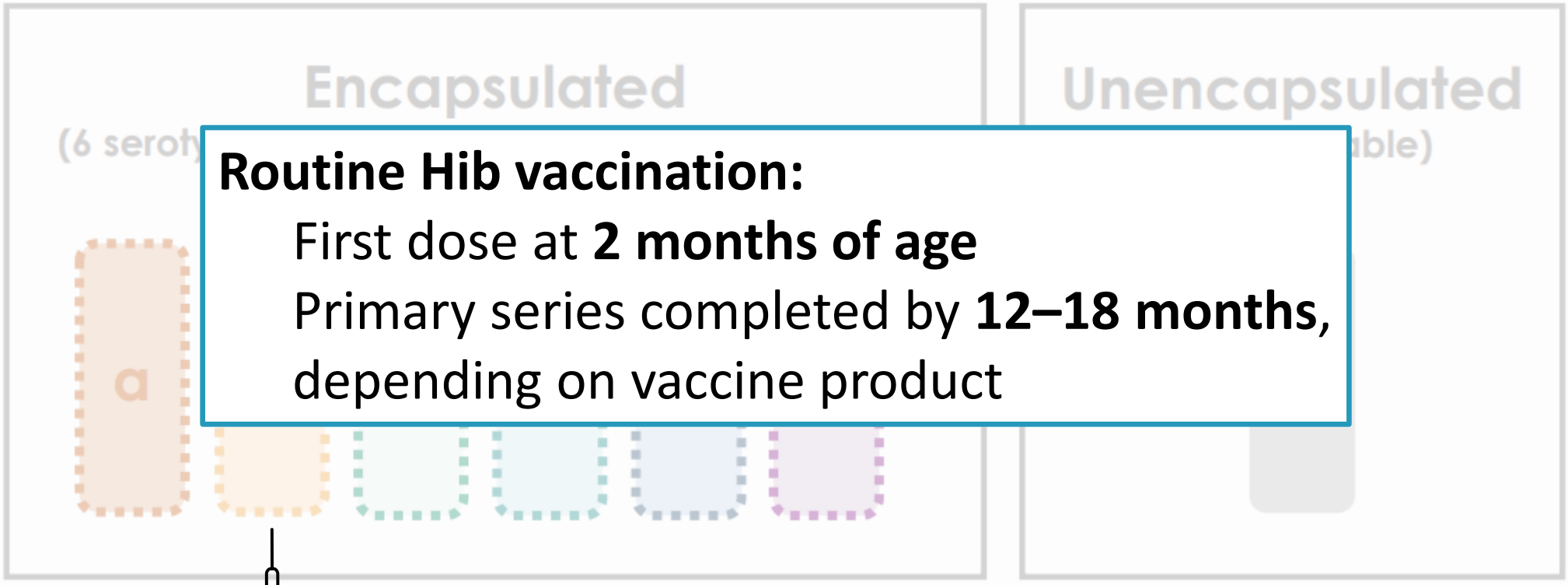
Haemophilus influenzae



Source: CDC

Vaccine-preventable

Haemophilus influenzae



Routine Hib vaccination:

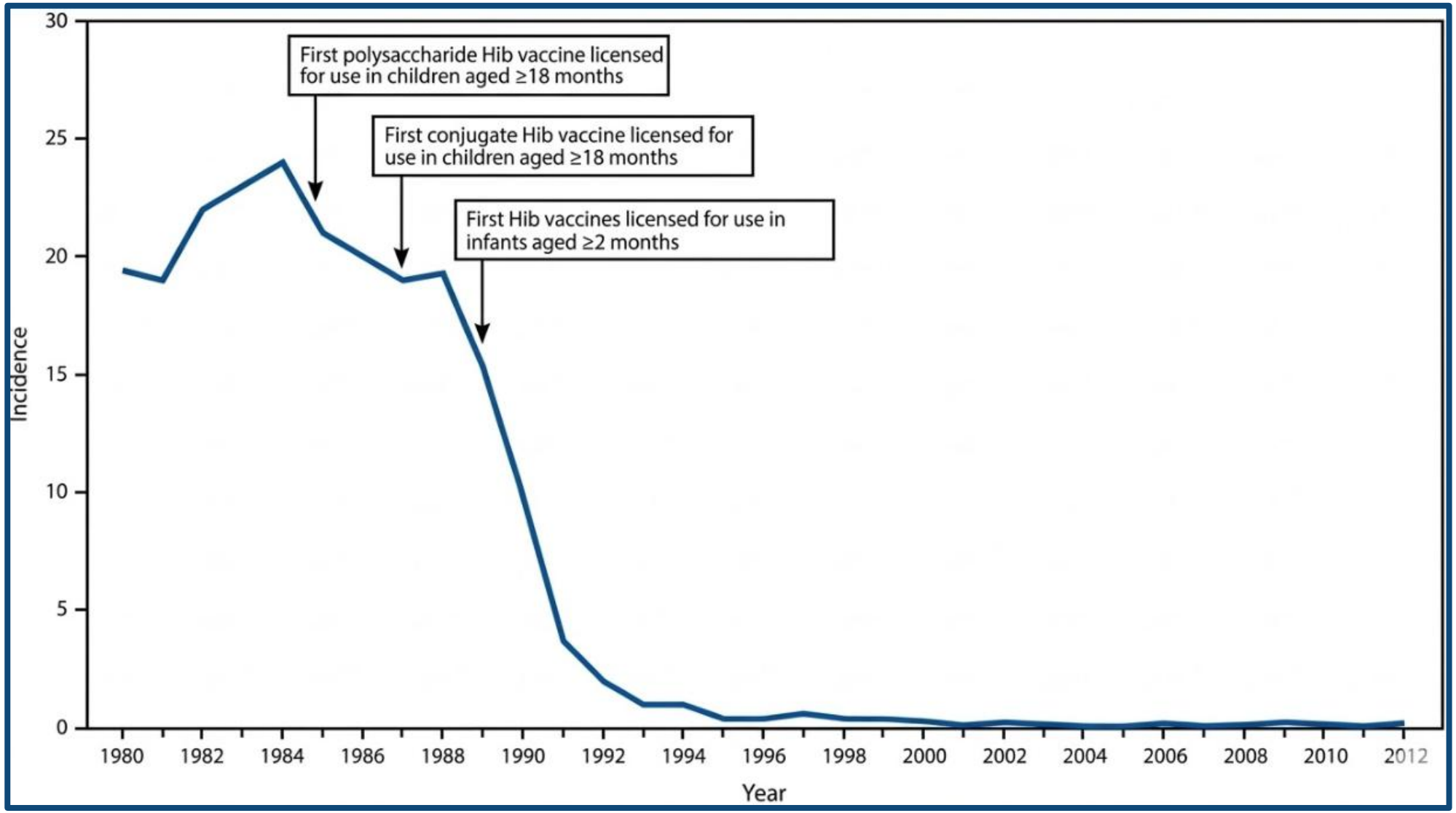
First dose at **2 months of age**

Primary series completed by **12–18 months**, depending on vaccine product

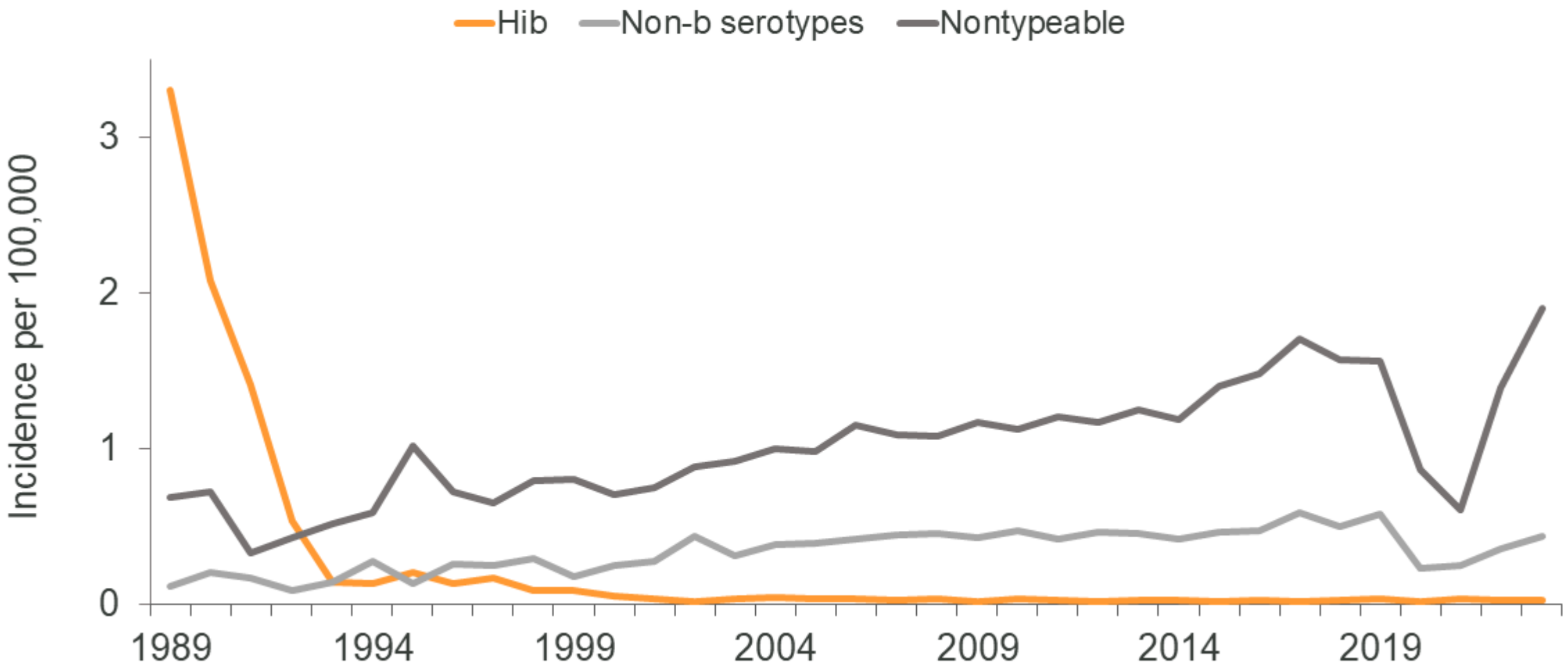
Source: CDC

Vaccine-preventable

Routine childhood vaccination nearly eliminated Hib disease in the United States among children



Incidence of invasive H. influenzae disease, United States



CDC ABC Surveillance Data

March 2024: The Emerging Signal

1. NOTICED

Astute laboratorian noticed an **increase in invasive *H. influenzae* cases among adults** at their hospital

2. TESTED

3. CONFIRMED

March 2024: The Emerging Signal



1. NOTICED



2. TESTED

Requested **serotyping** for four initial isolates



3. CONFIRMED

March 2024: The Emerging Signal



1. NOTICED



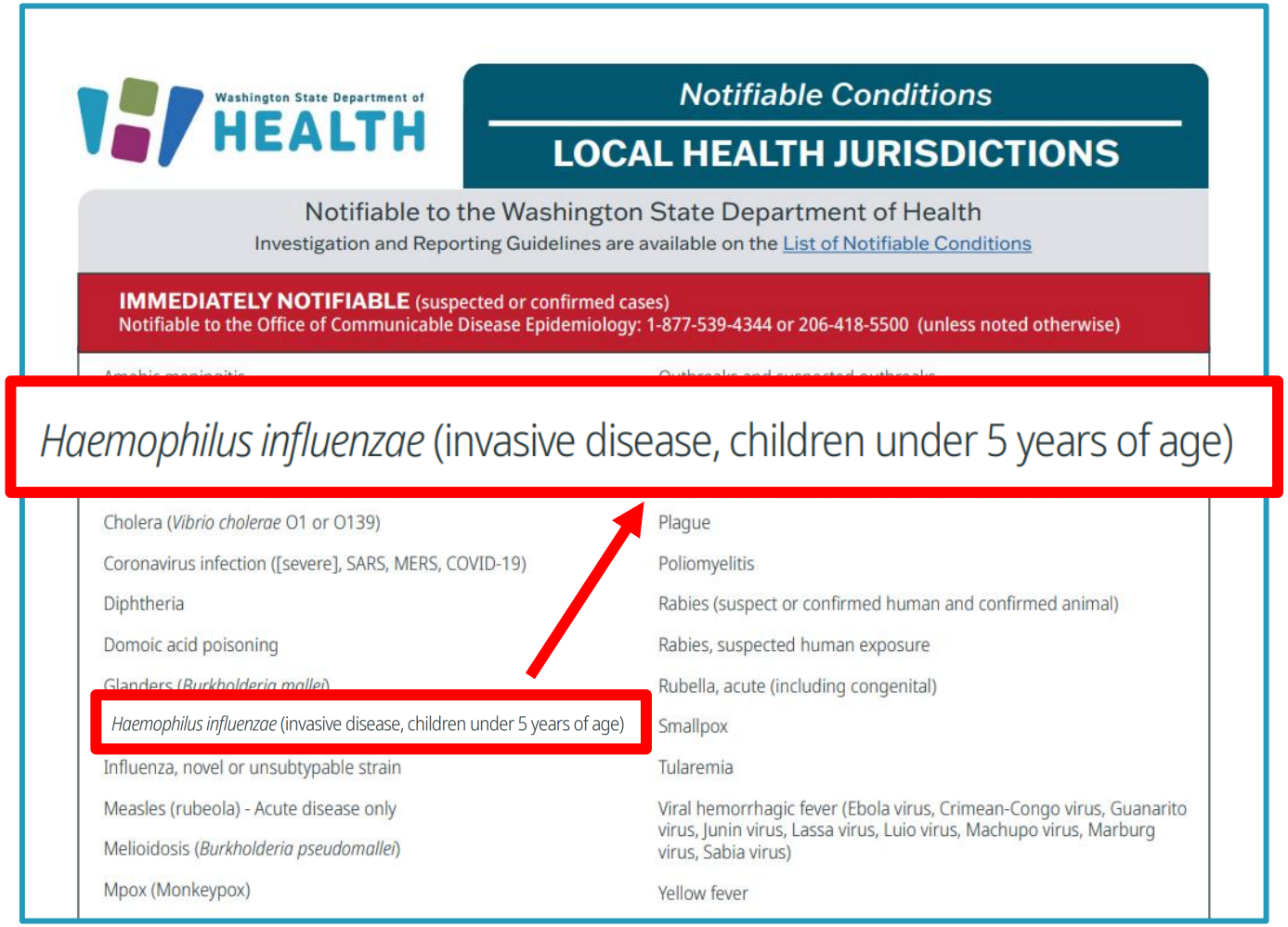
2. TESTED



3. CONFIRMED

All found to be **type b**, the vaccine-preventable serotype

Invasive *H. influenzae* Disease Was Notifiable Only in Children Under 5



Washington State Department of HEALTH

Notifiable Conditions

LOCAL HEALTH JURISDICTIONS

Notifiable to the Washington State Department of Health

Investigation and Reporting Guidelines are available on the List of Notifiable Conditions

IMMEDIATELY NOTIFIABLE (suspected or confirmed cases)
Notifiable to the Office of Communicable Disease Epidemiology: 1-877-539-4344 or 206-418-5500 (unless noted otherwise)

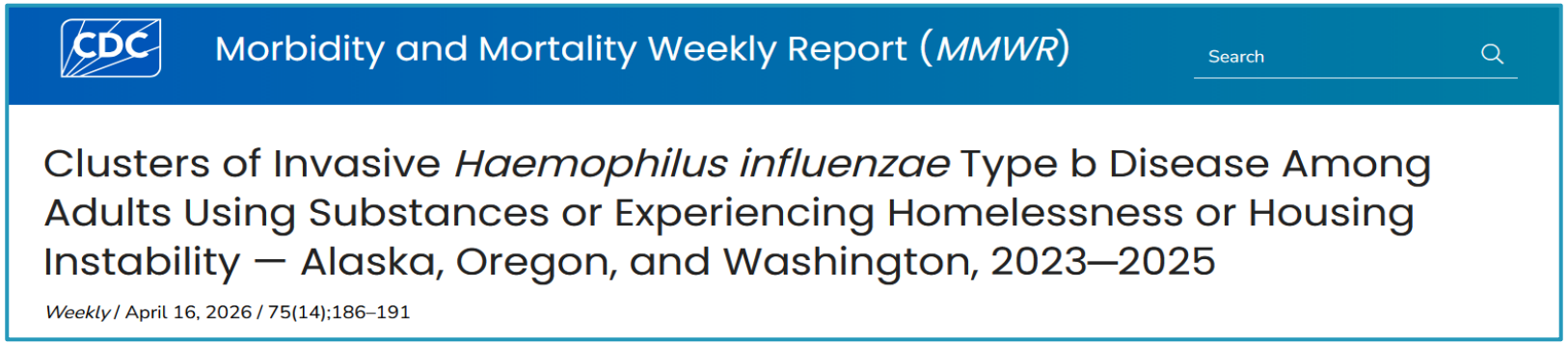
Haemophilus influenzae (invasive disease, children under 5 years of age)

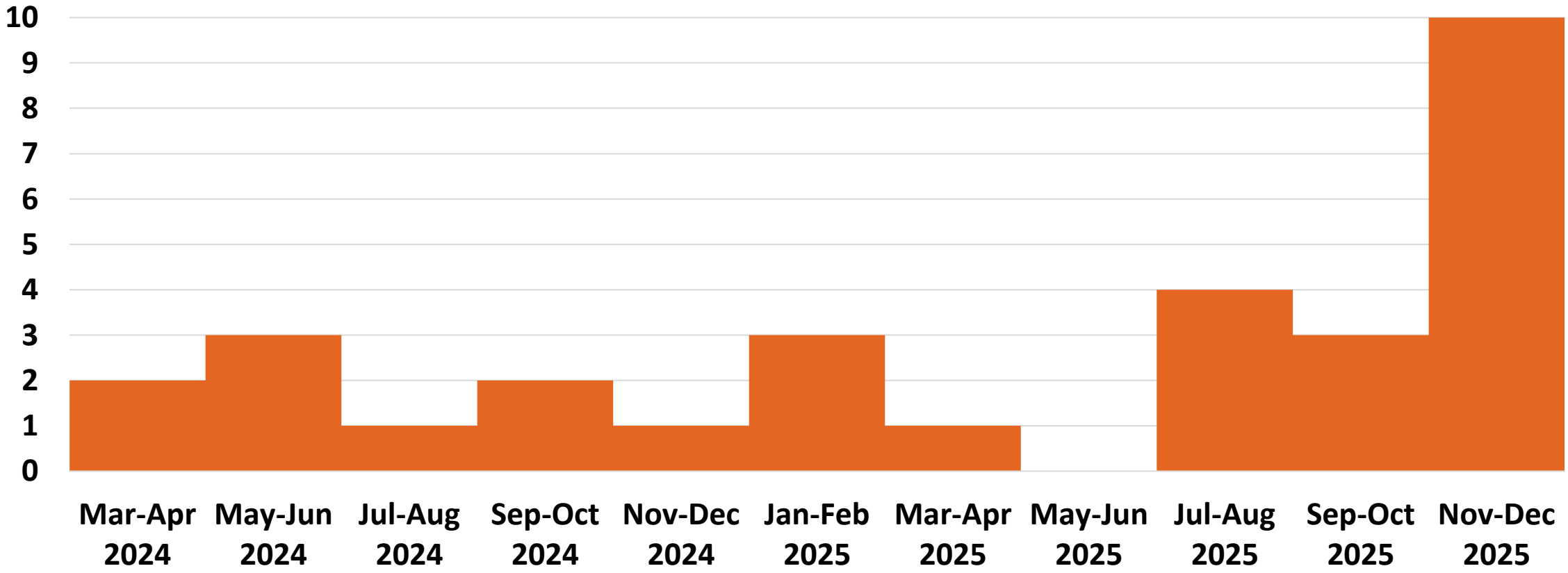
Cholera (*Vibrio cholerae* O1 or O139)
Coronavirus infection ([severe], SARS, MERS, COVID-19)
Diphtheria
Domoic acid poisoning
Glanders (*Burkholderia mallei*)
Haemophilus influenzae (invasive disease, children under 5 years of age)
Influenza, novel or unsubtypable strain
Measles (rubeola) - Acute disease only
Melioidosis (*Burkholderia pseudomallei*)
Mpox (Monkeypox)
Plague
Poliomyelitis
Rabies (suspect or confirmed human and confirmed animal)
Rabies, suspected human exposure
Rubella, acute (including congenital)
Smallpox
Tularemia
Viral hemorrhagic fever (Ebola virus, Crimean-Congo virus, Guanarito virus, Junin virus, Lassa virus, Luio virus, Machupo virus, Marburg virus, Sabia virus)
Yellow fever

Washington State was as an Outlier

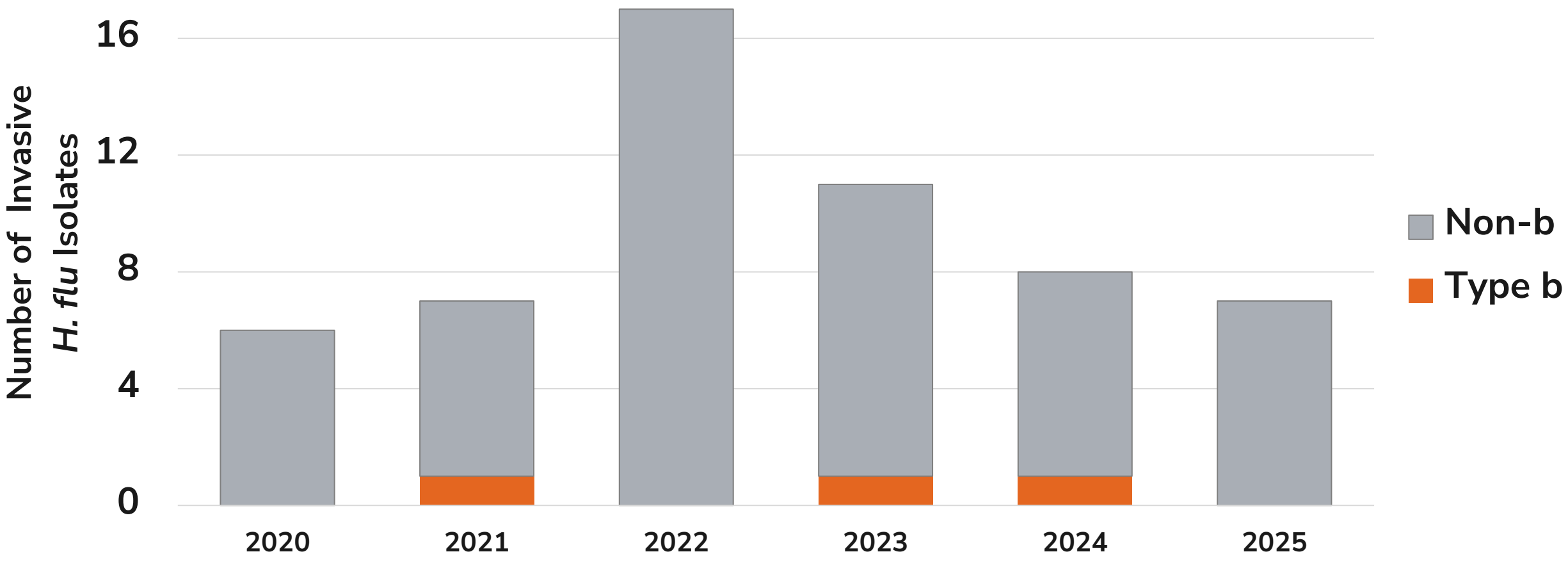
	State/Jurisdiction	Is H flu notifiable for all ages?	Link for notifiable	Year	Serotype B	Non-Type B	Total cases	Source
2	Alaska	Yes	https://health.alas	2005 - 2018	27			https://journals.lww.com
3	Arizona	Yes	https://www.azdh	2024	1	152	153	https://www.azdhs.gov/d
3	Arizona	Yes	https://www.azdh	2023	0	136	136	https://www.azdhs.gov/d
3	Arizona	Yes	https://www.azdh	2022	2	122	124	https://www.azdhs.gov/d
3	Arizona	Yes	https://www.azdh	2021	1	69	68	https://www.azdhs.gov/d
3	Arizona	Yes	https://www.azdh	2020		91		https://www.azdhs.gov/d
3	Arizona	Yes	https://www.azdh	2019	2	168	170	https://www.azdhs.gov/d
3	Arizona	Yes	https://www.azdh	2018	1	133	134	https://www.azdhs.gov/d
4	Arkansas	Yes	https://healthy.ark	2018			59	https://healthy.arkansas.
4	Arkansas	Yes	https://healthy.ark	2017			62	https://healthy.arkansas.
4	Arkansas	Yes	https://healthy.ark	2016			58	https://healthy.arkansas.
4	Arkansas	Yes	https://healthy.ark	2015			56	https://healthy.arkansas.
5	California	No	https://www.cdph					
6	Colorado	Yes	https://drive.googl	2024			102	https://cdphe.colorado.g
6	Colorado	Yes	https://drive.googl	2023			130	https://cdphe.colorado.g
6	Colorado	Yes	https://drive.googl	2022			103	https://cdphe.colorado.g
6	Colorado	Yes	https://drive.googl	2021			40	https://cdphe.colorado.g

March 2024 – December 2025: 30 Cases Identified

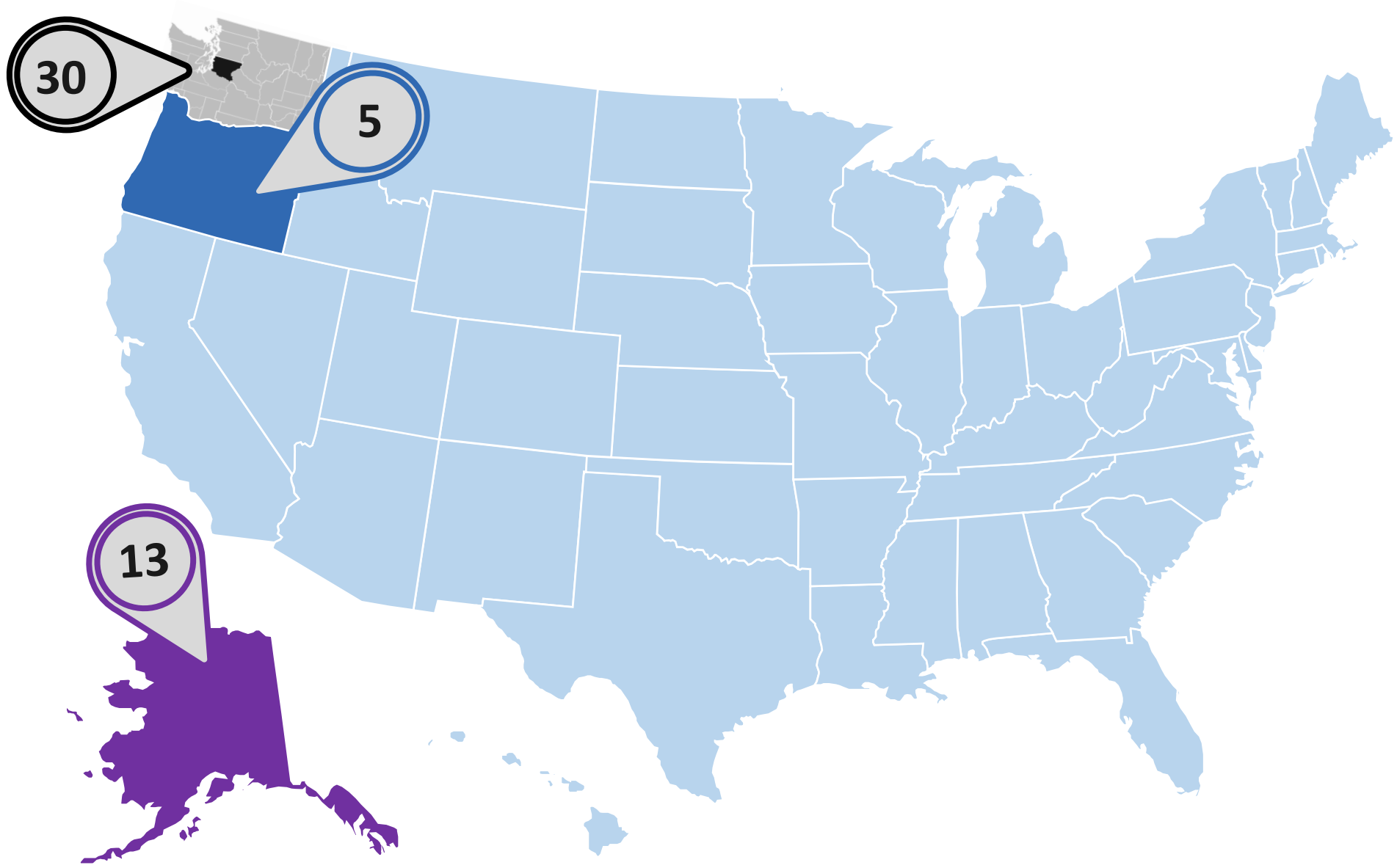




Invasive *Haemophilus influenzae* cases in children <5 years **did not increase** in Washington State.



In Oregon and Alaska, cases occurred among adults who shared common epidemiologic factors.



SECTION 03

Nine Months of Statewide Surveillance

Building the system and what we found, Jan–Sep 2026

01 Learning Goals

02 Outbreak Emergence
How an adult Hib signal surfaced, 2024–2025

03 **Nine Months of Statewide Surveillance**

04 Looking Ahead

January 2026: The Response

Hib became a provisionally notifiable condition for **all ages** in Washington

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
PO Box 47890 • Olympia, Washington 98504-7890
Tel: (360) 236-4030 • 711 Washington Relay Service

December 31, 2025

Dear Laboratory Directors and Local Public Health Partners:

[redacted]

January 2026: The Response

Hib became a provisionally notifiable condition for **all ages** in Washington

OBJECTIVES



Enables real-time case monitoring



Improves our understanding of this novel outbreak in adults



Guides targeted prevention efforts



Identifies clusters and patterns of transmission

Building a Novel Surveillance System

Invasive *H. influenzae* Case Definition

Confirmed case

- *H. influenzae* detected from a **normally sterile site**
  - Examples: blood, CSF, pleural fluid
- **AND** laboratory-confirmed as **serotype b (Hib)**
- Detection can be by:
  - Isolation of *H. influenzae*
  - *H. influenzae*-specific nucleic acid detection

Probable case

- **Meningitis**
- **AND** Hib antigen detected in CSF

Aligned with the CSTE/CDC invasive H. influenzae disease case definition, but restricted to serotype b.

Building a Novel Surveillance System

Outbreak Case Definition

Meets the **confirmed Hib invasive disease definition**

AND

Symptom onset or specimen collection **on or after March 1, 2024**

AND EITHER:

OPTION A · WGS AVAILABLE

WGS does not exclude the case as genomically unrelated to confirmed outbreak cases

OR

OPTION B · WGS UNAVAILABLE / PENDING

≥18 years old and has **≥1 outbreak-associated factor:**

- Current or recent **homelessness**
- **Unstable housing**, including congregate housing
- **History of homelessness**
- **Illicit substance use**

Building a Novel Surveillance System

Precedent to Lean On?

Recent adult Hib outbreaks have occurred in similar communities, but guidance and evidence for responding to Hib in **adults remain limited**

AK Alaska

Recent adult Hib outbreak, responded with a **vaccine campaign**

BC British Columbia

BCCDC revised its Provincial Communicable Disease Control Manual to **consider Hib vaccination during adult clusters**

DE Germany

First adult Hib outbreak in Europe (Hamburg); STIKO now recommends **Hib vaccination and post-exposure prophylaxis** for PWUD and PEH in outbreak settings

CDC CDC

Forthcoming outbreak guidance expected to recommend **considering vaccination** as part of the response to adult Hib outbreaks

Germany: Bühler S, Piechotta V, et al. *Euro Surveill.* 2026;31(35):2600134.

Building a Novel Surveillance System

Variables Collected: Housing

1. Current homelessness?

- If **no or unknown**, do they have a history of homelessness?
  - If **yes**, describe timing of past homelessness

2. Primary living situation

- Private residence in a long-term arrangement of more than 14 days
- Private residence in a short-term arrangement of 14 days or less or couch surfing/ temporarily staying with friends or relatives
- Permanent supportive housing and/or affordable housing for individuals transitioning out of homelessness
- Shelter
- Hotel/motel or vacation rental in a long-term arrangement of more than 14 days
- Hotel/motel or vacation rental in a short-term arrangement of 14 days or less
- Group home
- LTC facility
- School – congregate living
- Correctional facility
- Military barracks/ dormitory
- Foster home
- Migrant housing
- Unsheltered homeless
- Other

Building a Novel Surveillance System

Variables Collected: Substance Use

1

Injected drugs not prescribed by a doctor

2

Non-injection street drug use

3

Smoking any substance

(E.g. tobacco, marijuana, fentanyl, methamphetamine, cocaine, etc.)

If Y, **shared smoking supplies**

4

Alcohol Use



OTHER

Chronic lung disease (e.g., COPD, emphysema)

Building a Novel Surveillance System

Data Sources

Patient Interviews

- Ideally conducted during hospitalization
- Can be challenging when patients are unavailable or difficult to reach

Medical Records

Vaccination History

Building a Novel Surveillance System

Data Sources



Patient Interviews



Medical Records

- Hospital and outpatient records
- Clinical history and relevant exposures



Vaccination History

Building a Novel Surveillance System

Data Sources

Patient Interviews

Medical Records

Vaccination History

- Washington State Immunization Information System (WA IIS)
- Medical records and other vaccination records

Building a Novel Surveillance System

Investigation Guidance

Haemophilus influenzae serotype b (Hib) Invasive Disease

Interim guidelines for individuals ≥5 years of age

Signs and Symptoms	Signs and symptoms vary by infection site. Common manifestations of invasive disease include meningitis, bacteremia, cellulitis, epiglottitis, septic arthritis, osteomyelitis, pericarditis, and pneumonia. Note: *H. influenzae* serotype b (Hib) asymptomatic colonization is not reportable.	
Incubation	Unknown due to the potential for asymptomatic colonization.	
Case classification	**Clinical criteria:** Invasive disease may manifest as pneumonia, bacteremia, meningitis, epiglottitis, septic arthritis, cellulitis, or purulent pericarditis; less common infections include endocarditis and osteomyelitis.	
	Confirmed case: Isolation of Hib from a normally sterile body site (e.g., cerebrospinal fluid (CSF), blood, joint fluid [synovial fluid], pleural fluid, pericardial fluid) **OR** detection of Hib-specific nucleic acid in a specimen obtained from a normally sterile site using a validated PCR assay. **Note:** Only serotype b (Hib) is notifiable in individuals 5 years of age and older.	**Probable case:** Meningitis with detection of Hib antigen in CSF
Differential diagnosis	The differential diagnosis includes invasive non-serotype b *H. influenzae,* meningococcal, pneumococcal, streptococcal, and staphylococcal disease and respiratory viruses depending on the clinical presentation.	
Treatment	Most *H. influenzae* infections are treated empirically. Treatment should not be delayed while awaiting serotyping results. Given the novelty of this outbreak, there are no clear antibiotic recommendations for public health purposes for adults (i.e., to eradicate nasopharyngeal carriage). Not all antibiotics reliably	

Building a Novel Surveillance System

Investigation Guidance

H. influenzae invasive case age	Type of notifiability	Serotypes requiring investigation	Investigation timeline	Response
< 5 years old	Permanently notifiable	All serotypes and non-typeable	Urgent: begin on same day as notification	Possible chemoprophylaxis if type b, catch-up vaccination of contacts
≥ 5 years old	Provisionally notifiable starting 1/1/26	Serotype b only	Begin within 3 days of receiving serotyping results	*Additional response TBD based on findings from provisional reporting*

Building a Novel Surveillance System

Laboratory Efforts

RAPID SEROTYPING

1 day

median turnaround time

(mean: 2.7 days)



In-house **serotyping** and **whole-genome sequencing**



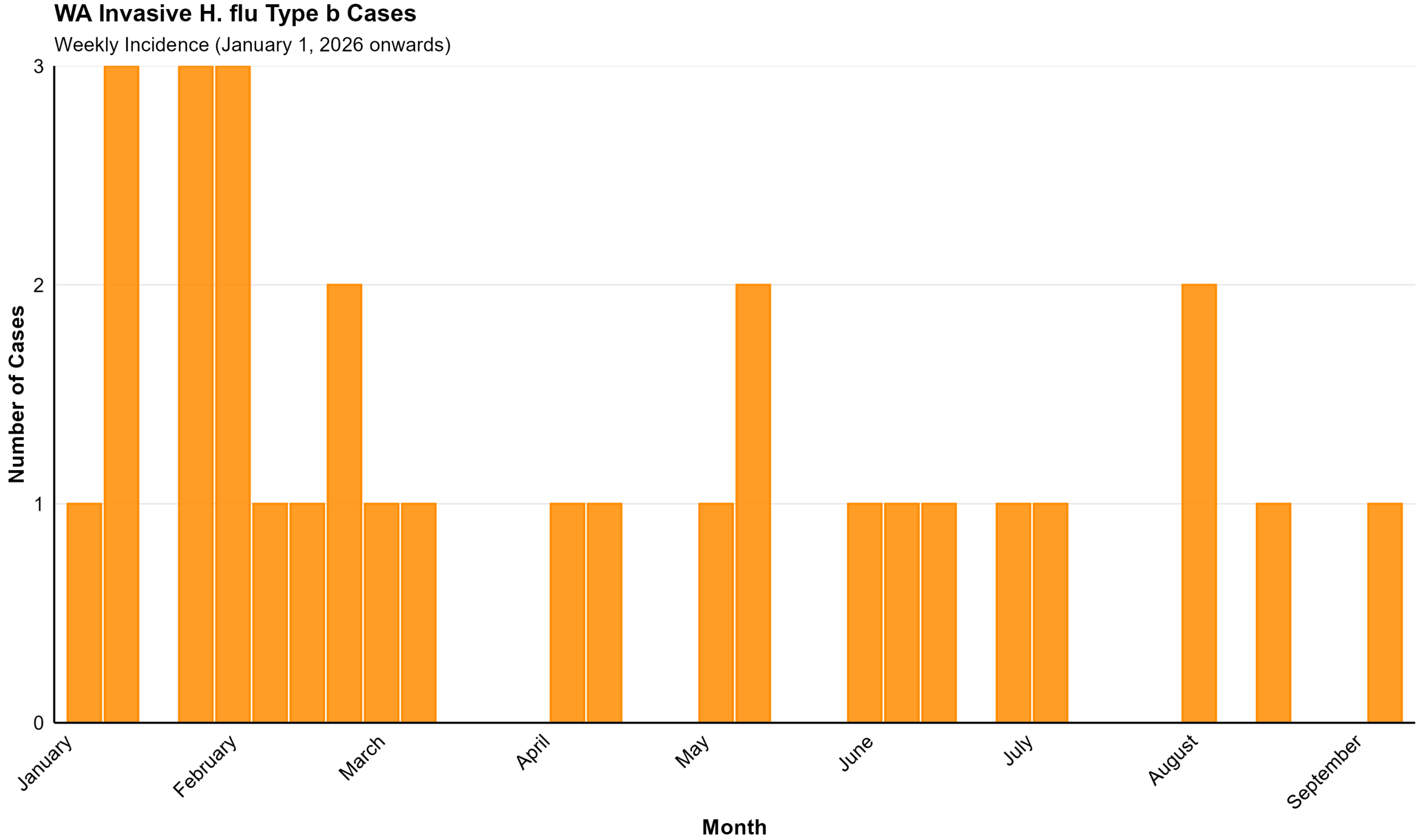
Enables timely case confirmation, genomic characterization, and outbreak monitoring



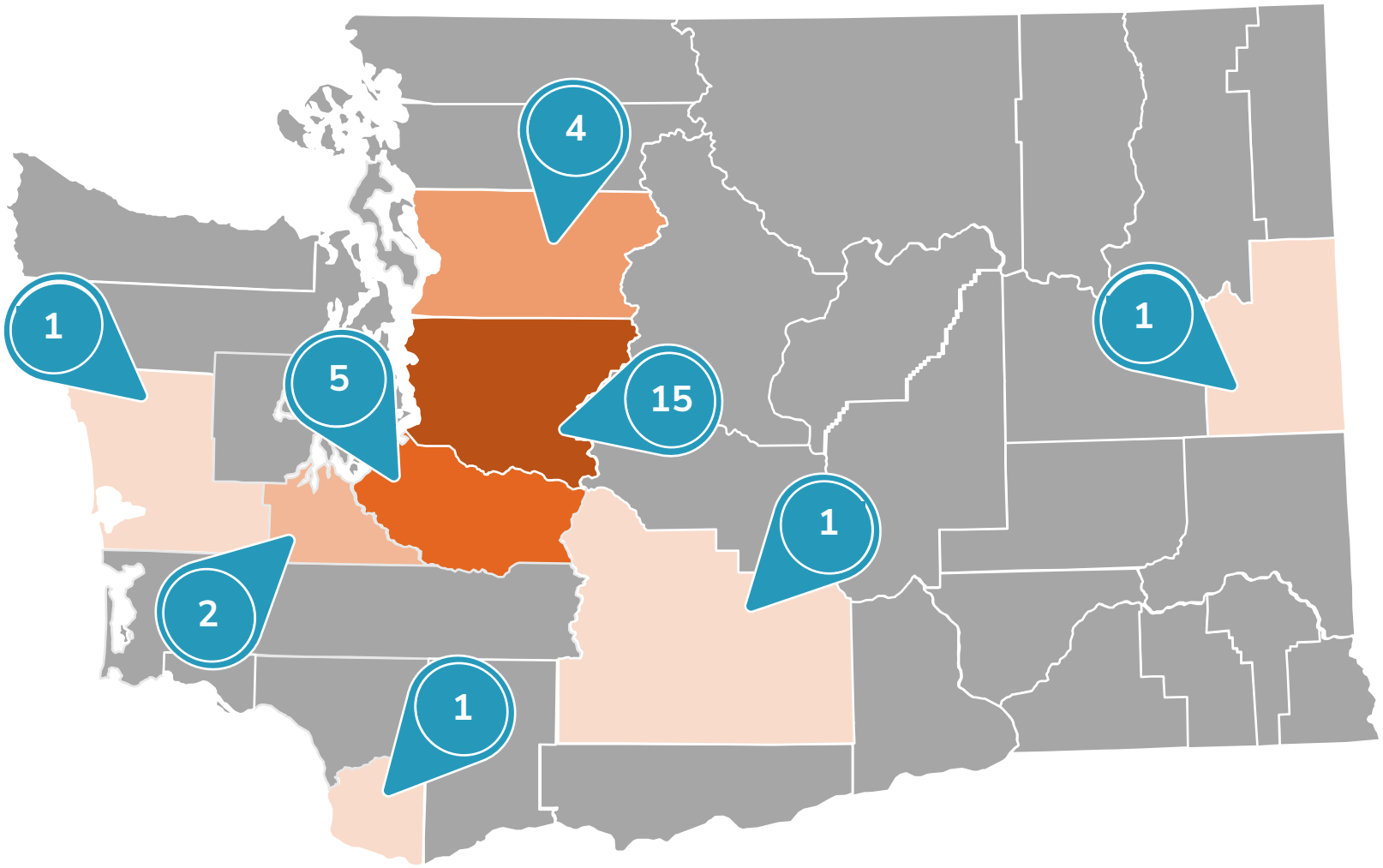
Thank you to our amazing partners at the Public Health Laboratories and to our local partners for their continued support and for submitting isolates!

Findings: January – September 2026 (n=30)

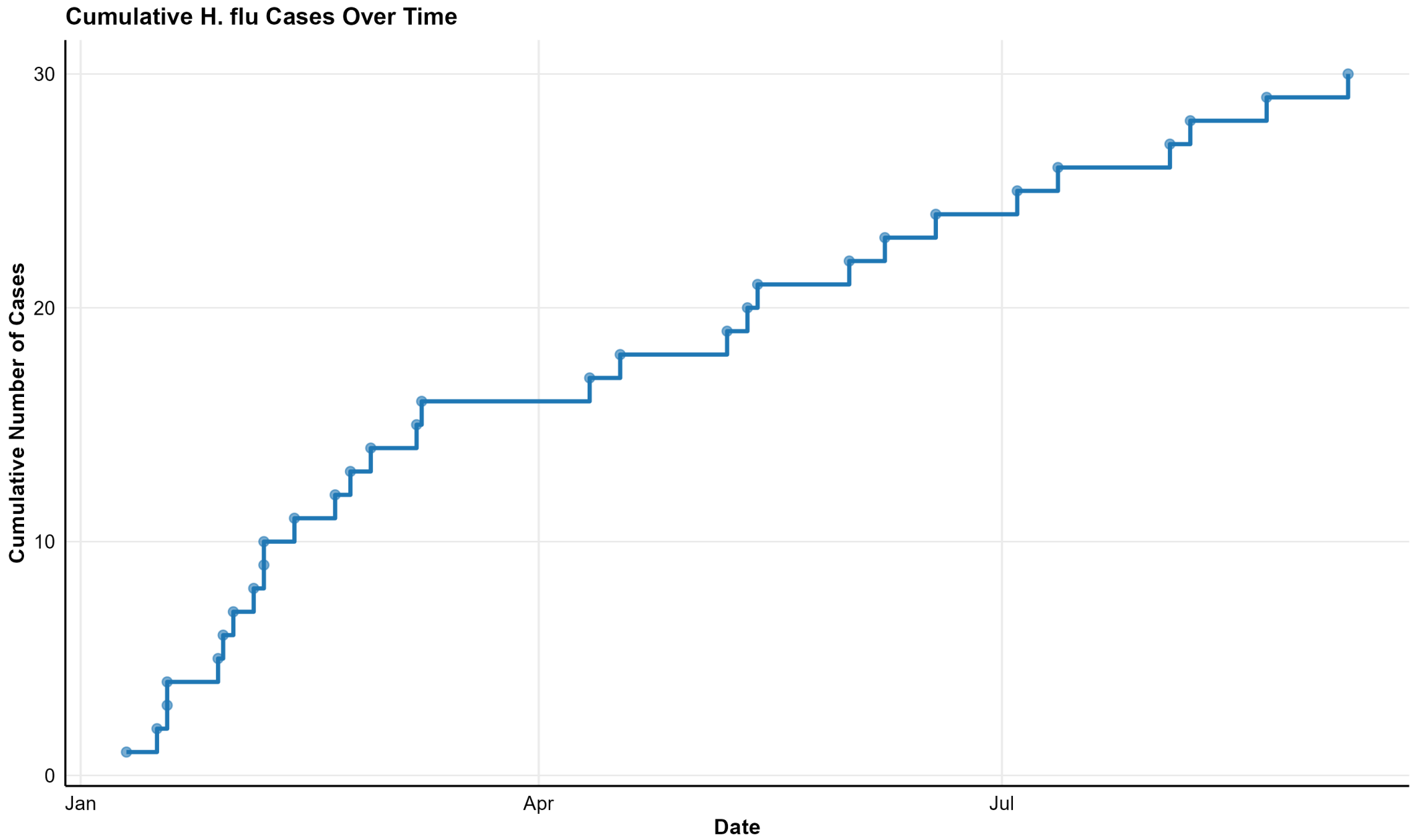
All data presented in the following slides is **preliminary and subject to change** and covers January – September 2026.


WA Invasive H. flu Type b Cases
Weekly Incidence (January 1, 2026 onwards)
Number of Cases
0
1
2
3
January
February
March
April
May
June
July
August
September
Month

30 Cases Reported Across Eight Washington Counties, Jan – Sep 2026



30 Cases Reported Across Eight Washington Counties, Jan – Sep 2026

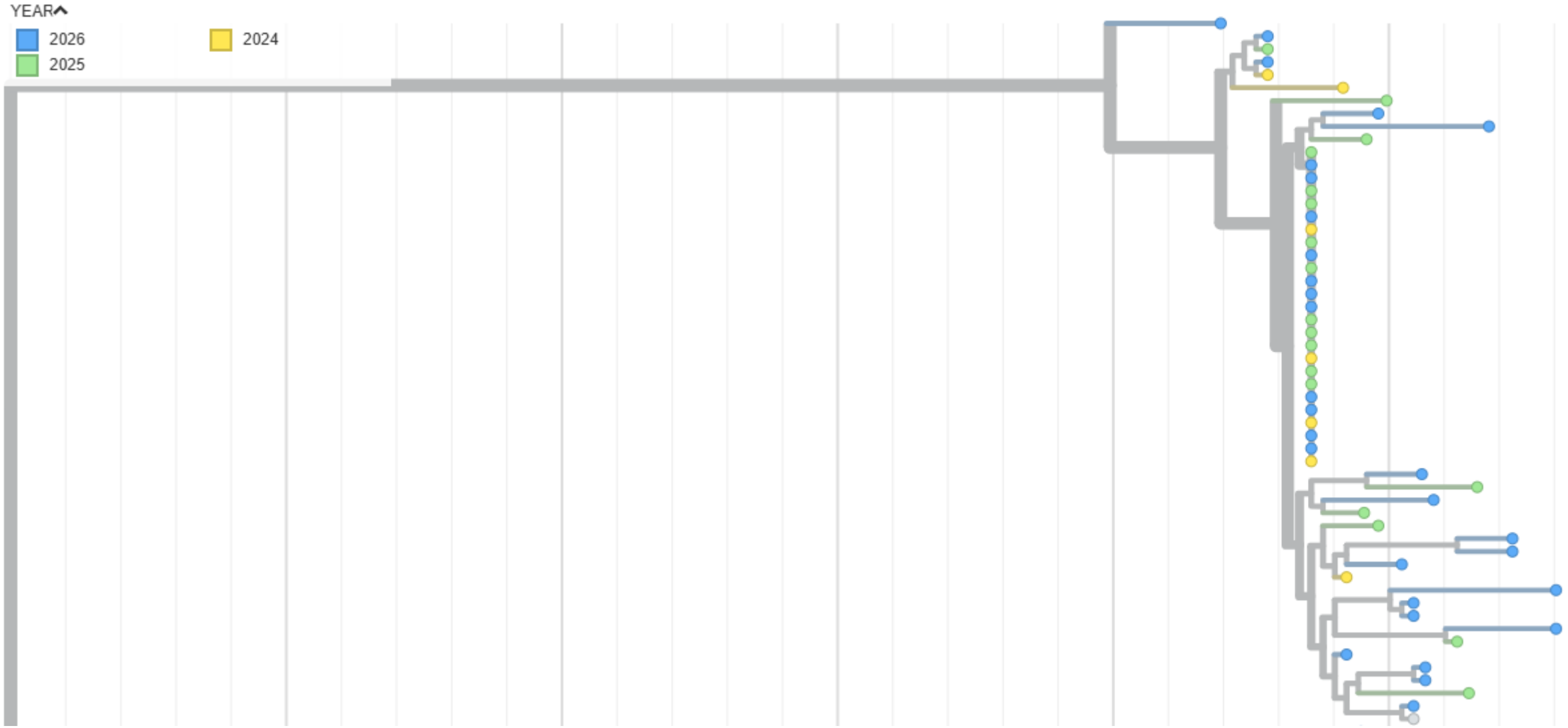


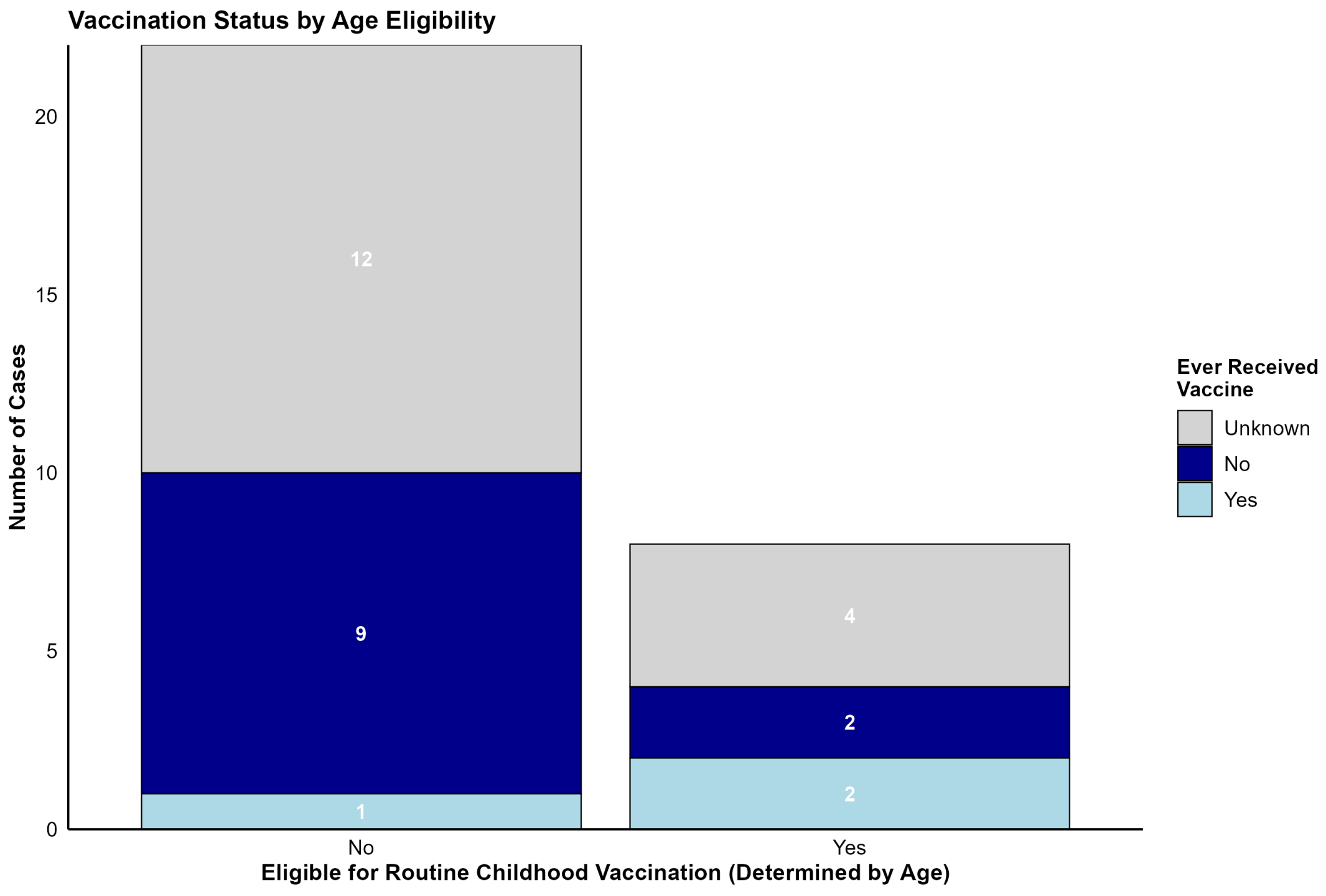
Patient Demographics & Outcomes (n=30)

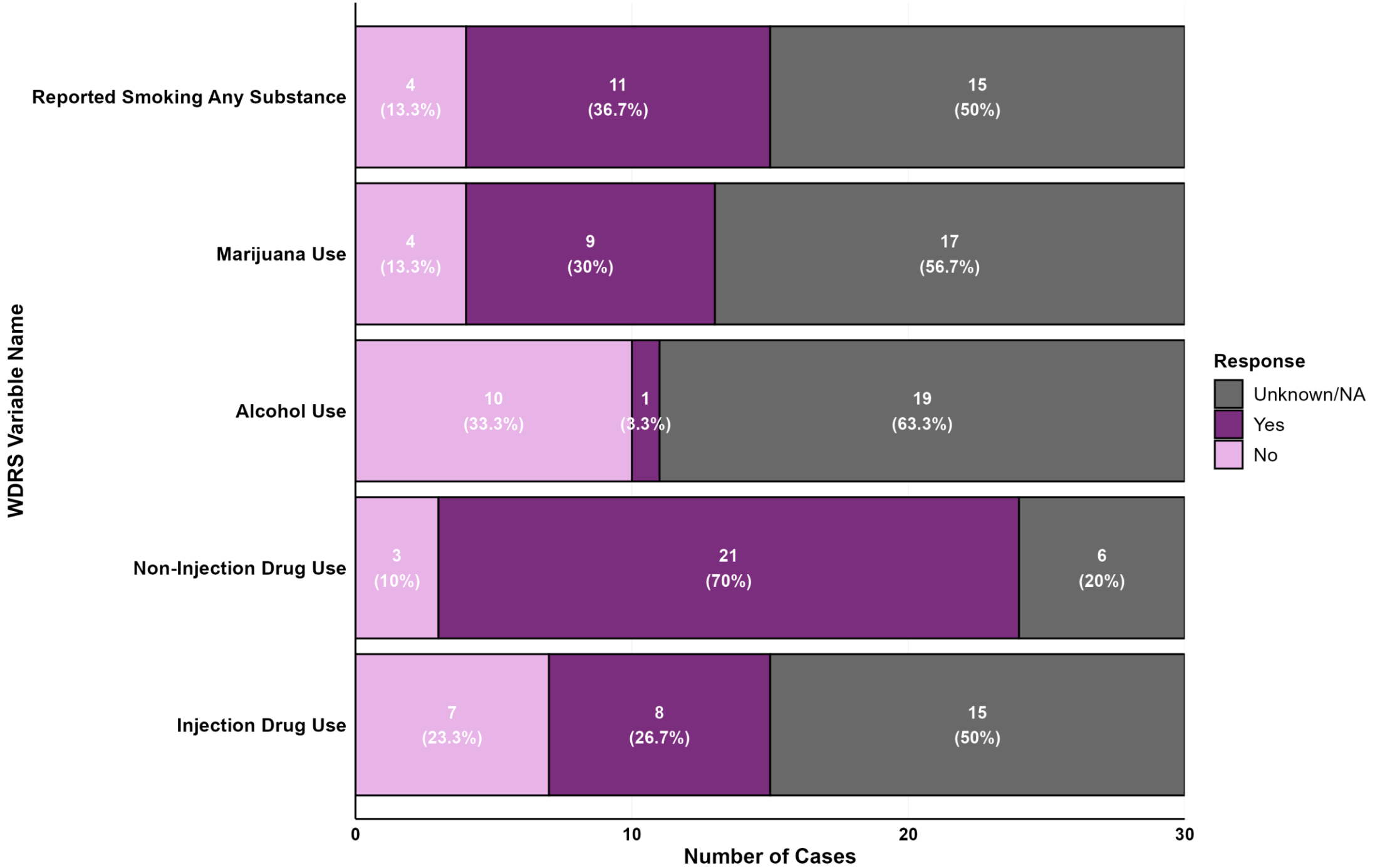
Characteristic	n	%
Age (median, range)	52	25-88 years
Sex, male	21	73%
Ethnicity, Non-Hispanic	27	93%
Reported Race		
White	19	64%
Black/African American	7	24%
American Indian/Alaskan Native	1	4%
Native Hawaiian/Pacific Islander	1	4%
Unknown/Other	2	6%
Hospitalized for at least one night*	27	90%
Deaths due to Hib or during hospitalization	1	4%

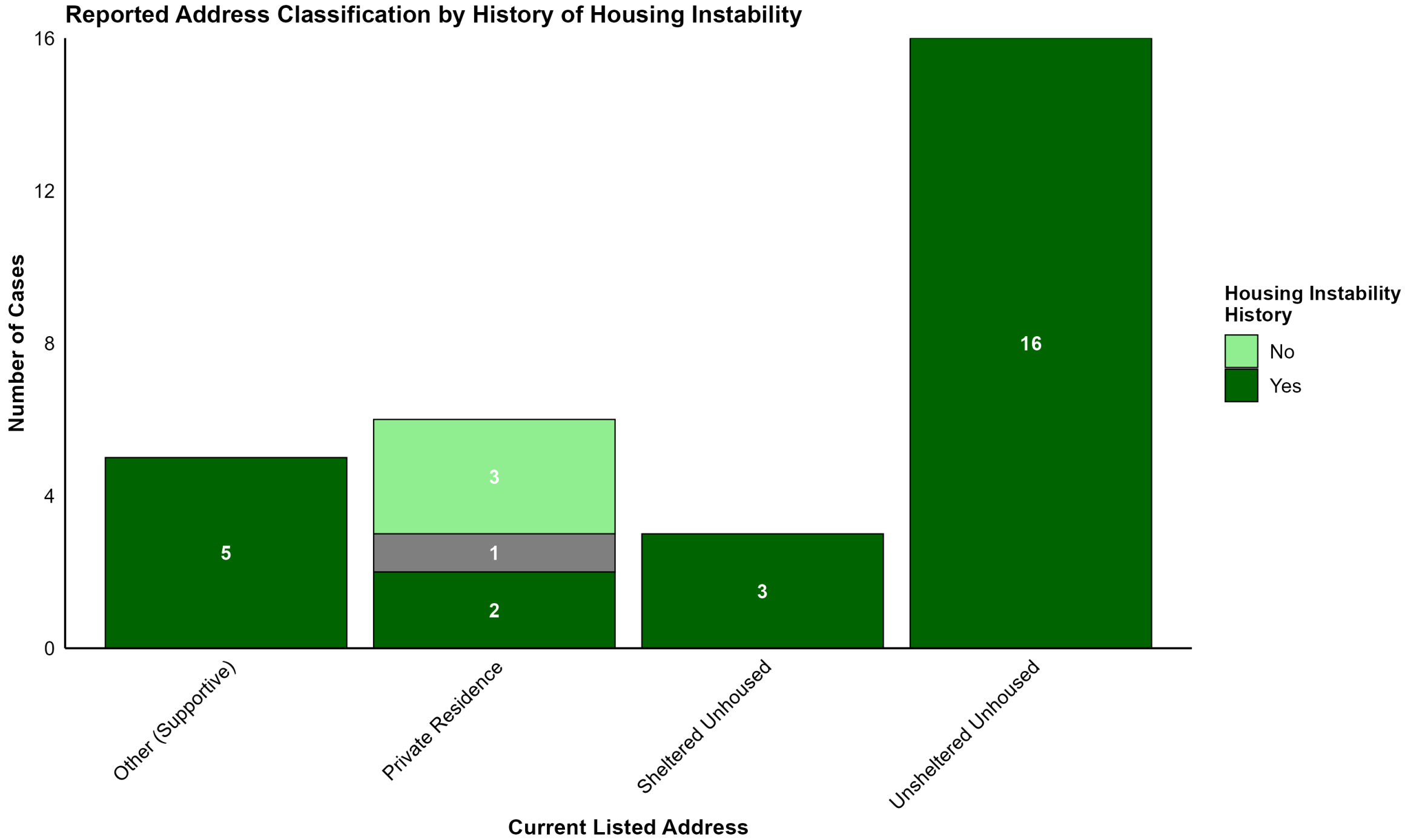
Laboratory Findings

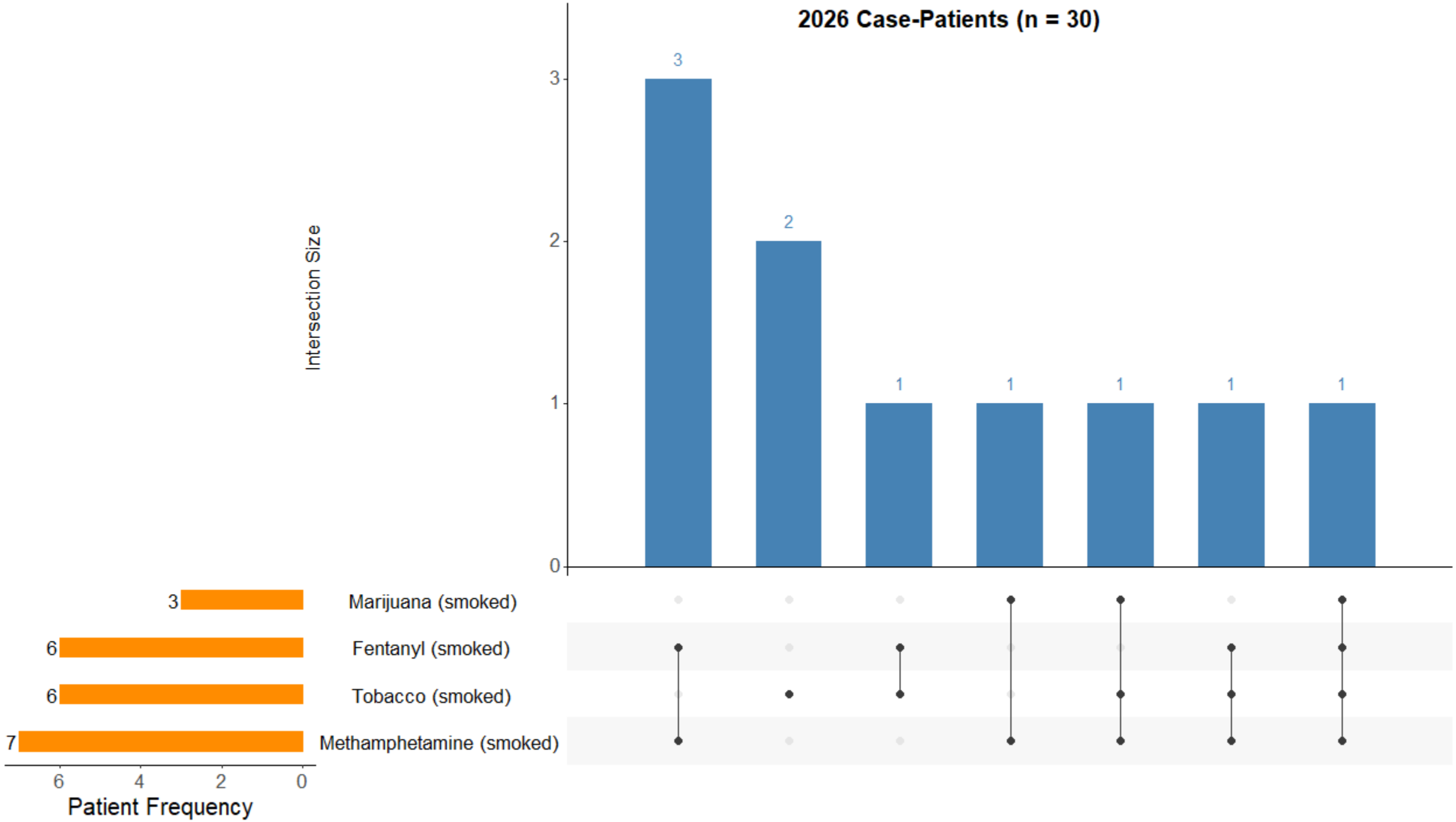
Phylogenetic Tree of Hib WGS from Adult Outbreak Cases




Vaccination Status by Age Eligibility
Number of Cases
0
5
10
15
20
12
9
1
4
2
2
No
Yes
Eligible for Routine Childhood Vaccination (Determined by Age)
Ever Received Vaccine
Unknown
No
Yes


Reported Smoking Any Substance
Marijuana Use
Alcohol Use
Non-Injection Drug Use
Injection Drug Use
WDRS Variable Name
4 (13.3%)
11 (36.7%)
15 (50%)
4 (13.3%)
9 (30%)
17 (56.7%)
10 (33.3%)
1 (3.3%)
19 (63.3%)
3 (10%)
21 (70%)
6 (20%)
7 (23.3%)
8 (26.7%)
15 (50%)
0
10
20
30
Number of Cases
Response
Unknown/NA
Yes
No


Reported Address Classification by History of Housing Instability
16
12
8
4
0
Number of Cases
5
3
1
2
3
16
Other (Supportive)
Private Residence
Sheltered Unhoused
Unsheltered Unhoused
Current Listed Address
Housing Instability History
No
Yes


2026 Case-Patients (n = 30)
Intersection Size
3
2
1
1
1
1
1
0
3
Marijuana (smoked)
6
Fentanyl (smoked)
6
Tobacco (smoked)
7
Methamphetamine (smoked)
6
4
2
0
Patient Frequency

Housing instability and substance use were common among patients with Hib, with substantial overlap between the two.

2026 Hib Cases (n=30)

Fentanyl or methamphetamine use	Current or history of housing instability			Total
	Yes	No	Unknown	
Yes	18 (69%)	1 (33.3%)	0 (0%)	**19**
No	0 (0%)	0 (0%)	0 (0%)	**0**
Unknown	8 (31%)	2 (66.7%)	1 (100%)	**11**
Total	**26**	**3**	**1**	**30**

63%

(19/30) had both documented

87%

(26/30) of patients with known housing status had housing instability

Whole Genome Sequencing

≤ 9

SNP differences among isolates

very closely related

1. Helps assess relatedness among illnesses given **asymptomatic carriage**
2. **All 2026 isolates** from WA state cases have been sequenced
3. True **across all counties** with sequenced isolates
4. Suggests **ongoing transmission of a novel and distinct strain** over time

Clinical Overview

100%

of adult Hib isolates have been obtained from **blood** (for all 30 cases)

90%

of cases hospitalized, median LOS: **5 days**

≥ 1

Preliminary: **at least 1 death** due to Hib or during hospitalization

0

cases of Hib **meningitis** have been reported among adults (for all 30 cases)

SECTION 04

Looking Ahead

Implications, limitations, and next steps

01 Learning Goals

02 Outbreak Emergence

03 Nine Months of Statewide Surveillance

04 **Looking Ahead**

Hib Vaccine Standing Order

WASHINGTON *STATE HAEMOPHILUS INFLUENZAE* TYPE B (Hib) VACCINE STANDING ORDER DRAFT

SUBJECT: Adult *Haemophilus influenzae* Type b (Hib) Vaccine Standing Order DRAFT

AUTHORITY: This standing order is issued under RCW 43.70.183, which authorizes the Secretary of Health or their designee to issue a prescription or standing order for any biological product, device, or drug for purposes of controlling and preventing the spread of, mitigating, or treating any infectious or noninfectious disease or threat to the public health.

PURPOSE: To prevent morbidity and mortality from invasive *Haemophilus influenzae* type b disease, this statewide Hib vaccine standing order authorizes qualified healthcare providers to administer Hib vaccine to people 5 years and older.

AUTHORIZATION: This standing order authorizes healthcare providers to administer any FDA-licensed Hib conjugate vaccine, including PedvaxHib, ActHIB, or Hiberix, to people 5 years and older who meet eligibility criteria, consistent with applicable law and the terms and conditions below.

TERMS AND CONDITIONS: Hib vaccination is authorized under this standing order for all eligible persons aged 5 years and older who reside in Washington State.

Vaccination under this standing order will be "off-label" use of currently licensed Hib vaccines. Health care providers can adhere to guidelines developed by professional associations and use their best medical judgement in vaccinating their patients.

Public Health Implications

An uncommon, vaccine-preventable disease is occurring among adults with social risk factors, including homelessness and substance use.

Evidence to guide adult Hib outbreak response is limited, compared with pediatric populations.

Clustering of cases suggests ongoing transmission, potentially within connected social networks.

Targeted prevention strategies may be needed, including vaccination and outreach to populations at highest risk.

Data Limitations & Next Steps

DATA LIMITATIONS

Incomplete data limit our understanding of transmission patterns and risk factors.

Traditional surveillance approaches, such as **phone-based follow-up, may be less effective** for reaching people experiencing homelessness or housing instability.

NEXT STEPS

Improving case and risk-factor ascertainment will be important for strengthening the response.

Continued surveillance and investigation will help **refine prevention strategies as more data become available.**

Revisiting the Learning Goals



GOAL 1

A rare adult Hib outbreak

What we know about this evolving outbreak of a vaccine-preventable disease in an adult population, where evidence to guide response is more limited than in children.



GOAL 2

Emerging risk factors

What we are learning about housing instability and substance use among affected adults, and the challenges of capturing these factors through surveillance.



GOAL 3

Using genomics to understand transmission

How whole-genome sequencing (WGS) complemented epidemiologic surveillance to identify related cases across jurisdictions and better characterize the outbreak.



GOAL 4

Adapting the public health response

How public health partners are applying existing evidence and adapting recommendations as new information becomes available.

Questions and Discussion

What questions do you have about this outbreak or our findings?

What would be **most helpful from DOH** as you respond to Hib cases in your jurisdiction: case investigation support, lab/serotyping coordination, risk-factor data collection tools, something else?

We're considering a vaccine response for adults at highest risk (people experiencing homelessness, people who use drugs). **Is this something your jurisdiction would be interested in? What would you need from us to make that work locally?**

Please, share feedback!

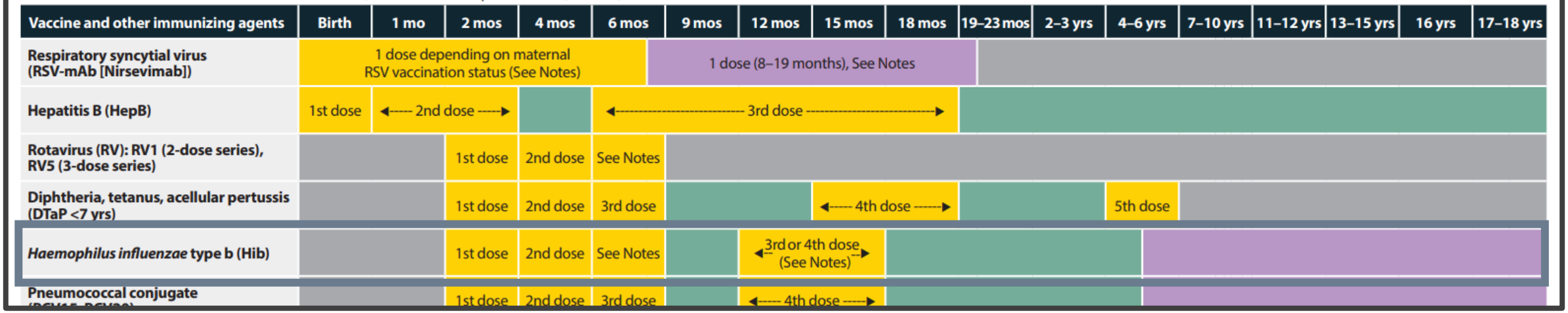
Cami.Rencken@doh.wa.gov
&
Nicholas.Graff@doh.wa.gov



To request this document in another format, call 1-800-525-0127. Deaf or hard of hearing customers, please call 711 (Washington Relay) or email doh.information@doh.wa.gov.

Table 1 Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2025

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).



Current vaccine recommendations for adults

Special situations

- **Anatomical or functional asplenia (including sickle cell disease):** 1 dose if previously did not receive Hib vaccine.
- **Elective splenectomy:** 1 dose preferably at least 14 days before splenectomy.
- **Hematopoietic stem cell transplant (HSCT):** 3-dose series 4 weeks apart starting 6–12 months after successful transplant, regardless of Hib vaccination history.

Haemophilus influenzae type b (Hib) Vaccine

- **Purpose**
  - Prevents invasive Hib disease (meningitis, pneumonia, epiglottitis)
  - Does **not** protect against other H. influenzae strains
- **Who Should Be Vaccinated**
  - **Children <5 years** – routine series
  - **Older children & adults** – only in special situations (e.g., immunocompromised)
- **Vaccine Types**
  - **Monovalent conjugate vaccines:** ActHIB®, Hiberix®, PedvaxHIB®
  - **Combination vaccines:** Pentacel®, Vaxelis™ – reduce number of injections
- **Effectiveness & Immunity**
  - 95% of infants develop protective antibodies after the primary series
  - Invasive disease is rare in fully vaccinated children
- **Long-lasting protection**, but exact duration unknown
  - Immunogenic in high-risk groups (sickle-cell, leukemia, HIV, asplenia)
- **Administration**
  - Given as a multi-dose primary series starting at 6 weeks of age
  - Booster dose recommended in early childhood