ILLINOIS CHAPTER
American Academy of Pediatrics
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Meningococcal Disease and Vaccine Recommendations

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- Medical Director for Communicable Disease, Chicago Department of Public Health.
- Veterinary epidemiologist.

Learning Objectives

As a result of attending this webinar, participants will be able to:

01 Discuss the impact of Meningococcal disease in Illinois.

02 Review the Meningococcal vaccination schedule and recommendations.

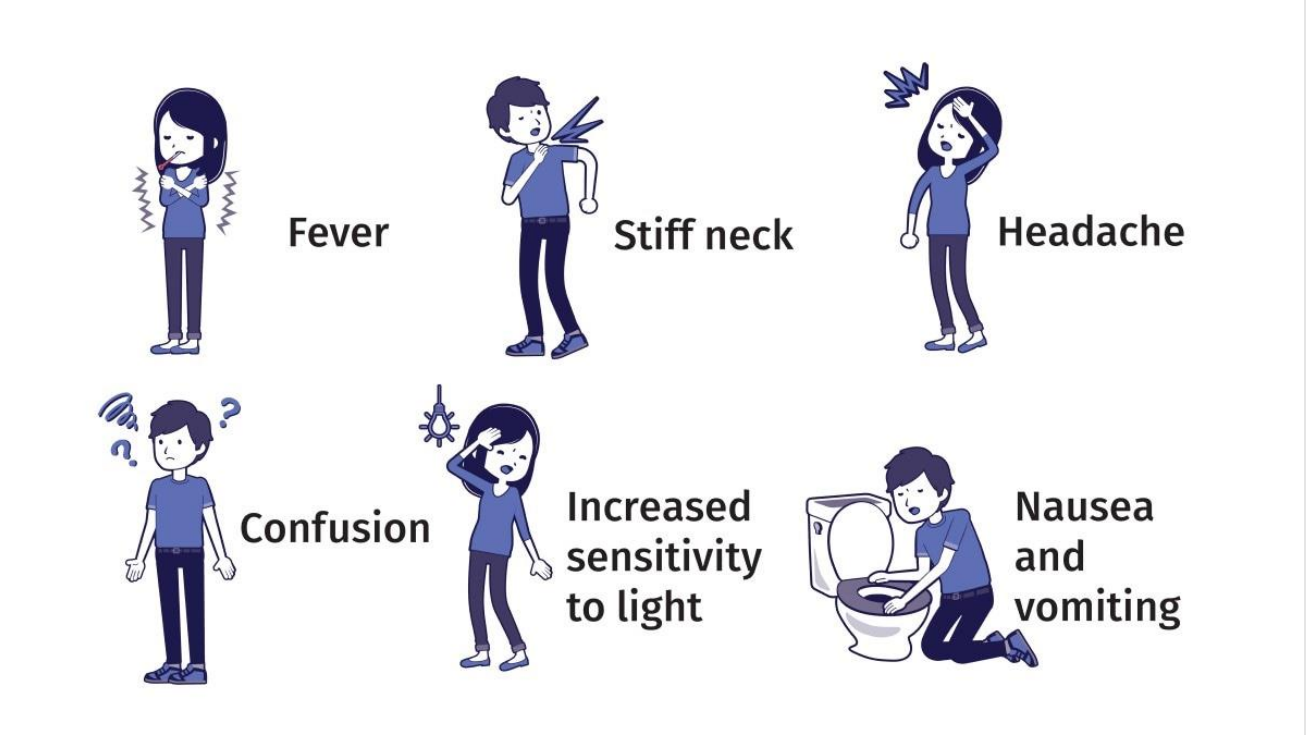
03 Review the epidemiological background of Meningococcal disease.

04 Identify strategies to combat vaccine hesitancy and increase vaccine uptake during outbreaks.

What is Meningococcal Disease?

- Invasive meningococcal disease is caused by the bacteria *Neisseria meningitidis.*
- In about 1 in 10 people, *N. meningitidis* lives in the back of the throat or nose and does not cause symptoms.
- In some people, the bacteria spread and cause infection.
- Illness usually occurs 2–10 days after exposure.

Meningitis and bloodstream infections are the most common types of infection caused by *N. meningitidis*

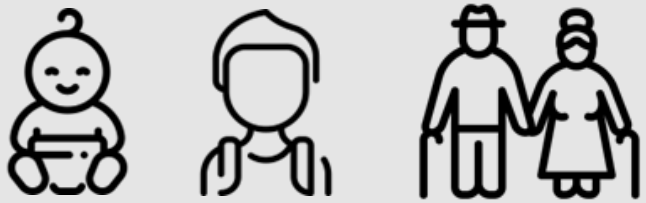


How is Meningitis spread?

- Meningococcal disease is spread from person to person and requires lengthy or close contact.
- Spread occurs through respiratory and throat secretions.

- Examples of lengthy or close contact:
  - Living in the same household.
  - Sneezing or coughing in someone’s face.
  - Kissing.
  - Sharing cigarettes.
  - Sharing eating utensils.

Risk Factors



Age

Medical conditions

Medications

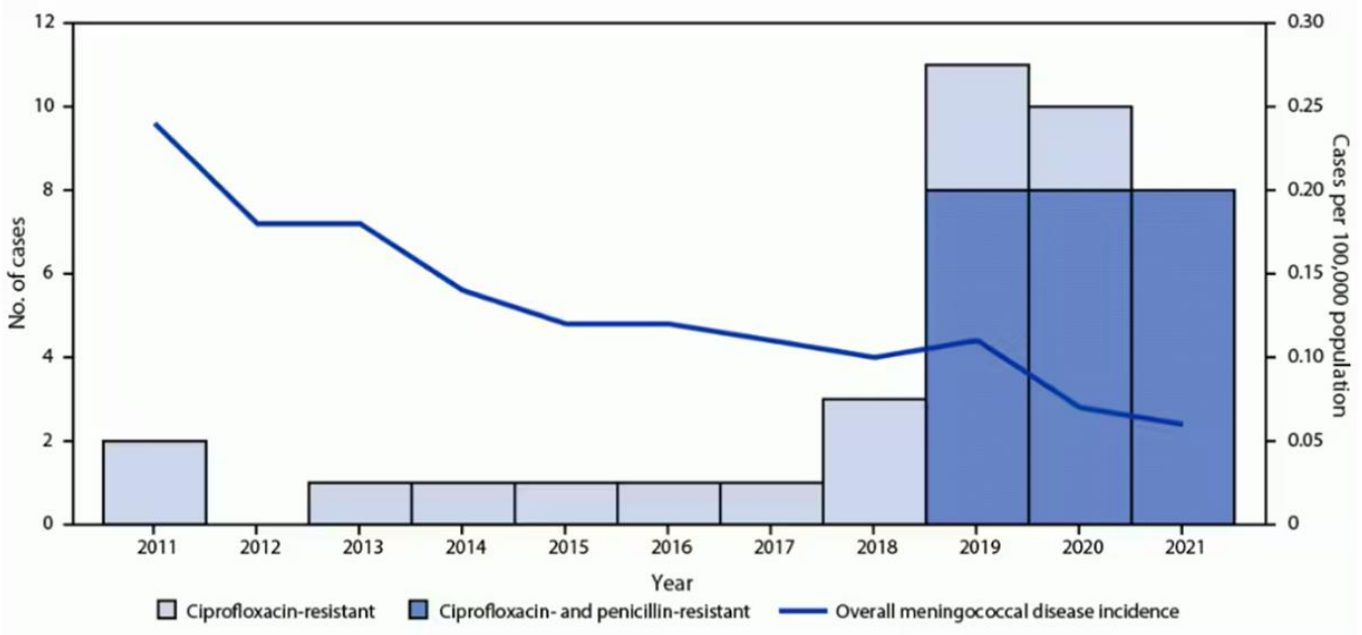
Settings

Travel

Diagnosis & Treatment

- Diagnosis is typically through CSF or blood culture or PCR.
- Treatment should include an extended-spectrum cephalosporin, but antibiotic-resistant strains are increasing so antimicrobial susceptibility testing is useful.

FIGURE 1. Meningococcal disease incidence and number of invasive meningococcal disease cases caused by ciprofloxacin-resistant or ciprofloxacin- and penicillin-resistant strains of *Neisseria meningitidis* — United States, 2011–2021



Berry I, Rubis AB, Howie RL, et al. Selection of Antibiotics as Prophylaxis for Close Contacts of Patients with Meningococcal Disease in Areas with Ciprofloxacin Resistance — United States, 2024. MMWR Morb Mortal Wkly Rep 2024;73:99–103. DOI: http://dx.doi.org/10.15585/mmwr.mm7305a2

3 serogroups cause most meningococcal disease:

B C Y

3 vaccines provide protection:

MenACWY | MenB | MenABCWY

Talk to a healthcare provider about what vaccines are best for you or your child.

cdc.gov/meningococcal

https://www.cdc.gov/meningococcal/about/index.html

Infection Prevention & Control Measures

- Standard & droplet precautions recommended for first 24 hours after appropriate antibiotic therapy.
- Post-exposure chemoprophylaxis:
  - Recommended for high-risk contacts.
    - Household members.
    - Childcare or preschool contact within 7d before illness onset.
    - Direct exposure to index patient's secretions in 7d before illness onset.
    - Mouth-to-mouth resuscitation, endotracheal intubation.
  - Not recommended for low-risk contacts.
    - Casual contacts e.g. schoolmates or coworkers.
    - Contact to a contact but not to an ill patient.

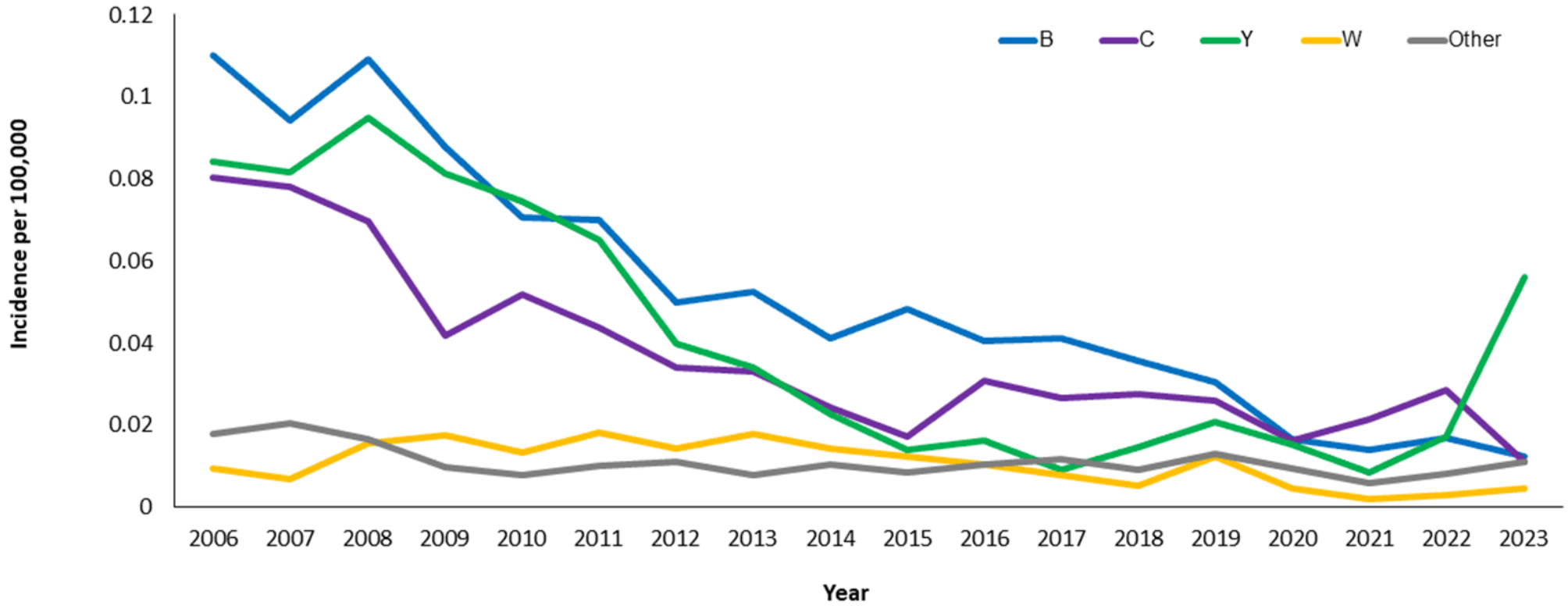
Table 3.36. Recommended Chemoprophylaxis Regimens for High-Risk Contacts and People With Invasive Meningococcal Disease

Age of Infants, Children, and Adults	Dose	Duration	Efficacy, %	Cautions
Rifampin[a]				
<1 mo	5 mg/kg per dose, orally, every 12 h	2 days		Discussion with an expert for infants <1 mo
≥1 mo	10 mg/kg per dose (maximum 600 mg), orally, every 12 h	2 days	90–95	Can interfere with efficacy of oral contraceptives and some seizure and anticoagulant medications; can stain soft contact lenses
Ceftriaxone				
<15 y	125 mg, intramuscularly	Single dose	90–95	To decrease pain at injection site, dilute with 1% lidocaine
≥15 y	250 mg, intramuscularly	Single dose	90–95	To decrease pain at injection site, dilute with 1% lidocaine
Ciprofloxacin[a,b]				
≥1 mo	20 mg/kg (maximum 500 mg), orally	Single dose	90–95	
Azithromycin	10 mg/kg (maximum 500 mg)	Single dose	90	Not recommended routinely; equivalent to rifampin for eradication of *Neisseria meningitidis* from nasopharynx in one study of young adults

[a]Not recommended for use in pregnant women.

Red Book, 2024–2027

Trends in Meningococcal Disease Incidence by Serogroup – United States, 2006–2023*



Source: NNDSS data with additional serogroup data from Active Bacterial Core surveillance (ABCs) and state health departments
*2022 and 2023 data are preliminary

https://www.cdc.gov/meningococcal/php/surveillance/index.html

Cases Increasing in the U.S.

- Last year saw the highest number of cases since 2014.
  - 2023 – 422 total cases.
- Most cases caused by serogroup Y.
- CDC health alert encourages providers to have a heightened suspicion for the disease especially in groups disproportionally affected.
- Ensure that anyone who is recommended for vaccination are up to date.

https://emergency.cdc.gov/han/2024/han00505.asp

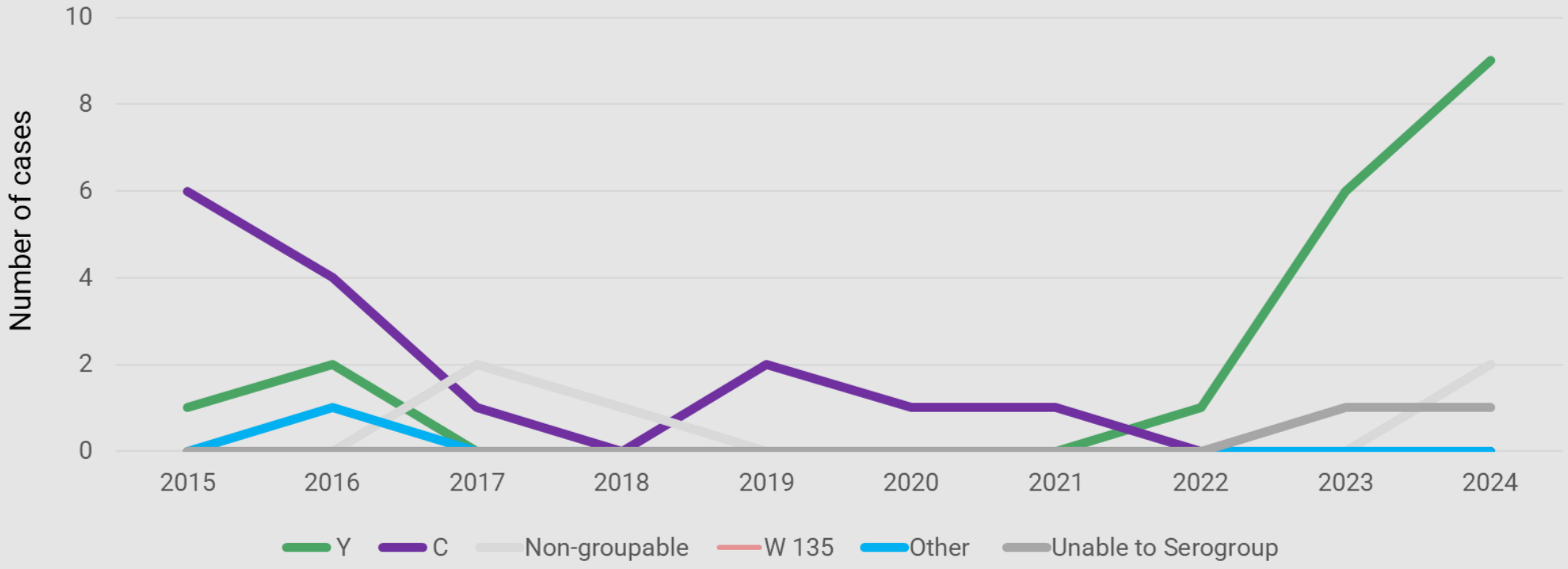
The increase in meningococcal disease is disproportionately affecting certain populations:

- People between 30–60 years old.
- Black or African-American people.
- Adults with HIV.

Meningitis in Illinois

- Viral meningitis more common in Illinois than bacterial
  - Around 600 cases reported in IL each year.
- Frequency of bacterial meningitis varies by the bacterial infection causing the meningitis.
- Invasive meningococcal disease cases occur throughout Illinois.
  - In 2024, Chicago cases make up 76% of all cases in the state.
  - Cases in Central and Southern Illinois were also reported.

Trends in Meningococcal Disease Incidence in Chicago, 2015–2024



Chicago cases overall mirrored national trends:

	N = 19 (%)
Age	52yrs (2mo–86)
Male	11 (57.9)
Non-Hispanic Black	9 (47.4)
Hispanic/Latino	8 (42.1)
Non-Hispanic AI	1 (5.3)
Non-Hispanic White	1 (5.3)
Bacteremia	18 (94.7)
Deaths	5 (26.3)
Congregate Setting	2 (10.5)
Complement Inhibitor	1 (5.3)
HIV positive	1 (5.3)

Over half of cases (58%) were between 30–60 years old, with a median age of 52 years:

	N = 19 (%)
Age	52yrs (2mo–86)
Male	11 (57.9)
Non-Hispanic Black	9 (47.4)
Hispanic/Latino	8 (42.1)
Non-Hispanic AI	1 (5.3)
Non-Hispanic White	1 (5.3)
Bacteremia	18 (94.7)
Deaths	5 (26.3)
Congregate Setting	2 (10.5)
Complement Inhibitor	1 (5.3)
HIV positive	1 (5.3)

Both Black and Hispanic/Latino populations have been disproportionately affected in Chicago:

	N = 19 (%)
Age	52yrs (2mo–86)
Male	11 (57.9)
Non-Hispanic Black	9 (47.4)
Hispanic/Latino	8 (42.1)
Non-Hispanic AI	1 (5.3)
Non-Hispanic White	1 (5.3)
Deaths	5 (26.3)
Bacteremia	18 (94.7)
Congregate Setting	2 (10.5)
Complement Inhibitor	1 (5.3)
HIV positive	1 (5.3)

Nearly all cases have presented with bacteremia:

	N = 19 (%)
Age	52yrs (2mo–86)
Male	11 (57.9)
Non-Hispanic Black	9 (47.4)
Hispanic/Latino	8 (42.1)
Non-Hispanic AI	1 (5.3)
Non-Hispanic White	1 (5.3)
Bacteremia	18 (94.7)
Deaths	5 (26.3)
Congregate Setting	2 (10.5)
Complement Inhibitor	1 (5.3)
HIV positive	1 (5.3)

More than 1 in 4 cases in Chicago have been fatal:

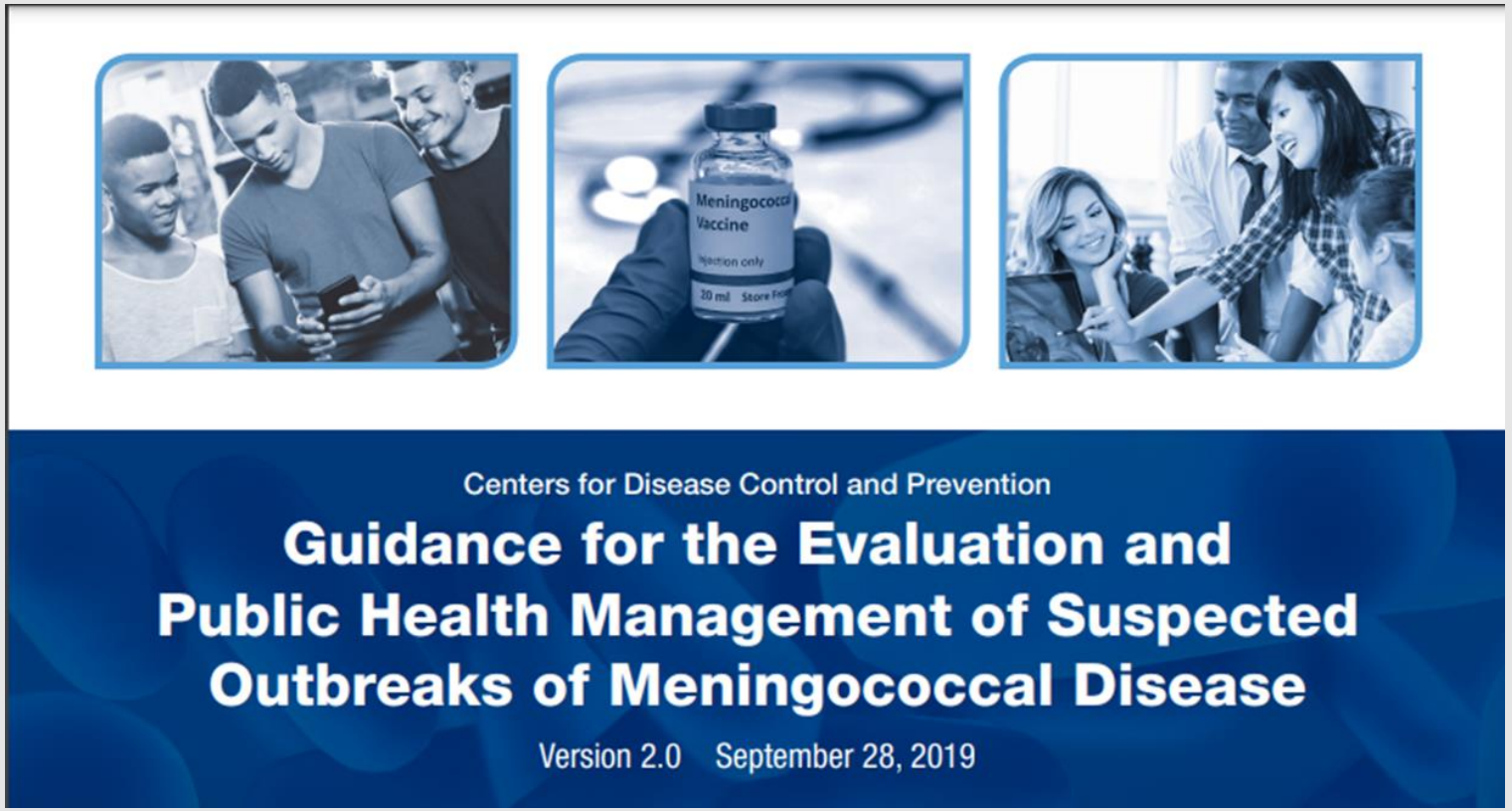
	N = 19 (%)
Age	52yrs (2mo–86)
Male	11 (57.9)
Non-Hispanic Black	9 (47.4)
Hispanic/Latino	8 (42.1)
Non-Hispanic AI	1 (5.3)
Non-Hispanic White	1 (5.3)
Bacteremia	18 (94.7)
Deaths	5 (26.3)
Congregate Setting	2 (10.5)
Complement Inhibitor	1 (5.3)
HIV positive	1 (5.3)

Two cases in 2024 occurred in a congregate setting:

	N = 19 (%)
Age	52yrs (2mo–86)
Male	11 (57.9)
Non-Hispanic Black	9 (47.4)
Hispanic/Latino	8 (42.1)
Non-Hispanic AI	1 (5.3)
Non-Hispanic White	1 (5.3)
Bacteremia	18 (94.7)
Deaths	5 (26.3)
Congregate Setting	2 (10.5)
Complement Inhibitor	1 (5.3)
HIV positive	1 (5.3)

What is an outbreak?

- CDC guidance defines outbreaks as community-based or organization-based.



What is an outbreak?

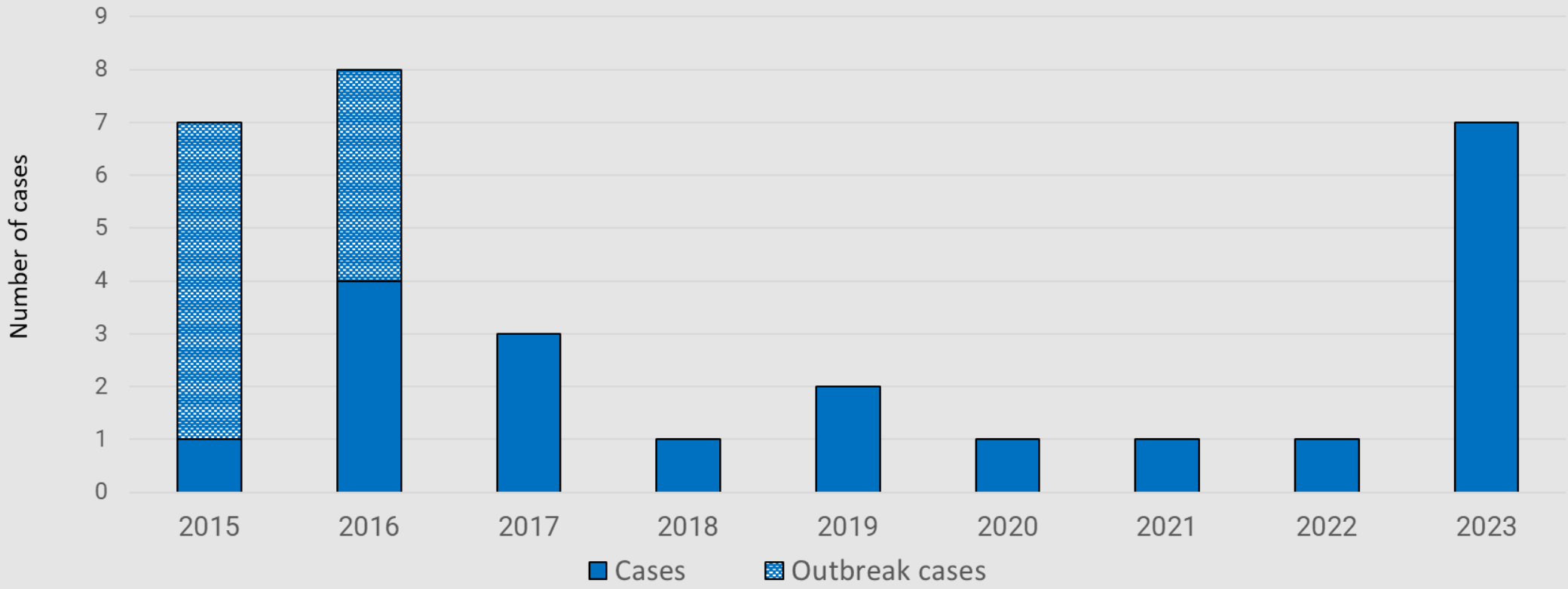
Organization-based outbreak

- Same serogroup.
- Cases linked by a common affiliation.
  - University.
  - Daycare.
  - Correctional facility.
  - Shelter.
- 2–3 outbreak-associated cases in a 3-month period is considered an outbreak.

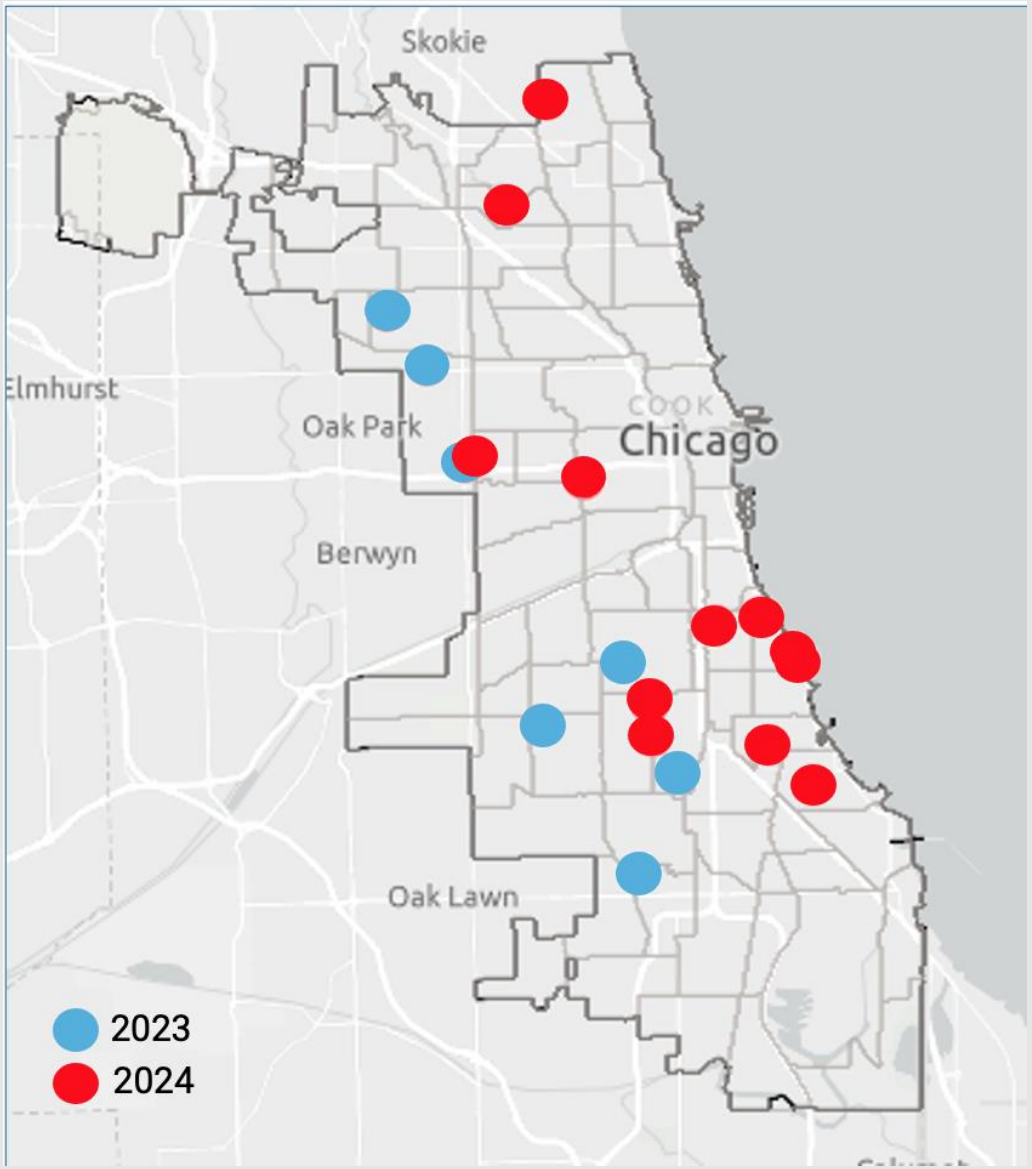
Community-based outbreak

- Same serogroup.
- Cases linked by a common geography or a population with shared characteristics.
  - Community area.
  - Neighborhood.
  - Men who have sex with men (MSM).
- Multiple outbreak-associated cases with an incidence of meningococcal disease above what is expected in a community during a 3-month period.

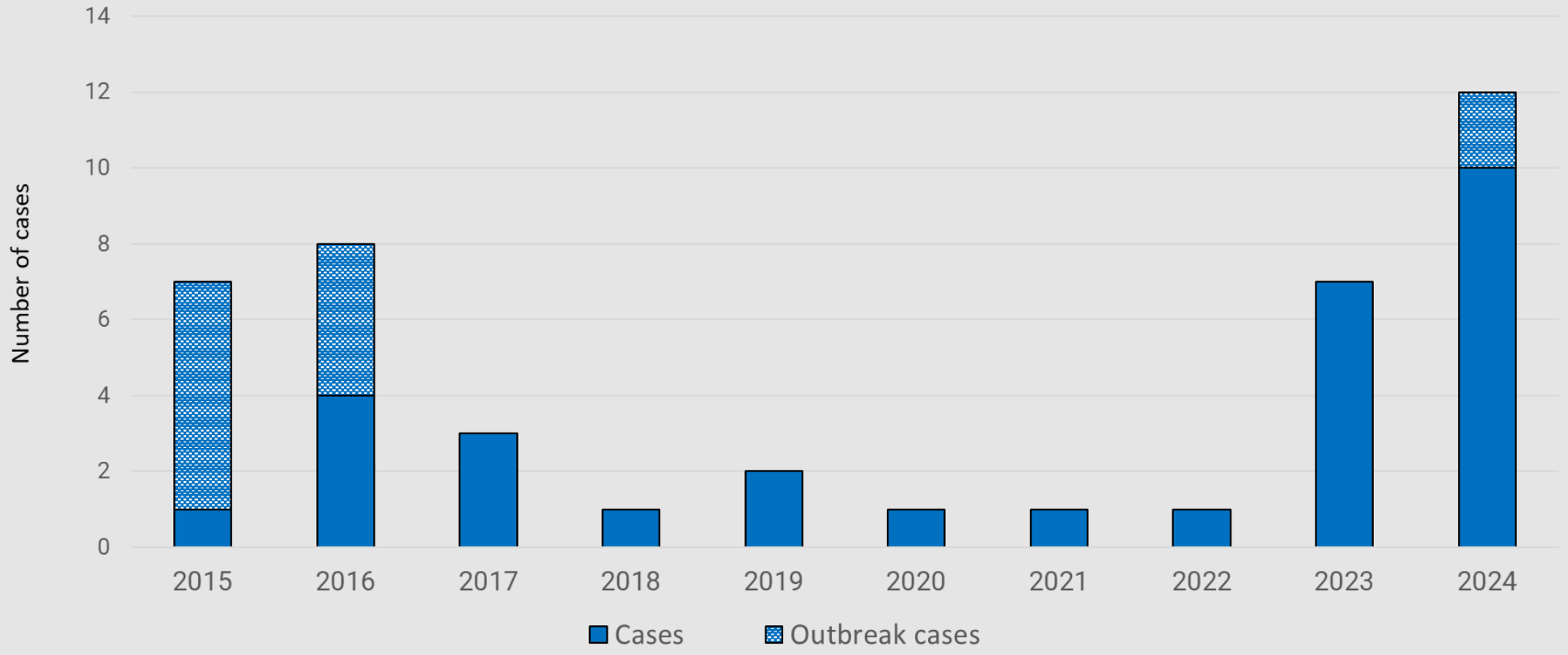
Community outbreak in 2015–2016 among MSM (Chicago)



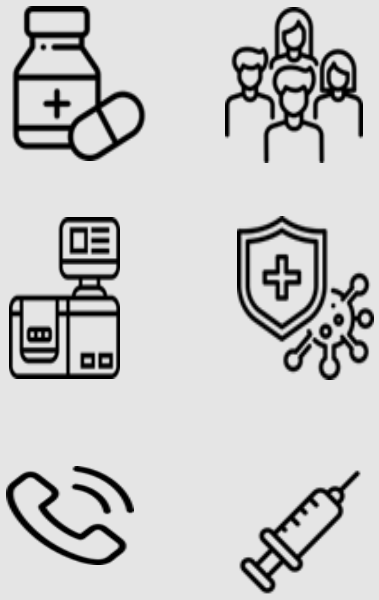
In 2023-2024, cases were concentrated on the south side of Chicago, but we were unable to identify a community outbreak.



In 2024, we did identify 2 cases of invasive meningococcal disease occurring at the same shelter:



Two cases in a shelter were considered to be an outbreak and led to a large public health response:



- Post-exposure prophylaxis provided to close contacts of case
- Molecular characterization & antimicrobial susceptibility testing
- Consultation with CDC for vaccine strategy
- Outreach to shelter staff & residents
- Infection control assessments
- Vaccination campaign

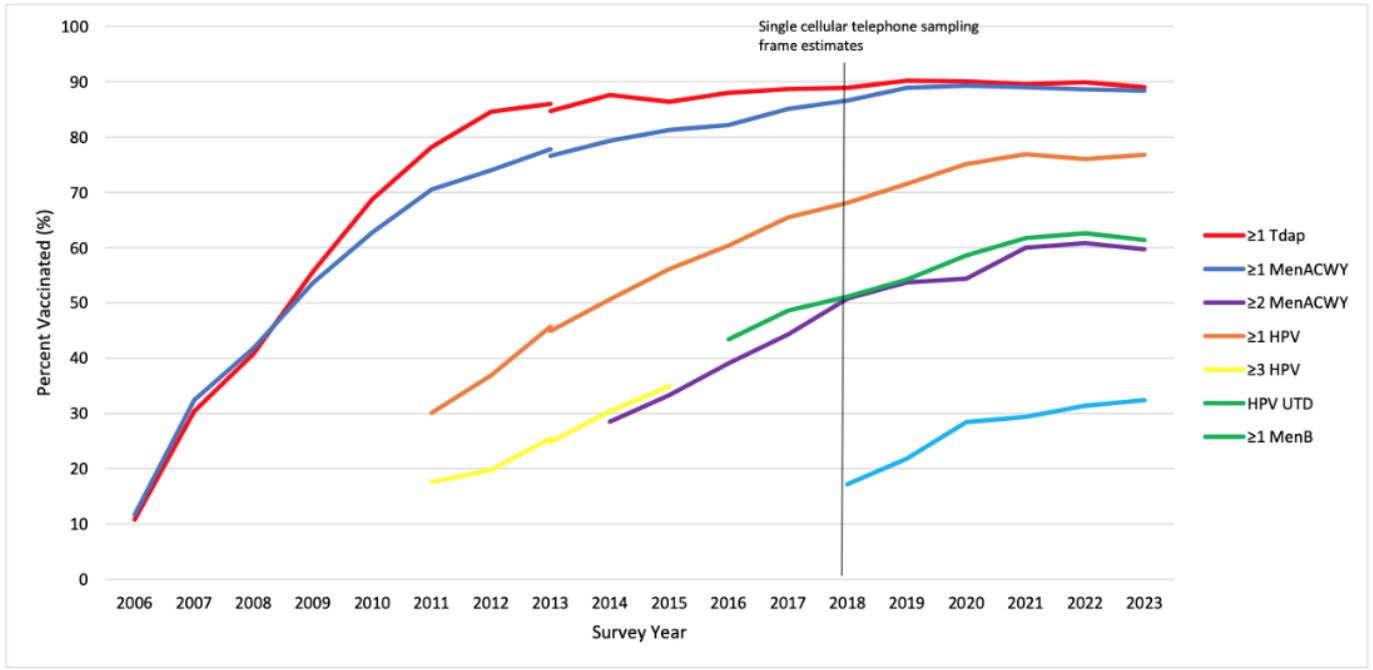
To date, no additional cases of meningococcal disease have been identified at the shelter.

- Three family members received post-exposure prophylaxis.
- *N. meningitidis* was not found to be resistant to ciprofloxacin.
- Education campaign included multiple daily oral & electronic announcements, posting of educational materials, and at least 4 rounds of door knocking.
- 3 vaccine clinics were held in 5 days; 234 doses of Meningococcal ACWY were administered.

Vaccination

Meningococcal Vaccination Rates

Supplementary Figure 1. Estimated vaccination coverage with selected vaccines and doses*,† among adolescents aged 13-17 years, by survey year — National Immunization Survey-Teen§¶, United States, 2006–2023



- 2023: 88.4% of teens 13-17 years old in the U.S. had received at least one dose.
  - Coverage for MenB had increased by 3%.
  - MenACWY vaccination had decreased by 2.6% for children born in 2008.
- During the ‘22-’23 school year, Chicago was one of two Illinois counties with the lowest Meningococcal vaccination rates (79.9% avg county coverage).

https://dph.illinois.gov/topics-services/prevention-wellness/immunization/coverage-dashboards/school-vaccination-coverage-dashboard.html
https://stacks.cdc.gov/view/cdc/159388

Cases Averted Due to Vaccination

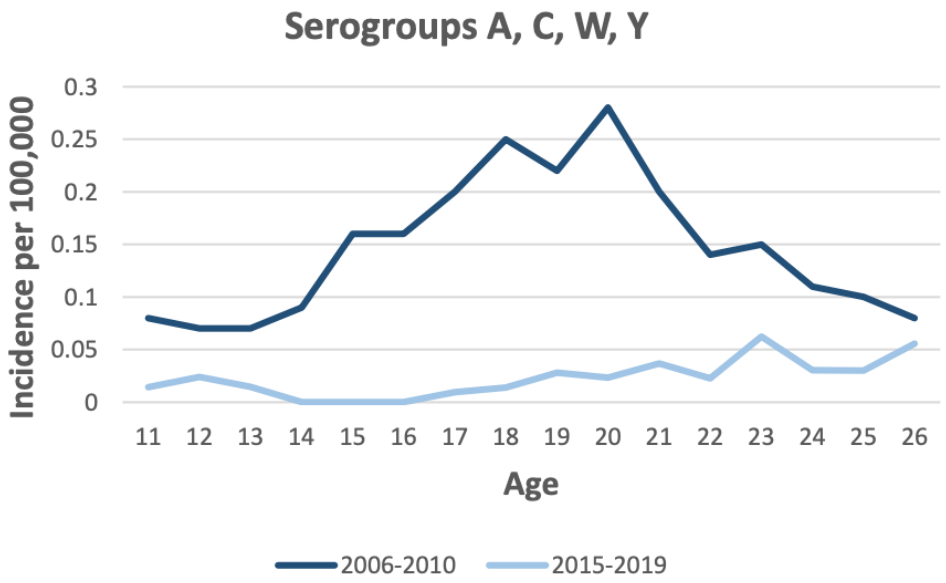
- Among adolescents 11-15 years old, incidence decreased:
  - 16.3% (12.1%-20.3%) during prevaccine period
  - 27.8% (20.6%-34.4%) during post-primary dose period
- Among adolescents 16-22 years old, incidence decreased:
  - 10.6% (6.8%-14.3%) during post-primary dose period
  - 35.6% (29.3%-41.0%) during post-booster dose period
- Estimated 222 cases of serogroup C,W,Y disease averted through vaccination of adolescents from 2006-2017

https://www.cdc.gov/acip/downloads/slides-2024-02-28-29/02-Meningitis-Schillie-508.pdf

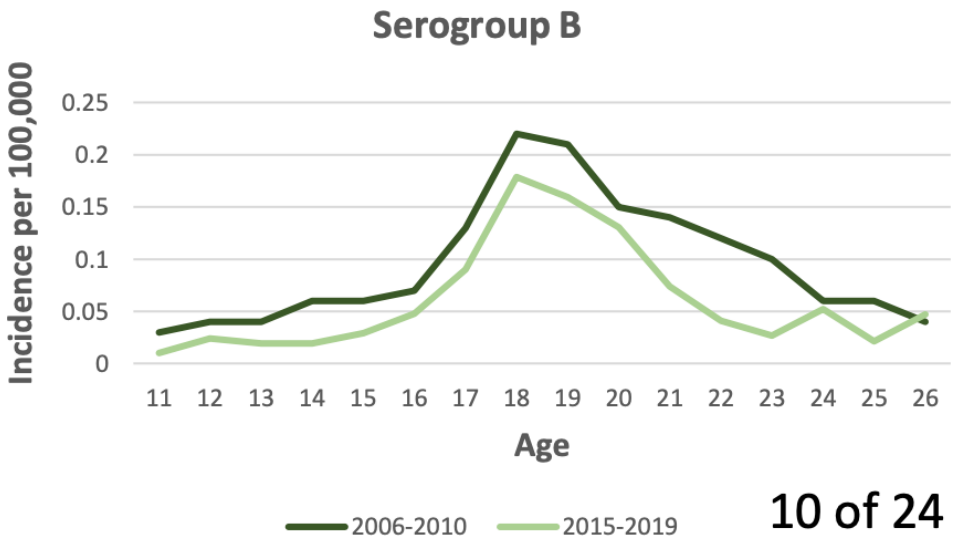
Meningococcal Vaccine Effectiveness

Incidence of Meningococcal Disease by Serogroups Following MenACWY Vaccine Implementation

ACWY disease incidence substantially **decreased** in **adolescents**



B disease incidence was **similar** in **adolescents** over time



https://www.cdc.gov/acip/downloads/slides-2024-02-28-29/02-Meningitis-Schillie-508.pdf

Available Products

- Meningococcal conjugate or MenACWY vaccines (Menveo® and MenQuadfi®).
- Serogroup B meningococcal or MenB vaccines (Bexsero® and Trumenba®).
- Combination: Pentavalent meningococcal or MenABCWY vaccine (PenbrayaTM).
- MenACWY (Menactra) no longer recommended or distributed.

Pediatric MenACWY Vaccine Recommendations

- Recommended for all preteens and teens:
  - MenACWY at 11-12 years with a booster at 16 years old.
- Children 2 months – 10 years old at increased risk:
  - Children living with HIV, part of populations of increased risk (e.g. functional or anatomic asplenia including sickle cell disease), or living/traveling in certain settings.
  - Vaccine schedule includes 2-4 dose primary series and regular booster doses if they remain at increased risk

MenACWY Catch-Up Vaccine Schedule

- Age 13-15 years; 1 dose and booster at age 16-18 years (minimum interval: 8 weeks).
- Age 16-18 years: 1 dose.

MenB Vaccine Recommendations

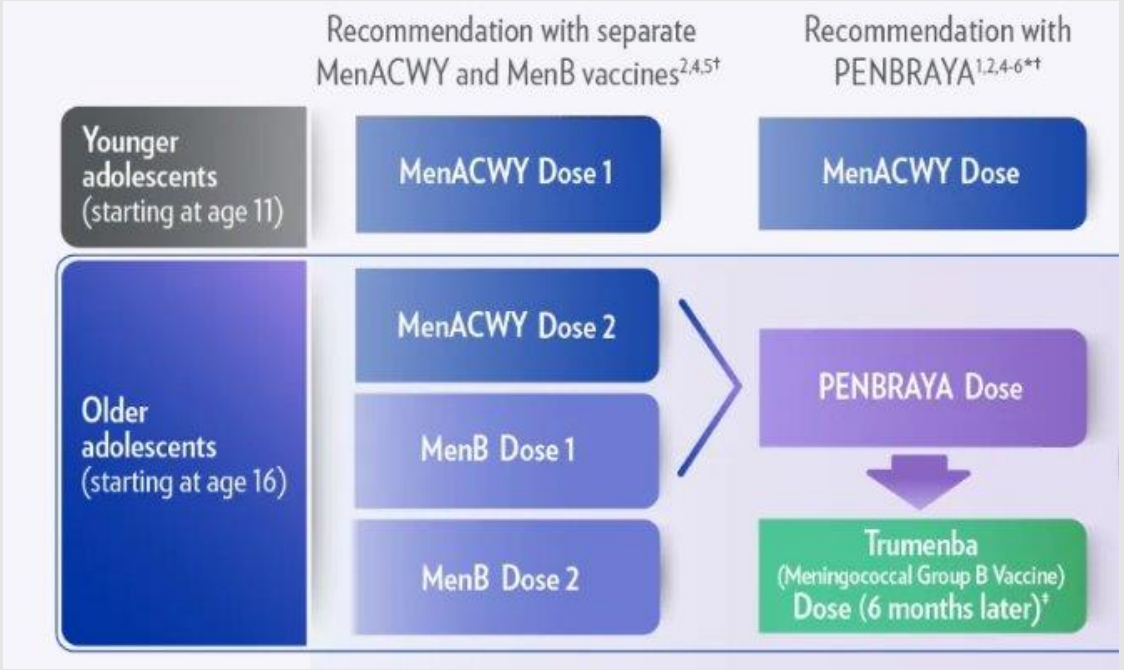
- Choice between Bexsero or Trumenba – these are **not** interchangeable
  - Series must be completed with same brand of vaccine.
- August 2024 – FDA approved a new dosing schedule for GSK meningococcal B (MenB) vaccine (Bexsero) that matches the schedule for Pfizer MenB vaccine (Trumenba). Will be considered by ACIP next week.
  - 2 doses given 6 months apart or 3 doses given at 0, 1–2, and 6-month intervals
  - Bexsero's original 2-dose schedule, with a 1-month interval between the two doses, is no longer licensed.
- For those not at increased risk:
  - MenB vaccination is not recommended for everyone.
  - Administer vaccine between 16-23 years old (preference for ages 16-18 years).
- At-risk children can be vaccinated starting at 10 years old through adulthood.
- Standing Orders for Administering Meningococcal B Vaccine to Adolescents and Adults have been updated

https://www.fda.gov/media/137306/download

Pentavalent Vaccines

Approved by ACIP in October 2023.

- For those 10-25 years old.
- Allows full meningococcal vaccine series to be completed in 3 injections instead of 4.
- For any MenB doses given following Penbraya, only Trumenba should be given.



https://penbraya.pfizerpro.com/dosing-recommendations

Illinois School Requirements

- Students entering grades 6-11 must provide proof of one dose of vaccination of MenACWY vaccines.
- Students entering grade 12 must provide proof of two doses of vaccination, with the second at least 8 weeks after the first.
- A second dose is not necessary if the first dose is administered on or after age 16.
- No alternative proof of immunity is allowed.
- MenB vaccination is not required.

https://dph.illinois.gov/content/dam/soi/en/web/idph/publications/idph/topics-and-services/prevention-wellness/immunization/immunization-requirements_2024-2025.pdf

Vaccine Confidence

- Includes the trust that patients, their families, and providers have in:
  - Recommended vaccines.
  - Providers who administer the vaccines.
  - The processes and policies that lead to vaccine development.
  - Licensure, or authorization.
  - Manufacturing.
  - Recommendations for use.
- Health literacy is important.

Increasing Vaccine Confidence

- Take time to walk through complicated concepts – what do new terms mean and why do they matter.
- Make a strong recommendation for routinely recommended vaccines and immunizations.
- Discuss why regular vaccinations are important.
- Take time to respond to questions and concerns.
- Educate and encourage: use motivational interviewing.

Reminder Recall

- Strategies can include social media, patient portal communications, texts and phone calls, or auto-dialers.
- Sample messages:
  - **Needing Catch-up vaccine:** [PRACTICE NAME] is contacting you as our records indicate that your child is overdue for a vaccine. Please call [PRACTICE PHONE NUMBER] today to schedule your child's vaccination.
  - **Routine, on-time vaccinations**: "Hi! [Practice Name] is offering a friendly reminder that your child's wellness visit and/or vaccinations are due. It is very important to stay on track with these appointments. Please call our office at [PRACTICE PHONE NUMBER] to schedule your child's appointment. See you soon!"
  - More information on Reminder and Recall strategies.

Increasing Vaccine Confidence

- Simplify scheduling.
- Alert patients when vaccines are coming.
- Automatically schedule return visits.
- Turn all visits into vaccinating visits.
- Be creative in your approach.
- Celebrate getting vaccinations.

https://meningitisprevention.org/resources

Resources

- *Meningitis Prevention* resources
- CDC: Factsheet handout for parents in English and Spanish
- Storage and Handling Information
- *Healthy Children* Meningitis Disease in Preteens and Teens
- Talking Points for Providers

Questions?

Upcoming Events

- Immunizations Webinar (Pertussis) – November 12
- ICAAP Annual Education Conference – November 14 and 15
- AAP Immunizations Updates and Best Practices from Other States Webinar – December 4

Register at illinoisaap.org/upcoming-events or scan the QR code:

Scan Here