CDPH
Chicago Department of Public Health

Meningococcal Disease Provider Webinar

February 11, 2026

Chicago Department of Public Health

Agenda

- Introduction
- Situational Awareness & Epidemiology
- Clinical Presentations & Lab Diagnostics
- Infection Prevention & Exposure Management
- Vaccinations & Response
- Closing

Presenters

Janna Kerins, VMD, MPH

Medical Director of Communicable Disease Program

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Shane Zelencik, MPH, CIC

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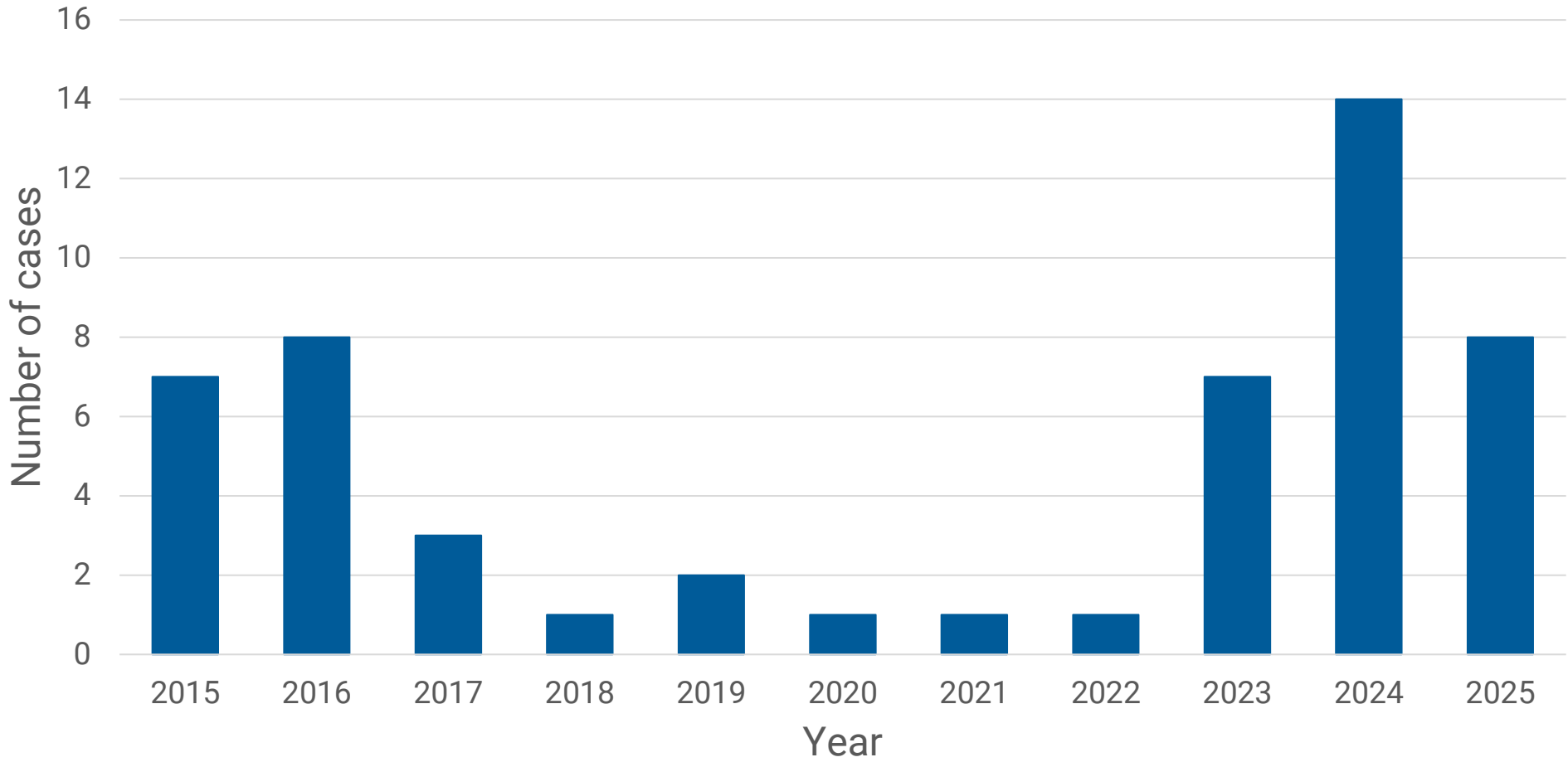
Medical Director of Immunization and Emergency Preparedness Programs

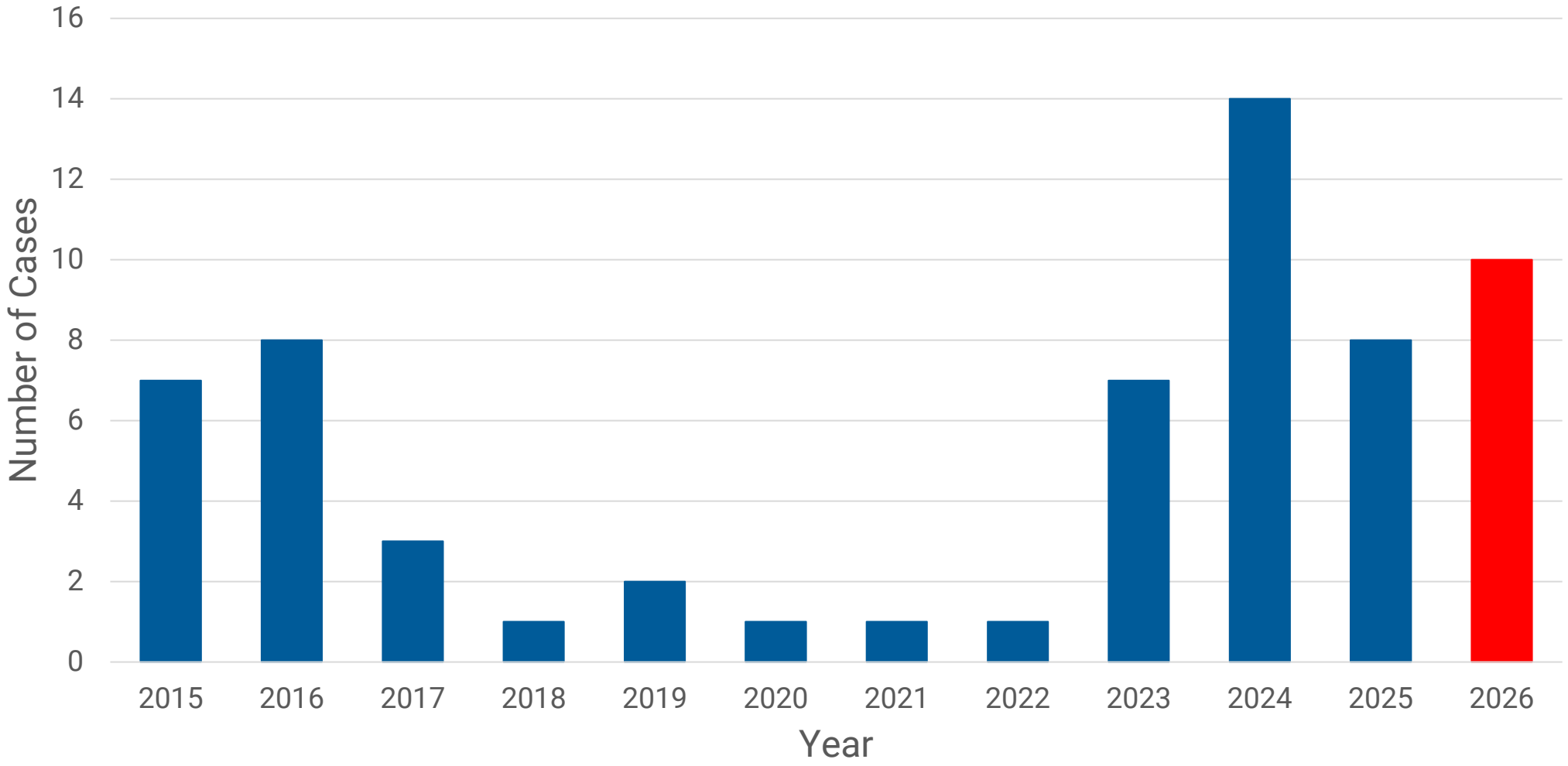
Invasive meningococcal disease is caused by the bacteria *Neisseria meningitidis*

- Gram-negative diplococci
- About 1 in 10 people are asymptomatic nasopharyngeal carriers
- In some people, the bacteria spread and cause infection
- Illness usually occurs 2–10 days after exposure
- Even with appropriate treatment, 10-15% of cases are fatal

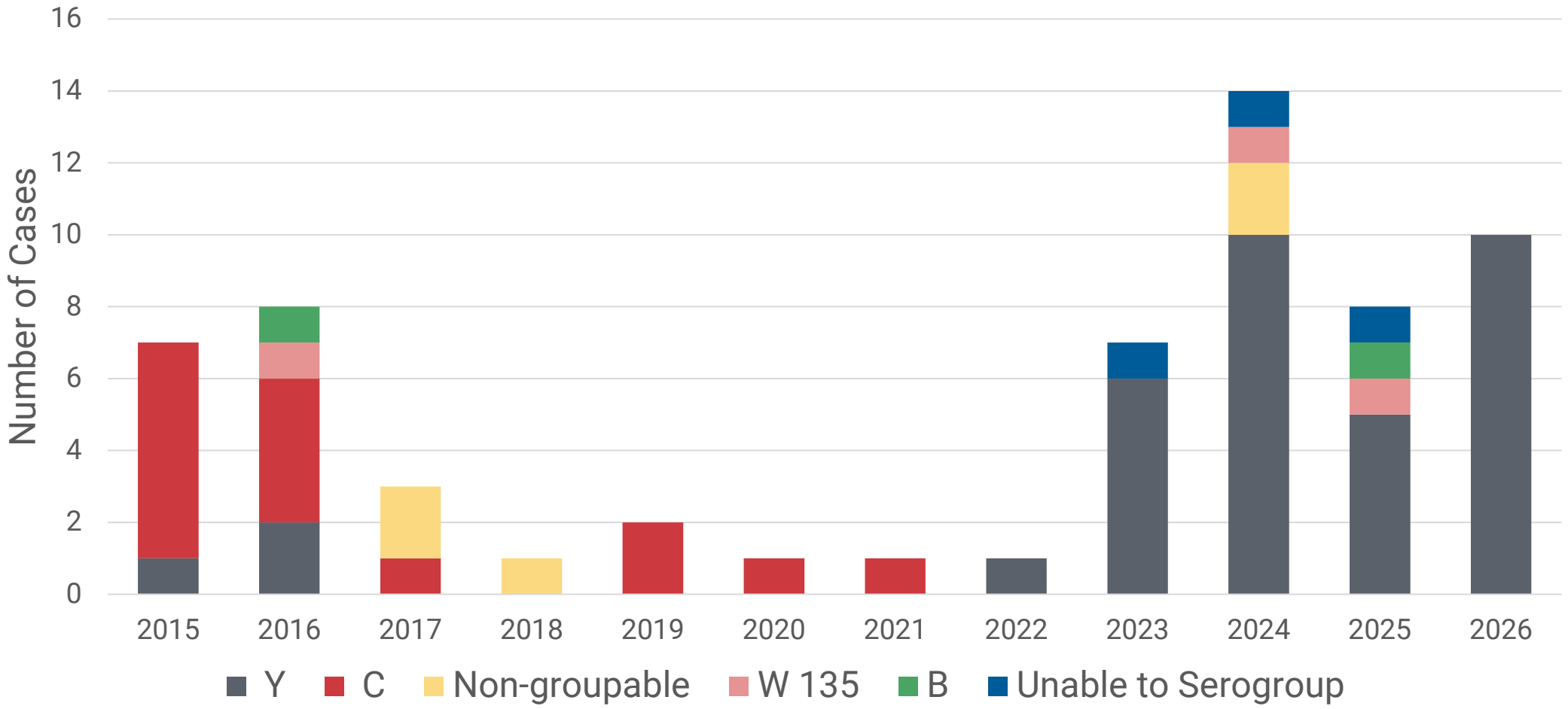
Meningococcal disease cases have been increasing in Chicago since 2023



In January 2026, 10 cases of invasive meningococcal disease were reported

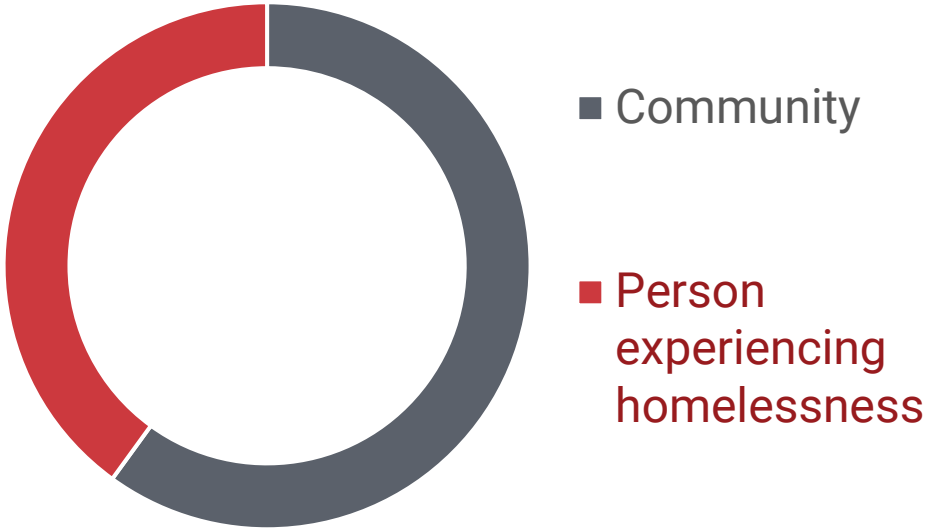


All cases this year have been Serogroup Y

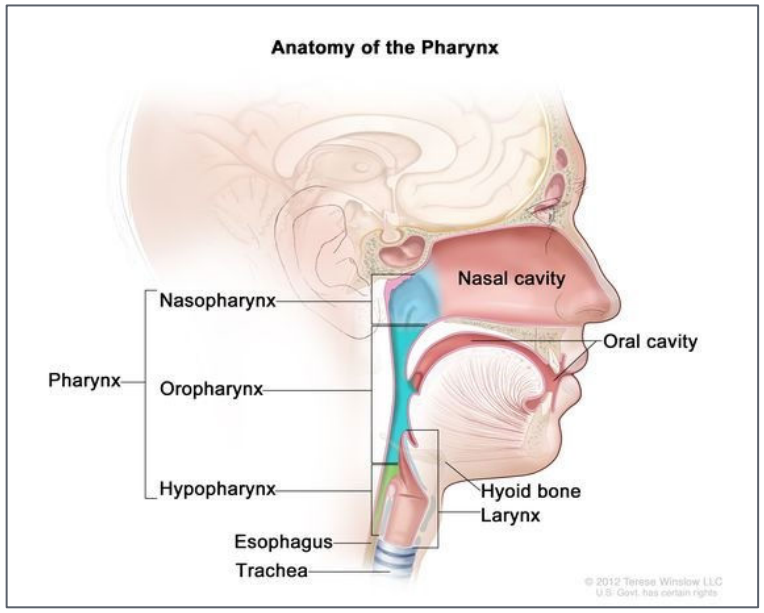


Most cases are among Non-Hispanic Black or Hispanic Chicagoans and 4 are among people experiencing homelessness

Characteristics	N (%)
Age (mean, range)	63 (36-83)
Male	7 (70%)
Race/ethnicity	
Non-Hispanic Black	6 (60%)
Hispanic/Latino	3 (30%)
Other	1 (10%)



Transmission



Human nasopharynx = only natural reservoir

- Asymptomatic carriage essential for transmission

- ~10-35% carriage rate, but invasive disease is rare
- Illness often appears within 1 week of bacterial acquisition
- Colonization → disease not well understood
- Certain strains = “hyperinvasive”

Factors that increase risk of disease:

- Bacterial virulence factors
- Damage to nasopharyngeal epithelium (e.g. low temps, smoking, URI)
- Immune defects / host susceptibility
- Other environmental conditions

Pace, Pollard. Vaccine, 2012.

Risk factors

- **Medications**
  - Complement inhibitors (eculizumab or ravulizumab) used to treat PNH, HUS,
- **Medical history**
  - Impaired complement activity and splenic clearance
  - Cirrhosis, Sickle Cell Disease (leading to functional hyposplenia)
  - HIV
- **Settings or Occupation**
  - Laboratory
  - Military service/barracks
  - Travel to endemic areas
  - 1st year college student living in a residence hall

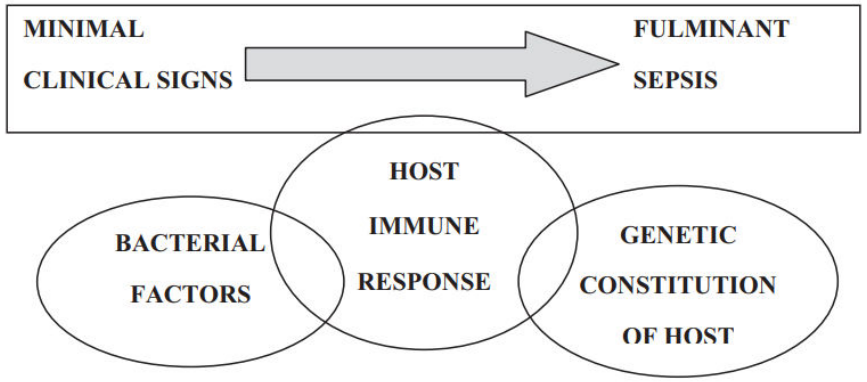


Fig. 1. Interplay of factors contributing to the manifestations of meningococcal disease.

Disease Progression

- Case fatality rate = 10-15% even with prompt antibiotics
- 10-20% survivors have long term sequelae
- Initial symptoms often resemble common viral infections
- **Can progress to fulminant disease within hours**
- Clinical presentation can be variable

Pace, Pollard. Vaccine, 2012.

Clinical Presentations: "Classic"

Meningitis

- Fever, headache, stiff neck, nausea, vomiting, photophobia, altered mental status
- Children <2 may present with isolated irritability/lethargy
- Rash in ~25%

Sepsis

- Fever, chills, vomiting, cold hands and feet, limb pain, rapid breathing, diarrhea.
- Rash in 40-80%
- Capillary damage, disseminated intravascular coagulation, or vasculitis may be present

Pace, Pollard. Vaccine, 2012.
Thompson et al. Lancet, 2006.

Images of rash: petechial and purpura fulminans

Pace, Pollard. Vaccine, 2012.

Clinical Presentation

	Cumulative proportion of children with clinical feature			
	Fatal cases (n=103)	Non-fatal cases (n=345)	Overall (95% CI)	Median hour of onset
Early symptoms				
Leg pain	22·3%	37·7%	36·7% (28–47)	7
Thirst	41·7%	40·6%	40·7% (31–50)	8
Diarrhoea	54·4%	44·6%	45·2% (36–56)	9
Abnormal skin colour	73·8%	53·9%	55·1% (45–65)	10
Breathing difficulty	75·7%	58·0%	59·1% (50–69)	11
Cold hands and feet	81·6%	75·7%	76·1% (67–85)	12
Classic symptoms				
Haemorrhagic rash	94·2%	88·4%	88·8% (82–95)	13
Neck pain or stiffness	94·2%	91·6%	91·8% (86–97)	13
Photophobia	94·2%	92·5%	92·6% (87–97)	15
Bulging fontanelle	94·2%	93·0%	93·1% (88–98)	15
Late symptoms				
Confusion or delirium	94·2%	95·1%	95·0% (90–99)	16
Seizure	96·1%	95·4%	95·4% (91–99)	17
Unconsciousness	97·1%	95·9%	96·0% (92–99)	22

Percentages and median time of onset are standardised to UK case-fatality rate. Median time of onset is rounded to nearest hour.

Table 4: **Cumulative proportion of children developing clinical features during the course of meningococcal disease**

- "Classic symptoms" of rash, meningism, AMS generally occur late
- **Limb pain, cold peripheries, skin pallor = more specific early signs**

Thompson et al. Lancet, 2006.

Clinical Presentation: Other

Pneumonia

- 2nd most common end-organ disease
- Under-recognized
- **Strong association with serogroup Y**
- >50% report fever, chills, **pleuritic chest pain**

Other focal infection

- Septic arthritis—knee most common
- Pericarditis—MenC, young adults
- Conjunctivitis (2025 MMWR)

Chronic meningococcemia

- Rare. Intermittent fevers, generalized rash, migratory arthritis.

Pace, Pollard. Vaccine, 2012.
Vossen et al. Vaccine, 2016.

PMHx during this outbreak

With currently available data…

- **Type 2 Diabetes Mellitus x3**
- **End Stage Renal Disease x2**
- **Advanced heart disease x2**
- **Cancer/radiation x1**
- **Liver cirrhosis x1**

- No one with known HIV, complement deficiency

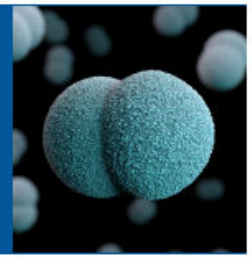
Clinical Presentations during this Outbreak

- **5 of 10** with physician-diagnosed **pneumonia**
  - 3 more with abnormal chest imaging (pleural effusions, infiltrates, congestion)
- **9 of 10** presented w **SOB, cough, or chest pain/tightness**
- **1 of 10** with **meningitis**
- **1** with oral/pharyngeal swelling, initially diagnosed with **angioedema**

Of 9 patients with complete blood counts available…

- **8 of 9** with **abnormal WBC** (5 >12k, 3 <4k) + 1 with relative leukocytosis from baseline
  - All 9 with neutrophils >60% (range: 71-90%)

THINK MENINGOCOCCAL DISEASE



- ☐ **Pneumonia, petechial or purpuric rash, or unusual limb pain?**
- ☐ **Early signs of sepsis?**
- ☐ **Stiff neck or headache with high fever?**
- ☐ **History of homelessness or other risk factors?**
  - HIV
  - Functional or anatomic asplenia, including sickle cell disease
  - Taking a complement inhibitor or other immune modulator
  - Cancer, cirrhosis, ESRD, or advanced heart disease

SEPSIS

- Temp > 38C or <36C
- WBC >12K or <4K, or >10% bands
- RR >20 or PaCO2 <32mmHg
- HR >90
- Altered mental status
- SBP <100

NEXT STEPS

1. **Ensure standard and droplet precautions**
2. **Draw blood cultures before starting antibiotics**
3. **Consider empiric meningococcal coverage:**
   e.g. ceftriaxone 2g IV q12h (adults)
4. **Ask the lab for a preliminary gram stain report**

Gram-negative diplococci and purpura fulminans are IMMEDIATELY reportable to CDPH

Do not wait for culture confirmation. Report to INEDSS, 312-743-9000 option 7, or 311 if after hours

CDPH

Laboratory Diagnostics

- Identification of *Neisseria meningitidis* from a normally sterile body site (e.g., blood, CSF)
  - 10 cases tested positive for *Neisseria meningitidis* from blood cultures
    - Gram-negative diplococci on gram stain
    - NAAT positive
    - Culture positive
- Submitting to IDPH:
  - Isolates of *N. meningitidis* from a normally sterile site must be submitted to the IDPH lab.
    - Submissions are **required** by IL Admin. Rule Part 690
  - No authorization is required.
  - Submit specimens on **chocolate agar slants** – **Chocolate agar plates** are acceptable if sent by local courier. With completed and printed a IDPH Laboratory Requestion Form.
  - Send to IDPH-Chicago @ 2121 W Taylor Street 60612. ATTN Microbiology

Meningococcal Treatment and Carriage Eradication

- Prompt treatment is critical: effective antibiotics should be administered promptly to patients suspected of having meningococcal disease due to risk of severe morbidity and death
- Empiric treatment should include an extended spectrum cephalosporin, such as ceftriaxone or cefotaxime
- If ceftriaxone or cefotaxime aren't used for treatment, one of the following is recommended before hospital discharge to eradicate nasopharyngeal carriage:
  - Ciprofloxacin: 500mg PO x 1 dose or Ceftriaxone 250mg IM x 1 dose
  - Rifampin: 600mg PO BID x 2 days

https://www.cdc.gov/meningococcal/hcp/clinical-guidance/index.html

Infection Prevention for Invasive Meningococcal Disease (IMD)

- Healthcare personnel caring for patients with suspected or confirmed IMD should observe **droplet precautions** until the patient has been on treatment for 24 hours
  - Wear a **standard mask**
  - Transport the patient in a standard mask, if tolerated or possible
- **Standard precautions** should be observed for the care of all patients
  - Use personal protective equipment (PPE) whenever there is an expectation of possible exposure to an infectious material
    - Don **eye protection** (e.g., goggles or face shield) if sprays are anticipated (e.g., suctioning and intubation)
    - Don **gloves and gowns** to protect from contact with potentially infectious material
  - Perform hand hygiene
- When in doubt, don PPE, particularly a mask when a patient has respiratory symptoms

https://www.cdc.gov/infection-control/media/pdfs/Guideline-Isolation-H.pdf
https://www.cdc.gov/infection-control/hcp/basics/standard-precautions.html

IMD Exposures

- Patients with *N. meningitidis,* can spread it if they have clinical disease, such as meningitis or bacteremia
- High Risk Exposures result from mucous membrane contact with infectious respiratory **secretions** from close, **face-to-face** contact during certain activities:
  - Having direct contact with oral secretions without a standard droplet mask (e.g., sweeping the airway)
  - Being present for aerosol generating procedures (e.g., open suctioning, intubation, etc.) without a standard droplet mask or eye protection
  - Performing mouth-to-mouth resuscitation
- Brief, non-face-to-face contact, such as standing in the doorway of a patient's room, cleaning a patient's room, delivering a medication or food tray, starting an IV, or performing a routine physical exam, is generally not considered an exposure

https://www.cdc.gov/infection-control/hcp/healthcare-personnel-epidemiology-control/meningococcal-disease.html#cdc_generic_section_3-occupational-exposures

Exposure Management – Post Exposure Prophylaxis (PEP)

- PEP is recommended for persons with higher-risk exposures to prevent infections
- PEP should be given as soon as possible (i.e., within 24 hours) after an exposure but is considered effective if provided with 14 days
- Emergency Medical Service members exposed to IMD transporting a patient to a treating facility may require PEP
- Receiving facilities are requested to provide PEP for exposed EMS crews
  - These EMS personnel should report to the ED to receive PEP
  - We ask that hospitals arrange to expedite this process so that EMS personnel receive prompt treatment

Drug	Dose	Duration	Efficacy (%)
Ciprofloxacin	20mg/kg (max 500mg), orally	Single dose	90-95
Ceftriaxone	250mg, intramuscularly	Single dose	90-95
Rifampin	10mg/kg (max 600mg), orally, every 12 hours	2 days	90-95

https://www.cdc.gov/infection-control/hcp/healthcare-personnel-epidemiology-control/meningococcal-disease.html
https://www.cdc.gov/surv-manual/php/table-of-contents/chapter-8-meningococcal-disease.html

Meningococcal Vaccine: Adolescents

- MenACWY Vaccine:
  - **Routine:**
    - **1st dose: 11-12 years of age.**
    - **2nd dose: 16 years of age.**
    - Catch up:
      - 13-15 years old: 1 dose then 16-year-old booster.
      - 16-18 years old: 1 dose
  - Special Situations: Regimen depends on age (AAP Schedule Notes Section).
    - **Asplenia (SCD), HIV, complement deficiency/inhibitors.**
    - Travel to hyperendemic and epidemic countries (African Mening Belt/Hajj).
    - Unvaccinated military recruits and college students.

Immunization
AAP-Immunization-Schedule.pdf

Meningococcal Vaccine: Adolescents

- MenB Vaccine:
  - Routine:
    - Shared clinical decision making
    - **Preferred 16-18 years (16-23)**
    - 2 doses at 6 months apart
  - Special Situations: Regimen depends on age (AAP Schedule Notes Section).
    - Asplenia (SCD), HIV, complement deficiency/inhibitors.
  - MenA**B**CWY
    - Penbraya (Trumenba) and Penmenvy (Bexsero).
    - Can be used for MenACWY second dose and MenB first dose.

Immunization
AAP-Immunization-Schedule.pdf

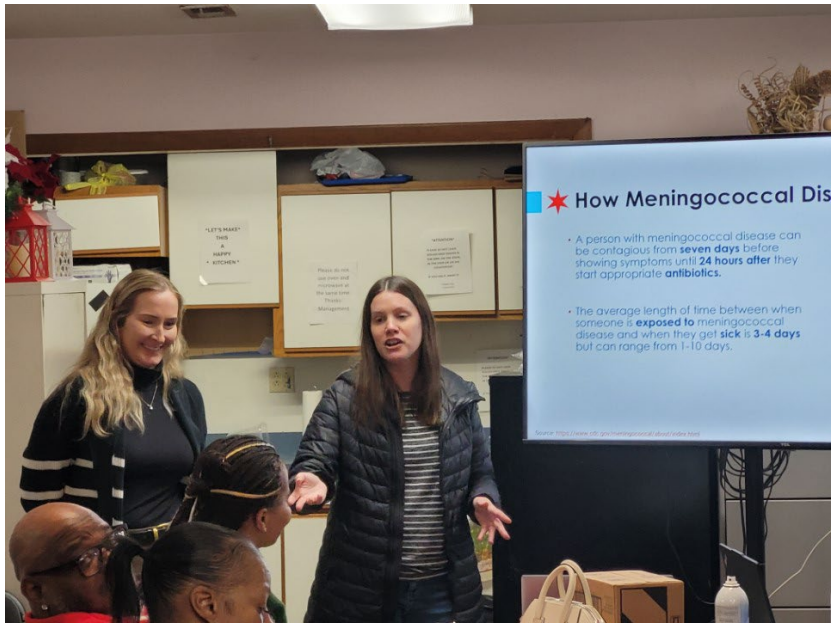
Meningococcal Vaccine: Adults

- MenACWY Vaccine:
  - Special Situations: Regimen depends on age and vaccination history.
    - **Asplenia (SCD), HIV, complement deficiency/ inhibitors.**
      - **2 dose primary series, 8 weeks apart.**
      - **Booster every 5 years.**
    - Travel to hyperendemic and epidemic countries (African Mening Belt/Hajj).
      - 1 dose then booster every 5 years while risk remains.
    - Unvaccinated military recruits and college students.
      - 1 dose.
    - **Outbreak: 1 dose.**
- MenB Vaccine:
  - Same medical conditions as MenACWY.
  - Adolescents/Young Adults 16-23 years old.
  - Precaution in pregnancy. Can be given if at increased risk.

Immunization
Recommended Adult Immunization Schedule for ages 19 years or older; 2025 U.S.

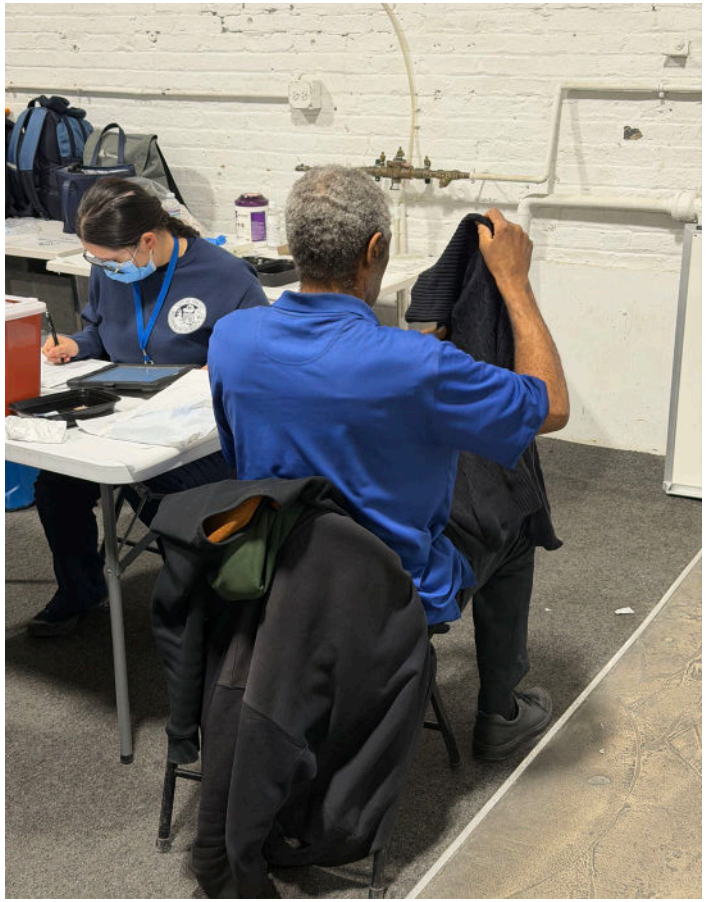
What is CDPH doing?

- Identifying close contacts and ensuring they receive post-exposure prophylaxis
- Communicating to the public & healthcare providers
- Offering doses of meningococcal vaccine at impacted shelters and other spaces that serve people experiencing homelessness.
- Educating shelter staff & residents



Outbreak Vaccination for PEH

- CDPH recommends MenACWY vaccination for **Chicagoans who are experiencing homelessness or have close contact to the PEH** (People Experiencing Homelessness) community.
  - **Adults**: Receive one dose if haven't been vaccinated in the last 5 years or unknown.
    - Minimum of at least 8 weeks between doses.
  - **Adolescents** (11 years or older): routine vaccination or catch-up.
  - **Children** less than 11 years old: 1 dose.
    - Still need routine series starting at 11.
    - Children 2-23 months may need additional doses if continued risk.



Alert Detail - HAN
AAP-Immunization-Schedule.pdf
Recommended Adult Immunization Schedule for ages 19 years or older; 2025 U.S.
MMWR - Meningococcal Vaccination: Recommendations of the Advisory Committee on Immunization Practices, United States, 2020

Homeless service providers and shelters

- If you are a homeless service provider or work in a shelter, please connect with Chicago Department of Public Health engagement team by emailing:

- Michelle.Funk@cityofchicago.org
- Jennifer.Trebbin@cityofchicago.org

When/how to call public health

Providers treating a patient with symptoms that are suspicious for meningococcal disease and identification of either Gram-negative diplococci or physician diagnosed purpura fulminans should:

- Report into Illinois National Electronic Disease Surveillance System (I-NEDSS) through your infection preventionist

- To report Chicago patients:
  - During normal business hours: **312-743-9000**
  - After hours call **311** (**312-744-5000** if outside Chicago) and ask for the Medical Director on call

- To report non-Chicago patients, contact their local health department from IDPH list
  - Infectious Disease Reporting (https://dph.Illinois.gov/about/lhd.html)

Register for the Chicago HAN

The **Chicago Health Alert Network** (HAN) is the Chicago Department of Public Health (CDPH)'s primary method of sharing information about urgent and emerging public health situations with the Chicago Healthcare community.

Signing up for the HAN will allow you to receive information based on your job function and areas of interest. (www.chicagohan.org/sign-up)

Sign Up Here

CDPH Contact Information

- Meningococcal Vaccine Supply or Questions:
  - Alexander.Sloboda@cityofchicago.org
  - Kevin.Hansen@cityofchicago.org

- Homeless service providers or shelter engagement:
  - Specialpops@cityofchicago.org
  - Michelle.Funk@cityofchicago.org
  - Jennifer.Trebbin@cityofchicago.org

- Infection Control:
  - CDPHHAIAR@cityofchicago.org
  - 312-744-1100

CDPH
Chicago Department of Public Health

Thank You!
Questions?


Chicago.gov/Health


HealthyChicago@cityofchicago.org


@ChicagoPublicHealth


@ChiPublicHealth

Pediatric Outbreak Vaccination

- **Children younger than age 24 months:**
  - **Menveo** (age 2–23 months)**
    - Dose 1 at age 2 months: 4-dose series (additional 3 doses at age 4, 6, and 12 months)
    - Dose 1 at age 3–6 months: 3- or 4-dose series (dose 2 [and dose 3 if applicable] at least 8 weeks after previous dose until a dose is received at age 7 months or older, followed by an additional dose at least 12 weeks later and after age 12 months)
    - Dose 1 at age 7–23 months: 2-dose series (dose 2 at least 12 weeks after dose 1 and after age 12 months)
- **Children age 2 years or older:** 1 dose Menveo** or MenQuadfi

TABLE 8. Recommended vaccination schedule and intervals for persons who are Advisory Committee on Immunization Practices, United States, 2020

Age group	Serogroups A, C, W, and Y meningococcal conjugate vaccines MenACWY-D (Menactra, Sanofi Pasteur)† *or* MenACWY-CRM (Menveo, GlaxoSmithKline)§ *or* MenACWY-TT (MenQuadfi, Sanofi Pasteur)¶
2–23 mos	**Primary vaccination:** MenACWY-D (aged ≥9 mos): 2 doses ≥12 wks apart ***or*** MenACWY-CRM: If first dose at age • 2 mos: 4 doses at 2, 4, 6, and 12 mos • 3–6 mos: See catch-up schedule†† • 7–23 mos: 2 doses (second dose ≥12 wks after the first dose and after the 1st birthday)
2–9 yrs	**Primary vaccination:** MenACWY-D§§ ***or*** MenACWY-CRM ***or*** MenACWY-TT: 1 dose **Boosters (if previously vaccinated and identified as being at increased risk)¶¶:** • Aged <7 yrs: Single dose if ≥3 yrs since vaccination • Aged ≥7 yrs: single dose if ≥5 yrs since vaccination
≥10 yrs	**Primary vaccination:** MenACWY-D ***or*** MenACWY-CRM ***or*** MenACWY-TT: 1 dose **Boosters (if person previously vaccinated and identified as being at increased risk during an outbreak)¶¶:** • Aged <7 yrs: Single dose if ≥3 yrs since vaccination • Aged ≥7 yrs: Single dose if ≥5 yrs since vaccination

Alert Detail - HAN
AAP-Immunization-Schedule.pdf
MMWR - Meningococcal Vaccination: Recommendations of the Advisory Committee on Immunization Practices, United States, 2020

Serogroup Y associated with pneumonia

- Multiple case series demonstrate that serogroup Y is the most identified serogroup in meningococcal pneumonia, representing 44.2% of identified isolates in one review
  - 58 cases from 1974-1998
    - Pleuritic chest pain 21 (53.9%) of 39 cases
    - Blood cultures positive in 42 (79.3%) of 53 cases
    - Sputum cultures positive in 15 (83.3%) of 18 cases for which sputum cultures were available
    - Secondary cases following exposures to patient with meningococcal pneumonia were noted in 2 instances, but were confirmed by sequencing
- Documented across multiple populations
  - US Air Force recruits 77% of serogroup Y cases presented as pneumonia
  - England and Wales older adults over age 65years

Winstead JM, McKinsey DS, Tasker S et al. *Clin Infect Dis*. 2000 Jan;30(1):87-94; Serogroup Y Meningococcal Disease in Chicago, 1991-1997, Racoosin JA, Whitney CG, Conover CS et al, JAMA

Table 3.—Presenting Symptoms, Signs, and Laboratory Findings of Patients With Known Serogroups*

Clinical or Laboratory Finding	Serogroup Y Meningococcal Disease, No. (%) (N = 42)	Non–Serogroup Y Meningococcal Disease, No. (%) (N = 63)	Relative Risk (95% CI)
Chest pain	8 (19.0)	1 (1.6)	12.0 (1.6-92.4)
Sputum	6 (14.3)	1 (1.6)	9.0 (1.1-72.1)
Seizures	3 (7.1)	2 (3.2)	2.2 (0.4-12.9)
Infiltrate on admission chest x-ray	7 (22.6)	9 (19.1)	1.2 (0.5-2.8)
Respiratory distress	4 (9.5)	5 (7.9)	1.2 (0.2-5.8)
Cough	15 (35.7)	24 (38.1)	0.9 (0.6-1.6)
Altered mental status	12 (28.6)	23 (36.5)	0.8 (0.4-1.4)
Petechia or purpura	9 (21.4)	25 (39.7)	0.5 (0.3-1.0)
Focal neurologic deficit	1 (2.4)	3 (4.8)	0.5 (0.0-4.6)
Meningeal irritation	7 (16.7)	22 (34.9)	0.5 (0.2-1.0)
Cerebrospinal fluid white blood cell count >5/hpf	21 (81)†	37 (68)‡	1.2 (0.9-1.5)
Cerebrospinal fluid white blood cell count >1000/hpf	9 (35)†	23 (42)‡	0.8 (0.4-1.5)
Gram-negative diplococci on cerebrospinal fluid Gram stain	12 (46)†	20 (37)‡	1.2 (0.7-2.0)

*CI indicates confidence interval; hpf, high-power field. Mantel-Haenszel χ^2 tests were used to test for significant statistical differences between the 2 groups.

†The total number of patients in the group is 26.

‡The total number of patients in the group is 54.

Serogroup Y Meningococcal Disease in Chicago, 1991-1997, Racoosin JA, Whitney CG, Conover CS et al, JAMA