



# Epidemiology of Meningococcal Disease in the United States

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Advisory Committee on Immunization Practices Meeting

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# Agenda

- Overall epidemiology of meningococcal disease in the United States
- Recent notable epidemiology
  - Ciprofloxacin- and penicillin-resistant serogroup Y meningococcal disease cases
  - Outbreaks

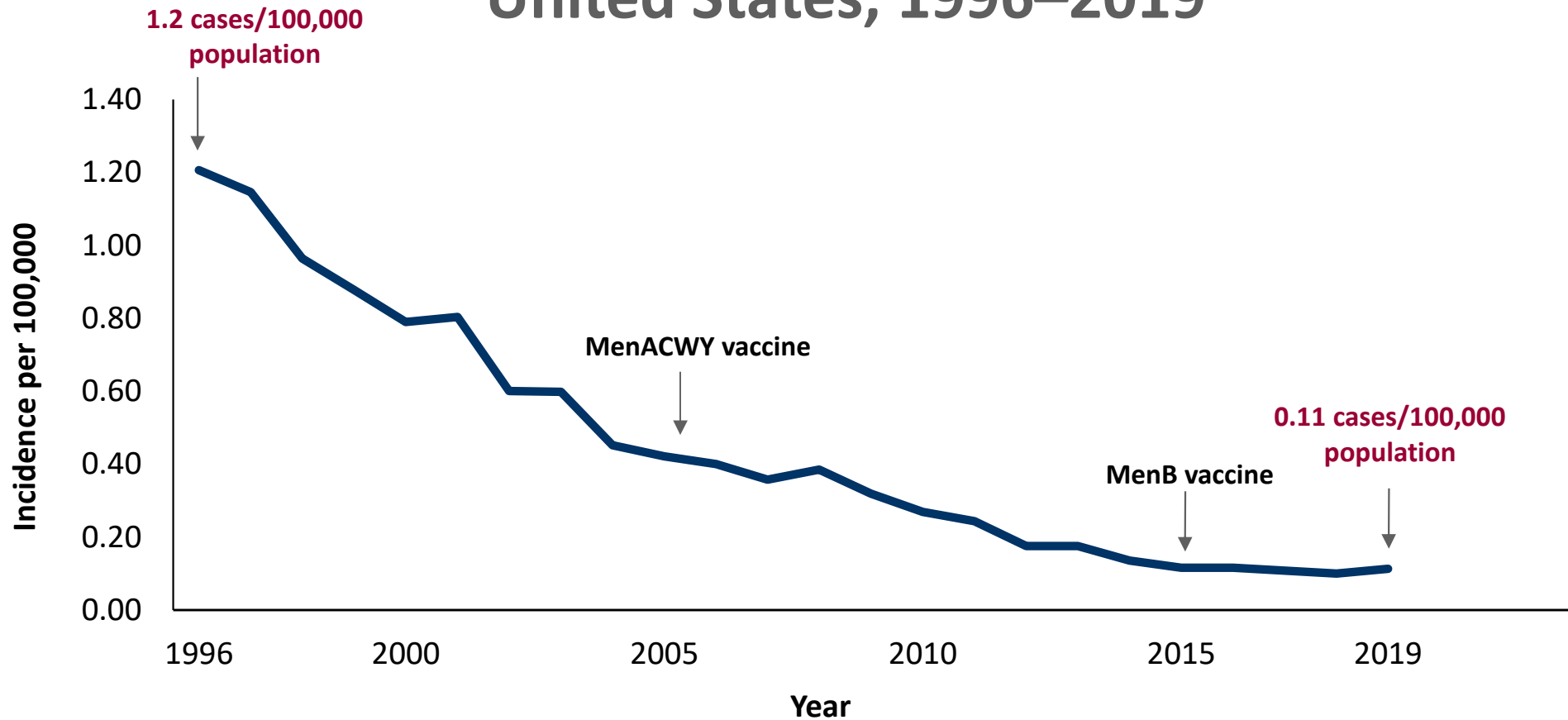
# Meningococcal Disease Surveillance

- Cases reported through National Notifiable Diseases Surveillance System (NNDSS)
- Additional serogroup, outcome, and clinical characteristics collected nationally through Enhanced Meningococcal Disease Surveillance (EMDS)
  - Isolates submitted for whole genome sequencing

# Meningococcal Disease Surveillance Data, 2020–2022

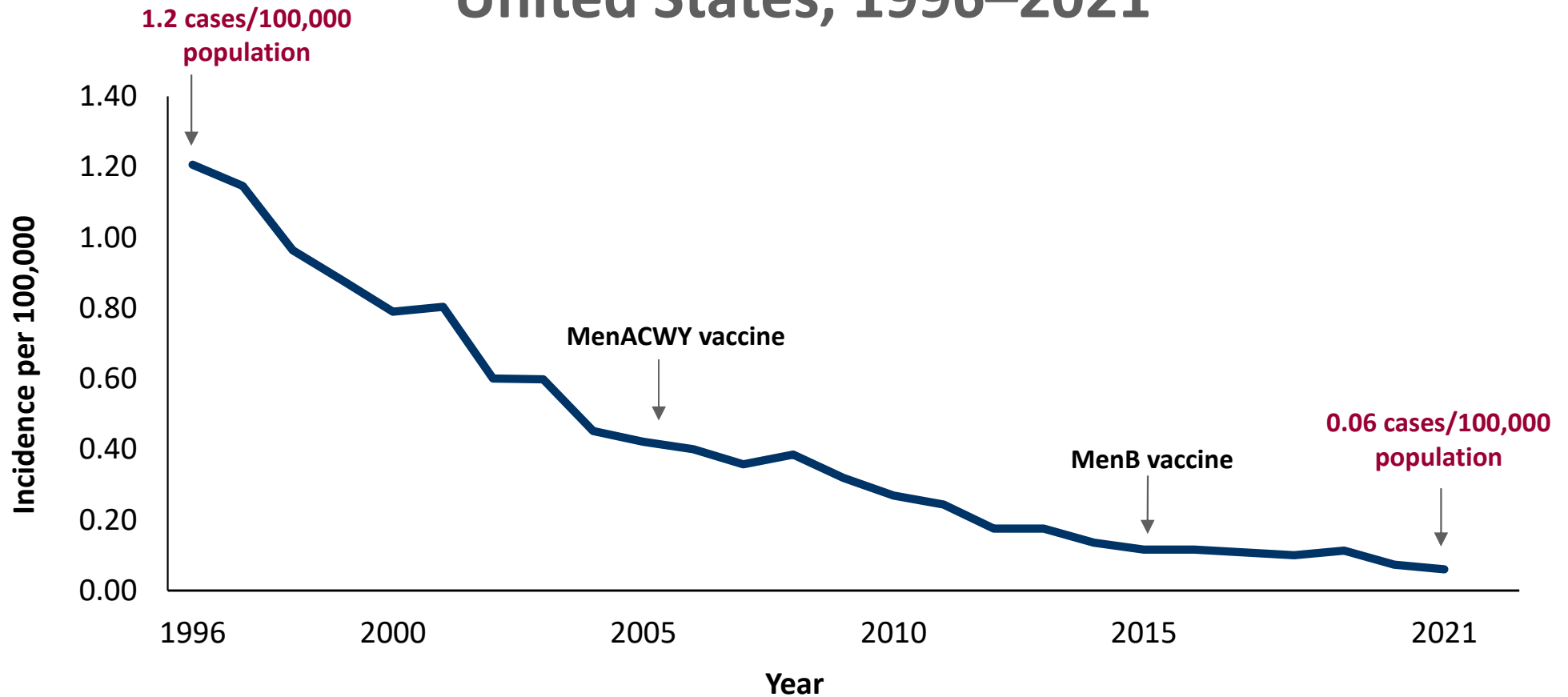
- 2020 data are final
- Delays in obtaining and finalizing surveillance data for 2021 and 2022
  - Serogroup missing for 17% of cases
  - Clinical characteristics not yet complete for 2022
  - All available isolates not yet received and tested to confirm serogroup and antimicrobial susceptibility

# Meningococcal Disease Incidence – United States, 1996–2019



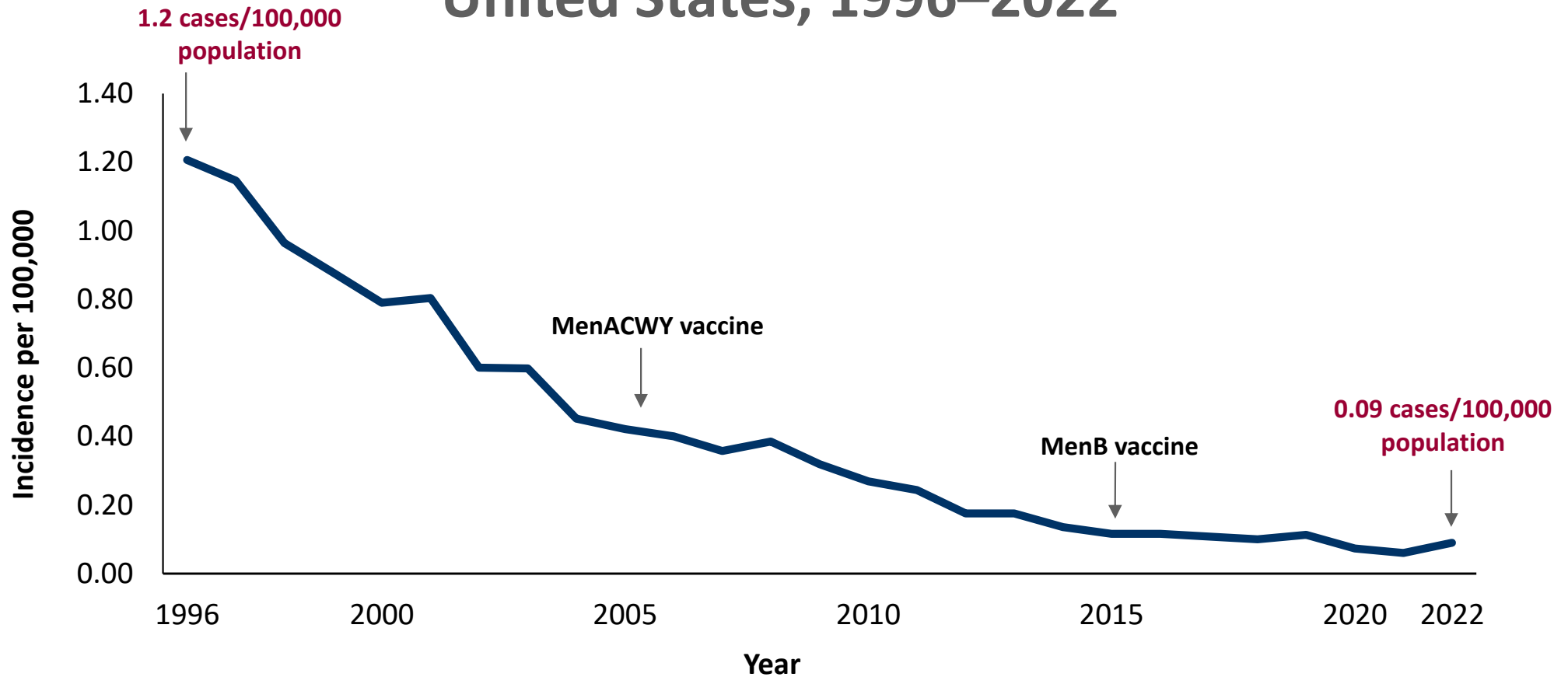
Abbreviations: MenACWY vaccine = quadrivalent conjugate meningococcal vaccine against serogroups A, C, W, Y; MenB vaccine = serogroup B meningococcal vaccine 5  
Source: 1996–2019 NNDSS Data

# Meningococcal Disease Incidence – United States, 1996–2021\*



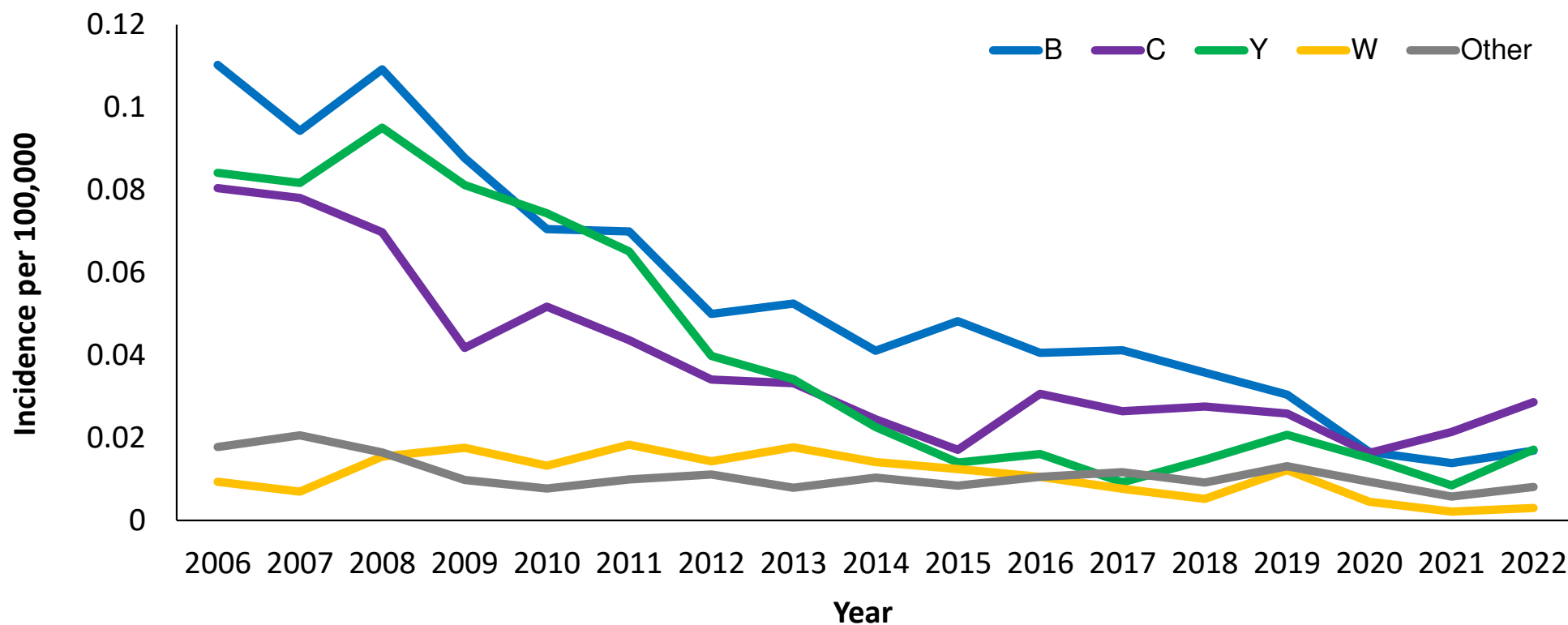
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# Meningococcal Disease Incidence – United States, 1996–2022\*



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Source: 1996–2022 NNDSS Data. \*2021–2022 NNDSS data are preliminary.

## Trends in Meningococcal Disease Incidence by Serogroup – United States, 2006–2022\*

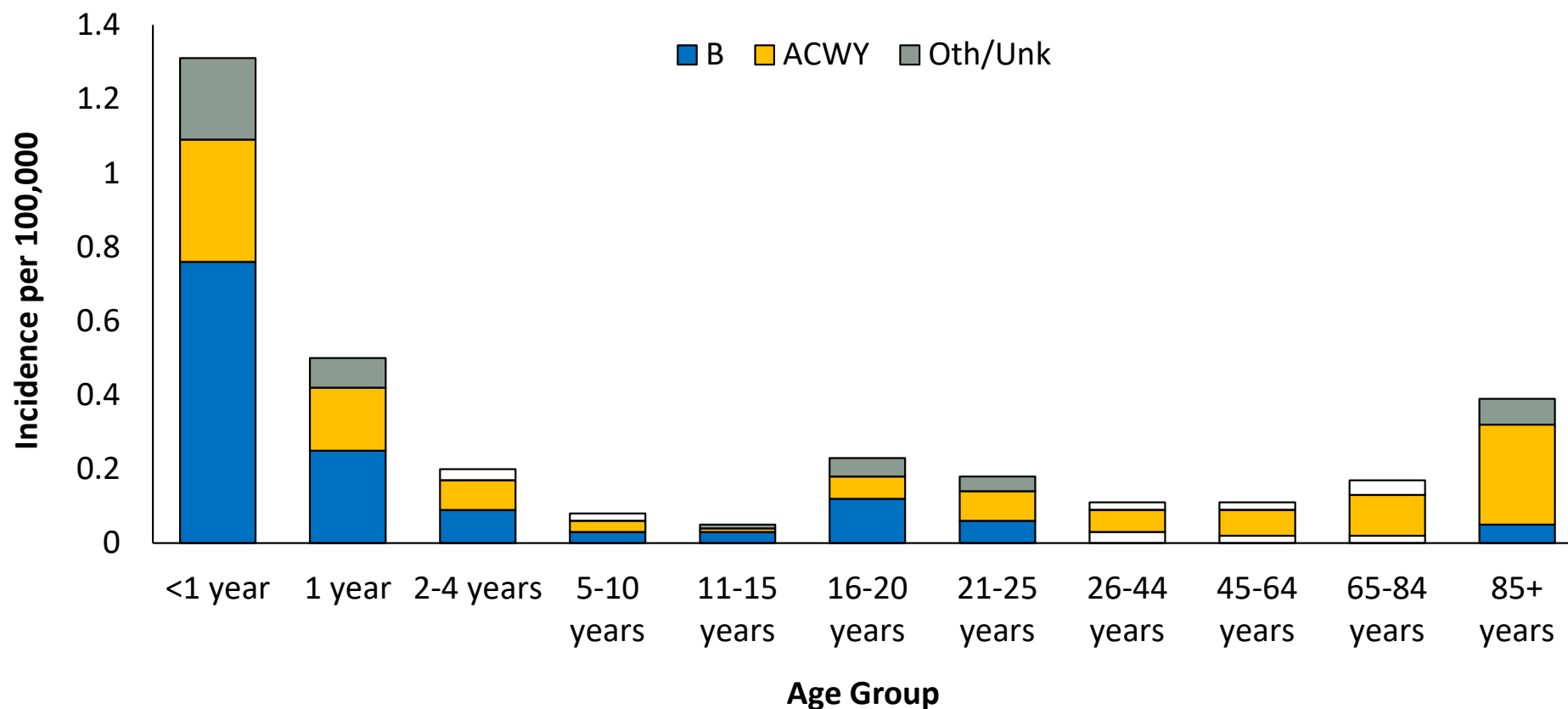


Source: NNDSS data with additional serogroup data from Active Bacterial Core surveillance (ABCs) and state health departments

\*2021 and 2022 data are preliminary

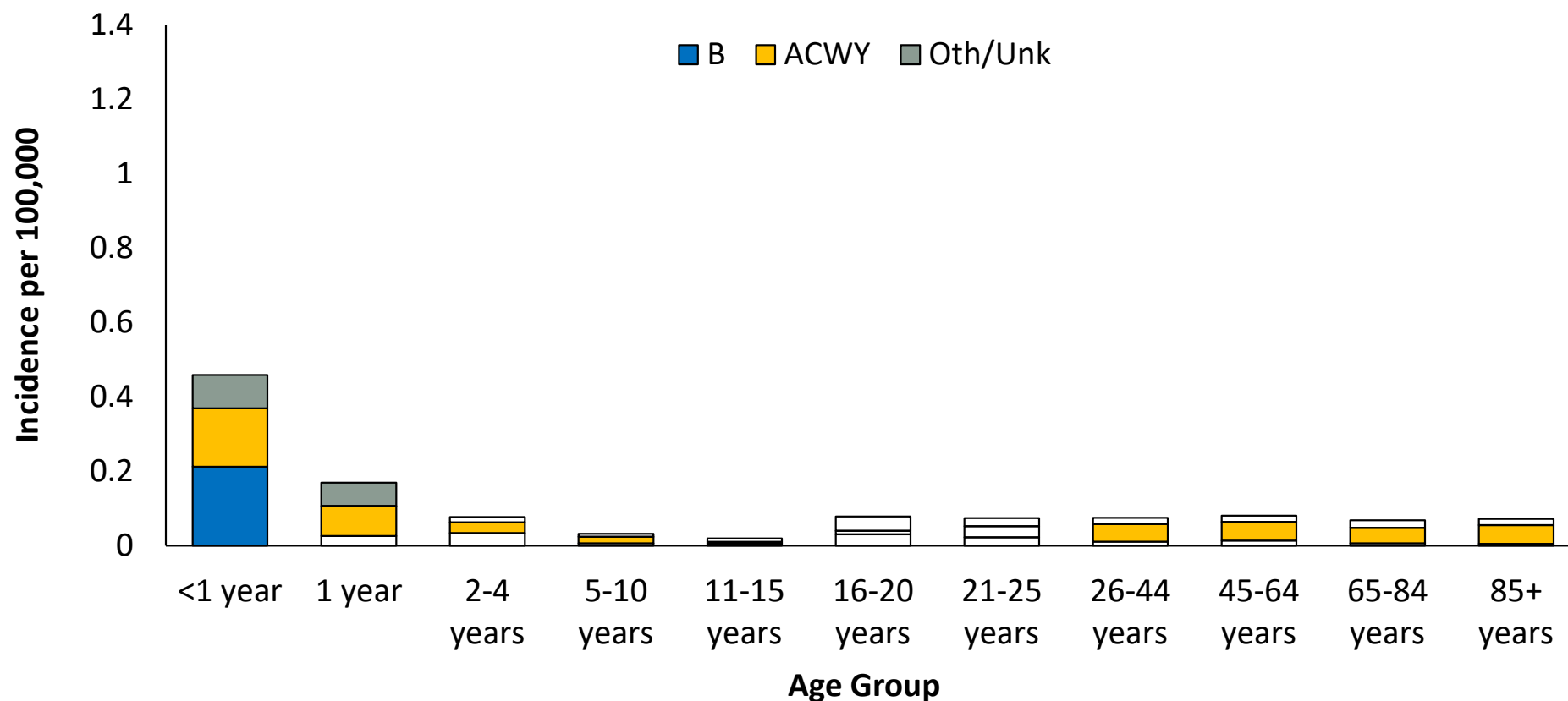


# Average Annual Meningococcal Disease Incidence by Age-Group and Serogroup—United States, 2010–2019



Source: NNDSS data with additional serogroup data from ABCs and state health departments

# Average Annual Meningococcal Disease Incidence by Age-Group and Serogroup—United States, 2020–2022\*



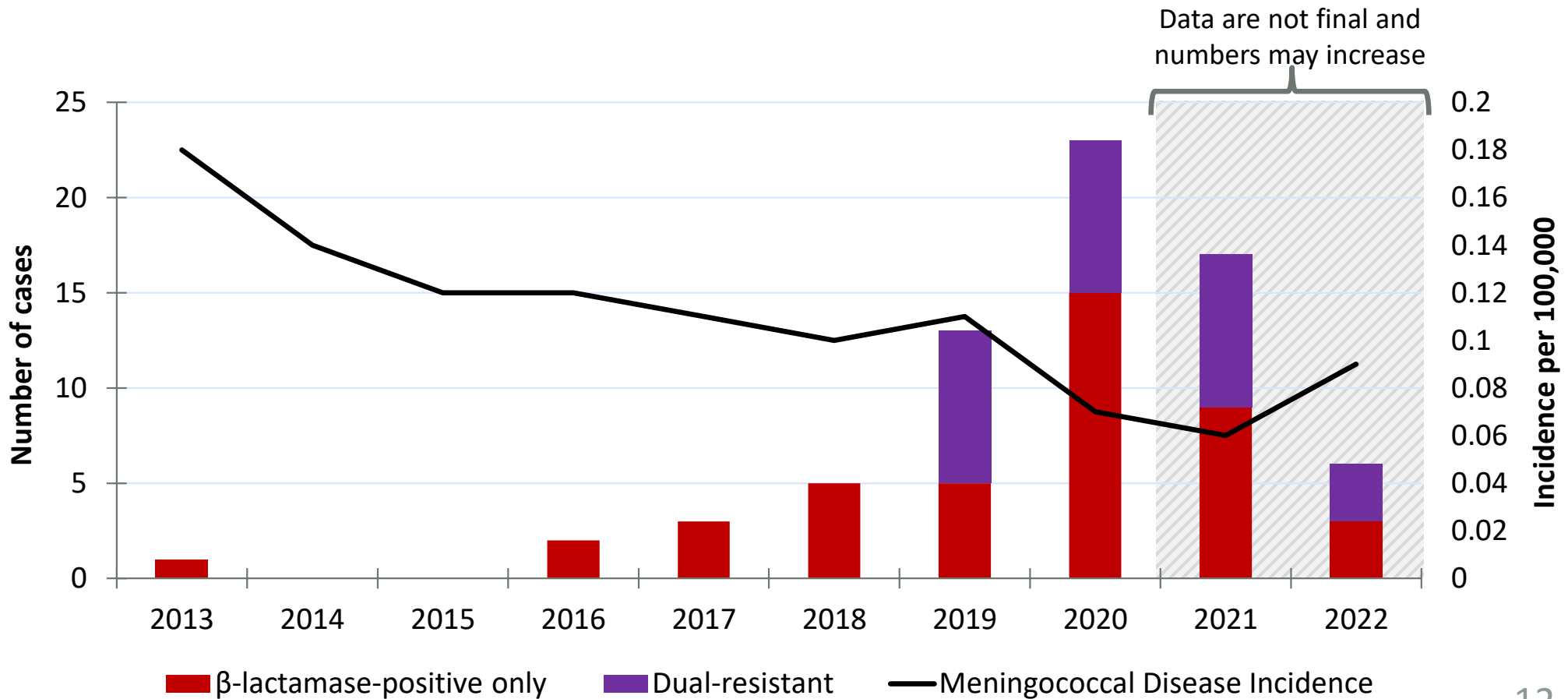
Source: NNDSS data with additional serogroup data from ABCs and state health departments

\*2021 and 2022 data are preliminary

## Recent Meningococcal Disease Cases

- Historically resistance in *N. meningitidis* was rare
- Ciprofloxacin- and penicillin-resistant serogroup Y cases detected in 2020
  - 27 cases from 2019–2022
  - 78% among Hispanic or Latino persons
  - Age range <1–97 years, mean 31, median 23
    - Only 1 case 11–20 years of age
  - No cases in vaccinated individuals

# Resistant Serogroup Y Meningococcal Disease Cases—United States, 2013–2022



# Recent Meningococcal Disease Outbreaks

- Largest outbreak predominantly in men who have sex with men (MSM) reported to date
  - January 2022–present\*
  - 43 serogroup C cases, 9 deaths (21% CFR)
  - 12/43 non-MSM (5 women) in outbreak
  - 15 (35%) cases in people living with HIV
  - Age range 20–77 years, mean 35, median 31

# Recent Meningococcal Disease Outbreaks

- Unusually lethal strain of serogroup Y
  - June 2022–present\*
  - 11 cases, 3 deaths (27% CFR)
  - 10/11 cases in Black or African American persons
  - Age range 30–78 years, mean 46, median 39
  - Sequence type 1466, clonal complex 174

# Recent Meningococcal Disease Outbreaks

- People experiencing homelessness
  - 2021
    - 1 outbreak of 3 serogroup C cases
    - Age range 22–37 years
  - 2022
    - 1 outbreak of 2 serogroup C cases at the same shelter
    - Ages: 37 and 41 years

## Conclusions

- Incidence of meningococcal disease declined during 2020–2021, but increased in 2022
- New strains emerging in the US
  - Predominantly affecting racial and ethnic minority groups
  - Unclear how this will change overall epidemiology
- More complete 2021 and 2022 data are needed
- More years of data needed to understand post-COVID-19 epidemiology



# Thank You

For more information, contact CDC  
1-800-CDC-INFO (232-4636)  
TTY: 1-888-232-6348 [www.cdc.gov](http://www.cdc.gov)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

