

Invasive Meningococcal Disease in South Africa

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Wits UpToSpaed

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Disclosure

- Division of Public Health Surveillance and Response, NICD
- GERMS-SA: clinical coordinator for national surveillance programme on pathogens of public health importance
- Special interest in vaccine preventable bacterial diseases
- MBChB (UCT), DTM&H (Wits), PhD (Wits)



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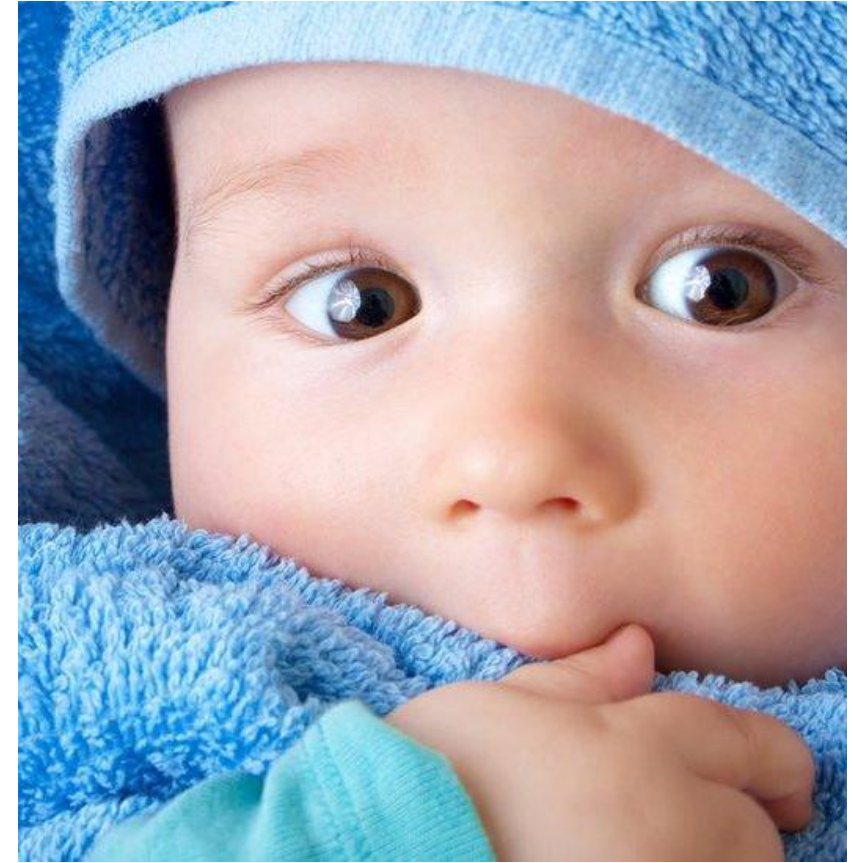
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Health care providers are requested to report any suspected adverse drug reactions to SAHPRA via the Med Safety APP (Medsafety X SAHPRA) and eReporting platform ([who-umc.org](https://www.who-umc.org)) found on SAHPRA website. Health care providers can also report suspected adverse reactions to GlaxoSmithKline on E-mail aereporting.za@gsk.com or Tel: +27 (0) 10 300 1000

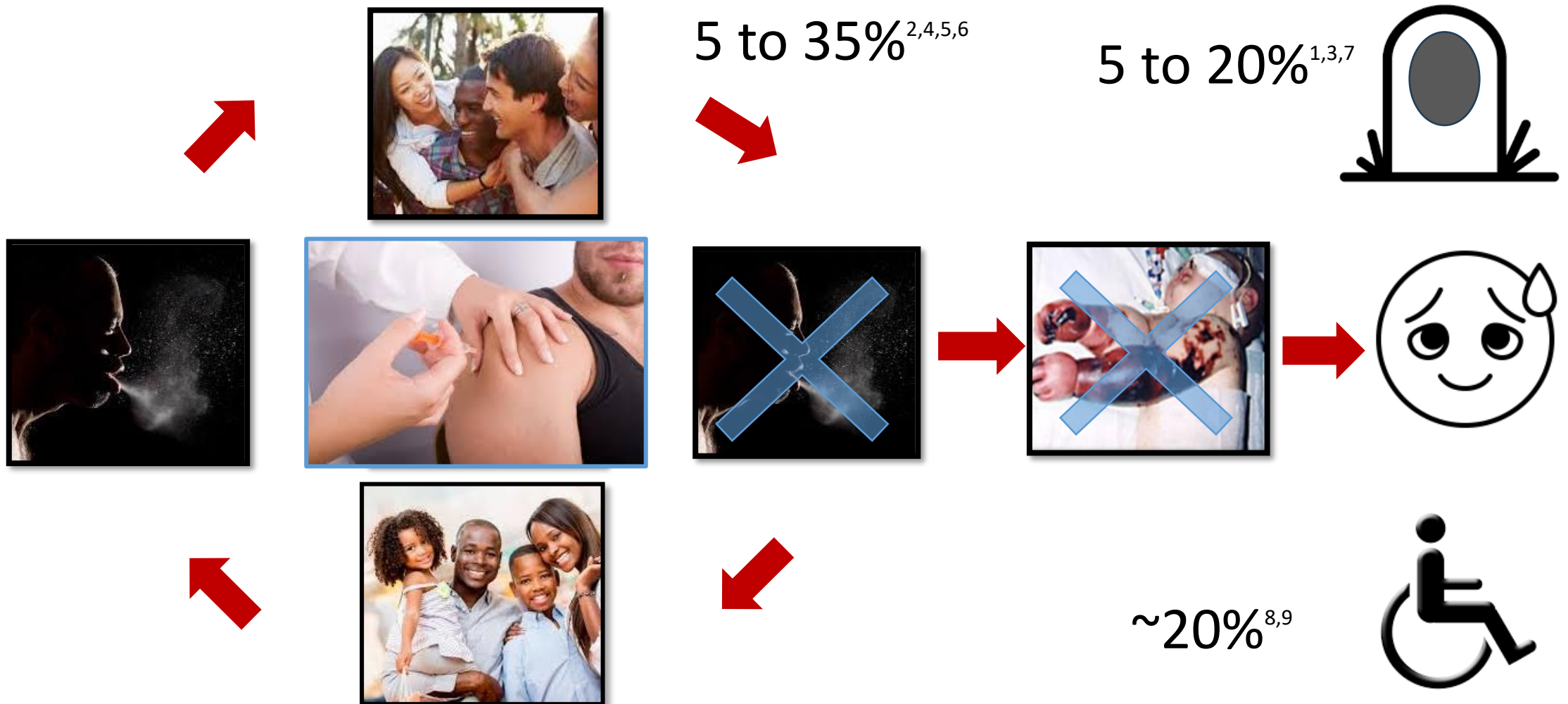
Meningococcal disease is rare,
yet devastating

Key Points: Burden of IMD in South Africa

- Meningococcal disease is **relatively rare**
 - Incidence 0.24 per 100,000 in 2025^{1,2}
- Meningococcal disease is **devastating**³
 - 19% mortality and 25% sequelae
- **Infants, children and young adults** most affected⁴
- Meningococcal disease has **outbreak potential**⁴
- Meningococcal disease **can be prevented**⁴
 - Vaccines: 4CMenB and MenACWY
 - Serogroup distribution: 44% B and 54% C, W and Y¹

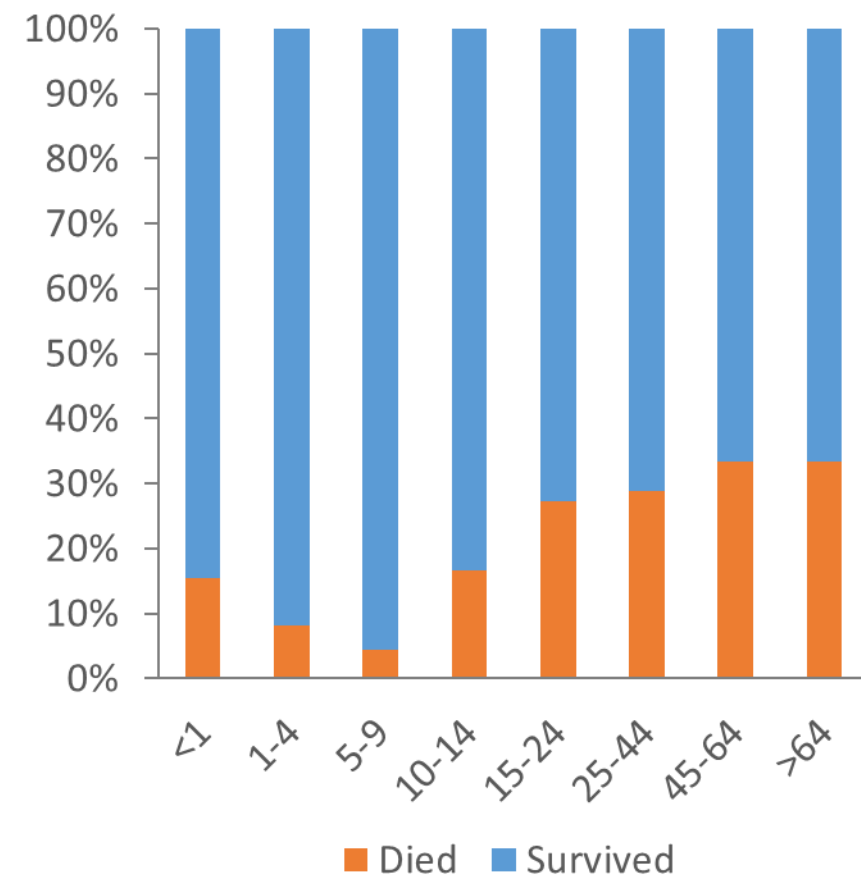


Pathogenesis of invasive meningococcal disease



Clinical course of illness

- **Rapid deterioration**¹
- Most require hospitalisation with/without **ICU support**
- **Treat promptly** with IV Ceftriaxone/Penicillin
- Deaths typically occur within first 24hrs
- **Case-fatality**: <5% in children, to >20% in elderly
 - Higher with septicaemia than meningitis
- 20-25% develop **long-term sequelae**^{1,2}
 - Hearing loss
 - Visual loss
 - Cognitive disorders
 - Limb weakness
 - New onset seizures
 - Amputations
 - Skin scarring
- **Follow-up** for audiology/behavioural issues/etc.¹



Case fatality of persons with invasive meningococcal disease at enhanced surveillance sites, South Africa, 2018-2025 (n=209)

1) Meiring S et al. Case-fatality and sequelae following acute bacterial meningitis in South Africa, 2016 through 2020. Int J Infect Dis. 2022 Sep;122:1056-1066. 2) Edmond K, et al. Global and regional risk of disabling sequelae from bacterial meningitis: a systematic review and meta-analysis. Lancet Infect Dis. 2010 May;10(5):317-28. GERMS-SA unpublished data

Contact tracing and chemoprophylaxis

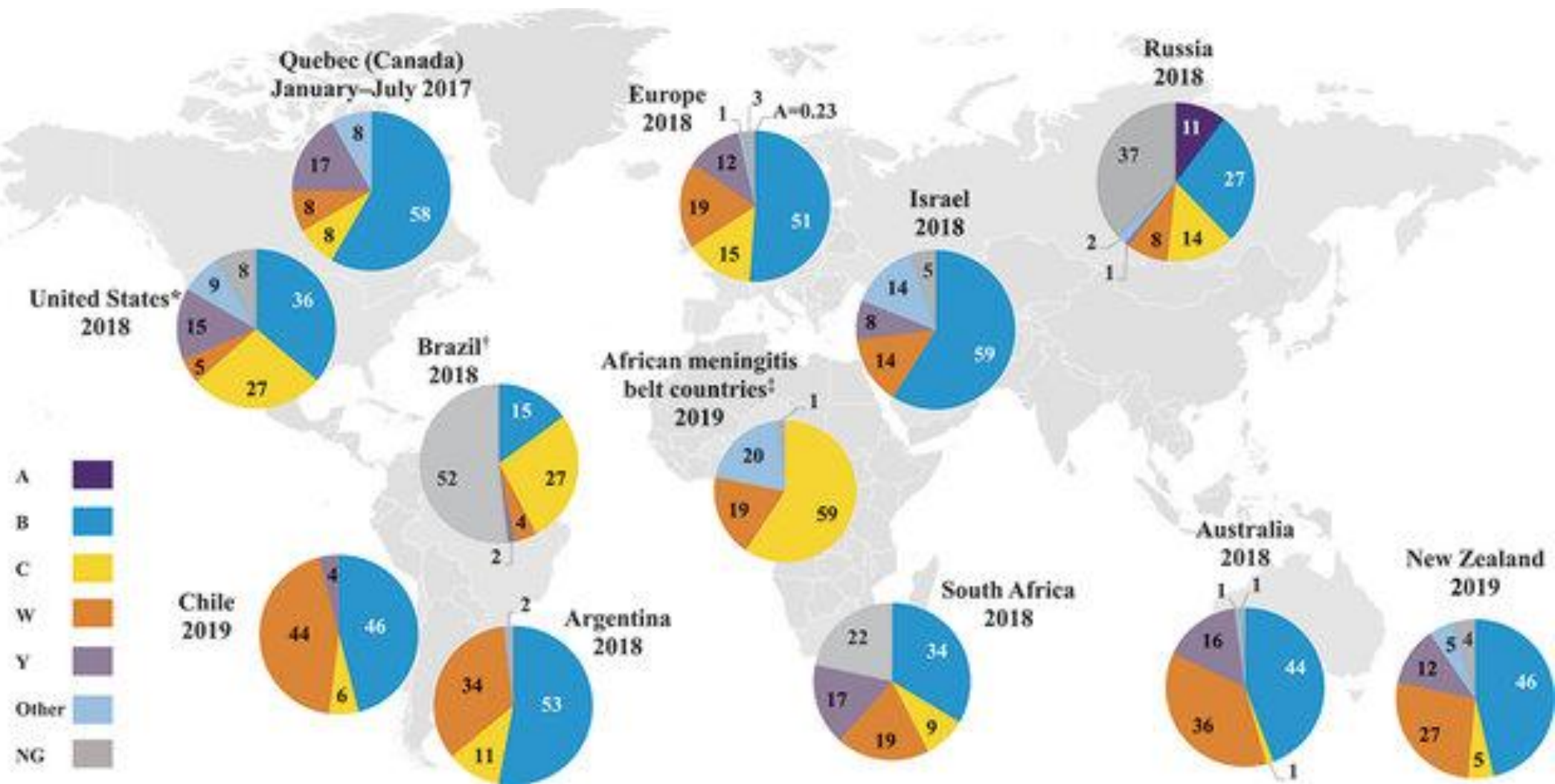
- Chemoprophylaxis to contacts **within 24hrs of diagnosis (up to 10 days)** following exposure to a confirmed case
 - **Household, school, nursery contacts** from the previous 7 days
 - **Exposure to nasopharyngeal secretions**
 - General HCW in emergency or other wards **do not require chemoprophylaxis**,
 - neither do
 - work colleagues unless sharing eating utensils
 - all passengers on airplane nor taxi

Generic Name	Dose in Adults*	Dose in Children	Route	Duration (Days)
Ciprofloxacin	500mg	10mg/kg	PO	Single Dose
Ceftriaxone	250mg	(<12 years) 125mg	IM	Single Dose
Rifampicin		10mg/kg bd.	PO	2 days

***Close contacts who are pregnant should receive Ceftriaxone 250mg IM.**

Global burden and serogroup distribution of IMD

(Incidence rate in 2018 ranged from 0.1/100,000 population in US to 2.1 in Niger)



Meningococcal disease surveillance in South Africa

- Category 1 **Notifiable Medical Condition**

- Droplet precautions first 24hrs of antibiotics
- Notify the episode through IPC nurse – Provincial CDC
 - Need NOT be laboratory-confirmed, Notify on clinical suspicion
 - Identify **close** contacts and administer chemoprophylaxis

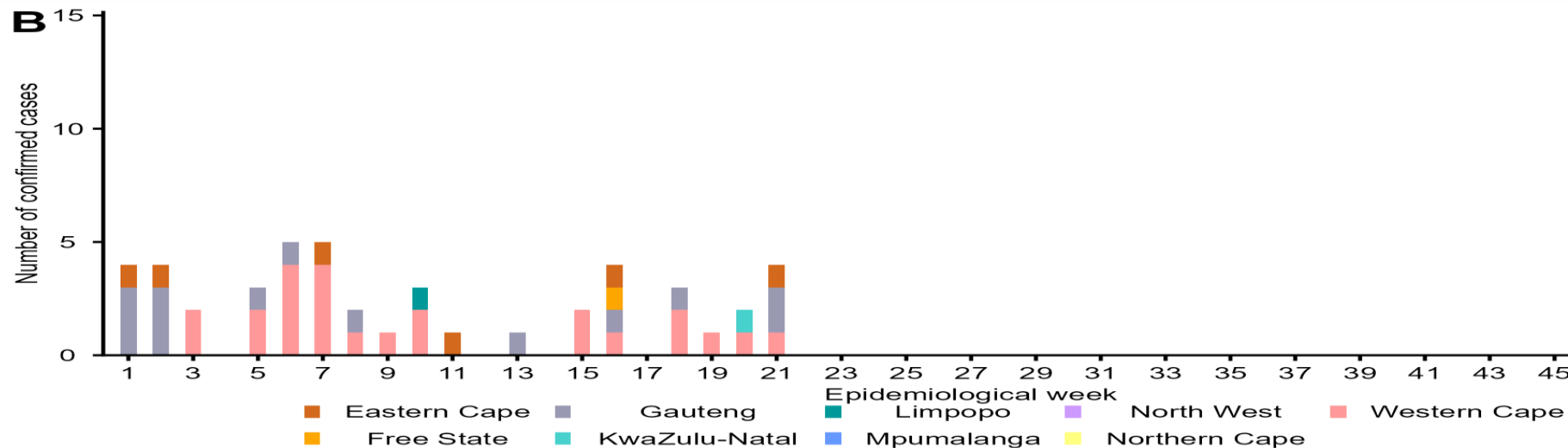


Figure: Confirmed Meningococcal disease cases notified in 2025 and 2026 (A) and in 2026 by province (B)

Meningococcal disease surveillance in South Africa



- National surveillance
- Lab-confirmed invasive
N. meningitidis since 2003
- Quarterly and annual reports
- www.nicd.ac.za

Laboratory-based surveillance

Hospital-based

NHLS Corporate Data Warehouse/
Surveillance data Warehouse
for case numbers and audits

~200 public and private laboratories submit isolates matching GERMS-SA case definitions

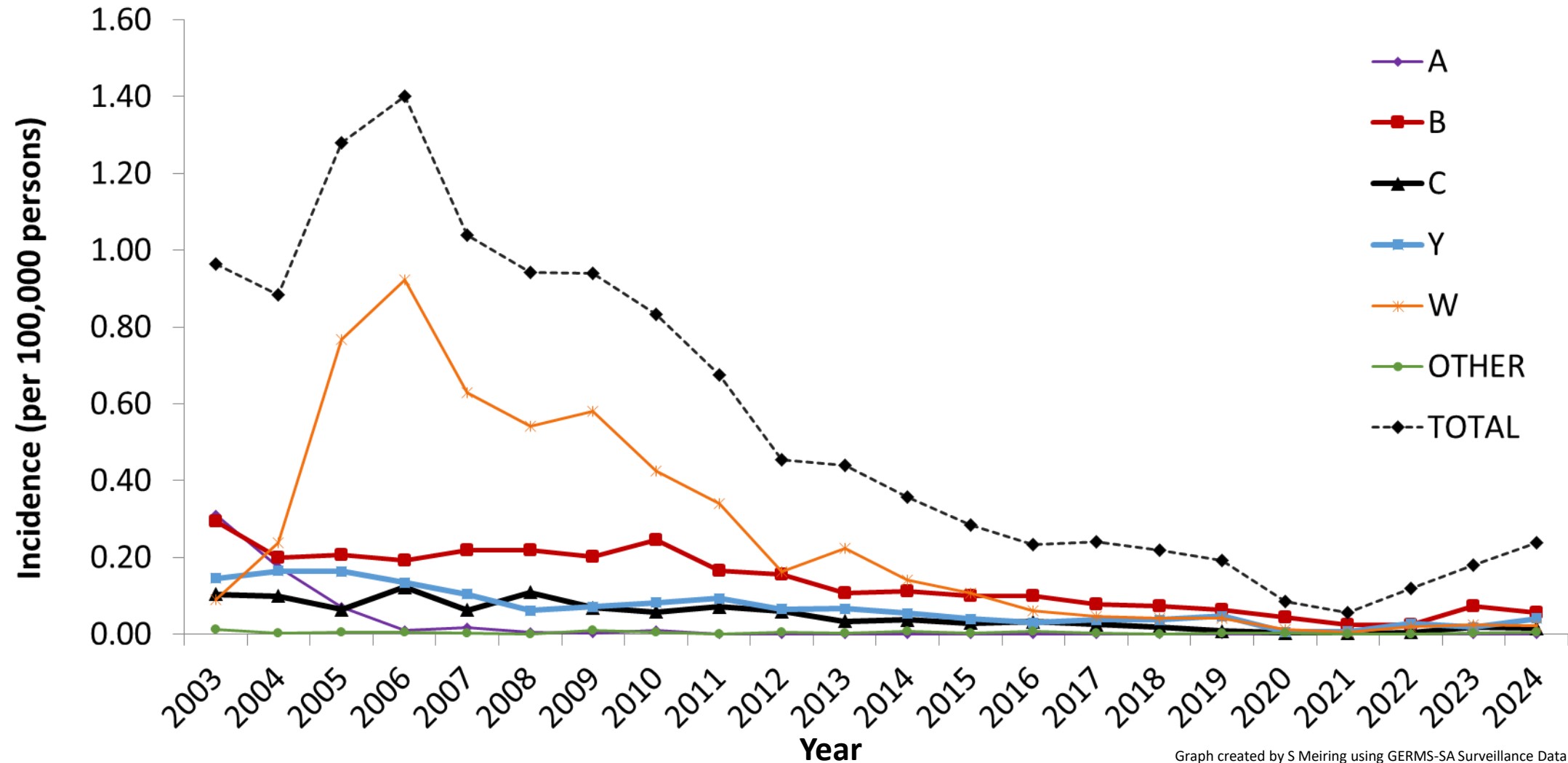
Enhanced surveillance at ~25 hospital sites nationally: nurses collect clinical data from patients

ISOLATES matching our case definitions to be sent to NICD reference laboratories

https://www.nicd.ac.za/wp-content/uploads/2026/04/GERMS-SA-CRDM-Report_2025_Q4_20260421.pdf

<https://www.nicd.ac.za/wp-content/uploads/2025/12/GERMS-Annual-Review-2024.pdf>

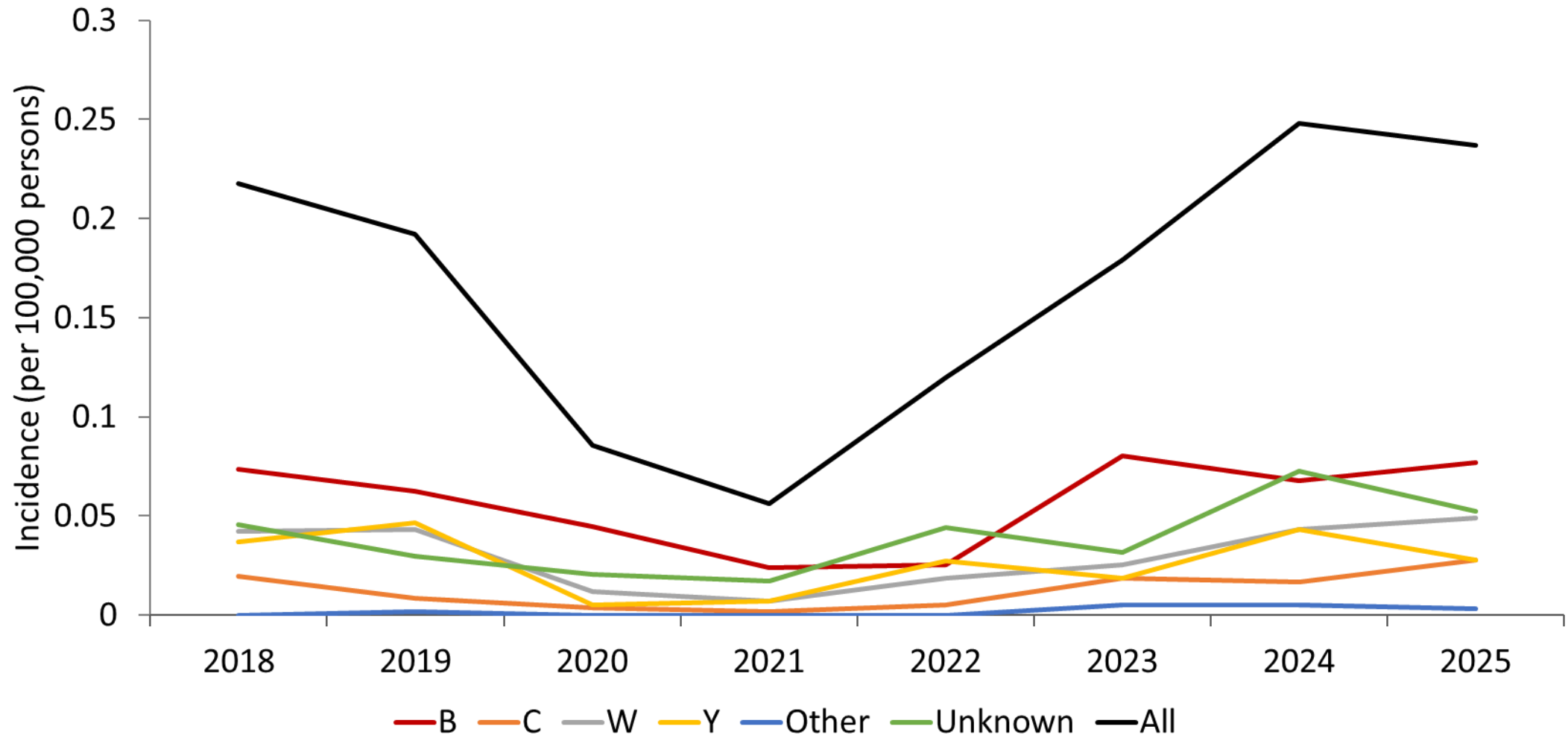
Estimated incidence of invasive meningococcal disease (IMD) by serogroup and year, South Africa, 2003-2024^{1,2}



Graph created by S Meiring using GERMS-SA Surveillance Data

- 1) Meiring S, Cohen C, de Gouveia L, et al. Declining incidence of invasive meningococcal disease in South Africa: 2003-2016. Clin Infect Dis 2019 Oct 23;69(3):495–504;
- 2) GERMS-SA surveillance data (2003-2024)

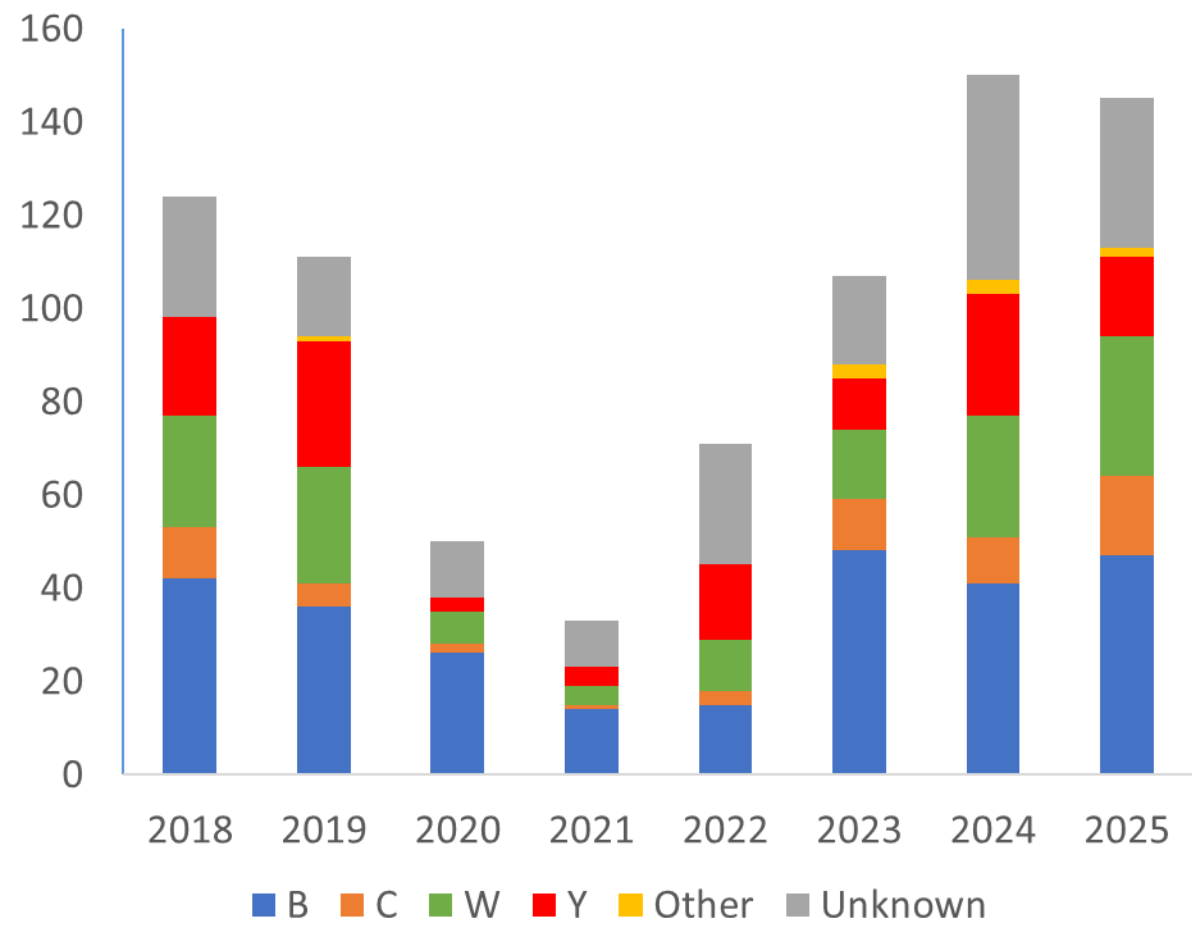
Incidence of IMD by serogroup, South Africa, 2018-2025, GERMS-SA (N=791)^{1,2}



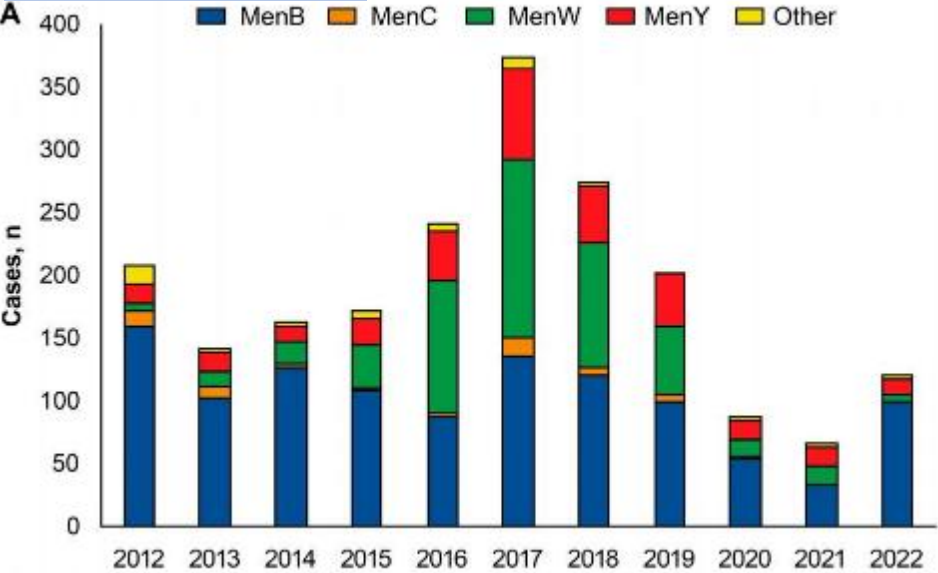
1) GERMS-SA Surveillance Report; NICD (2024); 2) GERMS-SA Surveillance Report; NICD (2025)

Post-COVID IMD increases

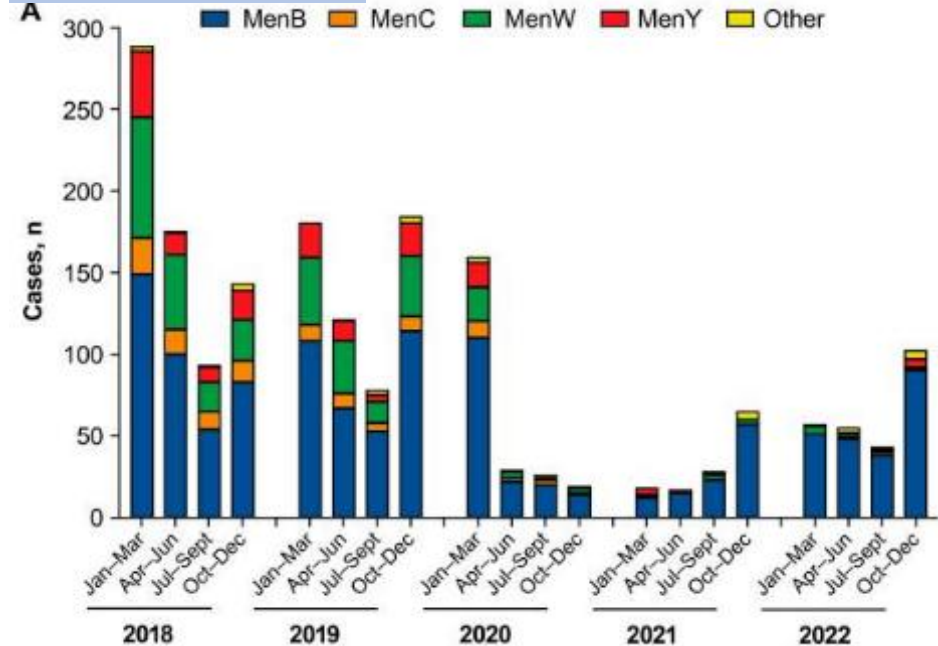
South Africa, GERMS-SA data¹



Australia²

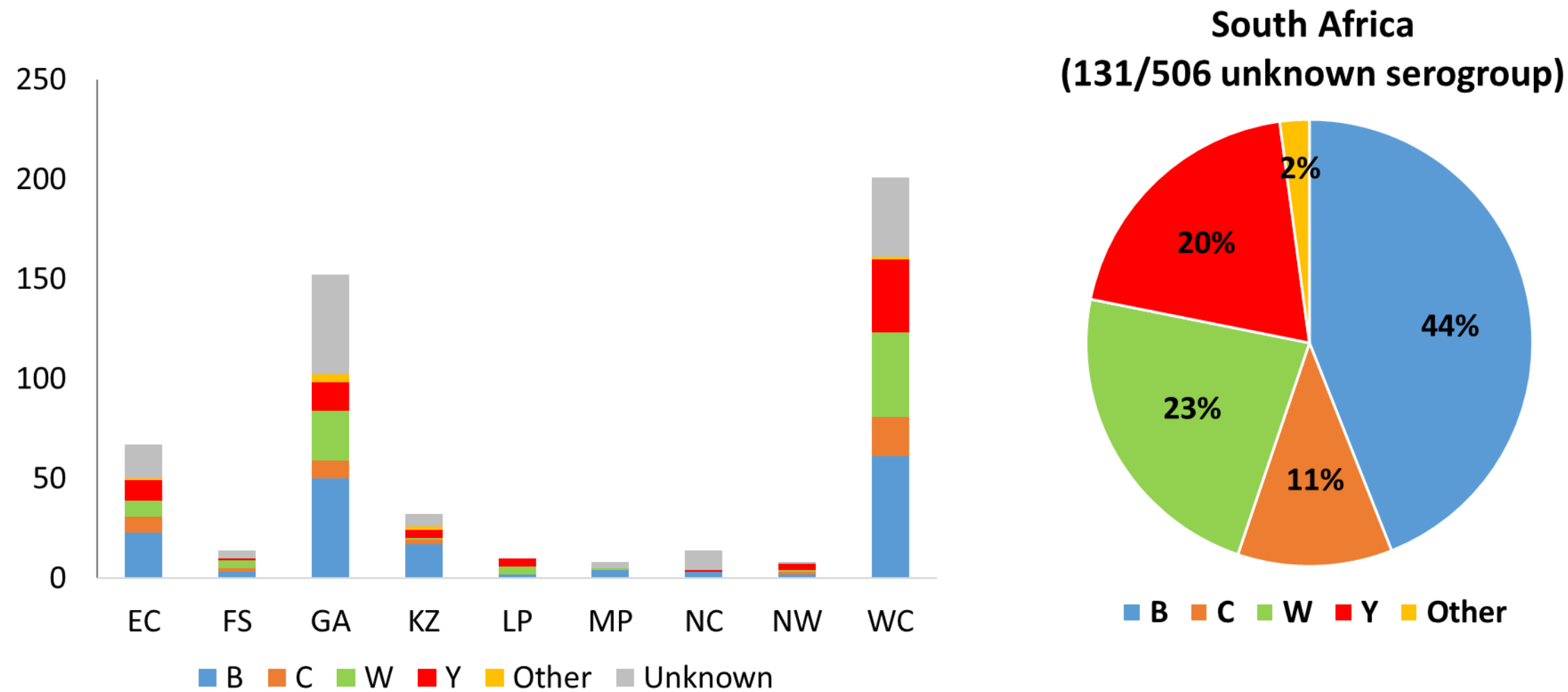


England²



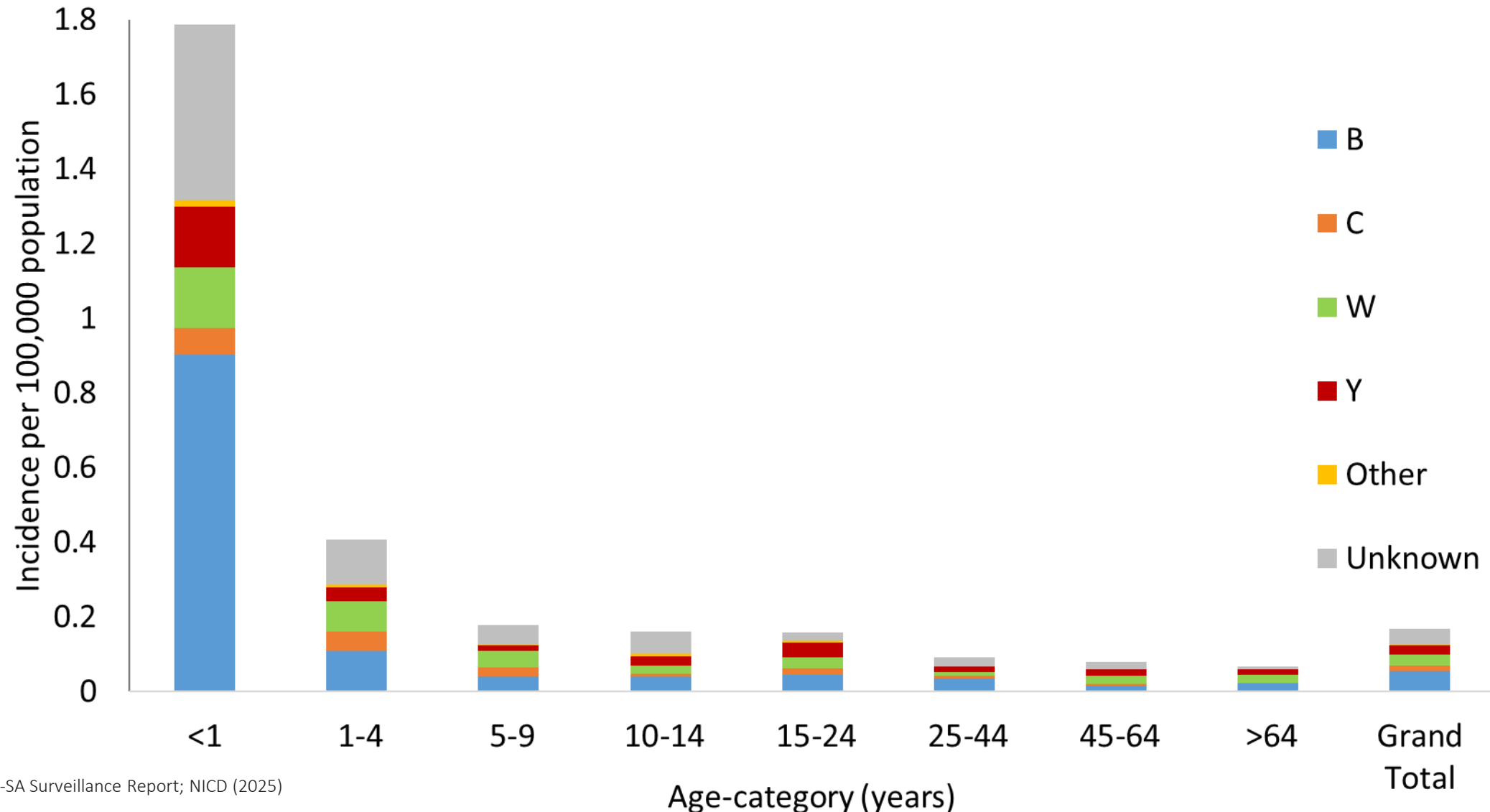
1) Graph created using data first published in GERMS Surveillance data, NICD (2025); 2) Graphs first published in Findlow, et al. 2025 Vaccines. Feb 8;13(2):165. IMD in the post-COVID world: doi: [10.3390/vaccines13020165](https://doi.org/10.3390/vaccines13020165)

Distribution of IMD episodes by serogroup and province, South Africa, 2021-2025 (n=506)

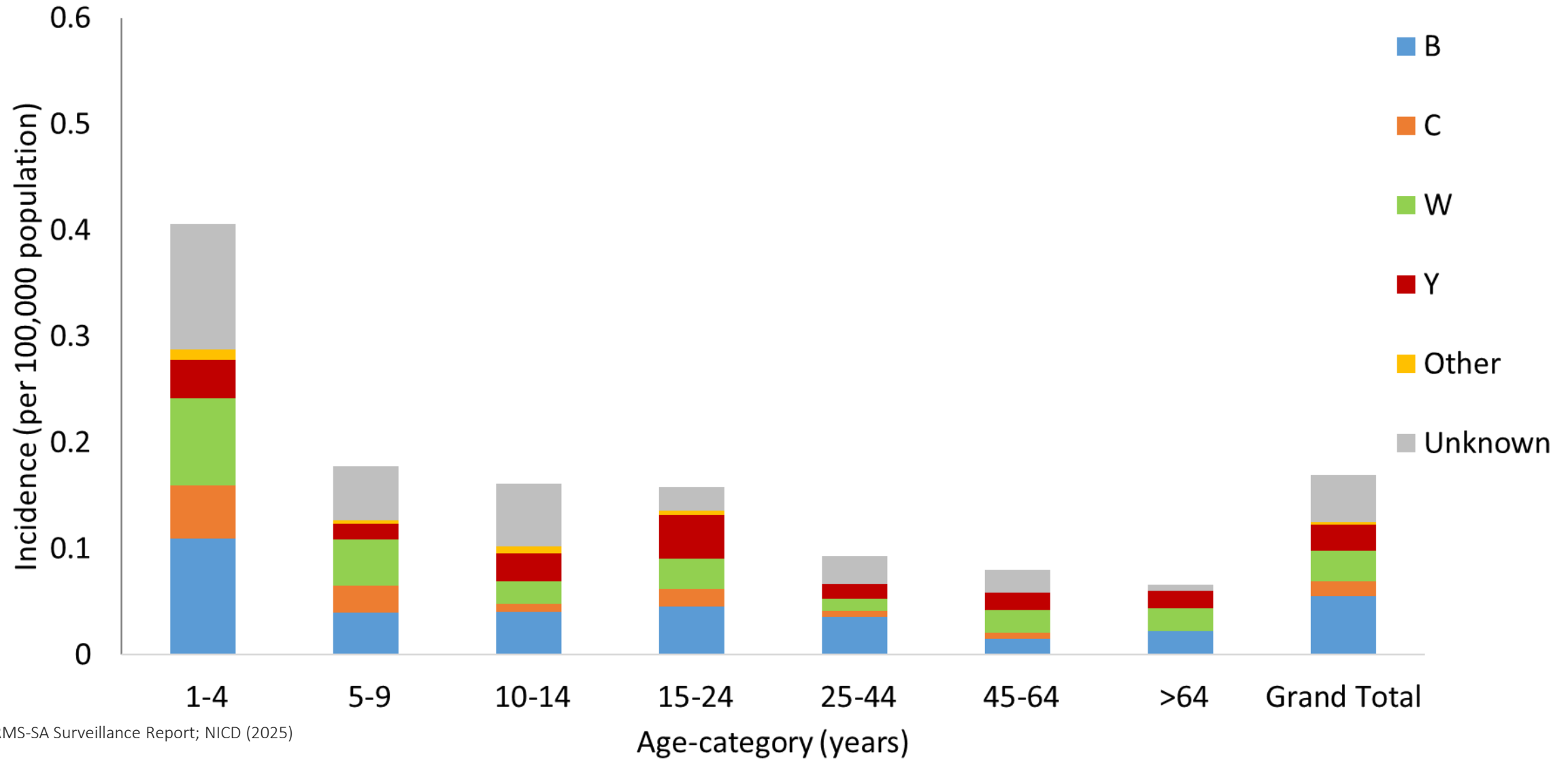


1) GERMS-SA Surveillance Report; NICD (2025)

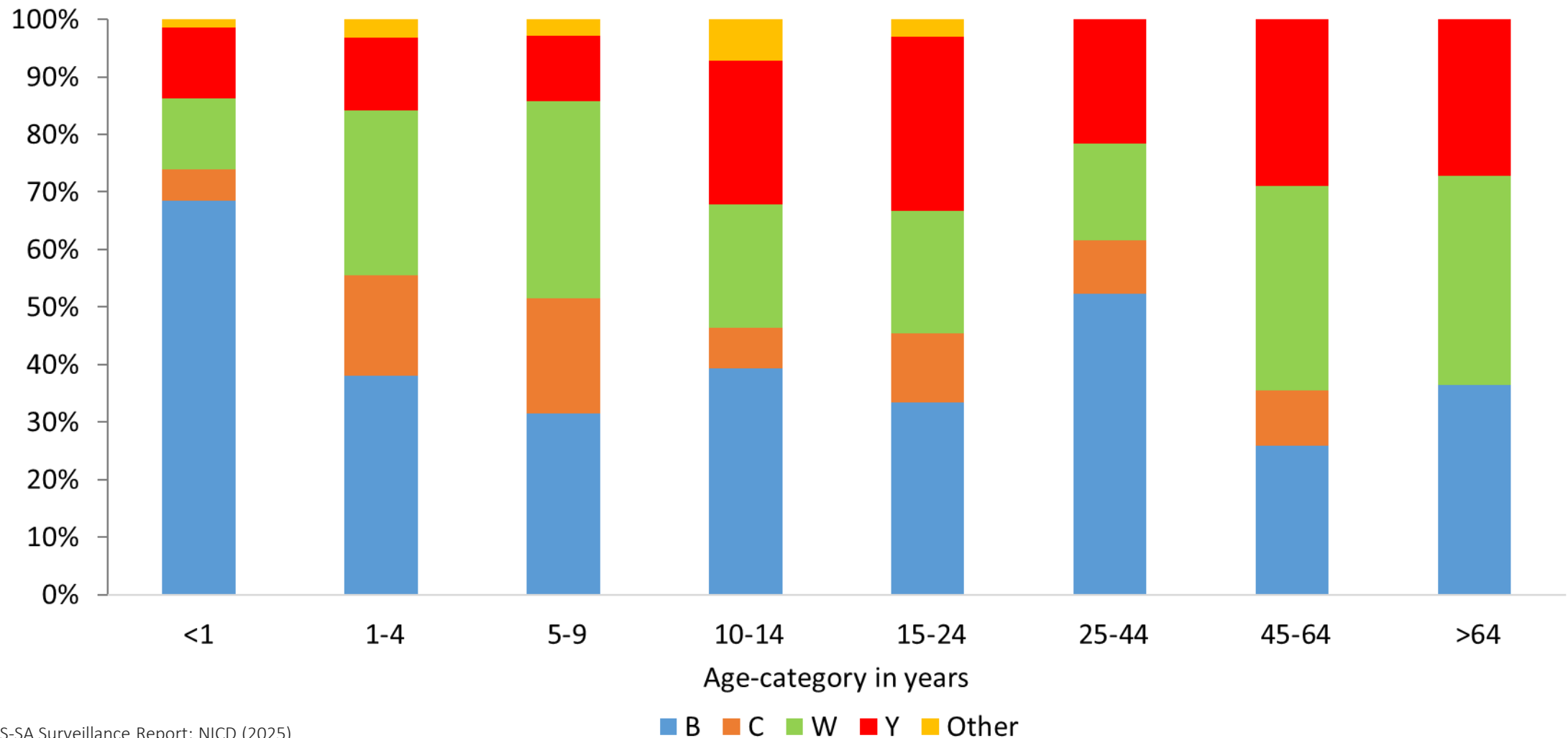
Average annual incidence of IMD by age-category and serogroup, South Africa, 2021-2025 (n=506)



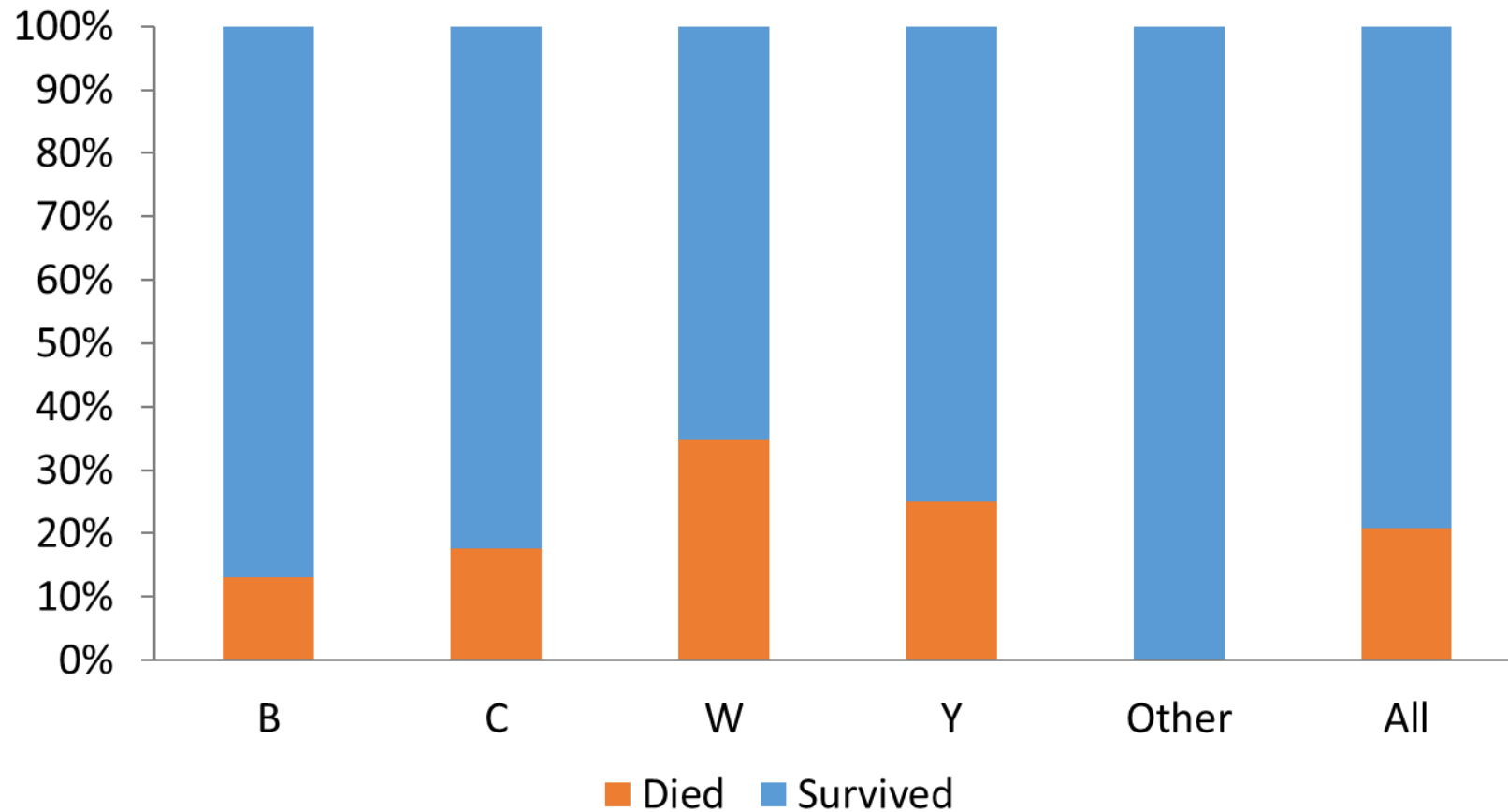
Average annual incidence of IMD by age-category and serogroup, South Africa, 2021-2025 (n=506)



Proportion of IMD by age-category and serogroup, South Africa, 2021-2025 (n=506)



Mortality by IMD serogroup, South Africa, 2018-2025 (n=158, Enhanced Surveillance Sites)

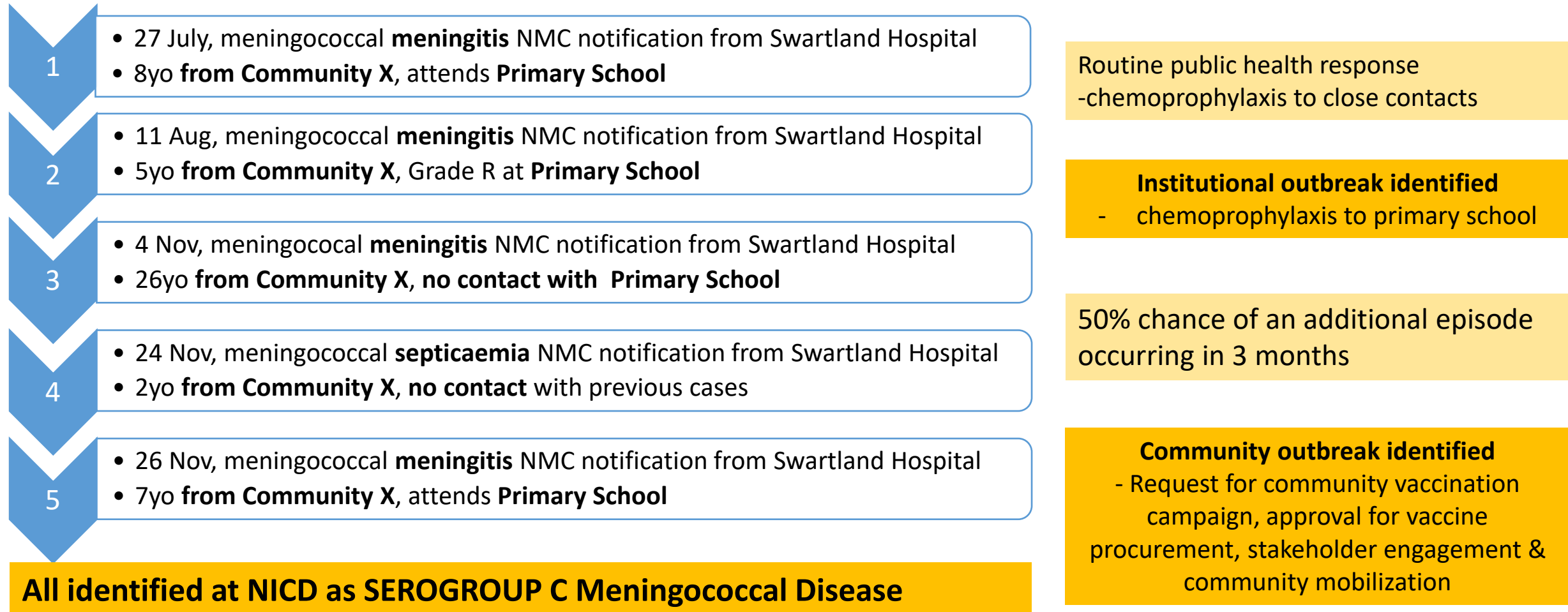


CFR 19% overall

Serogroup W has worse outcome

- Netherlands:
 - W 25% vs 2% Others
- South Africa 2003-2007
 - W 17% vs 11% Others

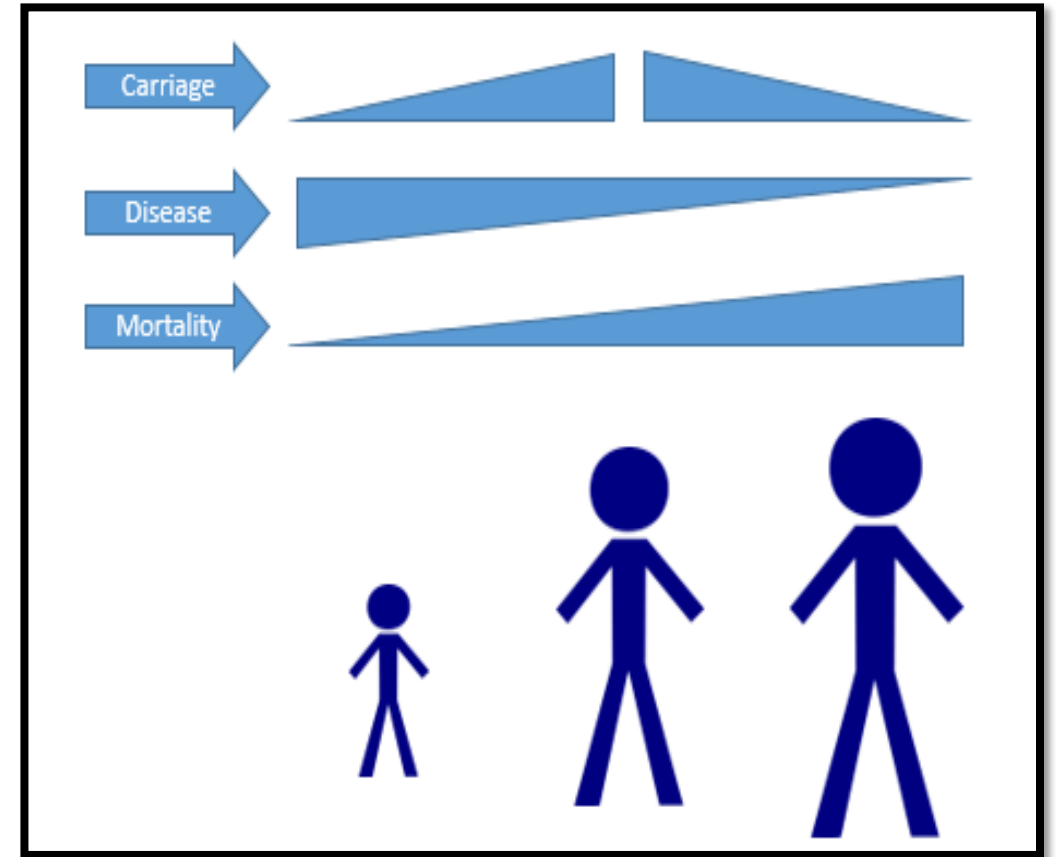
Meningococcal disease has outbreak potential: Community outbreak in West Coast District, Western Cape, 2025



Quadrivalent meningococcal vaccine campaign initiated in April 2026,
Targeted approach - children and youth, ~2400 persons vaccinated

Persons most at risk of invasive meningococcal disease

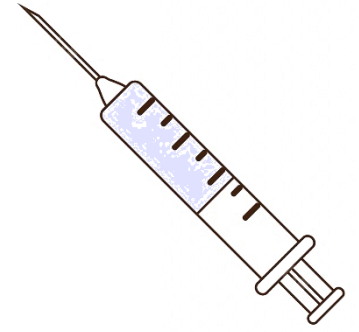
- **Young infants**
- **Teens and young adults**
- **People congregating**
 - Mass events
 - Army barracks
 - Schools/university hostels
- **Travellers**
 - Hajj/Umrah
 - Hyperendemic regions
- **Laboratory workers**
- **Outbreak settings**



Meningococcal Vaccines in South Africa

VACCINE	COMPONENTS	AGE	SCHEDULE	BOOSTER	CARRIAGE
MenACWY-D	Polysaccharide A, C, W and Y conjugated to Diphtheria toxoid	9months to 55 years	2 doses <24 months ≥24months 1 dose	5 years if risk persists	Prevents carriage and acquisition
MenACWY-TT	Polysaccharide A, C, W and Y conjugated to Tetanus toxoid	12 months	1 dose	5 years if risk persists	Prevents carriage and acquisition
MenB-4C	Recombinant variant of each of NadA (peptide 8 variant 2/3), NHBA (peptide 2), and nonlipidated fHbp (variant B24 from subfamily B); and OMVs from strain NZ98/254	8 weeks	2+1 if <12 months 2 doses ≥ 12 months (doses 8 weeks apart – booster ~6months later)	Undetermined	No effect

Meningococcal vaccines in South Africa



4CMenB

- Recombinant protein vaccine
- Serogroup B
- Registered from 8 weeks
- 2 dose primary schedule
- Compatible with other childhood vaccines
- No effect on carriage

MenACWY

- Protein conjugated polysaccharide vaccine (tetanus toxoid carrier)
- Serogroup A, C, W and Y
- Registered from 12 months
- Single dose
- Compatible with other childhood vaccines
- Prevents carriage

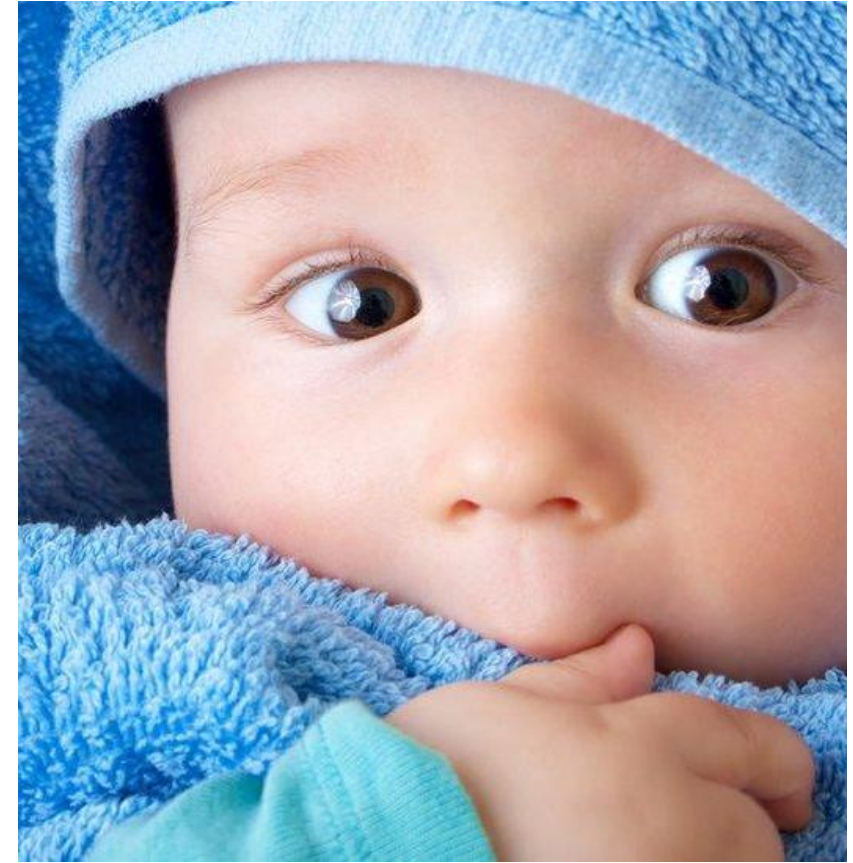
Vaccine recommendations for at risk groups

- Required
 - Pilgrims/Travellers to Saudi Arabia
- Recommended
 - Occupational hazards
 - Reference/research laboratory staff
 - Miners/Military recruits on deployment
 - Travellers to hyperendemic areas
 - Medical conditions
 - Asplenia, complement deficiencies
 - Outbreak settings
- Consider
 - Healthy infants and young children
 - Adolescents prior to entering university/college/etc.
 - HIV infected persons, other immunodeficiency



Summary: Burden of IMD in South Africa

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Thank you to all participating patients, laboratory, clinical and administrative staff for submitting case reports and isolates



Thank you

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www.meningitis.org Book of Experience – for moving/inspiring stories of people and families affected by meningococcal disease

