



TACKLING INVASIVE MENINGOCOCCAL DISEASES WITH LIFE COURSE IMMUNISATION

POLICY BRIEF



**Coalition for
Life Course
Immunisation**

1. Introduction & Purpose

Among invasive bacterial diseases at any age, meningococci are responsible for the most severe cases (notably meningitis with or without septicaemia) occurring mostly in healthy individuals, with rapid onset- most often unpredictable-, high case fatality and substantial long-term disability among survivors.[1-3]

In spite of as early as possible diagnosis and adapted treatment, case fatality for invasive meningococcal disease (IMD) in high-income settings remains around **8-15%**, and **20-40%** of survivors experience long-term sequelae such as hearing loss, neurocognitive impairment, limb loss or psychological disorders.[2-5]

In 2023, there were 2.53 million global meningitis cases, resulting in an estimated 259,000 deaths worldwide.[6] The **WHO Defeating Meningitis by 2030 global roadmap** sets ambitious goals to eliminate bacterial meningitis epidemics, reduce vaccine-preventable bacterial meningitis cases by 50% and deaths by 70%, and reduce disability and improve quality of life after meningitis by 2030.[6,7]

In parallel, the **Immunisation Agenda 2030 (IA2030)** and the **European Immunization Agenda 2030 (EIA2030)** promote a **life-course approach** to immunisation, with protection “for everyone, everywhere, at every age”, emphasising equity, surveillance, and tailored strategies.[8-11]

Purpose

To outline how EU institutions and Member States can **strengthen life-course meningitis prevention** — from infancy to older age — through enhanced surveillance, evidence-informed vaccination strategies and more equitable access, consistent with IA2030/EIA2030 and the WHO meningitis roadmap.

2. Burden of Invasive Meningococcal Disease in Europe

2.1 Overall epidemiology

ECDC's **Report for 2022** reported **1,149 confirmed IMD cases** and **110 deaths** across 30 EU/EEA countries, a notification rate of **0.3 per 100,000**.^[12] Incidence remains highest in **infants <1 year**, followed by **children 1–4 years**, with a second peak in **adolescents/young adults 15–24 years**.^[3,12,13]

2.2 Serogroup distribution and recent trends

Across Europe, **serogroup B** remains the leading cause of IMD in most age groups under 65 years.^[3,14]

However, recent surveillance points to:

- **Rising serogroup Y:** around **359 reported IMD cases due to serogroup Y in 2023** across all ages, with concentrations in France, Germany and Spain.
- **Sharp increase in serogroup W:** approximately **273 cases in 2023**, compared with **~99 cases** the previous year.

These age- and serogroup-specific patterns are drawn from **ECDC's Surveillance Atlas of Infectious Diseases**, which aggregates Member State surveillance data.^[4] The long-term success against **serogroup C (MenC)** — with only **a few dozen cases EU-wide in recent years** — shows what can be achieved through vaccination routine strategies during infancy, well-designed catch-up and adolescent booster strategies.^[3,15]

2.3 Adults and older adults (50+ years)

While infants and young children remain the highest-incidence groups, adults aged ≥ 50 years are increasingly accounting for a growing share of the IMD burden. Recent EU data indicate around **629 IMD cases in adults 50+ in 2023**, with particularly **high absolute numbers in France (~218) and Spain (~102)**. [4,5] **Case fatality is highest in over- 65s (18%)**, followed by 50-64-year-olds (15%).[3]

Serogroup Y is especially prominent in older adults, and W is increasingly implicated in severe sepsis and meningitis in this age group.[4,5,16]

2.4 Economic and societal burden

IMD generates **very high health-care costs**, driven by:

- ICU and hospital care for the first acute episodes
- Long-term and often life-long management of sequelae (hearing aids, rehabilitation, psychological support, disability care)[5,17–20]
- Across European economic evaluations, **acute hospital costs** per IMD case often exceed **€10,000–€50,000**, and **sequelae account for ~80% of lifetime direct costs** in some analyses.[17,18,20]

In addition, survivors and their families experience:

- Long-term **productivity losses**, missed school days and caregiver burden
- Reduced quality of life, with substantial **DALYs and YLDs** attributed to IMD in global burden estimates.[5,21]

Implication for policymakers: IMD is low-incidence but **high-impact** and warrants prioritisation in life-course immunisation policy.

3. Vaccination Across the Life Course

3.1 Available vaccines

The EU has a mature toolbox of vaccines that prevent invasive bacterial diseases and in particular IMD, including meningitis

- **Hib** and **pneumococcal conjugate vaccines (PCV)** in infant schedules, with demonstrated impact on meningitis and invasive disease related across childhood and beyond.[22–24]
- **MenB** vaccines licensed from early infancy upwards, with real-world evidence of impact in infant and adolescent programmes. Modelling suggests substantial added benefit when adolescent schedules are included.[25–27]
- **MenACWY** conjugate vaccines, more widely used in adolescents and young adults, and also increasingly used in infant and toddler programs in some countries, in replacement of MenC vaccines[15,26]

3.2 Heterogeneity of national schedules in the general population

The **ECDC Vaccine Scheduler** reveals significant differences between vaccination strategies of EU/EEA countries in the following areas:

- age of first meningococcal dose
- use of MenC versus MenACWY
- use of MenB
- catch-up vaccination
- funding/mandatory status.[28]

Across many Member States, **catch-up provisions** for adolescents or young adults exist but are often **under-implemented**, and adult schedules (including for 50+ risk groups) remain fragmented.[15,24,28]

France – MenB introduced in 2022 and made **mandatory from January 2025 for children under two years of age**; monovalent MenC during infancy and at adolescence replaced by **MenACWY** with catch-up options for older children/adolescents up to 24 years of age.

Germany – Long-standing routine MenC in childhood; **national MenB recommendation** introduced in 2024/2025 with focus on infant/toddler protection.[15]

Spain – Routine infant MenB, regional variation in MenB–MenC combinations in childhood, and MenACWY for adolescents and catch-up groups.



3.3 Risk groups and serogroups

Evidence and expert opinion emphasise that **risk groups** (e.g. asplenia, complement deficiency, immunosuppression, certain occupational or travel exposures) have a higher risk of IMD than the general population, though they face **comparable risk across MenB, MenC, MenW and MenY**, and that **limiting risk-group vaccination to MenB alone is not evidence-based**.[14,15,29]

The **success of MenC programmes** (UK, Italy, Netherlands) demonstrates the value of:

- Early roll-out with **mass catch-up** in adolescents/young adults
- **Strategic transition** from monovalent MenC to broader MenACWY in adolescence and infancy
- Maintaining **high coverage** to preserve herd protection.[3,15]

4. Integration & Life-Course Approach

The life-course vision in **IA2030/EIA2030** stresses immunisation opportunities beyond infancy — through adolescence, adulthood and older age.[8–11]

4.1 Key risk periods

- **Adolescents/young adults (15–24 years):** second peak of incidence; key carriers of N. meningitidis; high social mixing and close-contact settings (schools, universities, dormitories). [2,18,30]
- **Adults ≥50 years:** growing share of severe IMD, especially serogroups Y and W, with higher rates of sepsis, ICU admission and death, and in whom bacteremic meningococcal pneumonia — likely underdiagnosed — should be actively considered. [4,5,16,21,31]

4.2 Missed opportunities for integration

Although infant coverage for Hib, PCV and primary MenC/MenB doses is generally high, many Member States underuse:

- **Adolescent health visits and school-based programmes** for MenACWY/MenB and catch-up
- **Pharmacy-based vaccination and nurse-led programmes**
- **Chronic disease / older-adult clinics** to integrate meningococcal vaccination into co-morbidities care (e.g. chronic conditions such as cardiovascular and diabetes)
- **Travel medicine** settings for pilgrims and travellers to high-risk regions (e.g. serogroup W outbreaks linked to Hajj/Umrah).[16,31]

Lack of systematically used **electronic immunisation records** and **centralised medical dossiers** contributes to missed vaccination opportunities across the life course.

5. Policy Landscape & Gaps

5.1 Surveillance and data

Key gaps include:

- Incomplete **serogroup data** in some Member States and delays (2-year lag) in EU-level reporting.
- Absence of an **EU-wide database for meningococcal vaccination coverage**, with only national-level or age-stratified data in some countries.
- Limited **systematic data on long-term sequelae**, quality-of-life and indirect costs in EU surveillance frameworks.[3,4,5,17–20]
- Unequal access for socio-economically disadvantaged groups, migrants and marginalised populations.[13,15,21,28]

5.2 Heterogeneous immunisation policies

Under the **principle of subsidiarity**, vaccination strategies remain national competencies. This results in:

- Divergent use of **MenB and MenACWY** in infancy, adolescence and adulthood
- Variation in **funding and recommended vs mandatory status**, particularly for Men ACWY and adult doses

5.3 Missed “success learning”

Despite near-elimination of **MenC-IMD** in several countries following comprehensive infant plus catch-up/adolescent strategies, there is no formal EU mechanism to **capture and share lessons** from these programmes to inform future MenB/MenACWY strategies.[3,15]

6. EU-Level Guidance for Life-Course IMD Prevention



Recognising that **full harmonisation of national schedules is unrealistic**, EU action should focus on **equity, surveillance quality, shared evidence and preparedness** rather than prescriptive schedules.

6.1 Strengthen IMD and, more specifically, meningitis surveillance and data systems

- Improve **timeliness, completeness and granularity** of IMD reporting via national systems and ECDC, including:
 - Systematic reporting of **age, serogroup (including Y and W), clinical presentation and outcomes**.
- Establish a **pan-European sequelae registry** for meningitis/IMD to quantify long-term health, social and economic impact.

6.2 Promote equity in access and uptake

- Support **joint procurement / common-market mechanisms** among willing countries to reduce vaccine prices and improve sustainable supply.
- Prioritise **adolescents, young adults and adults 50+** for targeted outreach and catch-up, focusing on post-pandemic gaps, “zero-dose” and under-vaccinated groups.
- Develop on-site vaccination take-up (schools, colleges, work places, nursing home)

6.3 Embed a life-course immunisation approach

- Promote **multi-age strategies** (infants + adolescents + risk-group and older adults) where epidemiology and cost-effectiveness justify them.
- Encourage use of **pharmacies, nurses and occupational health services** as vaccinators, supported by **interoperable electronic vaccination records** to reduce missed opportunities.

6.4 Support evidence-based national vaccination strategies

- Make available to HCPs and the public regular updates on safety data as well as efficacy/effectiveness data
- Develop **non-binding EU guidance** on life-course meningococcal vaccination that:
 - Provides evidence-based options for **infant, adolescent and adult (50+) strategies** using MenB and MenACWY.
 - Emphasises **risk-group protection** across serogroups.
- Support Member States to **expand and sustain catch-up and adolescent programmes**, building on:
 - Experience from successful **MenC** and **MenACWY** programmes.
 - Evidence on **herd protection achieved with polysaccharide conjugate vaccines**
 - Evidence on **cost-effectiveness**.

6.5 Create a shared learning and communication agenda

- Establish **formal EU platforms enhanced with AI** (e.g. under ECDC/WHO Europe) for real-time analysis and exchange on:
 - IMD epidemiology and outbreaks,
 - Vaccination strategies and programme changes,
 - Lessons from MenC, MenB and MenACWY implementation.
- Integrate meningitis messaging into broader **IA2030/EIA2030 communication** (equity, resilience, zero-dose) and leverage:
 - **European Immunisation Week**
 - **World Meningitis Day**

6.6 Establish a shared information

- (infographics, short videos...) for the public targeting adolescents, young adults, any risk group, and older adults.
- Translated into their own language and renewed from time to time.



References

1. World Health Organization. Meningitis: fact sheet. WHO; 2023.
2. European Centre for Disease Prevention and Control (ECDC). Meningococcal disease: factsheet. ECDC; accessed 2025.
3. ECDC. Invasive meningococcal disease – Annual Epidemiological Report for 2018. Stockholm: ECDC; 2020.E
4. ECDC. Surveillance Atlas of Infectious Diseases – Invasive meningococcal disease (dataset). Stockholm: ECDC; accessed 2025.
5. Middeldorp M, et al. The burden of invasive meningococcal disease in [Europe]: a scoping review. *J Clin Med*. 2023;12(3):849
6. Sirota, Sarah and Bender, Rose and Hay, Simon I. and Murray, Christopher JL and Naghavi, Mohsen and Kyu, Hmwe, Global Burden of Meningitis, its Risk Factors, and Aetiologies, 1990–2023: Results from the Global Burden of Disease Study 2023.
7. World Health Organization. Defeating meningitis by 2030: a global roadmap. Geneva: WHO; 2021.
8. World Health Organization. Immunization Agenda 2030: A global strategy to leave no one behind. Geneva: WHO; 2020.
9. Immunization Agenda 2030 Partners. Immunization Agenda 2030: a global strategy to leave no one behind. *Vaccine*. 2024;42(Suppl 1):S5–S14.P
10. WHO Regional Office for Europe. European Immunization Agenda 2030 (EIA2030). Copenhagen: WHO Europe; 2021.
11. WHO Regional Office for Europe. European Immunization Agenda 2030: technical progress report 2023–2024. WHO Europe; 202
12. ECDC. Invasive meningococcal disease – Annual Epidemiological Report for 2022. Stockholm: ECDC; 2024.
13. Nuttens C, et al. Evolution of invasive meningococcal disease epidemiology in Europe. *Clin Microbiol Infect*. 2022;28(5):679–689
14. Baloché A, et al. Epidemiology and clinical burden of meningococcal disease in France: a scoping review. *J Clin Med*. 2023;12(3):849
15. Martínón-Torres F, et al. Evolving strategies for meningococcal vaccination in Europe: overview and determinants. *Hum Vaccin Immunother*. 2022;18(1):2036001
16. Borrow R. Current global trends in meningococcal disease control. *J Infect*. 2025; in press
17. Scholz S, et al. The cost-of-illness for invasive meningococcal disease: a systematic review. *Vaccine*. 2019;37(35):5006–5020
18. Weil-Olivier C, et al. Healthcare resource consumption and cost of invasive meningococcal disease. *Infect Dis Ther*. 2021;10(3):1581–1596
19. Huang L, et al. Clinical and economic burden of invasive meningococcal disease in France: a database study. *PLoS One*. 2022;17(5):e0267786
20. Sergienko EN, et al. The economic burden of invasive meningococcal disease. *medRxiv*. 2024; preprint
21. Toor J, et al. Lives saved with vaccination for 10 pathogens across 112 countries, 2000–2030. *eLife*. 2021;10:e67635
22. Levine OS, et al. Global status of Haemophilus influenzae type b and pneumococcal conjugate vaccines. *Pediatr Infect Dis J*. 2010;29(2):195–201
23. Gessner BD, et al. Key lessons from Hib conjugate vaccination and implications for pneumococcal vaccines. *Vaccine*. 2008;26(Suppl 2):B3–B12
24. Life-Course Immunization Country Landscape Report. IFPMA; 2022
25. Rollier C, et al. The capsular group B meningococcal vaccine, 4CMenB. *Clin Vaccine Immunol*. 2014;21(7):980–991
26. Schley K, et al. Public health impact of potential infant MenACWY vaccination strategies. *Vaccines*. 2025;13(6):642.
27. Ladhani SN, et al. Vaccination of infants with meningococcal group B vaccine (4CMenB). *N Engl J Med*. 2020;382(4):309–320.
28. ECDC. Annual Epidemiological Reports & Vaccine Scheduler – meningococcal disease pages. ECDC; accessed 2025.
29. Borrow R, Ladhani SN, Ramsay ME. Killing 2 cocci with 1 vaccine: unleashing the potential of adolescent MenB programmes. *Clin Infect Dis*. 2021;73(1):e238–e240.
30. Andani A, et al. Invasive meningococcal disease in adolescents in Europe: burden, unmet need and prevention. [Journal]. 2025; epub ahead of print.
31. Taha S, Deghmane AE, Taha MK. Recent increase in atypical presentations of invasive meningococcal disease in France. *BMC Infect Dis*. 2024 Jun 26;24(1):640. doi: 10.1186/s12879-024-09547-y.