VACCIREVIEW

Invasive meningococcal disease rebound in older adult's post–covid-19 pandemic: a targeted literature and surveillance review

Bibliography

Yezli S, Bonanni P, Dinleyici EC, Thakker D, Kumar V, Leng S, Coste F, Taha M-K. Invasive meningococcal disease rebound in older adults post–COVID-19 pandemic: A targeted literature and surveillance review. Int J Infect Dis. 2026;xx(xx):xx–xx. doi:10.1016/j.ijid.2026.108502.

Summary

This targeted literature and surveillance review examines how the epidemiology of invasive meningococcal disease (IMD) has changed among adults aged 65 years and older before, during, and after the COVID-19 pandemic in predominantly high-income countries. IMD, caused by *Neisseria meningitidis*, remains a rapidly progressive infection associated with high morbidity, substantial case fatality rates, and frequent long-term sequelae such as neurologic impairment, amputations, and sensory deficits. The authors emphasize that although IMD has classically been viewed as a disease of **infants** and **adolescents**, emerging data support a "tertiary peak" in **older adults**, who now account for a considerable share of the overall burden and have the highest age-specific case fatality rates.

The review followed PRISMA principles and used a PICOS-T framework. A targeted search of MEDLINE and Embase (OVID) identified English-language, full-text articles published between January 2021 and June 2024 that reported IMD incidence, case fatality rates, and serogroup distribution by age group around the COVID-19 pandemic. Of 1,639 records identified, 489 duplicates were removed and 1,104 records excluded at title/abstract level, **leaving 46 articles for full-text screening**. Ultimately, only four peer-reviewed publications from England, France, and Poland were eligible. To address this limited literature base, the authors incorporated 10 national or regional surveillance reports or data extractions from web portals covering England, France, Spain, Italy, Germany, the Netherlands, the United States, Canada, Australia, and the EU/EEA. Data were categorized into three periods: pre-pandemic (2015–2019), pandemic (2020–2021, with some country-specific definitions), and post-pandemic (2022 onward). Where data were only presented graphically, the authors digitized figures.

Across all age groups, **IMD incidence fell sharply during the COVID-19 pandemic**, coinciding with widespread nonpharmaceutical interventions such as lockdowns, reduced social contacts, mask use, and enhanced hygiene, as well as disruptions to immunization services. Among older adults, both incidence and the proportion of total

IMD cases declined during the pandemic and then rebounded after restrictions were relaxed. In the EU/EEA, IMD cases in adults aged 65 years and older rose from 315 to 463 between 2015 and 2019, and their share of total IMD cases increased from 14% to 19%. After a pandemic-related decline, older adults accounted for 20% of all IMD cases in 2023, even though overall case counts had not fully returned to pre-pandemic levels.

Country-level analyses showed **heterogeneous but broadly consistent patterns**. France experienced the most striking rebound: cases in older adults almost tripled from 49 in 2021 to 135 in 2023, surpassing pre-pandemic levels, and this age group reached 27% of all reported IMD cases. England saw an early resurgence beginning in 2020, but absolute numbers and proportions in older adults remained below pre-COVID values. Spain showed strong pre-pandemic increases in older adult IMD, a marked pandemic decline, and a 2023 rebound that did not reach previous peaks, with older adults representing around one quarter of cases. Germany returned to, and slightly exceeded, pre-pandemic incidence in older adults by 2023, with their proportion of cases rising to 24%. In Italy, incidence in older adults remained at about one-third of pre-pandemic levels in 2023, and their share of cases declined. The Netherlands, the United States, Canada, and Australia all showed pronounced pandemic-era declines and partial rebounds that remained at or below pre-pandemic incidence among older adults.

The review also highlights **notable shifts in serogroup distribution** in this age group. In the EU/EEA, serogroup W had been most common among older adults prior to the pandemic, **but by 2022 serogroup Y had become predominant**, accounting for nearly half of older-adult IMD cases. In France and Germany, serogroup Y began increasing before the pandemic and emerged as the leading serogroup in older adults, with Germany reporting more than 60% of older-adult IMD due to serogroup Y by 2023 and serogroup B declining. In the United States, serogroup Y reached roughly 70% of cases in older adults in 2023, while serogroups B and W decreased and serogroup C remained the second most frequent. In other settings, such as Italy, Canada, and Australia, serogroup B often remained important, but there were distinct increases in serogroup Y during or after the pandemic period.

Case fatality rates in those 65 years and older were consistently higher than in younger age groups, often in the range of the high teens or above, with some temporal fluctuations between pre-, intra-, and post-pandemic periods and some country-specific spikes. Overall, the review finds no uniform temporal trend in case fatality but underscores the persistently elevated risk in older adults.

In the discussion, the authors attribute the pandemic-era decline and post-pandemic rebound to **changed contact patterns, nonpharmaceutical interventions, and a possible "immunity debt" linked to reduced circulation of respiratory pathogens and disruptions in routine vaccination**. They also propose that successful meningococcal vaccination programs targeting children and adolescents, combined with population aging and comorbidities, have shifted the relative burden of IMD toward older adults. Cross-country comparisons between settings with earlier versus later or absent adolescent MenACWY programs are used to support this hypothesis. On this basis, the authors argue for strengthened IMD surveillance, enhanced serogroup-specific monitoring, and reconsideration of vaccination strategies, including potential targeted vaccination of high-risk older adults, particularly in the context of a growing role of serogroup Y in this age group.

Comment

It was exciting to observe how reported infections due to the *pneumococcus, meningococcus* and even STDs and others declined during the COVID19 pandemic, likely as a result of reduced contacts/exposures and NPIs. The review here documents the rebound for one of the many pathogens that had almost disappeared in 2021. The major strengths of this review include a focused age-group lens on adults 65 years and older, explicit temporal framing into pre-, pandemic, and post-pandemic periods, and integration of both peer-reviewed studies and official surveillance data from multiple high-income countries. The consistent signal of a pronounced incidence rebound among older adults and the convergent emergence of serogroup Y as a leading cause in several countries provide a coherent and policy-relevant narrative. The methods are clearly described, including database choice, time window, inclusion criteria, and the use of digitization tools when primary numeric data were not presented.

As explanation for the meningococcal rebound the concept of "immunity debt" and the hypothesized role of adolescent vaccination in shaping older-adult disease burden are biologically and epidemiologically plausible but remain largely inferential within the data presented, which are descriptive rather than analytic. Alternative explanations—such as changes in diagnostic intensity, competing mortality risks during the pandemic, or coding and notification artifacts—receive relatively limited exploration.

It is evident that

- the meningococcus is back;
- adults ≥65 years are at risk;
- for this population serogroup Y is emerging; and
- In Germany, like elsewhere, the IMD-risk for a person ≥65 years is still well below 1/100,000.

I am in this age group. The data indicate that one third of cases are caused by *meningococcus* B, two thirds by *meningococcus* A, C, W, Y. Penbraya (MenABCWY) is licensed but not available in Europe. Should I take a shot at all, or even two?

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