

## **The pertussis epidemic in Denmark, 2023**

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In 2023, Denmark experienced a pertussis epidemic of surprisingly high incidence. The epidemic was evident throughout the whole country, and one infant died from pertussis. The epidemic lasted from June 2023 to April 2024.

The Danish surveillance of pertussis is based on MiBa, the Danish Microbiology Database, and by online notification of cases among children <6y. All laboratory-confirmed cases from all age-groups are automatically registered.

Pertussis vaccination during pregnancy was introduced temporarily in 2019, but has been made a permanent part of the vaccination programme from 2024.

The latest epidemics of pertussis in Denmark occurred in 2016-17 and 2019-20, and the epidemic in 2019-20 effectively ended when covid-19 restrictions were implemented in March 2020. Normal levels between epidemics are on average 76 cases per month, and the peak months during the 2016-17 and 2019-20 epidemics were at 284 and 874 cases. In contrast, the peak month during the 2023 epidemic was at 1,665 cases in November 2023.

The extremely high incidence during the epidemic is likely a combination of immunity debt after covid-19 and also an enhanced focus on diagnostic testing of airway infections. The uptake of childhood vaccinations has been high during the entire period (>95% infant series, >89% preschool booster).

Older children, aged 10-19, accounted for 42% of all confirmed cases during the 2023 epidemic and infants <1y accounted for 2.6%. The proportion of infant cases has decreased from 6.9% and 4.5% during the 2016-17 and 2019-2020 epidemics, possibly an effect of the pregnancy booster.