

The Impact of Moderate and Severe Varicella Infections on Danish Children Under 18 Years Old

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Background: Varicella (chickenpox) caused by varicella-zoster virus (VZV) is a highly contagious pediatric disease. While it typically manifests as a mild disease, complications leading to hospitalization are not uncommon. Knowing the current disease burden, seasonality, and risk groups is pivotal for evidence-based decisions on introduction of a varicella vaccine.

Methods: Using the Danish National Patient Register and medical helpline records from the Capital Region, we estimated the burden of VZV infections among children younger than 18 years in Denmark from 2015 to June-2023.

Results: We identified 10,063 cases with an annual incidence rates of 325/100,000 children for mild-to-moderate varicella cases (helpline calls), 40/100,000 for moderate-to-severe cases (outpatients) and 10/100,000 for severe cases (hospitalized). Mild cases were most prevalent in children aged 1-4 years, while moderate to severe cases were most prevalent among infants < 1 year old. Among hospitalized cases, 22.4% had underlying diseases and 47.3% experienced complications. An April 2022 rapid surge in all types of VZV cases, where admissions surpassed pre-pandemic level.

Conclusion: This study documents that varicella is a highly prevalent disease among young children in Denmark, where varicella vaccination is not yet included in the national childhood immunization program. Even mild to moderately severe varicella illness poses a considerable impact on the healthcare system, including calls to the medical helpline, and a persistent risk for hospitalizations, particularly among the youngest infants and children with underlying chronic conditions. The COVID-19 pandemic affected the seasonality and incidence of varicella both during and after the pandemic period.