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# Towards elimination of childhood and adolescent tuberculosis in the Netherlands: an epidemiological time-series analysis of national surveillance data

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**During 1993–2018, TB notification in children in the Netherlands declined steadily, but there was an increase of TB in foreign-born adolescents. Enhancing active case-finding through contact investigation and entry screening is needed to optimise TB control.** <https://bit.ly/36AjNhm>

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## ABSTRACT

**Background:** Tuberculosis (TB) in children and adolescents is a sentinel event for ongoing transmission. In the Netherlands, epidemiological characteristics of childhood and adolescent TB have not been fully evaluated. Therefore, we aimed to assess TB epidemiology within this population to provide guidance for TB elimination.

**Methods:** A retrospective time-series analysis using national surveillance data from 1993–2018 was performed in children (aged <15 years) and adolescents (aged 15–19 years) with TB. Poisson regression models offset with log-population size were used to estimate notification rates and rate ratios. Trends in notification rates were estimated using average annual percentage changes (AAPC) based on the segmented linear regression analysis.

**Results:** Among 3899 children and adolescents with TB notified during 1993–2018, 2418 (62%) were

foreign-born (725 (41.3%) out of 1755 children and 1693 (78.9%) out of 2144 adolescents). The overall notification rate in children was 2.3 per 100 000 person-years, declining steadily during the study period (AAPC  $-10.9\%$ , 95% CI  $-12.6$ – $-9.1$ ). In adolescents, the overall notification rate was 8.4 per 100 000 person-years, strongly increasing during 1993–2001 and 2012–2018. Compared to Dutch-born children and adolescents, substantially higher notification rates were observed among African-born children and adolescents (116.8 and 316.6 per 100 000 person-years, respectively). Additionally, an increasing trend was observed in African-born adolescents (AAPC  $18.5\%$ , 95% CI  $11.9$ – $25.5$ ). Among the foreign-born population, those from countries in the horn of Africa contributed most to the TB caseload.

**Conclusion:** TB notification rate among children was low and constantly declining across different demographic groups. However, heterogeneities were shown in adolescents, with an increasing trend in the foreign-born, particularly those from Africa.