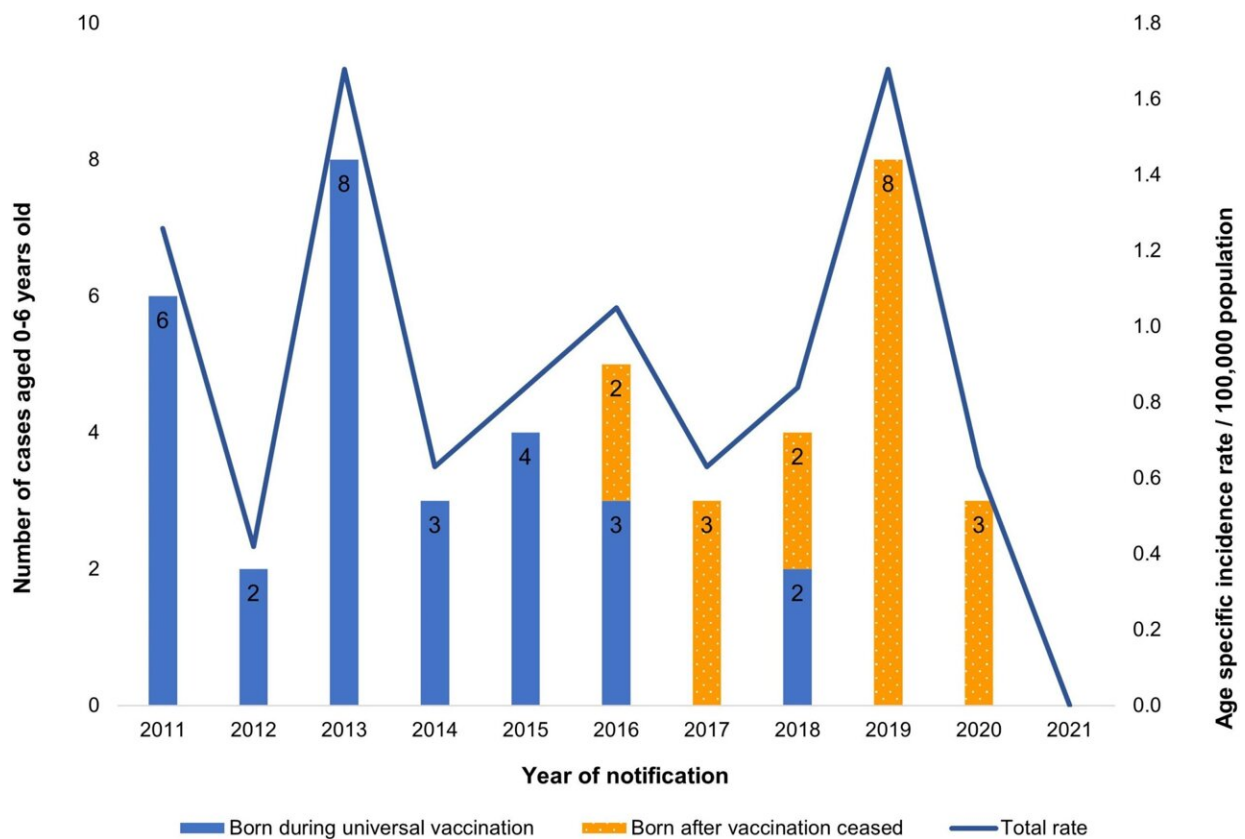


Study shows impact of cessation of universal BCG vaccination on pediatric TB epidemiology in Ireland

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Annual number of active TB cases and age specific incidence rate per 100,000 population by birth cohort. Credit: *Vaccine* (2024). DOI: 10.1016/j.vaccine.2024.02.061

A new study from the School of Nursing and Midwifery, Trinity College Dublin has explored the effects of stopping universal Bacillus Calmette-Guérin (BCG) vaccination in Ireland. [The study](#) was recently published in the journal *Vaccine* in time for World TB Day 2024 (24th March).

BCG remains the only vaccine for prevention of tuberculosis (TB) providing up to 70% protection from [severe disease](#) in children. Ireland had a policy of universal BCG infant vaccination since 1949 but was recommended to change to a selective vaccination program targeting those at higher risk of infection in 2013.

But before a selective program could be implemented, vaccination was discontinued entirely due to a lack of [vaccine](#) supply in 2015. A selective BCG vaccination strategy was published in 2022 but the vaccination program is not yet operational.

This study retrospectively analyzed TB notifications aged 0–6 years old reported to the Irish National TB Surveillance System between 2011 and 2021. Key epidemiological characteristics and temporal trends in TB age specific incidence rates (ASIRs) were compared between 0 and 6 year old cases born during a period of universal BCG vaccination (2007–2015) and 0–6 year old cases born after BCG vaccination ceased (2015–2021).

Key findings and implications

Overall researchers found the epidemiology of cases in both birth cohorts remained similar. While this study did not find a significant increase in pediatric TB cases aged 0–6 years old, interruption of the

previously declining trend in this age group during universal vaccination may be an early warning of a future increase. Modeling studies conducted elsewhere suggest that full effects of moving from universal to selective programs may take up to 15 years to emerge.

Findings emphasize the need for timely surveillance of pediatric TB cases to monitor for the emergence of increasing trends or emergent risk groups in this mainly unvaccinated population, and to evaluate the longer-term effects. Robust systems for the identification of, and service delivery to, populations being targeted by the selective program are also needed to enable sufficient vaccination uptake and ensure a selective policy does not result in a practice of no vaccination.

Sarah Jackson, Ph.D. candidate, School of Nursing and Midwifery, and lead author of the study said, "Although work had been done to predict future effects of stopping universal BCG vaccination in Ireland, it had not been retrospectively assessed until this study. Our findings support the introduction of a selective BCG program to prevent severe pediatric TB and support the global TB elimination goal."

Professor Catherine Comiskey, School of Nursing and Midwifery, and supervisor of the study said, "Furthermore, I urge the relevant health authorities to make the selective BCG vaccination available. We have learned from our recent past dealing with COVID-19 and measles cases how important vaccination is to protect our younger, older, and at-risk populations. When best practice and national and international evidence advises us who to vaccinate, we all need to listen and get our relevant immunizations."

More information: Sarah Jackson et al, Retrospective cohort study exploring the impact of universal Tuberculosis (TB) vaccination cessation on the epidemiology of paediatric TB in Ireland, 2011–2021, *Vaccine* (2024). [DOI: 10.1016/j.vaccine.2024.02.061](https://doi.org/10.1016/j.vaccine.2024.02.061)

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