Ten years of tuberculosis intervention in Greenland - has it prevented cases of childhood tuberculosis?

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Background

The incidence of tuberculosis (TB) disease in Greenland doubled in the 1990s. To combat the increase, national TB interventions were initiated in 2000 and strengthened in 2007.

Objective

To determine whether the effect of interventions could be detected, we estimated the TB disease risk among children <16 years before and after interventions were implemented.

Design

For a study cohort, we recruited all children <16 years of age included in the Greenlandic Civil Registration System (CRS) from 1990 to 2010. The CRS identifier was used to link cohort participants with TB cases identified based on the Greenlandic National TB registry. Bacille Calmette Guerin (BCG) vaccination status was identified through year of birth, as BCG was offered to newborns born either before 1991 or after 1996. Years with interventions were defined as 2000-2006 (primary interventions) and 2007-2010 (intensified interventions). Risk of TB was estimated using Poisson regression.

Results

The study included 35,858 children, of whom 209 had TB disease. The TB disease incidence decreased after interventions were implemented (2007-2010: IRR [incidence rate ratios] 0.62, 95% CI: 0.39 -0.95, p= 0.03, compared with the 1995-1999 period). The TB disease risk was inversely associated with BCG vaccination (IRR: 0.54, 95% CI: 0.41-0.72, p<0.001).

Conclusion

Years with national TB interventions in Greenland, including neonate BCG vaccination, are associated with a lower TB disease incidence among children <16 years of age.