

# A population-based register study of vaccine coverage among children in Greenland

Christoffer Holst Hansen, Anders Koch, Jan Wohlfahrt and Mads Melbye

*Department of Epidemiology Research, Danish Epidemiology Research Centre, Statens Serum Institut, Artillerivej 5, DK-2300 Copenhagen S, Denmark*

## Abstract

In the past, the Greenlandic population has experienced severe and devastating epidemics of vaccine-preventable disorders, in particular of measles, tuberculosis, and polio. The standard childhood vaccination program in Greenland introduced in recent decades follows that of Denmark with all vaccinations administered free of charge. However, the vaccination dispense system in Greenland outside the capital Nuuk differs from that of Denmark and many other countries, as children are vaccinated by health visitors and not by doctors. Vaccine coverage rates among children in Greenland and risk factors associated with not receiving planned vaccinations are unknown. We therefore conducted a register based study of vaccine coverage among children in Sisimiut, the second biggest town of Greenland, and two adjacent settlements with the objectives to estimate vaccine coverage among children, to evaluate the delay in vaccination, and to determine risk factors associated with not receiving the vaccinations.

The study population consisted of children born between April 1, 1993 and August 8, 1997, and living in Sisimiut or in the two settlements at a time between April 1, 1993, and November 10, 1998. Information on vaccinations was obtained from files kept by the health visitors at the Health Center. Information on risk factors was obtained for a subset of children taking part in a study of respiratory tract infections from 1996 to 1998.

In total 596 children participated contributing with 1,515 years of observation. For vaccines given before the age of 2 years (pertussis 1-3, DT-IPV 1-3, and MMR 1) the coverage rate was 88%, which is impressively high being on or above levels of Western countries. Children moving into the area had significantly lower vaccine coverage than children who had lived in the area since birth (53% vs. 93%). Other risk factors, however not as important as migration, included being of Greenlandic descent compared to Danish, having smokers in the household, and having had respiratory tract infections less often than the average.

In conclusion, the vaccination model as practiced in Greenland with free vaccinations administered by health workers who systematically call in children at scheduled times seems highly efficient and could be a model for other Arctic areas or similar countries.