

Incomes and location affect childhood vaccination in New Zealand

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Family wealth and geography are major factors determining childhood vaccination rates around New Zealand, according to new research.

University of Canterbury (UC) GeoHealth Laboratory Post-Doctoral Fellow Lukas Marek has investigated immunization trends around the country from 2006 to 2017 using millions of records from the National Immunization Register (NIR) and census data.

The overall rate of childhood immunization has increased steadily in New Zealand since the introduction of the NIR in 2005.

But Dr. Marek says recent evidence suggests immunization coverage of children is dipping, possibly because of the rise of "vaccine hesitancy" among parents. This refers to people delaying or refusing vaccines despite them being freely available.

"With outbreaks of measles happening in New Zealand last year, there are concerns there could be a resurgence of vaccine-preventable diseases unless this issue is addressed," he says.

Dr. Marek found the most deprived areas had the lowest number of children vaccinated against common childhood diseases.

But, there have been steady increases in immunization coverage in these areas over time.

While immunization rates were higher in affluent areas, vaccination coverage had actually declined in some of those places in recent years.

"It's interesting that the gap in vaccination rates between areas of different deprivation seems to be closing, particularly for babies at 12 months to 24 months," Dr. Marek says. "I think there are different factors at play here. In the more affluent areas where immunization rates have traditionally been higher there seems to be an issue with immunization fatigue. This is increasingly problematic as providers face increasingly complex childhood immunization schedules and struggle

with parental vaccine hesitancy due to misinformation, false claims about safety and a perception that the risk of childhood diseases is low."

He says in the most deprived areas, a child is more likely to miss out on vaccinations because of their family situation—such as whether it is a single-parent family—and the accessibility of services.

The research also showed that the highest immunization coverage is in areas with a high proportion of the population of European ethnicity, while in contrast, immunization rates are lower in areas with high Māori population.

Geographic location had a significant impact on immunization coverage.

Deprivation was more likely to reduce immunization rates for families living in the northern parts of the South Island, the central-southern part of the North Island, around Auckland and in Northland.

Small towns tended to have lower immunization rates than the main urban areas.

Dr. Marek says problems accessing suitable, and culturally appropriate, healthcare could be behind this geographic variation.

He hopes his research, "Spatial variation and change (2006–2017) in childhood immunization coverage in New Zealand," published in the international *Social Science and Medicine* journal recently, will be used to improve immunization policies in New Zealand and to inform outreach programs.

For example, he points out that Māori parents were shown to have a strong preference for their babies to be vaccinated at home while Pasifika families were more likely to feel uncomfortable with strangers

coming in to their homes.

In another piece of upcoming research relating to vaccination Dr. Marek has used more than 4 million childhood immunization records and census data to zoom in on areas of high and low immunization around the country between 2006 and 2017 and map them.

Understanding where and why immunization coverage may be declining over time and place is important, he says, as these areas can be at risk of losing herd immunity. Herd immunity exists when a high percentage of the population is vaccinated, making it difficult for diseases to spread.

"This fine scale, detailed information could help policy makers evaluate local outreach activities allowing for better management of resources," he says.

Vaccination is estimated to have prevented 10 million deaths globally between 2010 and 2015 by protecting children and adults from harmful diseases before they are exposed.

Under New Zealand's Immunization Schedule vaccines are provided free at various milestone ages.

More information: Lukas Marek et al. Investigating spatial variation and change (2006–2017) in childhood immunization coverage in New Zealand, *Social Science & Medicine* (2020). [DOI: 10.1016/j.socscimed.2020.113292](https://doi.org/10.1016/j.socscimed.2020.113292)

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