International Journal of Population Data Science

Journal Website: www.ijpds.org

PATHS Data Resource: A population-based suite of linkable administrative records and metadata for population health research

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Objectives

Our objective was to develop a comprehensive longitudinal data resource, which population health research scientists could use to study the social determinants of child health and health equity.

Approach

The PATHS Resource was created from data holdings within the Manitoba Population Health Research Data Repository. The Manitoba Health Registry sits at the centre of the Repository and includes information - including a scrambled personal health identification number (PHIN) and date when coverage commenced and expired - on every individual registered with the province's universal healthcare system. The Repository also includes administrative data spanning several sectors including health, social services, justice, and education. We used individuals' scrambled PHINs to link children's administrative records across sectors to build a holistic picture of their health and development. We developed metadata, including routinized SAS algorithms and variable definitions, to ensure consistent operationalization of variables across studies. The longitudinal nature of these data allowed us to construct individual-level health and development trajectories from birth through adolescence for children born from 1984-2014. We used income data from the Canadian Census to develop both indicators of socioeconomic status (average neighbourhood level income) and provincial measures of income inequality (the Gini coefficient).

Results

The PATHS Resource includes data on the social determinants of health as well as health and development for children born 1984 to 2014 (n=608,007). We are able to follow children for

a median observation period of 15.4 years. Income inequality - measured using the Gini coefficient - increased from 1984 to 2014: 0.16 to 0.21 ($p < 0.01$). The proportion of children born to women from the bottom income quintile (i.e., the poorest 20% of families) also grew from 23.2% in 1984 to 27.2% in 2014 ($p < 0.01$). When we followed children over their life course, we found that they were most likely to experience poverty (measured by family receipt of income assistance) at 2 years of age ($p < 0.01$). Many studies from a variety of researchers have utilized the PATHS metadata to conduct child health and development research, ensuring consistent variable operationalization. These data have been used to identify policy levers for improving child health and reducing health inequalities.

Conclusion

A resource such as the PATHS Resource can facilitate research into the health and development of children. Having data on the entire population allows investigators to both monitor trends in health inequities and identify strategies for improving health. Metadata ensure variable consistency and comparability across studies.

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