

Investigating the impact of social contexts on child health

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BACKGROUND

- While significant progress has been made on several fronts in child health research in recent years, research findings have not always been readily translated to better policies and programs for creating healthy conditions for children
- We believe child health research and interventions need to proceed from an explicit recognition of the fundamental causes of poor child health: parents' socio-economic status and the social context in which children live
- Our research program seeks to understand the complex and dynamic interplay of factors shaping children's present and future health within the settings in which they live from conception to school-age: the intrauterine environment, the family, neighbourhoods and cities
- Research on the effects of neighbourhoods on children's health has shown mixed results to date, and the magnitude of effects has generally been small (Pickett et al, 2001)
- Research on neighbourhood effects on children need to make key theoretical and methodological advances, e.g.: more meaningful and appropriate definitions of area-level units of measure; less reliance on secondary data; more theoretically-driven explanatory measures; and explicit testing of theory of how neighbourhoods affect health

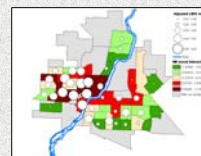
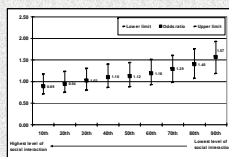
METHODOLOGY and ADVANCES

- Our research program's emphasis to date has been on developing a better understanding of the impact of the neighbourhood/community context on children's health
- From a research-policy perspective, it is important to identify those modifiable aspects of neighbourhoods that have marked effects on the health of their residents
- To investigate neighbourhood effects, we have used the 56 "real" neighbourhoods that exist in Saskatoon as our unit of analysis. We have developed a two-step approach to modelling and mapping area-based predictors with individual child health outcomes
- We developed a neighbourhood resource index that takes into account not only availability of services and resources, by location, but also accessibility parameters of these services, such as wheelchair accessibility, user fees, transportation subsidies, and hours of operation
- We also developed a measure of the quality of the physical environment of neighbourhoods based on a systematic observation of each neighbourhood
- Our neighbourhood factors are derived from an array of "indicator" items and cover six neighbourhood domains: socio-economic environment, physical environment, social integration, availability and accessibility of neighbourhood-based resources and services, neighbourhood population density, and behavioural norms (ie: smoking prevalence)

FINDINGS: NEIGHBOURHOOD EFFECTS ON CHILDREN'S HEALTH

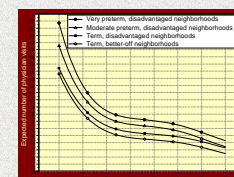
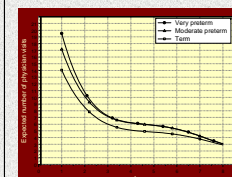
Study 1: Social interaction mitigates effects of lone parent status on LBW

- A retrospective birth cohort study, *Multilevel determinants of low birth weight in Saskatoon (2002-04, n = 8504)* investigated whether the risk of low birth weight (<2500 grams) is increased by neighbourhood factors independent of several well-known maternal and child-related factors, and furthermore if neighbourhood factors moderate the risk of individual-level factors. Data included: birth outcome data, two neighbourhood surveys, neighbourhood profiles compiled using data from census and city of Saskatoon
- We examined the effects of variables measured at an individual level combined with effects due to variables at a neighbourhood level by testing both main and cross-level interaction effects between family income status, single parenthood and neighbourhood level variables on low birth weight
- Further results revealed a significant cross-level interaction between single parent status and neighbourhood social integration: the negative effects of single parent status on low birth weight were mitigated by increasing levels of neighbourhood and social integration, as shown below



Study 2: Health care trajectories modified by physical conditions

- A prospective birth cohort study, *Do preterm children catch up with term children? (2002-04, n=8504)* investigated whether children born preterm (gestational age less than 37 weeks) lower their hospitalization rates to equal that of term children. Data included: birth outcome data, children's use of health care services (hospitalizations, ambulatory visits to physicians), neighbourhood profiles compiled using data from census and city of Saskatoon
- We found that physician visit trajectories for preterm and term children over the first nine years are equal at about age seven or eight: the preterm children "catch up" to the term children (graph on left)
- However, we found that children who are preterm and living in disadvantaged neighbourhoods not only continue to have higher physician visits throughout the first nine years, but they don't catch up to their term counterparts (graph on right). When we account for both family income and neighbourhood condition, this separation becomes even clearer



Study 3: Neighbourhood factors as predictors of "readiness to learn"

- Understanding the Early Years (2001-08)* is a cross-sectional study examining the comprehensive array of factors that influence developmental outcomes at kindergarten age. Data include: "readiness to learn" outcomes (health, social competency, emotional maturity, language and cognitive development, communication skills), as measured by the Early Development Instrument (Janus & Offord, 1999), collected in 2001, 2003 and 2005; census and city planning data on neighbourhoods; survey of programs and services (n=256), and direct observations of neighbourhood physical environments
- Accounting for individual differences, five neighbourhood factors were predictive of school readiness: proportion of employed adults, average household income, post-secondary education, proportion of single parent families (negative), proportion of low-income families (negative). Some of the maps we created displaying these data are shown below. In neighbourhoods the higher the level of unemployment (map far left), the higher the level of low-income households (map middle left), and the higher the proportion of single parent families (map middle right), the greater the decline of health EDI scores over time. But the higher the proportion of owner occupied dwellings, the lesser the decline in these scores (map far right)

