

Conducting Population Health Intervention Research using Linked Databases: An Evaluation of Home Visiting Programs for At-Risk Families

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Objective

The objective of this population health intervention research was to determine the effectiveness in improving children's outcomes of a provincial home visiting program for at-risk families in Manitoba, Canada. Home visiting programs have been evaluated in highly structured and supervised conditions which may provide different results than those evaluated in real-world delivery systems.

Approach

In this retrospective cohort study, data for 4,562 children from home visiting program families and 5,184 comparison children were linked to de-identified administrative health, social services, and education data held securely at the Manitoba Centre for Health Policy. Inverse probability of treatment weights were used to address the selection bias inherent in delivering a voluntary program. We used generalized linear modelling to calculate program effects among those exposed to the program, those unexposed and the average effect. Child outcomes examined included being taken into care of child welfare, hospitalizations for maltreatment-related injuries, and child development scores at school entry.

Results

The home visiting program was associated with lower rates of children being taken into care and lower rates of hospitalization for maltreatment-related injuries. For being taken into care by child's first birthday, the adjusted Risk Ratio (aRR) was 0.75 (95% Confidence Interval [CI]: 0.66, 0.86); for being taken into care by second birthday, aRR=0.79, (95% CI: 0.70, 0.88); and for hospitalizations for maltreatment-related injuries by third

birthday, aRR=0.59 (95% CI: 0.35, 0.99). Similar program effects would be expected among comparison children if they had received the program (i.e., average treatment effect for the untreated). No differences between groups were found across five domains of child development at school entry.

Conclusion

Home visiting programs can be an effective strategy for decreasing child maltreatment at a population level. Home visiting program enhancements are necessary to improve child development scores when children enter school. Use of population-based linkable data systems provides an opportunity to evaluate interventions using large, real-world samples, adjusting for a wide range of risk factors, and examining a variety of outcomes.

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