

Impact of breastfeeding on infectious disease hospitalisation: the Children of 1997 cohort

M Tarrant *, CM Schooling, SLS Leung, KH Mak, LM Ho, GM Leung

KEY MESSAGES

1. Breastfeeding for any duration substantially reduces hospitalisation from respiratory infections in Hong Kong infants from 0 to 6 months of age.
2. Exclusive breastfeeding for 3 months or longer substantially reduces hospitalisation from gastrointestinal infections in Hong Kong infants from 0 to 6 months of age.
3. Breastfeeding did not provide any long-term protective effect against infectious diseases hospitalisation in Hong Kong children.

¹ M Tarrant *, ² CM Schooling, ³ SLS Leung, ⁴ KH Mak, ² LM Ho, ¹ GM Leung

School of Nursing, The University of Hong Kong
Department of Community Medicine, School of Public Health, The University of Hong Kong
Family Health Service, Department of Health, Hong Kong SAR
Student Health Service, Department of Health, Hong Kong SAR

Infectious disease is one of the leading causes of morbidity and hospitalisation in infants and young children. It is well established that breastfeeding substantially reduces the risk of infectious disease morbidity and mortality among this population. Breastfeeding may also have a long-term protective effect on resistance to infections. Although the exact mechanism is unclear, it is believed to be a result of human milk-mediated effects that produce a better functioning immune system in breastfed children.

The World Health Organization recommends that infants be exclusively breastfed for 6 months with continued breastfeeding for up to 2 years of age and beyond.¹ This recommendation is based on the evidence that breastfed children grow up to be healthier and suffer lower rates of both infectious and chronic diseases. Although the breastfeeding rate in Hong Kong is increasing, it lags behind many other developed countries. The latest figures show that over 85% of Hong Kong mothers initiate breastfeeding, a 2.5% increase when compared with 2011.² However, few Hong Kong mothers breastfeed beyond the first few months and fewer still exclusively breastfeed for at least 6 months.

Hong Kong children achieve some of the best health outcomes in the developed world. Breastfeeding has been associated with reduced outpatient treatment rates for respiratory, gastrointestinal, and febrile illness in infants up to 18 months of age and reduced hospitalisation rates for respiratory illness in infants up to 9 months of age.³ Data from the 'Children of 1997' cohort were examined to assess the benefits of breastfeeding among children up to 8 years of age.⁴ All children in the cohort were born in Hong Kong in April and

May of 1997. There were 8327 mother-infant pairs, accounting for 88% of all births during this period. Record linkage was used to link 97% of the birth cohort members to the Hospital Authority database.

The study reported that any amount of breastfeeding for 3 months reduced hospitalisation for respiratory, gastrointestinal, and any infections in infants aged 0 to 6 months; the reduction in hospitalisation was substantially greater with 3 months of exclusive breastfeeding.⁴ Beyond 6 months of age, however, breastfeeding of any type did not provide protection from infectious disease hospitalisation. These findings suggest that the protective effect of breastfeeding is consistent with a direct stimulation of the infant's immune system through the transfer of antibodies and lymphocytes, and that breastfeeding does not provide a priming of the immune system that lasts substantially longer than the period of breastfeeding.

The protective effect of breastfeeding against infectious disease is dose-dependent, with a longer duration of exclusive breastfeeding conferring greater benefits.⁵ Mothers should be encouraged and supported to breastfeed for a longer period and to meet the World Health Organization guidelines for 6 months of exclusive breastfeeding and continued breastfeeding for up to 2 year of age and beyond. Nonetheless, the challenge in Hong Kong is putting in place the mechanisms and supports to assist mothers to exclusively breastfeed for up to 6 months.

Acknowledgements

This study was supported by the Research Fund for the Control of Infectious Diseases (#06060592),

the Health Care and Promotion Fund (#216106), and the Health and Health Services Research Fund (#03040711), Food and Health Bureau, Hong Kong SAR Government, and also by the University of Hong Kong (10206700, 07176010). We are indebted to Prof TH Lam for initiating the Children of 1997 cohort and to Dr Vivian Wong at the Hospital Authority for her advice and help. We thank Connie Hui for her assistance with the record linkage. We also thank colleagues at the Hospital Authority, Student Health Service, and Family Health Service of the Department of Health for their assistance and collaboration. Finally, we would like to express our heartfelt appreciation to all the infants and parents for participating in the Children of 1997 cohort. Results of this study were published in: Tarrant M, Kwok MK, Lam TH, Leung GM, Schooling CM. Breast-feeding and childhood hospitalizations for

infections. *Epidemiology* 2010;21:847-54.

References

1. World Health Organization. Global strategy for infant and young child feeding. Geneva: World Health Organization; 2003.
2. Baby Friendly Hospital Initiative Hong Kong Association. World breastfeeding week 2013: annual summary. Hong Kong; 2013.
3. Leung GM, Lam TH, Ho LM, Lau YL. Health consequences of breast-feeding: doctors' visits and hospitalizations during the first 18 months of life in Hong Kong Chinese infants. *Epidemiology* 2005;16:328-35.
4. Tarrant M, Kwok MK, Lam TH, Leung GM, Schooling CM. Breast-feeding and childhood hospitalizations for infections. *Epidemiology* 2010;21:847-54.
5. Kramer MS, Kakuma R. The optimal duration of exclusive breastfeeding: a systematic review. *Adv Exp Med Biol* 2004;554:63-77.