Face Mask Use and Control of Respiratory Virus Transmission in Households

C. Raina MacIntyre, Simon Cauchemez, Dominic E. Dwyer, Holly Seale, Pamela Cheung, Gary Browne, Michael Fasher, James Wood, Zhanhai Gao, Robert Booy, and Neil Ferguson

CME ACTIVITY

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Learning Objectives

Upon completion of this activity, participants will be able to:

- Describe the type of study used to compare the use of face masks with no face masks for respiratory infection control.
- Identify the most frequent viral cause of in?uenza-like respiratory infection in children.
- Describe adherence to face mask use by adult household contacts of children with viral respiratory infection.
- Describe the ef?cacy of face mask use for preventing spread of in?uenza-like infection.

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CME Author

Désirée Lie, MD, MSEd, Clinical Professor, Family Medicine, University of California, Orange; Director, Division of Faculty Development, UCI Medical Center, Orange, California. *Disclosure: Désirée Lie, MD, MSEd, has disclosed no relevant financial relationships.*

Authors

Disclosure: ***Simon Cauchemez, PhD; Dominic E. Dwyer, BSc(Med), MBBS, FRACP, FRCPA, MD; Holly Seale, BSc, PhD; Pamela Cheung, RN; Gary Browne, MBBS; James Wood, BSc, PhD;*** *and* ***Zhanhai Gao, BSc, MSc, PhD****, have disclosed no relevant financial relationships.* ***C. Raina MacIntyre, MBBS, FRACP, FAFPHM, M App Epid, PhD,*** *has disclosed that she has received grants for clinical research from 3M.* ***Michael Fasher, MBBS, PhD,*** *has disclosed that he has received grants for educational activities from and has served as an advisor or consultant to GlaxoSmithKline.* ***Robert Booy, MBBS, FRACP, FRCPCH, MSc, MD,*** *has disclosed that he has received grants for clinical research and educational activities from, and has served as an advisor or consultant to, CSL, Roche, Sanofi, GlaxoSmithKline, and Wyeth. All funding received is directed to a research account at The Children's Hospital at Westmead, Sydney, Australia, and is not personally accepted by Dr. Booy.* ***Neil Ferguson, FmedSci, DPhi,*** *has disclosed that he has served as an advisor or consultant to Crucell Inc.*

Many countries are stockpiling face masks for use as a nonpharmaceutical intervention to control virus transmission during an in?uenza pandemic. We conducted a prospective cluster-randomized trial comparing surgical masks, non–?t-tested P2 masks, and no masks in prevention of in?uenza-like illness (ILI) in households. Mask use adherence was self-reported. During the 2006 and 2007 winter seasons, 286 exposed adults from 143 households who had been exposed to a child with clinical respiratory illness were recruited. We found that adherence to mask use signi?cantly reduced the risk for ILI-associated infection, but <50% of participants wore masks most of the time. We concluded that household use of face masks is associated with low adherence and is ineffective for controlling seasonal respiratory disease. However, during a severe pandemic when use of face masks might be greater, pandemic transmission in households could be reduced.

Author af?liations: University of New South Wales School of Public Health and Community Medicine, Sydney, New South Wales, Australia (C.R. MacIntyre, H. Seale, J. Wood, Z. Gao); Children's Hospital at Westmead, The University of Sydney, Sydney (C.R. MacIntyre, P. Cheung, R. Booy, G. Browne); Imperial College London, London, UK (S. Cauchemez, N. Ferguson); Westmead Hospital, Sydney (D.E. Dwyer); and The Wentworth Division of General Practice, Sydney (M. Fasher)

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Highly pathogenic avian in?uenza virus A (H5N1) continues to spread globally, posing a serious human pandemic threat. In the event of an in?uenza pandemic or other emerging respiratory disease such as severe acute respira-

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Article Title

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CME Questions

1. Which of the following is least likely to be a nonpharmaceutical strategy examined and reported for the prevention of influenza-like infection (ILI) during an influenza pandemic?

A. School closure
B. Use of face masks
C. Handwashing
D. Quarantine at home

2. Which of the following best describes the type of study used to examine the efficacy of face masks in respiratory infection control at home?

A. Retrospective case-control study
B. Prospective cluster-randomized study
C. Prospective case-control study
D. Observational case series

3. Which of the following is the most common single viral respiratory pathogen to be isolated from 141 children with respiratory viral illness in the study reported?

A. Influenza B
B. Influenza A
C. Adenovirus
D. Respiratory syncytial virus

4. Which of the following best describes the adherence rate for P2 face masks on day 5, after beginning the use of face masks by household adult contacts for household infection control?

A. 25%
B. 31%
C. 36%
D. 46%

5. Which of the following best describes the hazard ratio for risk for transmission of ILI if adherence to face mask use was 100%?

A. 1.00
B. 0.85
C. 0.47
D. 0.26

Activity Evaluation

1. The activity supported the learning objectives.				
Strongly Disagree				Strongly Agree
1	2	3	4	5
2. The material was organized clearly for learning to occur.				
Strongly Disagree				Strongly Agree
1	2	3	4	5
3. The content learned from this activity will impact my practice.				
Strongly Disagree				Strongly Agree
1	2	3	4	5
4. The activity was presented objectively and free of commercial bias.				
Strongly Disagree				Strongly Agree
1	2	3	4	5