



# influenza

## NCCEH Fact Sheet: Non-pharmaceutical measures to prevent the transmission of influenza

This fact sheet is for public health professionals. It provides a brief overview on specific non-pharmaceutical measures to be used in community settings. Such measures can prevent the spread of influenza by interrupting the transfer of viruses from objects or people through the use of personal protective equipment or changes to behaviour.

The content is primarily based on the NCCID article “Non-pharmaceutical measures to prevent influenza transmission: the evidence for individual protective measures” by Crabtree and Henry (see *Additional Resources*).

### What types of non-pharmaceutical measures are there?

- **Hand hygiene:** washing hands frequently, especially after coughing or sneezing, and using appropriate methods;
- **Respiratory hygiene:** covering the mouth and nose with a tissue or sleeve when coughing or sneezing;
- **Fomite disinfection:** disinfecting an object (fomite), such as a computer mouse, that may be contaminated and therefore transmit infectious organisms;
- **Quarantine:** separating and restricting the movement of exposed individuals until an incubation period has expired;
- **Isolation:** separating individuals who are known to be infected from people who may be susceptible;
- **Social distancing:** reducing contact with individuals who may be ill, such as avoiding public transit, cancelling mass gathering events, and closing schools;
- **Disposable face masks:** using a surgical mask as a barrier to droplets from a cough or sneeze of an infected person, or an N95 respirator, which filters out smaller airborne particles.



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## What are their benefits?

- With the exception of quarantine and isolation, the costs associated with most measures are relatively low.
- The measures are safe and are generally easy to follow.
- Multiple non-pharmaceutical measures can be used together with pharmaceutical measures to increase effectiveness and further reduce disease transmission.
- They offer protection for those unable to access or receive vaccines or antiviral medication.

## Barriers to compliance

Hand hygiene is highly and universally recommended as an effective measure that is relatively easy to comply with. However, compliance is variable due to inadequate or unavailable hand-washing facilities or poor hygiene practices. There are a number of issues affecting compliance to non-pharmaceutical measures, particularly that of quarantine and isolation:

- **Economic disincentives:** lack of sick leave, financial need, fear of unemployment;
- **Access:** lack of access to essential goods and services (e.g., in remote locations), including masks, clean running water, and cleaning supplies;

- **Caregiving:** challenges with isolating a family member due to demands on need for extra care and limited space in the home;
- **Distrust of institutions and government:** application of quarantine is considered by some to be an inappropriate use of government authority;
- **Special obligations:** not wanting to miss school, work, or important cultural or religious events;
- **Living conditions:** overcrowding brings infectious and susceptible individuals into closer contact and may increase transmission of influenza in multi-family residences, dormitories, or hotel rooms;
- **Personal perceptions:** fear of stigmatization, unwillingness to wear masks in public or while caring for ill children because of perceived social attitudes;
- **Communication:** language barriers and lack of culturally appropriate messages about influenza are relevant for all measures.

## Information gaps

While there is considerable evidence regarding the effectiveness of non-pharmaceutical measures in preventing the spread of influenza, further research is needed to address the following questions:

- Hand hygiene is the most practical non-pharmaceutical measure and is generally found to be effective, but how can compliance be improved?
- What are the most effective applications and targets of measures; for example, how effective is mask use by cases compared to household or social contacts of cases or the general public?
- How effective is fomite disinfection, given the different types of fomites?
- What risk communication strategies achieve desired compliance for each measure and according to the severity of influenza?
- How effective are targeted, non-pharmaceutical measures for susceptible population groups—such as residents of long-term care facilities or children in daycares—as a means of reducing transmission of influenza among the general public?



## Additional Resources

- Booy R, Ward J. Social distancing evidence summary. Evidence compendium and advice on social distancing and other related measures for response to an influenza pandemic. Sydney, AU: National Centre for Immunisation Research and Surveillance, Department of Health; 2012.
- Cowling BJ, Zhou Y, Ip DK, Leung GM, Aiello AE. Face masks to prevent transmission of influenza virus: a systematic review. *Epidemiol Infect.* 2010;138(4):449-56.
- Crabtree A, Henry B. Non-pharmaceutical measures to prevent influenza transmission: the evidence for individual protective measures. National Collaborating Centre for Infectious Diseases. 2011 September.
- Dixon M, Phin N. Use of facemasks and respirators in an influenza pandemic. Scientific evidence base review. London, UK: Public Health England; 2014 May.
- Jefferson T, Del Mar CB, Dooley L, Ferroni E, Al-Ansary LA, Bawazeer GA, et al. Physical interventions to interrupt or reduce the spread of respiratory viruses. *Cochrane Database Syst Rev.* 2011(7).
- Warren-Gash C, Fragaszy E, Hayward AC. Hand hygiene to reduce community transmission of influenza and acute respiratory tract infection: a systematic review. *Influenza Other Respir Viruses.* 2013;7(5):738-49.
- Wong VW, Cowling BJ, Aiello AE. Hand hygiene and risk of influenza virus infections in the community: a systematic review and meta-analysis. *Epidemiol Infect.* 2014;142(5):922-32.

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