

New film shows importance of ventilation to reduce spread of COVID-19

- Research shows that being in a room with fresh air can reduce the risk of infection from particles by over 70%
- The film is part of the 'Hands. Face. Space' campaign which urges public to adopt simple health behaviours to help reduce the risk of the virus spreading

A new public information campaign has launched today by the government to highlight how letting fresh air into indoor spaces can reduce the risk of infection from coronavirus by over 70%.

The campaign, which forms part of wider 'Hands. Face. Space' guidance, sees the release of a new short film created with scientists and an engineer at Leeds University.

The film illustrates how coronavirus lingers in the air in spaces with no fresh air, increasing the risk of people breathing in infected particles, and how the risk can be reduced significantly by regularly ventilating enclosed areas.

The new film will run across social and digital advertising in England.

Research shows that being in a room with fresh air can reduce your risk of infection from particles by over 70%, as fresh air dilutes the particles.

As we spend more time indoors, experts are recommending that people either:

- open windows for short, sharp bursts of 10 to 15 minutes regularly throughout the day
- leave windows open a small amount continuously

This is to remove any infected particles lingering in the room.

Additionally, it is advised that any household systems that use outdoor air, including kitchen or bathroom extractor fans, are used correctly and regularly as an additional method to remove infected particles.

Airing indoor spaces is particularly important when:

- people have visitors (when permitted) or tradespeople in their home, for example for construction or emergencies
- someone from a support bubble is meeting with another household indoors
- a care worker is seeing a patient indoors
- someone in the household has the virus, as this can help prevent transmission to other household members

Public Health Minister, Jo Churchill said:

We all spend more time inside over the winter, so ventilation is essential.

As the weather gets colder and wetter, letting in fresh air in short bursts helps to reduce the risk of coronavirus in our homes. We should all remember: open your windows, and Hands. Face. Space.

Professor Catherine Noakes, from Leeds University who advised on the film, said:

When a room does not have any fresh air, and where people are generating large amounts of aerosol through activities such as singing and loud speech, that is when transmission of coronavirus is most likely. Fresh air must come from outdoors – recirculating air just means the aerosols containing the virus move around the same room rather than being extracted outdoors.

Ventilation units or any household systems that use outdoor air can be just as effective as opening windows or doors as long as they are limiting the recirculation of the same air.

Coronavirus is spread through the air by droplets and smaller particles (known as aerosols) that are exhaled from the nose and mouth of an infected person as they breathe, speak or cough. They behave in a similar way to smoke but are invisible. The majority of virus transmissions happen indoors. Being indoors, with no fresh air, the particles can remain suspended in the air for hours and build up over time.

The longer people spend in the same room as these particles, the more likely they are to become infected.

GP Dr Amir Khan said:

As we approach winter, and inevitably spend more time indoors, fresh air is extremely beneficial. For COVID-19, it is important to ventilate indoor spaces if someone in your home has the virus as this can help prevent transmission to other household members.

You should also let fresh air into your home when you have any visitors and just after they leave in case they are infected. Remember, opening windows alongside washing your hands, covering your face and making space is also essential in reducing your risk of COVID-19.

Ventilation to provide fresh air in enclosed spaces is just as important as the other actions, so remember this as well as 'Hands, Face, Space'. These

are the most effective ways we can all control the spread of the virus. Visit [gov.uk/coronavirus](https://www.gov.uk/coronavirus) for more information.

The public are encouraged to continue to be vigilant of coronavirus symptoms. These include a:

- new continuous cough
- high temperature
- loss or change in your sense of taste or smell

If you, or someone you know, display any symptoms, you should [get a free test](#) or call 119.

Assets

The importance of 'Hands. Face. Space' and ventilation

The recommendations around 'Hands. Face. Space' remain important measures to consider as simple but vital behaviours that have the power to protect the public from both the short and potential long-term impact of coronavirus.

Wash your hands

While coronavirus is not likely to survive for long periods of time on outdoor surfaces in sunlight, it can live for more than 24 hours in indoor environments. Washing your hands with soap and water for at least 20 seconds, or using hand sanitizer, regularly throughout the day will reduce the risk of catching or passing on the virus.

Cover your face

Coronavirus is carried in the air by tiny respiratory droplets that carry the virus. Larger droplets can land on other people or on surfaces they touch. Smaller droplets, called aerosols, can stay in the air indoors for at least 5 minutes, and often much longer if there is no fresh air. Face coverings reduce the dispersion of these droplets, meaning if you're carrying the virus, you're less likely to spread it when you exhale.

Make space

Transmission of the virus is most likely to happen within 2 metres, with risk increasing exponentially at shorter distances. While keeping this exact distance is not always possible, remaining mindful of surroundings and continuing to make space has a powerful impact when it comes to containing the spread.

Ventilation

In addition, airing rooms is important as it reduces the number of infectious aerosols in the air. Simple actions like opening windows regularly throughout the day, especially when you share a space with others, and making sure that mechanical ventilation systems and kitchen and bathroom extractor fans are used correctly, will reduce your risk.

The value of 70% is based on modelled risks within table 3 in the EMG paper. Increasing the ventilation rate from 1 litre per second per person (very low ventilation rate) to 10 litres per second per person (recommended ventilation rate in standards for many buildings) gives a reduction in relative risk between 68% and 86% depending on the viral emission rate and the duration of exposure. This is based on models and is subject to uncertainties. However, the relative influence of ventilation on the removal of airborne contaminants is well understood.

Evidence taken from:

- SAGE EMG paper, Role of Ventilation in Controlling SARS-CoV-2 Transmission
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- Beale S, Johnson A, Zambon M, null n, Hayward A, Fragaszy E. Hand Hygiene Practices and the Risk of Human Coronavirus Infections in a UK Community Cohort [version 1; peer review: 1 approved]. *Wellcome Open Research* 2020; 5(98)
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- W. Chen, N. Zhang, J. Wei, H. Yen, and Y. Li, "Short-range airborne route dominates exposure of respiratory infection during close contact," *Build. Environ.*, pp. 1–33, 2020, doi: 10.1016/j.buildenv.2020.106859