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THE BEST MASKS TO WARD OFF OMICRON

Relevant for: Science & Technology | Topic: Indigenization of technology and developing new technology

People showing the correct way to wear an N-95 mask. | Photo Credit: Getty Images/iStockphoto

COVID-19 is an airborne disease, and Omicron is the most contagious variant of the SARS-CoV-2 virus so far. It's more contagious than the Delta variant that swept India last year. But if we wear better-quality masks and wear them correctly, we can reduce the spread of this highly contagious virus.

All of us emit particles and tiny droplets while breathing, talking, singing, coughing and sneezing. When a person infected with COVID-19 interacts with another person who is uninfected, the virus can get transmitted as part of the particles and droplets exhaled by the infected person, which are then inhaled by the uninfected person.

Omicron epidemic: third wave or new pandemic?

If the infected or sick person wears a good mask, that reduces the risk to those around them. If the uninfected person wears a mask, that reduces the total number of particles (including virus-carrying particles) that they inhale and therefore reduces the risk to them from the infected person. Masks also help with particulate air pollution.

Masks should be used in indoor spaces you share with other people such as the office, hospitals or doctor's offices, wedding halls, shops, classrooms, and places of worship. You should also wear your mask in crowded outdoor locations like the market or mall, and especially when taking the bus, taxi, airplane or train.

Over the last two years, most of us have worn masks of various types, including cloth masks, surgical or medical masks, and high-filtration masks with various designations — N95, KN95, KF94 and FFP2. What is the difference between these masks, and what works best against Omicron? Can they be reused? Where should masks be used?

The use and re-use of N95 masks

A cloth mask reduces some emissions (especially larger droplets) from an infected person's nose and mouth but offers little protection for the uninfected wearer as the material does not significantly filter small particles (unless it has a filter insert).

A surgical mask can be made of good, three-ply filtering material (though not all of them) but is not made to seal the face well. It leaves large gaps between the edges of the mask and the face, through which virus-carrying particles can be exhaled or inhaled. One way to improve the fit of a surgical mask is double-masking, i.e. wearing a cloth mask that can fit snugly on your face over a surgical mask, to reduce gaps.

But the best masks are those built to the American N95 standard or similar global standards (European FFP2, Chinese KN95, Korean KF94). When fitted properly, they filter out at least 95% (N95, KN95) or 94% (FFP2, KF94) of particles. It is best to avoid masks that have valves on them as they don't filter exhaled air, which is important when the wearer is unknowingly infected.

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High-filtration masks give everyone more protection from the Omicron variant than cloth and surgical masks. Everyone who can use these masks should use them, especially healthcare workers who are at risk of exposure and others who are at risk of severe COVID-19 infection (the elderly, people with diabetes, heart disease, etc.). While there was a shortage of such masks in the initial stages of the pandemic, manufacturers are now making N95 or equivalent masks in large quantities (for example, 3M has introduced the VFlex, a more affordable N95 mask than their popular Aura series, both of which are available on Amazon.in). Many other varieties are available with reputable online retailers. Reliable mask reviews can be found online.

A concern with high-filtration masks is their cost — the 3M VFlex is currently priced at 68 per mask (3,400 for a box of 50) on Amazon. While these masks can be used for a week with care, double-masking (a tight-fitting cloth mask over a three-ply surgical mask as described above) can be a good lower-cost alternative. Providing government subsidies to ensure that everyone can afford high-filtration masks would be the ideal solution.

But high-filtration masks by themselves are not enough. You need to make sure that the mask fits your face properly. In occupational health settings, an N95 mask is usually fit-tested, but this is not feasible for most people. But some simple rules can help improve fit.

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The most common mask failure (other than not covering your nose or wearing it as a chin guard) is a loose or ill-fitting mask that lets virus-carrying particles escape outwards (for an infected person) or inwards (for the uninfected person). Cloth and surgical masks that are used repeatedly become loose and ill-fitting.

The mask should cover your mouth and nose. It should fit your face snugly at the edges, so the air you exhale or inhale only passes through the filtering material. The mask should also be moulded to the nose bridge — a plastic or metal clip is usually provided or built into the mask for this purpose.

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The fitted mask is held in place usually with ear loops or headbands. Dual headbands are highly recommended as they allow a proper fit — one band below the ears around the neck and one above the ears at the crown of the head. Ear loops don’t provide a tight seal without straining your ears, unless you secure the loops behind your head with a clip or tight extension band. Once you wear the mask, the easiest test is to blow air outwards (perhaps after putting a mint in your mouth). If you feel the air on your face outside the mask edges, press that edge towards your face. Use the headbands or ear loops/clip to ensure that the mask fits snugly against your face.

Can you reuse the mask? With some care, yes. N95 masks, in particular, are rated for their ability to filter a lot of dust as they are designed to be worn at places like construction sites. The mask will not get saturated even after a few days of normal (non-dusty) use, so it can be reused after it dries. A good routine might be to wear a high-filtration mask for a day, keep it aside in a dust-free, dry environment for 2-3 days (maybe inside a paper bag) and then use it again. And if the band or ear loop breaks or any part of the mask no longer seals properly, use a fresh mask.

Can surgical masks be reused?

All of us can do our bit to reduce the spread of the Omicron variant. Masking and vaccination are simple steps that can contribute to the overall pandemic response. So, if you can, please upgrade to high-filtration masks, get fully vaccinated, and stay safe out there.

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