



## COVID-19 mythbusting series

### How do face coverings work? Part one

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The question of what evidence is currently available to support the widespread use of face coverings by members of the public has received considerable attention of late, particularly since mandatory face coverings were introduced in covered public spaces in the UK, including most recently, veterinary practices.

In this series of presentations we will explain how face coverings work, introduce different types and discuss evidence to support their wide use by members of the public to respond to the COVID-19 crisis. In this area evidence is rapidly developing, with government advice frequently responding to such advances. To gain access to most recent advice, please visit the UK government's guidance page via the link displayed at the bottom of this slide.

In this first video we will discuss how face coverings work. When we breathe, speak, sneeze or cough we exhale water droplets of varying sizes. For infected individuals, the virus causing COVID-19 has been shown to be contained within such droplets, particularly those at sub-micron and super-micron sizes. To give you an idea of how small a single micron is, you can fit 1000 micrometres in a single millimetre... The virus responsible for COVID-19 itself is actually around 0.1  $\mu\text{m}$ , so 10,000 viral particles could fit within a single millimetre – very small indeed!

Face coverings work to block movement of droplets, and other particulates, in and/or out of the mouth and nose, thereby reducing local contamination with the virus. There are various types of mask that complete this task with varying efficiency. For example, the EU has three grades of standardised face covering, known as 'filtering facepiece' – FFP – defined as an increasing efficiency to block particles from the sub-micron particle size and larger.

By now you will all be aware that beyond FFP, there are a wide variety of other face coverings available. Of face coverings intended primarily for preventing virus transmission, if you are infected, from yourself to others, the category perhaps gaining most recent popularity are the homemade or cloth masks. These are made from a variety of materials and tend to be used multiple times, being washed between use. Also available are surgical masks, generally designed for single use, and the FFP1 and FFP2 face coverings noted earlier. The FFP face coverings frequently possess a filter, are technically referred to as 'respirators', and prior to COVID-19 were most frequently used by the building trade seeking to prevent large particulates (such as building dust) being inhaled by workers. However, they also possess some ability to block exhaled particulates (including droplets), with FFP1 being approximately 80% efficient at blocked sub-micron and larger particulates, comparing with 94% for FFP2.

Please be aware that many available face coverings contain a valve – highlighted here. This is intended to make exhalation more comfortable for the wearer, but unless specifically stated is

unlikely to contain a filter that efficiently blocks water droplets. As such, these valved face coverings are not effective at reducing risk of virus transmission and are NOT recommended.

You might have also heard of N95 face coverings. This is a standard set in the USA, with N95 being broadly comparative with FFP2 face coverings.

You might have also noticed visors and goggles gaining wider use, particularly amongst shop or restaurant workers, hairdressers or barbers. These are used in hospitals, primarily to reduce risk of infected fluids splashing into the faces of medical staff. As far as we are aware, it is currently unknown how effective visors or goggles might be reducing transmission of the virus responsible for COVID-19.

There are also some face coverings intended to both protect yourself and others, including in the EU, FFP3, and in the US N99 and N100. These all exceed a 99% filter capacity efficiency. However, while it could be tempting to simply opt for these seemingly most effective face coverings, in the light of a massive increase in global demand and corresponding shortages, these should be reserved for health professionals in direct and repeated close contact with COVID-19 patients. As these health professionals would also tell you, these higher efficiency face coverings also come at a cost to personal comfort, particularly when worn for extended periods of time.

**For more free COVID-19 resources for veterinary professionals, visit**  
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