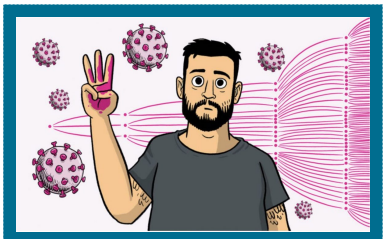
ON ADVICE

BRIEFING #19



INFECTION RATE AND WASHING HANDS

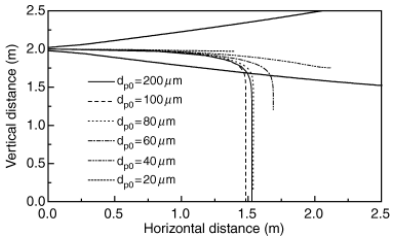
It's thought that 1 person with Covid-19 may infect 3 further people. A virus is not a living organism, it is better described as a packet of RNA or DNA genome wrapped in a spherical protein/lipid shell called the Capsid. It invades host cells and then uses that cells usual function to replicate itself both genome and Capsid. The virus can not replicate itself outside of a host, but can survive for varying times on surfaces waiting to be picked up by a new living vessel. Study's are underway on Covid-19, but it is known that other Corona viruses can survive on different surfaces for varying lengths of time. Known as half lives, this is the time it takes for half the amount of virus to become inert. The half lives for varying surfaces are as follows; Copper 1 hour, Cardboard 3 hours and Steel/Plastics 6 hours. Therefore think about what you touch on the essential visits to the shop and wash thoroughly on your return. Because of the partial lipid structure of the Capsid, soap works better to break down and destroy the virus easier and quicker than alcohol.

COVID-19

As this is a briefing note with the emphasis on brief, therefore won't be citing all the papers referred to in the sourcing, however the following is the result of an inquisitive mind and search engine results. Trying to bring together a number of facets of the current pandemic.

WHY 2M SOCIAL DISTANCING?

It is still not fully understood how viruses, such as the common flu are transmitted and that has been subject to many years of study. It is commonly accepted that the more symptomatic a person is, the more virus they will shed and with other forms of coronavirus a symptomatic person can release 100 million virus particles in a single millilitre of fluid. It is thought that exposure to a little as a few hundred particles, can lead to contracting the disease. It is known that people can have Covid-19 and have very mild or no symptoms and can be shedding the virus. A major route of shedding is via aerosols created, when breathing, talking, sneezing or coughing. One study showed that a subject counting from 1 to 100, released ten times more aerosol than one cough or sneeze, therefore talking to someone for 2 minutes is nearly as bad as having them cough directly in your face. Coupled with the fact that talking created finer droplets than sneezing or coughing makes the hazard less obvious.



A significant proportion of the aerosol is below 100µm diameter (width of a human hair) and evaporates and/or fall to the ground within 1.5m when emitted from an average sized adult as a cough.

UNDERLYING HEALTH CONDITIONS

When a person intakes a few hundred virus particles, the virus can get a 'foothold' and start reproducing, the body's defences fires up. Initially with a generic defence we are all familiar with, raised temperature, head aches, muscle pain and inflammation. This is the Innate Immune Response (IIR), and the reaction is in an effort to make the body a less desirable host environment and perhaps 'kill off' the pathogen i.e. if the bacteria or virus can't survive over 39°C. After a couple of weeks our body produces a specific response, the Acquired Immune Response (AIR) which is more targeted toward the affected cells. The AIR also stands down the IIR, the patient starts to feel better and beats the disease. When someone is immunocompromised the AIR can be delayed or not occur, meaning the virus can keep replicating, increasing the IIR response. Inflammation of cells start to affect neighbouring cells which can quickly become uncontrolled and leads to intensive care intervention.

CONTACT: JASON@ONADVICE.CO.UK