BRESLAU ANIMAL HOSPITAL
PROVIDING INDIVIDUALIZED AND COMPASSIONATE CARE FOR YOUR PET
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COVID-19: What You Need to Know

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Transmission

COVID-19 (or SARS-CoV-2) is a new coronavirus that appears to have a natural host in Pangolins, an armadillo like animal native to China. It recently acquired the ability to infect humans and transmit between humans with no intermediate host. As this virus is new to humans, we have no known immunity to it. COVID-19 is transmitted between humans most effectively through the air. For this to happen it needs to be propelled from the lungs of an infected person when they cough or sneeze. The virus is small enough that it can be aerosolized and can "float" in the air contained in little microdroplets of liquid for an extended period of time. A new infection occurs when the virus is inhaled from the air and the virus then gains access to the cells of the airway to infect. It can also land on hard surfaces and persist there for a period of time

Studies have shown that virus on a plastic surface is inactivated in 72 hrs whereas virus on cardboard and clothing, it is inactivated in ~24hrs. Regardless, once on a surface the virus has no natural ability to move anywhere without assistance. The virus can be transferred from one surface to another, say from a desk to one's hand, with contact. Therefore, transmission typically happens when a hand touches the contaminated surface and subsequently transfers the virus to the proximity of the airway by touching the face. It should be noted that an aerosolization event (such as slamming a book down that sends a rush of air over the surface to pick up micro-droplets and push them into the air) can transmit the virus back into the air so avoiding such events and disinfecting surfaces promptly is ideal. It should also be noted that contamination via viral entry to the eyes is also possible route to infection as the eyes directly drain to the nasal cavity, which in turn, leads to the airways.

Personal Protective Equipment

Where it is not possible to limit exposure, prompt cleaning of hard surfaces and personal protective equipment (PPE) are the best backup methods to prevent possible infection via fomite transmission (transmission of the virus to you by touching a contaminated object). This virus is effectively a lipid (fatty) bag around a core of nasty genetics. The virus requires the bag to mediate new infections and protect the core genetic material when in the environment. This means the best way to inactivate the virus is to disrupt or "pop" the fatty bag. A wide array of cleaners can do this effectively, but soap and hand sanitizer (isopropyl alcohol based) is the most universally available now. Similar to the effect soap has on fat and oil in your kitchen sink, soap can burst the fatty membrane around the virus and make it disappear, effectively killing the virus. Prevail is a hydrogen peroxide-based cleaner that works to create oxygen radicals that similarly disrupt the fatty shell of the virus and render it inert. Please note that if you are using straight isopropyl alcohol, it must be between 60 and 90%. Alcohols over 90% dry too fast and are as ineffective as those under 60%. It is recommended to use hand sanitizers with isopropyl alcohol of 70%.

Wearing gloves can serve as a protective layer between your hands in the hard surfaces you touch because the gloves, and any virus on them, can be thrown away. But any surface you touch after those gloves have picked up a virus will have virus transferred to it and will need to be cleaned. Therefore, gloves are most useful when they are thrown out frequently and it can be more effective to wash your hands instead of wearing gloves. Remember that your skin is a very tough shell protecting you from threats in the environment including viruses. There has been some concern that the virus can get through cracks in the skin that develop after extensive washing and dryness but it appears that this virus is unable to infect and spread in the blood (Canada blood services checked, no need to worry about blood donations). Therefore, cracks hurt but will not compromise your protection.

Importance of Physical Distancing

Taking all the above information into account, the best mode of protection from this virus is to limit one's exposure to anyone who is infected. Masks are not completely effective unless they are N95 masks (not currently available as they are being used by health care workers) and are not required if there is no exposure to a sick individual. N95 masks filter out 95% of particles that are 0.3 microns or larger. Coronavirus is 0.125 microns in size. So even with a mask, it is still very important to avoid direct contamination by the virus. The larger problem right now is that we know transmission from asymptomatic people occurs but we have no way of knowing who those individuals are and there is no viable way to screen at this time. Depending on the population, we know there are reports of 30-50% of populations tested being asymptomatic carriers. We must presume at this time not only that clients are infected, but that we may also be infected. Currently, Dr. Theresa Tam, Chief Public Health Officer of Canada is advising that wearing any kind of mask while around others, may confer a protective benefit and help reduce viral spread from asymptomatic carriers. Everyone, people working in the clinic and the general public, should limit their exposure to-***only*** their immediate co-habitats and work colleagues. This means that ***all*** visits to family and friends need to stop and trips to the grocery store should be rare with all possible precautions taken when you do go.

Future Developments

A vaccine will be developed for this virus. However, this is going to take some significant time (it is estimated to be 18-months to two years prior). In the meanwhile, it is up to all of us to do our part to help prevent the spread and to safeguard those we care about, our fellow workers and the public from this disease.