THE USE OF NON-MEDICAL MASKS (FABRIC MASKS)
DURING THE COVID-19 PANDEMIC
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Many countries have encouraged the widespread use of non-medical masks (i.e., fabric or cloth masks) in the community as a way to slow the spread of the COVID-19 pandemic, since countries that required face masks, testing, isolation, and social distancing early in the pandemic were able to successfully slow the spread of the virus.

It is important to understand that just wearing a fabric mask might not protect the person wearing it from getting infected. However, it may keep the person wearing the mask from spreading the virus to other people. Thus, masks should always be used in conjunction with other preventive measures, such as physical distancing and frequent hand washing. In addition, not every face covering is appropriate. There are some recommendations regarding the number of layers and materials to use when preparing masks that will be mentioned in this document.

Types of masks

Masks are face coverings used over the nose and mouth which act as a barrier to prevent the spread of the virus. Most masks prevent a sick person from transmitting the virus to other people by preventing respiratory droplets (tiny saliva or mucus drops produced naturally when a person sneezes, coughs, talks, or sings) to travel in the air and land in the mouths or noses of people who are nearby. That is, those droplets are kept contained within the mask of the diseased person and are prevented from reaching and infecting other people.

There are three different types of masks in use during this pandemic: N95 masks, medical masks, and non-medical masks. **N95 masks** are professional disposable respirators, i.e., protective devices that have a very efficient filtration system that protects a person from inhaling infectious particles. They offer more protection than other types of masks because they can filter out both large and small infectious particles. They prevent exposure both to the large respiratory droplets which are the main way COVID-19 is transmitted and to the tiny droplets that can remain suspended in the air during airborne transmission (which has recently been reported as a possible way of getting infected with COVID-19). So, they are currently the most essential protection available for healthcare workers, but some N95 masks have one-way valves that release unfiltered air when breathing out, which does not prevent the wearer from spreading the virus.

Healthcare personnel also rely on **medical masks,** also known as surgical masks. These are disposable masks used by health workers to protect them from getting infected with the virus by shielding their noses and mouths from contact with droplets. This type of mask also filters large particles in the air, so they prevent transmission of the virus to the wearer. Since this type of mask prevents the wearer from spreading infectious droplets to others, their use is also recommended among people with COVID-19 symptoms, among people caring for persons with COVID-19, and among people at high risk for serious disease, such as those over age 60 or those with underlying health conditions.

Since currently N95 and surgical masks are in very short supply, they should be reserved for health care workers and other medical first responders. Thus, the need for **non-medical masks**, also called fabric or cloth masks. These types of mask do not have the filtering system that surgical masks or respirators have that prevent a person from getting infected. In fact, it is not known if the mask protects you at all from breathing in the virus. However, since they trap the droplets that are released when the wearer talks, coughs, or sneezes, these masks can help slow the spread of COVID-19. But this can only work if everybody uses the masks. Me wearing a cloth mask protects you; you wearing a mask protects me. Their use by everyone is of utmost important since most of the people who are infected (as many as 8 out of every 10) do not show symptoms, and may unknowingly be transmitting the disease to others. Their use is recommended among people who have no COVID-19 symptoms, where COVID-19 transmission is widespread, there is limited capacity for implementing control measures, and physical distancing of at least one meter cannot be achieved.

<u>Design of fabric masks</u>
There are many types of fabric masks. Some are homemade and some you can buy in stores; they are easy to make or find. Thus, there is no general standard for their confection, like with N95 and medical masks. As a minimum, the mask should cover the nose, mouth, cheeks, and chin of a person without large gaps, include elastic ear loops or ties to secure the mask with, be washable and reusable, and, most importantly include multiple layers.

Cloth masks should ideally have a minimum of three layers of fabric. The inner layer (the one in touch with the face) should be a water absorbent material, such as cotton. The outer layer (the one exposed to the environment) should be a water-resistant non-absorbent fabric, such as polyester or polyester blend. The middle layer, which acts as a filter, should be a synthetic non-woven material such as polypropylene.

The selection of the materials to use is very important since fabrics differ in how efficient they are as filters (filtration efficiency) and how easy are they to breathe through (breathability). Filtration efficiency depends on how tight is the weave, the fiber, or thread diameter of the woven fabric; for non-woven materials, it depends on the manufacturing process, i.e., whether it was spunbond, meltblown, or electrostatic charging. For example, polypropylene is much better as a filter than cotton from a t-shirt or sweater, but that cotton is better than polyester. Silk, cotton handkerchiefs, nylon, and very porous materials such as gauze have very low quality as filters.

If logos are used on the mask, screen printing is recommended. If embroidery is used, the logo should be sewn on the outer layer only.

The use of elastic material is not recommended since the material may stretch with use. This will make the pore sizes of the material increase, thus decreasing the filtration efficiency of the mask. Also, elastic materials are sensitive to washing using high temperatures. So, cloth masks are preferred.

<u>Care and use of fabric masks</u>

- Cloth masks should be washed frequently (at least once a day) with soap or detergent in warm or hot water at least 60° C (140° F).
- If the mask is not dirty or wet, and you plan to reuse it, put it in a clean plastic resealable bag. Pull it by the elastic loops when removing from the bag for reuse.
- Do not use a mask that is damaged, dirty, or wet. Inspect the mask for tears or holes.
- Do not share the mask with other people.
- Wash or sanitize your hands before putting and after removing your mask, or if you accidentally touch it while wearing it.
- Do not touch your mask while wearing or removing it. Use the plastic ear loops to remove the mask.
- Adjust your mask so that it snugly covers your mouth, nose, cheeks, and chin, with no gaps on the sides.

Finally, masks should not be worn by children under 2 years of age, by persons who have trouble breathing, or by those who are unconscious, incapacitated, or otherwise unable to remove the mask without help. And above all, face masks should not be used as a substitute for physical distancing. Wearing a mask must be combined with other preventive measures in order to be successful, and it is most likely to reduce the spread of the COVID-19 virus when widely used by people in the community.

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