

Types of masks:

- Cloth masks
 - Readily available
 - Reusable
 - Are primarily intended as source control (protect others from the respiratory secretions of the person wearing the mask)
 - Quality, construction, and fit can vary.
 - Health Canada recommends that cloth masks be constructed of a minimum of 3 layers, of which 2 layers should be tightly woven material fabric (such as cotton or linen), and the third (middle) layer should be a filter-type fabric (such as non-woven polypropylene fabric).
 - The CDC recommends the use of 2 or 3 layer masks made of tightly woven fabric (e.g. cotton or cotton blends).
- Surgical masks
 - Are primarily intended as source control.
 - May have mask rating according to their level of filtration
- Filtering facepiece (FFP) respirators
 - Examples are N95, KN95, FFP1, FFP2
 - When properly fitted, offer both source control and protection against inhalation of airborne infectious agents (protection for both the wearer and the people around them).
 - Filtering facepiece respirator masks must meet certain standards.

Factors affecting the effectiveness of masks:

- Fit:
 - Masks need to fit snugly to the face.
 - As much as possible, air should be exhaled through the mask material rather than around the edges of the mask.
 - N95/FFP masks may require formal fit testing and a clean shaven face to achieve the rated level of protection.
- Construction:
 - Tightly woven materials typically offer more filtering efficacy than more loosely woven materials
 - Increased numbers of layers of material will generally increase filtering efficiency
 - A combination of water absorbing materials and water repelling materials may enhance the filtering efficiency
- Mask rating:
 - When properly fitted, N95/FFP masks afford the highest level of protection.
 - Surgical masks and cloth masks, which tend not to fit as tightly to the face, offer variable levels of protection.
 - Counterfeit N95/FFP masks may not offer the same level of protection.

Ways to improve the fit of masks:

- Double masking:
 - Wearing a cloth mask over a surgical mask might help the surgical mask fit more tightly to the face
 - However, there is no available evidence to date that confirms that the extra mask layers offer additional protection beyond use of a single surgical mask
 - Some people may find it more difficult to breathe through the extra layers of masks
- Mask clips:
 - Mask clips worn behind the head which join the ear loops of a surgical mask will press the mask more firmly to the face, potentially improving the fit of the mask
 - There are commercial products available, but one can also use a hair clip to achieve the same effect



(From Clapp PW et al. Evaluation of Cloth Masks and Modified Procedure Masks as Personal Protective Equipment for the Public During the COVID-19 Pandemic. JAMA Intern Med. doi:10.1001/jamainternmed.2020.8168)

- Double eight mask brace
 - The use of interlocking elastic bands to apply the mask more tightly to the face in the manner described in the photo has been shown to significantly improve the fit and the protection from airborne pathogens afforded by a surgical mask



FIGURE 1 (A–C) Demonstration of the way the 3 rubber bands are knotted together. (D–G) How to anchor and fit over a mask using a paper clip. (H and I) How to fit and anchor the rubber bands using a face shield with side knobs. The red arrows in image (G) demonstrate proper positioning on the bridge of the nose and below the chin. The red circles in image (H) indicate proper position of the brace knots inside the edges of the mask

(From Runde DP et al. The “double eights mask brace” improves the fit and protection of a basic surgical mask amidst COVID-19 pandemic. *JACEP Open* 2021;2:e12335.)

- Addition of nylon hosiery sleeve placed over the surgical mask can increase the performance of surgical masks.



(From Clapp PW et al. Evaluation of Cloth Masks and Modified Procedure Masks as Personal Protective Equipment for the Public During the COVID-19 Pandemic. *JAMA Intern Med.* doi:10.1001/jamainternmed.2020.8168)