FREQUENTLY ASKED QUESTIONS

COVID-19: Non-Medical Masks

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Introduction

The Public Health Agency of Canada (PHAC)’s guidance regarding non-medical (cloth) masks (NMMs) recommends that NMMs should be made of multiple layers using materials that are breathable, including:

- at least 2 layers of tightly woven fabric, such as cotton
- a third middle layer of filter-type fabric, such as non-woven polypropylene (see Q10 and Q11)

PHAC’s guidance is consistent with guidance issued from the World Health Organization in December 2020. Using the most available evidence, this document provides responses to frequently asked questions regarding virus transmission, variants of concern, how NMM are made, and how they differ from medical masks.

Questions and answers

COVID-19 variants of concern and considerations for masking

Q1. Do I need to wear a different type of mask to protect myself and others from variants of concern?

Some detected variants of SARS-CoV-2, such as those that were first detected in the United Kingdom (UK) (B.1.1.7), South Africa (B1.351), and Brazil (P.1) appear to be more infectious than other circulating strains of SARS-CoV-2, and there is emerging evidence that the B.1.1.7 variant may cause more severe disease. However the ways in which the virus is transmitted or spreads appears to be the same, which is mainly through close unprotected exposure to the respiratory droplets and aerosols of an infectious person. Therefore, the same recommended preventative measures still need to be applied, but more diligently and consistently than before to limit transmission.

The public should continue to adhere to local and provincial public health guidance, including:

- Wear a well-fitting (fits snugly over the nose, mouth and under the chin) non-medical mask (2 or 3 layers) indoors, and outdoors when physical distancing (i.e., staying at least 2 metres (6 feet) apart) may be difficult to maintain
- Limit non-essential contact with individuals outside of your immediate household
- Stay 2 metres (6 feet) apart from people who are not part of your household wherever possible
- Wherever possible, avoid being indoors in areas that are crowded, have poor ventilation, or are confined
- Practice good hand hygiene regularly
- Stay home if you have symptoms of COVID-19
Non-medical mask versus medical mask

Q2. What is the difference between a medical mask (i.e., a surgical mask) and a non-medical (cloth) mask?

Medical masks are a form of personal protective equipment (PPE) and are worn in conjunction with other types of PPE (when indicated) to protect the wearer from exposure to the potentially infectious respiratory droplets of others. When worn correctly, medical masks can also function as a form of source control, protecting those around the wearer from potential exposure to their respiratory droplets and aerosols. Medical masks are intended to be worn once before being discarded.

Non-medical masks (e.g., those made of cloth or other masks not certified by Health Canada as medical grade) are worn for the purpose of source control. When worn correctly, NMMs may protect those around the wearer from potential exposure to the wearer’s respiratory droplets and aerosols. NMMs (3-ply or 2-ply) are not PPE and are not to be worn in instances where the use of PPE is indicated (e.g., when providing direct care to or within 2 metres of an individual suspected or confirmed to be ill with COVID-19).

3-ply (3 layer) versus 2-ply (2 layer) non-medical masks

Q3. What is the scientific evidence for 3-ply vs 2-ply NMMs?

There is laboratory-based evidence regarding the filtering efficiency (the ability to remove droplets and aerosols from ambient air) of different materials, and combinations of materials that have been used to make NMMs. The number of layers that will achieve a theoretical filtration efficiency is dependent on the material used.

There are no epidemiological studies to evaluate the effectiveness of 3-ply versus 2-ply masks on transmission of SARS-CoV-2. The current evidence that NMMs reduce transmission of COVID-19 is population based, where widespread use of NMMs has been linked to lower rates of transmission when compared to populations where NMM use is low. However, this evidence is based on NMMs used to date, many of which would not be 3-ply NMMs and/or include a filter layer. Therefore, it is unknown whether or to what degree a 3-ply NMM with a filter layer would reduce the risk to the wearer of acquiring COVID-19 compared to a 2-ply NMM without a filter layer. All NMM (3-ply or 2-ply) should be considered as source control, and not PPE.

Materials with higher filtration efficiency may offer additional protection, but may i) be uncomfortable against the skin, ii) reduce breathability, iii) may still be inefficient if there is a poor fit of the mask. Therefore, the innermost layer that is touching the skin should be a cotton or cotton blend material to avoid irritation. All layers should either be washable for re-use, or disposable (e.g., middle filter layer).

Q4. Are 3-ply NMMs preferable to 2-ply NMMs?

There is a theoretical basis as to why 3-ply NMMs with a filter layer may offer a potential protective benefit to the wearer compared to 2-ply NMMs.

- For individuals seeking to obtain a new NMM, a homemade or purchased 3-ply NMM with a disposable or reusable filter-type layer may offer greater filtration compared to a 2-ply NMM with no filter, and is currently recommended by WHO and PHAC.

- However, consistent and appropriate use of either is the most important thing to do when unable to physically distance or in shared indoor spaces.
All NMMs, whether 3-ply or 2-ply, should:

- completely cover the nose, mouth and chin without gaping
- allow for easy breathing
- not contain an exhalation valve
- fit securely to the head
- fit comfortably to avoid frequent adjustments
- maintain its shape after washing and drying

Q5. What should people do with their 2-ply NMMs?

The most important aspect of NMMs as a public health intervention for COVID-19 is for people to wear them consistently and appropriately when they are unable to physically distance and/or in shared indoor environments. Existing 2-ply NMMs can be used as before, and there is no need to discard existing 2-ply NMMs that are still well maintained and well-fitting.

Q6. Does a 3-ply NMM change the risk of being exposed to COVID-19?

As there is only laboratory-based evidence of the differential benefit of a 3-ply with filter layer vs a 2-ply NMM, it is not known whether or to what degree use by a case and/or individual being exposed to COVID-19 effects the risk assessment of exposure for the contact. There are no changes to the public health risk assessment of contacts to consider 3-ply or 2-ply NMM use. The main factor for NMMs is consistent and appropriate use by the wearer for the duration of the interaction(s). Removal/partial removal of an NMM poses a greater risk for transmission.

Q7. Does a 3-ply NMM count as Personal Protective Equipment?

No. Homemade or purchased 3-ply NMMs are not personal protective equipment (PPE), regardless of construction or the use of a filter-type layer. Individuals should still adhere to public health measures of physical distancing, hand hygiene, and avoiding crowded, closed spaces and close contact. Individuals who require a medical/surgical mask as PPE for their employment should not use a non-medical mask.

Strategies to improve mask fit

Q8. Should masks be modified to improve fit?

A well-fitting mask should stay snugly over the nose and under the chin with little need to manipulate or adjust. An experimental study done by the Center for Disease Control and Prevention supports that an improved fit will reduce both particles generated from an infectious source and wearer exposure. This study evaluated double masking on manikins by wearing a tight-fitting cloth mask over a medical mask and the ‘knot and tuck’ technique, whereby the wearer ties the ear loops to reduce gaps in its fit. This study highlights theoretical advantages of well fitted masks but does not demonstrate real-world effectiveness of these techniques.

NMM are not recommended over top of a medical mask as it would be difficult to determine if the cloth mask was soiled and when it needed to be changed. In consultation with the Ontario Provincial Infectious Diseases Advisory Committee on Infection Prevention and Control (PIDAC-IPC), Public Health Ontario recommends against mask manipulation when the mask is being used for PPE. The Occupational
Health and Safety department should be consulted prior to manipulation of any PPE. We recommend selecting an appropriately sized mask that consistently and snugly covers the nose and mouth without the need to be frequently adjusted.

Non-medical mask construction and ongoing maintenance

Q9. How should non-medical masks be washed in order for these to be safely reused?

Ideally reusable NMMs are to be washed after each use. Non-medical masks are recommended to be washed in a washing machine, using the warmest temperature setting with regular laundry detergent, followed by thorough drying in a dryer if available.15

If no laundering facilities are available, NMMs may be washed in a sink using hot, soapy water, followed by thorough drying (air drying if a dryer is not available).16

If a sink is used, the sink is to be cleaned and disinfected before and after washing the mask in order to avoid potential cross-contamination.

Reusable NMMs with a non-woven filter layer should be washed as above. Reusable NMMs with a disposable filter layer should have their filter removed before washing. Disposable filters should be changed daily or as per manufacturer instructions.

Q10. How should non-medical masks be constructed in order for these to function effectively as source control?

NMMs should be constructed of at least 2 layers of closely woven fabric (e.g., cotton or linen), preferably have layers with different materials, and be tightly fitting in order to effectively contain the respiratory droplets and aerosols of the wearer (i.e., provide source control).17 A third filter-type layer may provide some protection to the wearer by filtering incoming ambient air,2,18 however additional layers may make it more difficult for the wearer to breathe.18 Filter layers may be single-use and discarded after a mask is worn (i.e., inserted into pocket between fabric layers), or may be able to be laundered and reused (e.g., inserted into a pocket between fabric layers, or sewn into the mask). Appropriate single-use filters include a tissue or a paper towel.2,18 Reusable filters include those made of fabric, such as a third layer of cotton or linen, or a layer of non-woven polypropylene fabric (such as that used for crafting, interfacing or fabric-like reusable shopping bags).2 Materials such as plastic, dryer sheets, cleaning or disinfecting wipes or other materials containing chemical products may cause breathing difficulty, respiratory or skin irritation.

Q11. Are there any considerations when using polypropylene as a filter layer?

There are many different types of polypropylene. When choosing material suitable for use in a mask, PHAC recommends non-woven and washable polypropylene or a disposable filter between two layers of tightly woven fabric (e.g., cotton or linen).2 If it is uncertain whether the filter is able to withstand repeated laundering, consider using the ‘no-sew’ method2 so that this layer can be replaced as needed. Removable polypropylene layers can be inspected after laundering to ensure it is intact, and replaced once it shows signs of degradation.

Q12. Can non-medical masks be shared by different individuals after laundering?

NMMs are not to be shared, even after laundering. NMMs should be assigned to individuals via a label with the wearer’s name and reused by the same individual after laundering (with appropriate mechanical laundering and drying). Mechanical laundering of NMMs using the warmest compatible temperature
setting followed by thorough drying is considered appropriate cleaning. If cloth masks cannot be assigned to individual wearers, then single-use disposable masks are recommended to be used.

Q13. Will placing a non-medical mask in a freezer or closed container inactivate/kill SARS-CoV-2?

Studies that have looked at the stability of SARS-CoV-2 (the COVID-19 virus) under various temperature conditions have found that, similar to other enveloped viruses, SARS-CoV-2 may be more stable in cooler conditions than in warm, humid conditions. Heat is believed to be more effective in inactivating SARS-CoV-2 than cold. Freezing is not recommended as a method to inactivate the SARS-CoV-2. If a non-medical mask will be worn again before being washed, then the mask is recommended to be stored in a single-use paper bag or in a cleanable container with a lid between uses.

Q14. Will exposing a NMM to sunlight inactivate SARS-CoV-2?

NMMs are to be laundered after each use, as described above. Although some recent studies have shown that natural sunlight may inactivate SARS-CoV-2 on some non-porous surfaces such as stainless steel and plastic, its effectiveness is variable and influenced by the duration of exposure, whether exposure is direct or indirect (e.g., less effective when exposed to sunlight through a car windshield) and local weather conditions (e.g., cloud cover), meaning that this will vary from day to day and with geographic location.
References


9. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Technical brief: IPAC recommendations for use of personal protective equipment for care of individuals with suspect or confirmed COVID-19 [Internet]. Toronto, ON: Queen’s Printer for Ontario; 2020


Citation

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