

## Instructions:

The purpose of this guidance is to provide key considerations for the use, manufacturing and disinfection of non-medical (homemade) masks. Please read the entire guidance before making decisions, to ensure that the decisions made are appropriate for the context.

## Introduction:

Compared to medical masks, cloth masks yield higher infection rates among health care workers due to microorganisms transmitted by droplet and airborne modes. The increased risk of infection is due to higher rates of particle penetration compared to medical masks (MacIntyre, et. al., 2015, Rengasamy, et. al., 2010).

WHO offers this guidance to decision-makers on the use of masks for healthy people in community settings, so that they can apply a risk-based approach (WHO, 2020). This risk-based approach considers the purpose for which the mask is used: whether the mask is to be used for source control (use by infected or pre-symptomatic persons) or prevention of COVID-19 (use by healthy persons); the risk of exposure to the SARS-CoV-2 virus that causes the COVID-19 disease in the local context; vulnerability of the person/population to developing severe disease or higher risk of death; settings in which people live, including areas with high population density, inability to practise physical distancing (e.g. on a crowded bus), risk of rapid spread of COVID-19; and feasibility and type of masks.

### Recommended materials for making masks

Non-medical masks can be made from a variety of woven materials/fabrics. However, there are presently no established standards to define the level of protection they offer. Non-medical masks made from woven fabrics have high breathability, but low filtration and little fluid resistance. Non-medical masks may have multiple combinations of fabrics, layering and an array of designs. However, few of these combinations have been systematically evaluated and at present there is no prescribed design, material, layering or shape.

Decision-makers recommending the use of non-medical masks should take into consideration the following features related to non-medical masks: the type of materials used in relation to filtration efficiency (FE) and breathability; the number of layers; the combination of materials used; the mask shape; the coating; and mask maintenance.

## Key Recommendations for homemade cloth masks:

1. Symptomatic individuals in the community should stay home if possible, isolate self, seek medical attention if needed and wear a medical/surgical mask to protect others from COVID-19 infection. Specifically, medical/surgical masks are three times more effective at blocking the transmission of microorganisms than non-medical masks (Davies, et. Al. 2013). Medical/surgical masks are single-use masks.
2. Non-medical masks should not replace medical masks. In providing routine care to a COVID-19 patient, health care workers (HCWs) should wear a medical/surgical mask (WHO, 2020). Furthermore, HCWs are not advised to wear non-medical masks (MacIntyre et. al., 2015).
3. Non-medical masks can be assembled from different materials readily available within the community. Preliminary data show that masks made up of two or more cloth layers are more effective at keeping particle penetration lower than single-layered masks (Edwards, 2020).
4. Non-medical masks may be made from the following materials in view of their filtration efficiency: polypropylene (PP) spunbond non-woven, 50-60%, non-woven, 47%; nylon, 30 %; polyethylene terephthalate (PET), 20%; cotton, 10-30%; cotton handkerchief, four layers, 13%; gauze, four layers, 3-4%.
5. Wearing a non-medical mask does not replace good hand hygiene and physical distancing. Some studies suggest that when used in combination (non-medical masks and hand hygiene), rates of infection decline (MacIntyre, et. al, 2015).
6. Make sure to keep the non-medical mask dry at all times. Even moisture from exhaling could potentially contribute to the growth of microorganisms on the mask and convert it into a reservoir of infection for its user (Edwards, 2020). Non-medical masks must be replaced if they become wet or damp.
7. Non-medical masks should:
  - fit snugly but comfortably against the side of the face and cover the nose and mouth
  - rest on the bridge of the nose and be molded onto the face and side of the face

- come down below the chin
- be conical or tetrahedral shape or rectangular shape
- be secured with ties or ear loops
- include multiple layers of fabric
- allow for breathing without restriction
- be able to be laundered, cleaned, or disinfected.

Please see Advice on the use of masks in the context of COVID-19 [https://www.who.int/publications-detail/advice-on-the-use-of-masks-in-the-community-during-home-care-and-in-healthcare-settings-in-the-context-of-the-novel-coronavirus-\(2019-ncov\)-outbreak](https://www.who.int/publications-detail/advice-on-the-use-of-masks-in-the-community-during-home-care-and-in-healthcare-settings-in-the-context-of-the-novel-coronavirus-(2019-ncov)-outbreak) – for more details

When removing the mask, the user should be careful not to touch the outside of the mask. If the outside of the mask is touched during the removal process, the user must wash their hands immediately. Also, after removing the mask, the user should be careful not to touch their face until they can wash their hands.

## Mask Maintenance

Non-medical masks must be washed frequently and handled carefully to avoid contamination of other items. Wash the mask delicately if non-woven materials (e.g., spunbonded) are used. Non-woven polypropylene (PP) spunbond may be washed at high temperature, up to 140°C. The combination of non-woven PP spunbond and cotton can tolerate high temperatures; masks made of these combinations may be steamed or boiled to avoid the rough handling which may damage the fibres and decrease filtration efficiency. Fabrics used from clothing should be checked for the highest permitted washing temperature, which is indicated on the clothing label. Preferably, choose fabrics that can be washed in warm water with soap or laundry detergent. Natural fibres may resist high temperature washes and ironing. If layers of fabrics look noticeably worn out, discard the mask or add new layer to the mask.

Masks should NOT be left to dry on countertops or other soiled surface areas. The mask should be changed whenever it is soiled.

**\*The mask design projected below are not intended for health care facility use. It is at the discretion of various governments and local administrations to determine if and how they chose to enact the use and production of non-medical masks for community use. \* See Annex1 for design suggestions.**

**Note: Mask should not be shared, even among family members.**

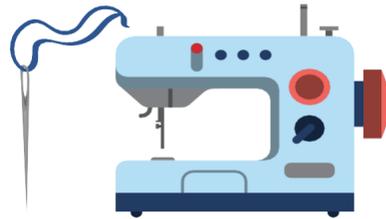
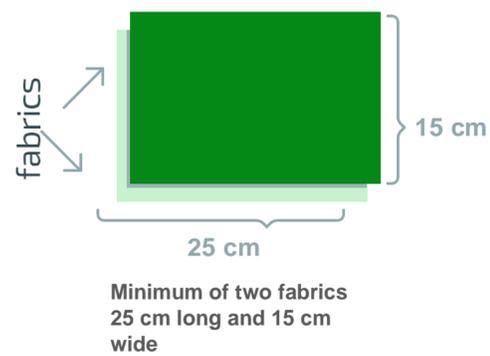
## Bibliography:

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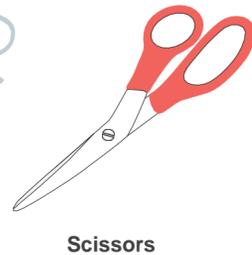
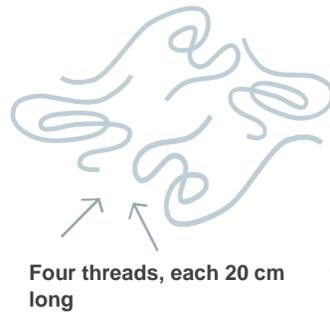
# COVID-19 PREVENTION

## Annexe 1 Guidance on Cloth Masks

### YOU WILL NEED



Needle or sewing machine.  
You may have a seamstress make the  
mask, if possible.

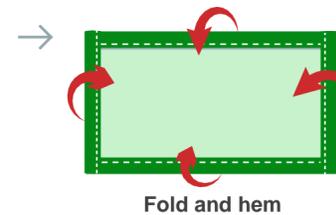
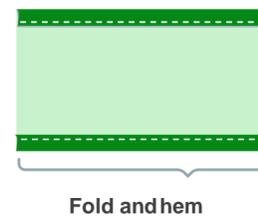


3



Place the two pieces of fabric on top of each  
other on a table.

4



Fold and hem

Fold the outer piece of fabric (the one touching the table) over slightly on top of the other piece.  
Sew the folded over piece onto the top piece. Perform this for both the top and bottom parts of the  
mask.

1



Cut two pieces of fabric  
(length of 25 cm and height  
of 15 cm each)

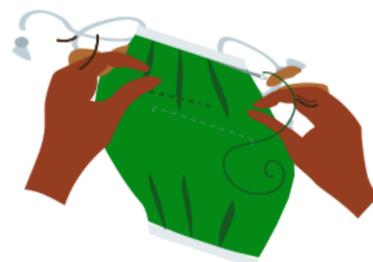
2



Hem the edges of the two fabrics by cutting any excess or jagged fabric away if fabric is  
ripped from large fabric spool.



5



Place the four threads or two elastic pieces on either side of the mask. Fold over the outer and inner pieces together  
on top of the threads or elastic. Sew these two side pieces to securely hold the threads or elastic in place.

6

Tie the unsewn ends of the threads or elastic into a  
secure knot.

Make sure the knot is tight

