

## KEY POINTS

The evidence indicates that re-usable cloth masks are not effective against the SARS-Cov-2 virus, and may increase transmission [1, 3, 4] and make things worse.

The use of re-usable cloth masks is not recommended by The World Health Organisation (the leading international authority) [2], Evidence Aid (a humanitarian NGO focusing on evidence and research to inform responses) [3], the European Centre for Disease Prevention and Control (an independent agency of the EU) [4] or the authors of the largest trial into their effectiveness (a large scale randomised controlled trial) [1].

Taking the wrong action, whatever the intention, puts the people of Moria at increased risk.

## INTRODUCTION

There has been a lot of talk about home made cloth face masks on here, and as promised, here is the long answer. I would encourage anyone considering making, supplying or otherwise encouraging the use of these masks to read this fully.

If you feel you have evidence which contradicts this, please get in touch or reply here, but I would ask that if you intend to debate these points, you back your arguments up with evidence (not opinions, media articles or tutorials). What is of course unhelpful is taking one person's advice, opinion or news article as evidence - please stick to evidence-based science. If someone tells you masks will help, please ask them for evidence (yes, that includes doctors and other professionals).

I am entirely open to discussing this and of course what we know may change. This is not about winning an argument, it is about protecting the people of Moria from a well-intentioned but potentially harmful intervention.

## SOME ESSENTIAL SCIENCE

Coronavirus disease 2019 (COVID-19 for short) is an infectious disease caused by the SARS-CoV-2 virus which is spread through contaminated surfaces (hence the importance of hand hygiene) and respiratory droplets (hence the use of certain types of masks).

The virus measures approximately 120-125nm in diameter [5]. To get an idea of how small this is, you could put 578 billion of them into a 1 millimetre cube [6].

The virus can exist and be spread in respiratory droplets, which measure anything from around 600nm up (so you can still squeeze billions into your 1 millimetre cube) [7].

Cloth is typically made for clothing, not filtration. It is typically a network of woven fibres, with gaps. Somewhat like a dense net or mesh. The size of the gaps depends on the weave, but is substantially greater than the size of smaller respiratory droplets. Other mainstream textiles are often of a comparable composition, with the exception of some which do not allow air to pass freely through them, and would therefore not make good masks.

The material used for disposable surgical masks is specifically manufactured for this purpose, and even this gives only limited protection [1,9]. Please read on for details of studies into the effectiveness (or ineffectiveness) of reusable cloth masks for this purpose.

## THE EVIDENCE

Following a review of the literature, the most reliable evidence I have been able to find is a study published in the BMJ involving randomised allocation of surgical masks or cloth masks to 1,607 healthcare workers [1]. For those not familiar with research, a randomised controlled trial (RCT) is one of the higher quality research methods. The researchers measured infection rates in both the surgical and cloth mask groups over 4 weeks. Rather than paraphrase, here are their conclusions,

"This study is the first RCT of cloth masks, and the results caution against the use of cloth masks. This is an important finding to inform occupational health and safety. Moisture retention, reuse of cloth masks and poor filtration may result in increased risk of infection. Further research is needed to inform the widespread use of cloth masks globally. However, as a precautionary measure, cloth masks should not be recommended for HCWs, particularly in high-risk situations, and guidelines need to be updated." [1]

The strongest support for cloth masks I have found comes from an English study [8], which concluded that cloth masks may be "better than no protection", however this study was not nearly as rigorous as the aforementioned, and was under controlled rather than "real world" conditions with a very small sample of only 21 individuals. I include it to offer all sides, but would strongly advise critically appraising the methodology before seeing this as a supporting argument.

## THE ADVICE

The World Health Organisation (WHO) advise:

"Cloth (e.g. cotton or gauze) masks are not recommended under any circumstances." [2]

Evidence aid advise:

"Disposable, cotton or paper masks are not recommended for protecting healthcare workers from respiratory infection" [3]

The European Centre for Disease Prevention and Control Advise:

"If you are infected, the use of surgical face masks\* may reduce the risk of you infecting other people. On the other hand there is no evidence that face masks will effectively prevent you from becoming infected with the virus. In fact, it is possible that the use of face masks may even increase the risk of infection due to a false sense of security and increased contact between hands, mouth and eyes while wearing them. The inappropriate use of masks also may increase the risk of infection." (\*note these are the manufactured and tested kind, not the type being produced in Moria) [4]

## THE CONTEXT

Moria is undoubtedly one of the worst places to be during a pandemic. I don't feel that any of us need a reference for that. Overcrowding, poor sanitation and inadequate access to healthcare all make the situation very different relative to the majority of the populations advice is produced for.

This may seem to be an argument for adapting a different approach when it comes to masks, however it's important to ensure that such an adaptation improves rather than exacerbates the situation.

It is true that those in Moria cannot, on the whole, access the effective masks required, such as N95 masks and similar. This does not automatically mean that using what is available is "better than nothing".

Risks from reusable masks in Moria include,

- Infrequent cleaning - any mask needs to be disposed of or fully sanitized every few hours (many sources say every 2 or 3 hours, or more often when it becomes damp), to prevent the mask from becoming a reservoir for the virus and droplets being generated from the mask itself (and mobilised with every exhale).
- Inadequate cleaning - the mask must be washed at very high temperatures to kill the virus, and with an appropriate soap or detergent to remove residue. This will be impractical for many, especially at night. High temperatures may also affect the materials being used.
- Inadequate drying - the mask needs to dry somewhere clean to avoid it becoming contaminated. During rain, there is a particularly high risk with them being dried inside a tent or other shelter.
- Contamination while cleaning - the person cleaning the mask must be able to effectively wash their hands after handling the potentially contagious mask, and

before handling a clean mask. It is likely if someone is sick another person will end up doing this, at great risk to them.

- Touching the face - masks move and irritate. Unconsciously adjusting the mask by hand will increase the risk of transmission further, especially if the person wearing the mask is unable to wash their hands thoroughly.
- False sense of security - many experts are concerned that wearing a mask makes people feel protected when they are not, and results in a decrease in the behaviours that reduce spread such as distancing and handwashing.
- Fire and Carbon Monoxide - an indirect risk, however if people are forced to boil water frequently for washing masks, there is an increased risk of fires and carbon monoxide poisoning.
- Misunderstanding - even if all of the above could be followed, there is a risk to those who speak less commonly spoken languages, or cannot read instructions, that they either do not understand or later forget the advice being given.

Considering all of these factors, it is clear that the risks of inappropriate mask use are even greater in Moria than in the "typical" setting (where they are already not recommended).

## CHANGES

It is entirely possible that as organisations continue to research and review the available evidence, advice may change.

This does not mean the original advice was "wrong" or that those giving advice are inconsistent. The entire point of evidence-based practice is that we must act on the best available evidence at the time. Currently that is as above in the evidence section. We are all learning and adapting to a new and fast moving threat.

There is no shame in discontinuing a practice we thought to be helpful when the evidence and advice from leading authorities changes our understanding of it.

## THE AUTHOR

I'm Matt Baillie, BSc (hons) PGCert RN, a Paramedic working in the UK, also a Registered Nurse.

Throughout my degree and post-graduate studies there has rightly been an emphasis on evidence-based practice. All clinicians have a responsibility to ensure their actions are supported by the best available evidence. I would suggest that responsibility extends to anyone considering any intervention in the current situation.

I have volunteered in Lesvos on 3 occasions, working for a number of medical NGOs both in Moria and Skala Sikamineas. I am not on the island now, but was last in Moria only last month. I am aware of the situation, the frustrations, and the need to do something. I offer this to encourage people to ensure that what they do is helping and not worsening the situation.

Finally, I offer the above with the necessary disclaimer - this is what I have found and believe to be based on the best available evidence. Evidence and advice are constantly evolving. Things may change. I have written this to explain my concerns that cloth mask manufacture and distribution in Moria Camp is putting people at increased risk.

Of course you shouldn't take my word for it, nor any individual on social media. Do your own research, verify my sources and challenge me if you disagree.