

# Review of: "Face masks to prevent community transmission of viral respiratory infections: A rapid evidence review using Bayesian analysis"

Professor Jon Heylings<sup>1</sup>

<sup>1</sup> Keele University

Review by Professor Jon Heylings, Dermal Technology Laboratory Ltd, Keele University, May 7th 2020.

This is a very interesting and important assessment of the use of face masks by the public and a comprehensive review of the previous situations where this practice was used to restrict the spread of the disease. Here in the UK, we are not used to using face masks, but, of course, we have noted their extensive use overseas, particularly in Asia, in various news articles on epidemics over many years. Unfortunately, most Western governments view this practice as not relevant to us as we have modern and sophisticated healthcare systems to cope with whatever disease is thrown at us. This very naïve view has come to burn us with Coronavirus, both here in the UK and in the USA, where continual flippant and incorrect statements on face mask use are continually made, not just by politicians, but also the so-called scientific experts advising them. COVID-19 is quite different to other diseases in that thousands of symptom-free people are unknowingly passing the infection on to the more vulnerable in society. This will become even more obvious when the current lockdown in the UK is eased with a second wave of the pandemic. In my view as a Toxicologist, with more than 30 years experience looking at human exposure to various agents and their detrimental effects, we must take steps to restrict the transmission of COVID-19 infection between individuals who are unknowingly passing it on to others, particularly when they cannot socially distance. This paper on face mask use describes some of the challenges with single-use versus multiple-use masks and also how the public are likely to behave when it is suggested, or even mandated, that masks must be worn in public places. I would like to propose that not only should we use face masks as part of the return to normality, but that they should ideally be effective at actually deactivating the Coronavirus if it gets into the face mask material. I am less concerned about the behavioural aspects and compliance since most of the population are very scared of catching the infection and will see face masks

as a protective measure for them and their families.

It has been known for centuries that copper can effectively deactivate bacteria, fungi and viruses/ This has been exploited by many pharmaceutical and chemical companies where various copper compounds have been used to target various micro-organisms. One such approach that has rapidly come to the fore in recent weeks has been the use of copper oxide that can be impregnated into face mask materials. This is a very safe approach since the copper within these masks is not dislodgeable and even if it was inhaled the amount of copper in the whole mask represents a small fraction of a typical daily dose of copper, which is an essential mineral for the body in any case. Different copper masks are now available. Some use copper impregnated into the cotton fabric of the mask and other masks use layers of materials like polypropylene and other materials combined with copper. These masks can be reused many times and even washed without loss of their ability to deactivate COVID-19. Therefore, my recommendation is to evaluate these copper-based face masks once the UK government makes it mandatory that the public wear a mask on public transport and in other situations where social distancing is not possible.

There is always a cost associated with the implementation of such an approach, but since these type of mask are re-useable they could be issued with appropriate instructions at the time of COVID-19 testing. This would even encourage more people to come forward for testing so they could collect a mask. Procurement will be an obstacle, no doubt, as we have seen with everything else that the UK government has been involved with thus far. However, as we have now moved into May 2020 with over 30,000 UK deaths from the virus, now is the time to act and source copper-based face masks that will save lives.

Jon Heylings

Professor of Toxicology

DTL, Keele University, UK.

