



**Health
Information
and Quality
Authority**

An tÚdarás Um Fhaisnéis
agus Cáilíocht Sláinte

COVID-19 Infection Risk and Disease in Healthcare Workers

July 2020

Since the onset of the COVID-19 epidemic in Ireland, HIQA's Health Technology Assessment (HTA) Directorate has been supporting the work of the National Public Health Emergency Team by preparing a series of evidence-based reports to inform strategic decision-making. Of particular relevance to the Committee's request on COVID-19 infection risk and disease in healthcare workers (23 June) are the two rapid reviews HIQA carried out on the universal use of face masks by healthcare workers.

Rapid reviews on the universal use of face masks by healthcare workers

HIQA conducted a rapid review of evidence for the effectiveness of universal face mask use by healthcare workers (HCWs) at all times in the healthcare setting in reducing the transmission of respiratory viruses. HIQA also conducted a rapid review of international public health guidance for the use of face masks by HCWs within a healthcare setting when not in contact with suspected or confirmed cases of COVID-19. These reviews were carried out both to inform National Public Health Emergency Team (NPHE) decision-making, as well as to support those developing infection prevention and control guidance in their response to COVID-19.

A scoping review of evidence on effectiveness of universal face mask use by HCWs and the rapid review of international public health guidance were provided to the NPHE Expert Advisory Group (EAG) and the AntiMicrobial Resistance and Infection Control (AMRIC) team, who led the development of infection, protection and control guidance issued by the Health Protection and Surveillance Centre (HPSC) on 9 April 2020. The reviews were also provided on the same day to a group convened by the HSE's Chief Clinical Officer to advise NPHE on the use of face masks by HCWs. The final review of the evidence on effectiveness was submitted to the NPHE EAG and the AMRIC team on 14 April 2020.

The protocols describing the methodology for the reviews, may be found in full [here](#). The reviews are available on request.

Evidence summary on the effectiveness of universal face mask use by healthcare workers at all times in the healthcare setting in reducing transmission of respiratory viruses

The review, which was based on evidence available as of 9 April 2020, identified two systematic reviews and three primary studies (two randomised controlled trials [RCTs] and one RCT with a third, non-randomised comparison) that were relevant. All three primary studies focused on the risk of acquisition of respiratory viruses by HCWs; no studies were identified that examined transmission from HCWs to patients. HCWs included doctors and nurses in two studies, and doctors, nurses and

co-medical personnel (not defined) in another. The respiratory viruses reported across the studies included clinical respiratory illness, influenza-like illness, and laboratory-confirmed viral respiratory infections. None of the studies included patients with SARS-CoV-2 (the virus that causes COVID-19). Self-reported compliance with face mask use ranged from 56% to 84.3%.

Continuous face mask use appeared to confer some protection against self-reported respiratory illness, with limited evidence indicating some protection against laboratory-confirmed viral infections. Cloth masks were associated with a higher risk of influenza-like illness, suggesting they are not suitable for healthcare workers.

Medical masks are currently used by healthcare workers as part of droplet precautions when caring for patients with suspected or confirmed COVID-19. One of our previous evidence reviews highlighted that there is evidence to suggest that COVID-19 could be transmitted before the onset of symptoms, and laboratory-confirmed cases can remain asymptomatic, but infectious. COVID-19 may also have a longer pre-symptomatic phase, which could lead to a higher likelihood of transmission of a virus.

The level of infectiousness of the COVID-19 virus is higher than initial studies indicated. With an estimated reproduction number (R) of 3.28, SARS CoV-2 is more infectious than a number of other pathogens causing respiratory diseases, including SARS CoV-1 (estimated R 1.77), pandemic 2009 H1N1 (estimated R 1.46), 1918 pandemic H1N1 (estimated R 1.8), seasonal influenza (estimated R 1.27), and MERS-CoV (estimated R <1) viruses. Therefore, caution should be exercised in extrapolating evidence on face-mask wearing in the prevention of respiratory diseases in the context of COVID-19.

Rapid review of international public health guidance for universal use of face masks by healthcare workers within a healthcare setting

HIQA also conducted a rapid review of international public health guidance on the use of face masks by HCWs within a healthcare setting when not in contact with suspected or confirmed cases of COVID-19. The review was undertaken on 9 April 2020; however, it is important to note that in general, public health guidance relating to COVID-19 changes rapidly and the guidance identified in the review may have changed as the situation and response to COVID-19 evolved.

Specific guidance on the use of face masks by HCWs when not in contact with suspected or confirmed cases of COVID-19 was identified in seven out of 11 international agencies examined. In the context of COVID-19, the Center for Health Protection and Department of Health, Hong Kong recommended universal mask

wearing by HCWs in all areas of a healthcare setting. Public Health England (PHE) recommended that, where there is sustained SARS-CoV-2 transmission in a setting, a mask is worn for all direct patient care when assessing an individual that is not currently a suspected or confirmed case. The Centers for Disease Control and Prevention (CDC), United States of America and the Robert Koch Institute (RKI), Germany recommended the universal use of face masks in a healthcare setting when dealing with vulnerable patients, for example, within a residential care facility. The Ministry of Health New Zealand and The New South Wales Government (Australia) recommended that face masks should only be worn when in contact with suspected or confirmed cases. The WHO recommended the use of face masks when in contact with suspected or confirmed cases and made no reference to the universal use of face masks. However, while alluding specifically to the scenario of severe shortages of personal protective equipment, it specified that no mask is required for clinical triage of patients without symptoms where no direct contact is required.

There was general agreement across the guidance reviewed that masks should be prioritised for HCWs in contact with suspected or confirmed cases, or undertaking aerosol-generating procedures in other contexts. The importance of the provision of masks for patients and staff who develop respiratory symptoms was prioritised in guidance over the implementation of universal wearing of masks by HCWs. The European Centre for Disease Prevention and Control (ECDC) advised that if the universal use of masks by HCWs is to be implemented, the decision should take into account the availability of masks, the extent of community transmission of SARS-CoV-2 and other measures in place.

ENDS

Published by the Health Information and Quality Authority (HIQA).

For further information please contact:

Health Information and Quality Authority
George's Court
George's Lane
Smithfield
D07 E98Y

+353 (0)1 8147400

info@hiqa.ie

www.hiqa.ie

© Health Information and Quality Authority 2020