



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

Technical note

A new modification of a visor mask for use with a head-light and loupes

J. Barraclough*, J. Parmar

Leeds Teaching Hospitals Trust, Great George St., Leeds LS1 3EX

Accepted 23 April 2020

Available online 1 May 2020

Keywords: COVID-19; PPE; Personal protective equipment; Face shield; visor; mask; orbit

Eye protection with face shields, goggles or visors have become a mandatory part of PPE during the COVID-19 pandemic.¹ We have seen an increase in orbital trauma in women possibly due to the increase in family violence during the current social distancing measures. Internationally, telephone calls to domestic violence helplines have reportedly increased.²

Orbital trauma with diplopia can severely impact on patients' activities of daily living, for instance driving, cooking, reading, and work.³ It is important to correct this diplopia so that patients can continue to support themselves and their families without becoming reliant on others which could potentially increase the spread of COVID-19.

Good magnification and illumination are essential to adequately assess the orbit intraoperatively. We have found that the glare and refractory distortion caused by face shields prevents the use of loupes and the height and position of the visor masks prevent the use of head-lights. Loupes alone have been shown to prevent 50% of conjunctival contaminants compared with 70% with visor masks.⁴

We describe a modification of a visor mask to allow the use of loupes and the head-light whilst maintaining adequate droplet protection.

The surgeon's loupes and a visor mask are worn. The assistant marks the centre of each loupe lens. A circle of slightly smaller diameter than each lens is cut from the visor (Fig. 1). This allows the elasticity of the visor to create a seal around the loupes as they are pushed through the visor. A central v



Fig. 1. The modified visor mask with holes cut and loupes in position.

shaped notch is cut from the superior portion of the visor to allow the head-light lamp to sit in the correct position. This visor mask can then be worn over the FFP3 mask with loupes (Fig. 2).

* Corresponding author.

E-mail address: james.barraclough3@nhs.net (J. Barraclough).



Fig. 2. The modified visor mask in use with loupes and head-light.

These modifications have allowed us to optimise optical conditions in order to continue to provide excellent results for patients while protecting the surgeons from exposure to possible COVID-19 contaminated droplets.

Ethics statement/confirmation of patients' permission

Not required

Conflict of interest

We have no conflicts of interest.

References

1. <https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/reducing-the-risk-of-transmission-of-covid-19-in-the-hospital-setting> (last accessed 20/04/2020).
2. Bradbury-Jones C, Isham L. The pandemic paradox: the consequences of COVID-19 on domestic violence. *J Clin Nursing* 2020;(April), <http://dx.doi.org/10.1111/jocn.15296>. <https://onlinelibrary.wiley.com/doi/full/10.1111/jocn.15296>.
3. Hatt SR, Leske DA, Kirgis PA, Bradley EA, Holmes JM. The effects of strabismus on quality of life in adults. *Am J Ophthalmol* 2007;**144**(November (5)):643–7.
4. Mansour III AA, Even JL, Phillips S, Halpern JL. Eye protection in orthopaedic surgery: an in vitro study of various forms of eye protection and their effectiveness. *JBJS* 2009;**91**(May(5)):1050–4.