

UPDATE ON OCCUPATIONAL SKIN DISEASE DURING THE CORONAVIRUS PANDEMIC

Occupational skin disease relating to the measures taken to reduce transmission of COVID-19 is frequent. Many British Association of Dermatologists (BAD) members are being asked to provide advice remotely to manage and mitigate such skin disease.

A total of 97% of 542 front-line doctors and nurses in Hubei Province, China (77.4% response rate of 700 clinical staff surveyed) were reported to have developed problems of the skin of the face and/or hands.¹ These were related to preventive measures such as personal protective equipment (PPE – mask, goggles, face shield, and double-layer gloves), frequent handwashing and use of alcohol gel. The most frequent symptoms were dryness, tightness, and itching or pain. Signs included desquamation, erythema, maceration, papules, fissuring and erosion.

The face, nasal bridge, cheeks and forehead were the most common sites affected. Prolonged duration of wearing N95 masks and goggles, particularly for more than 6 hours, was a risk factor for occupational skin disease, but this was not the case for face shields. The nasal bridge is subject to pressure from both the tightly fitting nose piece of the mask and the goggles. The goggles are particularly implicated in causing the lesions. Frequent handwashing, i.e. more than 10 times daily, increased the risk of hand dermatitis. This echoed similar reports at the time of the Severe Acute Respiratory Syndrome (SARS) crisis. Reports of similar problems also emanated from Italy, where the rate of COVID-19 infection is high.

- In the U.K., severe facial erosions were reported in healthcare professionals, for example those in London wearing the FFP-3 mask 8833 Particulate Respirator (3M); similar problems are now being reported around the UK. Such breaches in facial skin may increase the risk of touching the face (hence infection) when not wearing a mask, encourage breaches of PPE protocol in attempts to shift the site of pressure, or – if severe – lead to inability to work. Shorter rotating shifts (limited to 2 hours wearing PPE before a break) may be helpful in reducing the duration of pressure. Attempts to shift the points of pressure and abrasion may reduce the effectiveness of the mask. For example, the use of adhesive barrier films (e.g. Cavilon or Medi Derma S) or paraffin-based emollients, prior to donning protective gear, may help reduce the prevalence of skin disease and preserve the workforce; however, it might reduce the efficacy of the PPE. Emollients should be applied no less than 30 minutes before donning PPE. Barrier sprays, films and wipes should be allowed to dry for at least 30 seconds. Barrier dressings such as Duoderm Extra Thin, Silderm Tape or

¹ [https://www.jaad.org/article/S0190-9622\(20\)30392-3/pdf](https://www.jaad.org/article/S0190-9622(20)30392-3/pdf)

Mepitac Tape may be used under the mask and goggles at sites of pressure, to mitigate the effects successfully. Convatec, the company that makes Duoderm Extra Thin, has produced instructions on how to use it under PPE.

It is essential in all staff to check, when such products are used, that there is no loss of fit, so re-fitting of PPE is necessary in all cases.

- If pressure from the goggles is the main problem, staff should switch to wearing a vizor. When not at work, the application of plain petroleum jelly and other emollients (e.g. Aquaphor) plus mild-to-moderate topical steroids is helpful. If wipes are used to clean PPE such as masks or goggles, they should be allowed to dry before donning. NHS England has produced guidance on helping to prevent facial skin damage under PPE.

<https://www.england.nhs.uk/coronavirus/publication/guidance-supply-use-of-ppe/>.

Contact urticaria was seen in a nurse in Wales being 'fit-tested' for a face mask. The chemical used for the testing is denatonium benzoate, which has been previously reported to cause urticaria and asthma.

Many NHS Trusts (e.g. Derby) are providing boxes of free emollients and topical clobetasone butyrate to healthcare workers; others (such as Salford Royal and Guys and St Thomas') are waiving prescription fees for their healthcare workers affected by occupational skin disease related to COVID-19. BAD members could consider encouraging their local Trusts to do likewise.

Some dermatology departments (e.g. Manchester, Chelsea and Westminster) are offering non-face-to-face 'drop-in' remote consultations, using self-referral with proforma and images, for staff with occupational skin disease related to PPE. There are plans to set up similar clinics in other London hospitals, and in Cardiff, Bristol, Edinburgh, Newport, Leicester and Oxford.

The BSCA committee has commenced an audit of PPE-related skin problems to allow early identification of any equipment particularly likely to cause issues.

Care of the hands:

- Frequent handwashing with soap and water is recommended, or the use of alcohol gel (>3 ml on each hand) on visibly clean skin. Hand sanitiser gel may be less irritating than sanitiser foam.

- Dermol 500 and Stellisept lotion as handwashes are not effective in deactivating coronavirus.
- Skincare products containing benzalkonium chloride may induce an additional irritant effect with repeated and prolonged use.
- Emollient hand cleansers are not protective against COVID-19 but are acceptable for social cleansing at home.
- Patting the hands dry, rather than rubbing, is recommended.
- Frequent application of emollient after each handwashing can help to mitigate the irritant effects of handwashing, alcohol gel and prolonged glove-wearing.
- Emollient should also be applied frequently when not at work.
- The 'best' moisturiser is the one which the patient feels is most comfortable on the skin.
- Gloves should be worn when using surface wipes.
- Hands should be cleaned/sanitised on arrival at work, returning home and before eating.
- Wearing two pairs of gloves and only removing the outer set to handwash between patients may provide some protection from hand dermatitis.
- There is no evidence that drinking lots of fluids before a shift in direct patient contact hydrates the skin.