

ANALYSIS

COVID-19: how to avoid skin damage while wearing PPE

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As nurses worldwide feel the pain of prolonged PPE use, we assess the advice on minimising the discomfort caused by masks and visors

- ▶ Nurses have reported skin damage and bruises after wearing personal protective equipment during long shifts
- ▶ PPE needs to be properly fitted and ideally worn for shorter periods of time, but when this is not possible, there are other ways nurses can reduce the risk of damage
- ▶ Experts offer advice on avoiding skin damage, emphasising a 'clean, protect and restore' approach



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Nurses Alessia Bonari (left) and Aimee Goold posted photos on social media that show the impact of wearing PPE for extended periods

Some of the most enduring images of the COVID-19 pandemic are of weary nurses and fellow healthcare staff with red marks and bruises on their faces after wearing personal protective equipment (PPE) during long shifts.

Pictures of reddened skin, sores, chaffing and bruising caused by masks and eye protection, particularly across the bridge of the nose and the top of the cheeks, have been shared in the news and on social media worldwide.

Skin damage after wearing masks and visors for long periods

Visors can leave marks on the forehead, as staff wear them for hours, and the loops on masks can rub painfully behind the ears. Skin on the hands can be left red, dry, flaky, cracked and sore through constant washing and use of alcohol rubs.

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[A study of healthcare staff in China](#) during the outbreak found that goggles were particularly tough on the skin, especially on the bridge of the nose.

PPE is an essential part of the fight against COVID-19. [Public Health England \(PHE\)](#) advises those working in high-risk areas such as intensive care to wear eye protection, a FFP3 mask, fluid-resistant gown, disposable apron and gloves.

Any member of staff coming within two metres of someone with possible or confirmed COVID-19 should be wearing gloves and a fluid-resistant surgical mask.

[View our COVID-19 resources centre](#)

What is the best way to avoid skin damage due to PPE?

This means many more nurses than normal wearing PPE on a daily basis for long periods in a way that could be hurting their skin.

Damage to the skin is painful and, if severe, can lead to cracks that leave the skin vulnerable to infection.

So how can it be avoided? Expert nurses were keen to stress that some simple steps and using correctly fitted equipment should help minimise any skin problems.

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Independent infection control nurse Deirdre Harris, who works in London, says that PHE



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and NHS England recommend sessional use of face masks, which is up to four hours.

Deirdre Harris: 'Issues arise from prolonged use of PPE'

'The main problems with a sore face arises because of very long use of the masks, with little opportunity for removal.

'Most of the pictures seen on the news and social media seem to be of nurses in intensive care units (ICU) and anecdotally I have heard from ICU colleagues that there is a problem with this.'

Official advice on protecting skin while wearing protective equipment

[PHE recommends wearing PPE in only two-hour stretches](#), if possible, especially when using FFP3 masks, which fit tightly and should be fit tested. This gives the skin a chance to recover and dry in between use.

It says that good hydration helps the skin and that a simple moisturiser can be rubbed into the skin 30 minutes before PPE is donned.

'Skin that can normally tolerate a certain amount of pressure will be predisposed to damage much earlier at the moment. A liquid barrier film is easy to apply and dries in only 30 seconds'

Mark Collier, independent nurse consultant and associate lecturer in tissue viability

Ms Harris says that surgical masks with ties appear to cause less rubbing than those with elastic loops for the ears. If there is a choice, it may be worth going for masks with ties, she says.

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Getting a properly fitted, or appropriately sized, mask is also important, she says. 'The fit of the mask may also cause rubbing and if people touch and move their mask this has a potential to cause irritation.'

Many nurses unable to have appropriate fittings for masks

A [Nursing Standard survey of almost 3,500 UK nurses](#) regarding PPE heard from many that surgical masks did not fit well, that an insufficient supply meant they had to use them for a long time, and that often appropriate fit testing for FFP3 masks was not available.

PHE advice says skin can be protected with careful doffing of a mask. 'Take time to fit your mask before starting a clinical consultation. Ensure all folds in your mask have been used to optimise the correct fit for you and do not over-tighten. If you feel your mask is digging in, move away from direct patient contact, remove the mask using doffing guidance and allow the skin to recover for approximately five minutes. Replace your mask with a new one ensuring a good fit.'

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When it comes to protecting the skin from rubbing, PHE recommends the use of a liquid barrier film, which forms an invisible barrier for up to 72 hours. These products, which include Cavilon and Medi-Derma S are more often used on fragile intact skin as a skin protector or before the application of an adhesive dressing.

How to protect your skin

Before your shift

- Drink plenty of water to hydrate the skin

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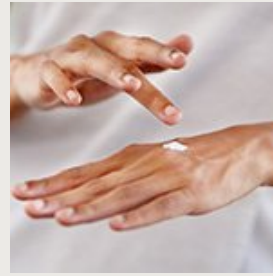
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- If using a moisturiser, do so at least 30 minutes before donning PPE
- Apply a liquid barrier film and allow to dry



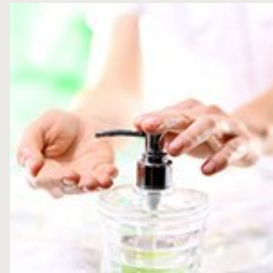
While at work

- Ensure your PPE is properly fitted and use face masks with ties, if available
- Put masks on carefully and change if uncomfortable
- If visors or goggles are being cleaned with wipes, allow them to dry before wearing
- Wash hands with soap and water and/or alcohol rub. Pat hands dry rather than rubbing
- Hydrate when possible
- Try not to wear PPE, especially FFP3 masks, for more than two hours at a time



After your shift ends

- You can wash your hands with a soap substitute at home
- Apply moisturiser/emollient to hands and face
- Drink lots of water



Liquid barrier film can minimise risk of pressure damage

Independent nurse consultant and associate lecturer in tissue viability Mark Collier, based in Lincolnshire, says using these products will minimise the risk of damage to the skin.



Mark Collier: 'Clean, protect and restore'

'Pressure damage is exacerbated by moisture, and wearing PPE for any length of time will result in the wearers' skin getting warm and sweaty,' says Mr Collier.

'So even skin that can normally tolerate a certain amount of pressure will be predisposed to damage much earlier at the moment. A liquid barrier film is easy to apply and dries in only 30 seconds. It should then maintain its function for at least two days, even with normal washing.'

This can generally be applied with a single-use swab on any part of the face where the skin is at risk from pressure damage, on the cheeks, forehead and around the ears.

'These products should be widely available in NHS trusts, care homes and the community, and I would be very disappointed if they were not,' Mr Collier says.

Barrier dressing tapes such as DuoDERM Extra Thin, SilDerm or Mepitac can be used under masks and goggles to mitigate pressure, [according to a joint statement from the British Society for Cutaneous Allergy \(BSCA\) and British Association of Dermatologists \(BAD\)](#).

But PHE recommends avoiding this where possible as they can affect fit and, if when they are being used, a mask fit test must be repeated.

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What about using soap substitutes?

When it comes to handwashing, nurses are often advised to use a soap substitute, such as Dermol 500, instead of soap to protect the skin on their hands.

However, BSCA and BAD advise that Dermol 500 and Stellisept cleansers do not deactivate coronavirus, **so should not be used at work**, however they can be used by nurses at home to minimise damage to the skin.

The PHE guidance doesn't say whether soap substitutes are acceptable, only that hands should be washed and alcohol rub used.

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The 'cleanse, protect and restore' approach to skin care

When skin on the face or hands is sore and when you are not at work, the application of plain petroleum jelly and other emollients, such as Aquaphor, plus mild-to-moderate topical steroids is helpful, according to the joint statement from BSCA and BAD. Some trusts are providing emollients and topical steroids free of charge to staff.

If skin damage occurs, PHE says that nurses should inform their line manager and fill in an incident form.

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Mr Collier recommends nurses take a 'cleanse, protect and restore' approach to looking after the skin. If the first two steps are done sufficiently, hopefully the skin will not need restoring, he says.



Nurses are often advised to use a soap substitute to protect the skin

'We want to protect nurses' skin so that they don't get to the point where their faces and hands are sore, red and marked, as we have seen in the photos,' he says. 'But it can be done quite simply, with some basic products and the maintenance of a skin care routine.'

Further information

- [Public Health England: Helping prevent facial skin damage beneath personal protective equipment](#)
- [Public Health England: COVID-19 personal protective equipment guidance](#)
- [British Society for Cutaneous Allergy and British Association of Dermatologists: COVID-19 occupational skin disease](#)

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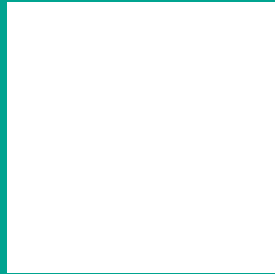
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