

PPE-Related Skin Irritation: Prevention and Treatment

Frequent handwashing and use of personal protective equipment (PPE), like during the COVID-19 pandemic, can lead to skin breakdown and a variety of skin conditions (e.g., pressure injuries, dermatitis, eczema, infections).³ Shearing, friction, and moisture lead to pressure damage under PPE.¹² Affected areas often include the nasal bridge, cheeks, forehead, and/or hands.³ Symptoms may include burning, itching, stinging, redness, papules, maceration, and scaling.³ Use the chart below for ways to prevent and treat skin conditions associated with frequent handwashing and PPE use.

Abbreviations: PPE = personal protective equipment.

Question	Answer/Pertinent Information
What general prevention strategies should be followed to minimize skin irritation?	<ul style="list-style-type: none"> • Keep skin clean and well hydrated.¹² • Regularly inspect skin for redness, irritation, or soreness.^{6,12} • Keep showers or baths short, limiting to about five to ten minutes, using warm NOT hot water, and using mild soaps (e.g., <i>Dove Sensitive Skin, Cetaphil</i>).¹³ • Avoid coming into direct contact with chemicals that are used for surface disinfection. For example, wear gloves when using disinfecting surface wipes or cleaning solutions.^{4,5,13} • Wear gloves when coming into contact with water for purposes other than to wash your hands (e.g., washing dishes, washing a child's hair, using cleaning products) to help keep the skin barrier intact.⁵ <ul style="list-style-type: none"> ○ Can consider wearing a cotton liner under gloves to prevent irritation from sweat if wearing for long periods of time.¹⁴ • Use fragrance- and dye-free soaps, sanitizers, moisturizers, and laundry detergents. These are less likely to cause skin reactions.^{9,13} Avoid “unscented” products. These may use additives to mask smells that can cause irritation.¹⁰ • When possible, give skin a break from contact with water or PPE.⁶ For example, try to take a break from a mask for about 15 minutes every two hours, if safe and practical to do so.¹ • Can consider using a humidifier inside your home, to increase moisture in the air.¹³ • If possible, avoid using PPE containing common culprits for skin irritation/reactions (e.g., latex [gloves]; formaldehyde [masks]).¹⁹
How should hands be cleaned to minimize irritation?	<ul style="list-style-type: none"> • Frequent hand washing or sanitizing and long-term glove use can lead to a moisture imbalance.³ • Use alcohol-based hand sanitizer unless hands are visibly dirty.⁴ Hand sanitizer is less irritating than soap. Soap strips away natural oils.⁷ Alcohol-based hand sanitizers may sting, but are usually less likely to be associated with dermatitis than washing with soap and water.² • Pat hands dry or allow hands to air dry instead of rubbing to avoid further irritation.^{5,18} Use warm water instead of hot. Frequent use of hot water can lead to excessively dry skin.⁴ • Avoid using hand sanitizer and soap one right after the other. Consecutive use increases skin damage.³

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Question	Answer/Pertinent Information
<p>How should moisturizer be applied to help prevent or treat dry skin?</p>	<ul style="list-style-type: none"> • Apply moisturizer liberally, regularly, and whenever skin feels dry.^{3,5,8,13} Lean towards creams and/or ointments (e.g., <i>CeraVe</i>, <i>Eucerin</i> [creams]; <i>Vaseline</i>, <i>Aquaphor</i> [ointments]) over lotions. Lotions are less moisturizing.^{1,8,13} <ul style="list-style-type: none"> ○ After washing with soap and water, apply moisturizer while skin is still damp.^{8,13} ○ After sanitizer use, allow areas to completely dry before applying moisturizer, to avoid trapping the alcohol in the skin.³ ○ If moisturizers seem to increase irritation, look for ingredients associated with contact dermatitis (e.g., lanolin).¹⁹ • Applying moisturizer twice in a row may provide additional benefit. Just wait 30 seconds or a minute between applications to allow time for initial absorption.⁸ • Apply moisturizer at least 30 minutes before putting PPE on to be sure it is fully absorbed and areas are dry.^{3,6,12} <ul style="list-style-type: none"> ○ Avoid using petrolatum-based moisturizers if using N95 masks, as this can interfere with mask integrity.¹ • For severe hand dryness or to give hand skin a hydration boost, apply petrolatum and then put on gloves or socks.^{4,5} Can consider doing this just before going to sleep. • Though data are not strong, some may try rubbing olive or coconut oil on dry skin to help moisturize, especially the hands.¹⁷ But, advise stopping if acne or irritation occurs.
<p>What can be done to prevent irritation from wearing face protection (e.g., masks, goggles, face shields)?</p>	<ul style="list-style-type: none"> • Ensure PPE fits properly and avoid over-tightening masks, goggles, etc.^{6,12} • Make sure skin and PPE are clean and dry before putting on PPE.⁶ • If using a protectant under your mask or goggles, use a thin product, with tapered edges if possible.⁶ • Can consider starting with barrier films, cream, or wipes (e.g., <i>Cavilon</i>, <i>ConvaTec</i>) or zinc oxide (e.g., <i>Desitin</i>). <ul style="list-style-type: none"> ○ Apply barrier films or creams to any area that is likely to be affected by moisture from sweat.¹² Allow barrier films to dry completely before applying PPE (~90 seconds).¹² <ul style="list-style-type: none"> ▪ Can consider using a product that contains dimethicone to help lock moisture in and reduce irritation.³ ○ Zinc oxide may have some anti-inflammatory properties.⁸ Apply across the bridge of the nose, behind ears, under the chin, etc as a barrier to reduce friction.⁸ • If barrier film and/or zinc oxide are not enough, can consider using a thin barrier, such as a foam, or a wound care dressing (e.g., <i>DuoDerm</i>, <i>Tegaderm</i>). Apply to the high-pressure areas (e.g., nose bridge, cheeks, top of or behind ears, forehead, chin) to minimize friction with PPE.¹² • After application of zinc oxide or barrier films or dressings, ensure proper fit and repeat fit testing as necessary.¹² • Always remove barrier or wound care dressings every time you remove PPE.¹² After removing barriers or dressings, wash face, re-apply moisturizer, and avoid rubbing tender areas.¹ • Another option to protect behind the ears is to wear a headband with buttons or a plastic band with notches to wrap the elastic from masks around (instead of wrapping behind your ears) or to use clips to connect the elastic straps behind the head. This may help prevent ulcerations.¹¹

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Question	Answer/Pertinent Information
When and how should topical steroids be used?	<ul style="list-style-type: none"> • Add on a topical steroid (e.g., hydrocortisone 1%), as needed for flares.¹⁶ • See our chart, <i>Eczema FAQs</i>, for the role of topical steroids, how much to use, and adverse effects. • See our chart, <i>Comparison of Topical Steroids</i> (U.S. subscribers; Canadian subscribers), for details on potency and costs of topical steroids.
What can be done to minimize skin irritation from sweating while wearing PPE?	<ul style="list-style-type: none"> • It is common to sweat underneath PPE, especially when worn for long periods of time. This can lead to significant wetness directly touching the skin and irritation. • Take breaks from wearing PPE, if possible (e.g., removing mask for ~15 minutes every two hours).¹ • Do things to keep you as cool as possible:¹⁵ <ul style="list-style-type: none"> ○ wear lightweight clothing ○ keep long hair off of the neck ○ wear wicking clothing underneath the PPE to limit the moisture and skin contact time • If clothing is becoming soaked with sweat early in the shift, can consider these options to help: <ul style="list-style-type: none"> ○ Take a shower during a shift break. ○ Bring one or two changes of clothes to replace wet clothes throughout the day. • Barrier films can be used on areas of skin that become irritated.¹² Check product labeling to see if there are specific areas where barrier films should NOT be applied. • With excessive sweating it is important to stay hydrated. Try to get plenty to eat and ensure adequate hydration, prior to, during, and after shifts. Monitor urine color to know if you've gotten enough to drink, the darker the urine the lower the hydration status.¹⁵

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Cite this document as follows: Clinical Resource, PPE-Related Skin Irritation: Prevention and Treatment. Pharmacist's Letter/Prescriber's Letter. June 2020.

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