**Clinical Librarian Service Search Results**

**Request:** What literature is available concerning the risks of overuse of gloves in cross-infection/infection control and skin damage?

**Summary**

A search of good quality resources has retrieved a small body of literature addressing potential adverse effects of use and overuse of gloves and hand hygiene. The results are split into two sections: the first providing recent papers specifically in relation to COVID-19, and the second providing some further, more general literature.

With regard to hand hygiene and gloves use/overuse in relation to COVID-19 notes that skin damage can occur for healthcare workers and recommend appropriate use of gloves and hand hygiene, and suggest that good skin care routines are required. Examples from this literature include:

* Yan et al., (2020)1, who report on a consensus of the Chinese experience. Yan et al. note that:

*“2.2 | Gloves⁃ related protective measures*

*The survey showed that 12.4% of HCWs wear three layers of gloves at the same time during daily work. Long-term use of gloves may lead to overhydration of stratum corneum, which may cause maceration and erosion. Chemical materials in latex gloves are likely to cause contact dermatitis in macerated or erosive skin. To make it worse, damaged skin is vulnerable to secondary infection. Hence, several points should be emphasized when wearing gloves.*

*2.2.1 | Correct layers of gloves*

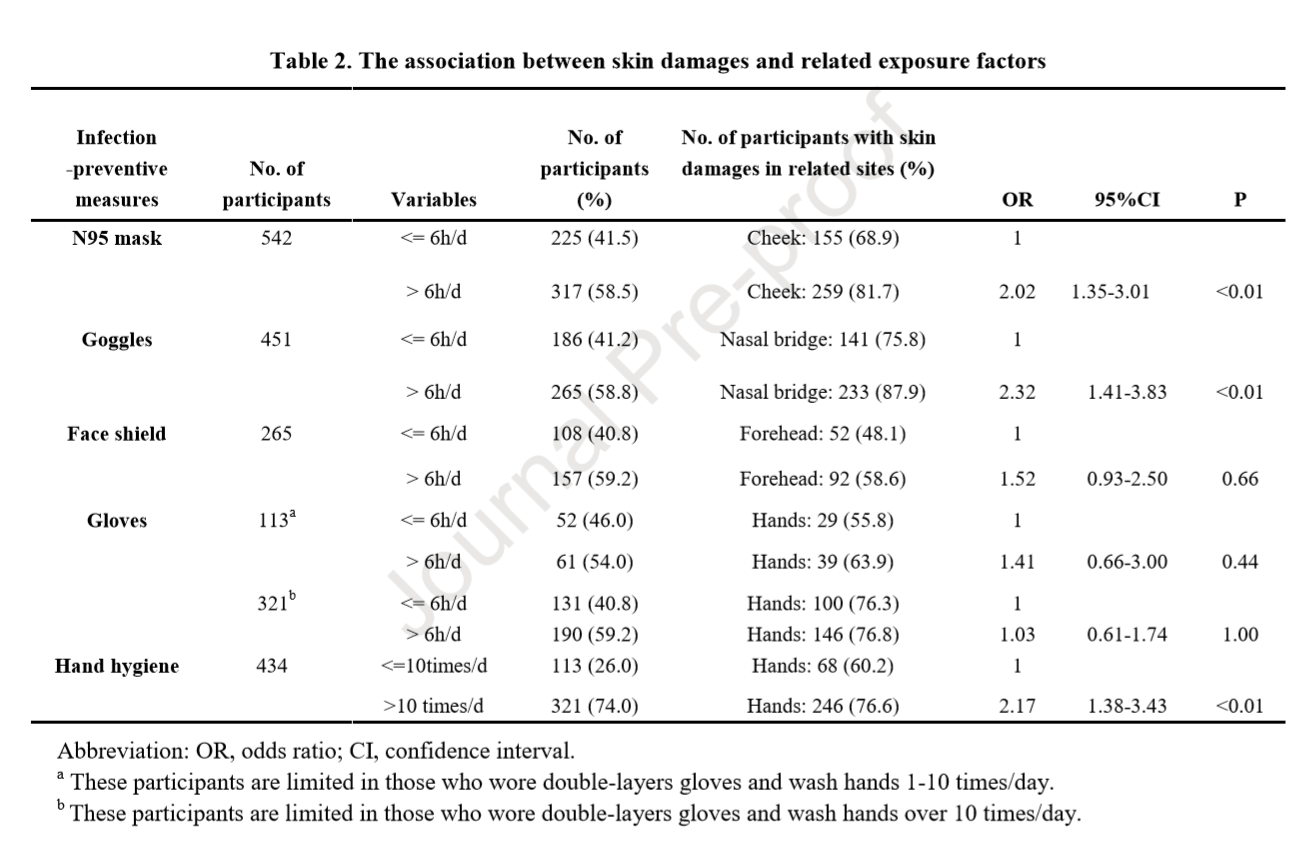
*One layer of qualified latex gloves is adequate for skin protection. Additional layer is recommended for HCWs with existing skin barrier damage or underlying risk of gloves broke. Theoretically, the increased layers of gloves cannot add to protective effect proportionally, however, gloves-related adverse skin reactions may increase.*

*2.2.2 | Skincare measures after long-term use of gloves*

*Latex gloves are most commonly used in the work. Long-term use of latex gloves easily causes maceration, characterized by whitening, softening, and wrinkling of the skin. Avoid wearing gloves for a long time and apply hand cream can reverse maceration. If maceration cannot be relieved and subsequent erosion and exudation occur, hydropathic compress wit h 3% boric acid solution or normal saline or topical use of zinc oxide ointment is recommended. Patients with contact dermatitis can use topical glucocorticoid cream. The use of cotton gloves inside latex gloves is encouraged. Frequent cleansing and prolonged use of gloves may aggravate existing hand eczema. Moisturizers together with topical glucocorticoid cream are recommended. However, prompt referral to dermatologists is necessary if sustained rashes or inflammatory symptoms appear”.*

* Lan et al., (2020)3, who report on skin damage amongst healthcare workers managing COVID-19 patients. Lan et al. comment that:

*“The healthcare workers who wore some medical devices over 6 hours had higher risks of skin damages in corresponding sites than those who did less time [ (N95 masks: OR, 2.02; 95% CI, 1.35-3.01, P < 0.01), Goggles: (OR, 2.32; 95% CI, 1.41-3.83, P < 0.01) ]. Whereas longer time of face shield wearing was not a significant risk factor in causing forehead skin damages (OR, 1.52; 95% CI, 0.93-2.50, P = 0.66). The more frequent (>10 times/d) hand hygiene but longer time of gloves wearing could increase the risk of hands skin damages (OR, 2.17; 95% CI, 1.38-3.43, P < 0.01) (Table 2)”.*

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Extract: Table 2 Lan et al., Skin damage among healthcare workers managing coronavirus disease-2019. J Am Acad Dermatol. 2020 Mar 18. pii: S0190-9622(20)30392-3. doi: 10.1016/j.jaad.2020.03.014. [Epub ahead of print].

I hope that I have interpreted your request correctly. Please let me know if you would like me to search further.

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**Feedback**

Once you have read this report, I would appreciate it if you would complete our online literature search feedback form at:

<https://www.smartsurvey.co.uk/s/LiteratureSearchFeedback20192020/>

This relates to this specific search and will help us to monitor and improve our service.

Many Thanks.

Lisa Lawrence

Clinical Librarian

Lisa.Lawrence4@nhs.net

ext. 88155

**Current at:** 31st March 2020.

**Time taken for search:** 4 hours.

**Please acknowledge this work in any resulting paper or presentation as:**

Evidence Search: LS406 Risks of overuse of gloves and skin damage. Lisa Lawrence. (30/03/2020). Derby, UK: University Hospitals of Derby & Burton NHS Foundation Trust Library and Knowledge Service.

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**Results: COVID-19 Specific**

1. **Consensus of Chinese experts on protection of skin and mucous membrane barrier for health‐care workers fighting against coronavirus disease 2019.**

**Author(s):** Yan, Y, Chen, H, Chen, L, et al.

**Citation:** Dermatol Ther. 2020 Mar 13:e13310. doi: 10.1111/dth.13310. [Epub ahead of print]

**Extract:** *“2.2 | Gloves⁃ related protective measures*

*The survey showed that 12.4% of HCWs wear three layers of gloves at the same time during daily work. Long-term use of gloves may lead to overhydration of stratum corneum, which may cause maceration and erosion. Chemical materials in latex gloves are likely to cause contact dermatitis in macerated or erosive skin. To make it worse, damaged skin is vulnerable to secondary infection. Hence, several points*

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**Source:** PubMed. PMID: 32170800.

**Full Text/URL:** <https://onlinelibrary.wiley.com/doi/epdf/10.1111/dth.13310>

1. **Prevention and Treatment of Skin Damage Caused by Personal protective Equipment – Experience of the First-Line Clinicians Treating 2019-nCoV Infection.**

**Author(s):** Zhou N-Y, Yang L, Dong L-Y, et al.

**Citation:** International Journal of Dermatology and Venereology: March 13, 2020 – Volume Latest Articles – Issue- doi: 10.1097/JD9. 0000000000000085

**Extract:** *“2.4 Hand and foot skin damage*

*To completely isolate the wearer from harmful substances in the environment, gloves and protective boots are mostly made of waterproof materials with poor air permeability, such as rubber and plastic. If the skin of the hands and feet is left in an air-impermeable environment for long periods, the sweat evaporation is decreased, and the skin is prone to impregnation, eczema, and sweat herpes. Furthermore, the hot and humid environment is conducive to fungal reproduction and tinea of the feet and hands. In addition to wearing gloves, hand hygiene is also essential for chemical and biological protection. Repeated washing damages the skin barrier and is partially accountable for dryness, itching, and eczema of the hands and feet. Furthermore, repeated contact with irritants such as disinfectants and gloves can cause contact dermatitis with erythema, pimples, pimples, exudation, or erosion. One study found that 52% of medical staff with hand eczema wash their hands more than 10 times per day. Long-term disinfectant use also influences the microbiota and changes the immune microenvironment on the skin surface, resulting in conditions such as eczema, fungal infection, bacterial infection, and allergic dermatitis”.*

**Source:** World Health Organization COVID-19 Research Database.

**Full Text/URL:**

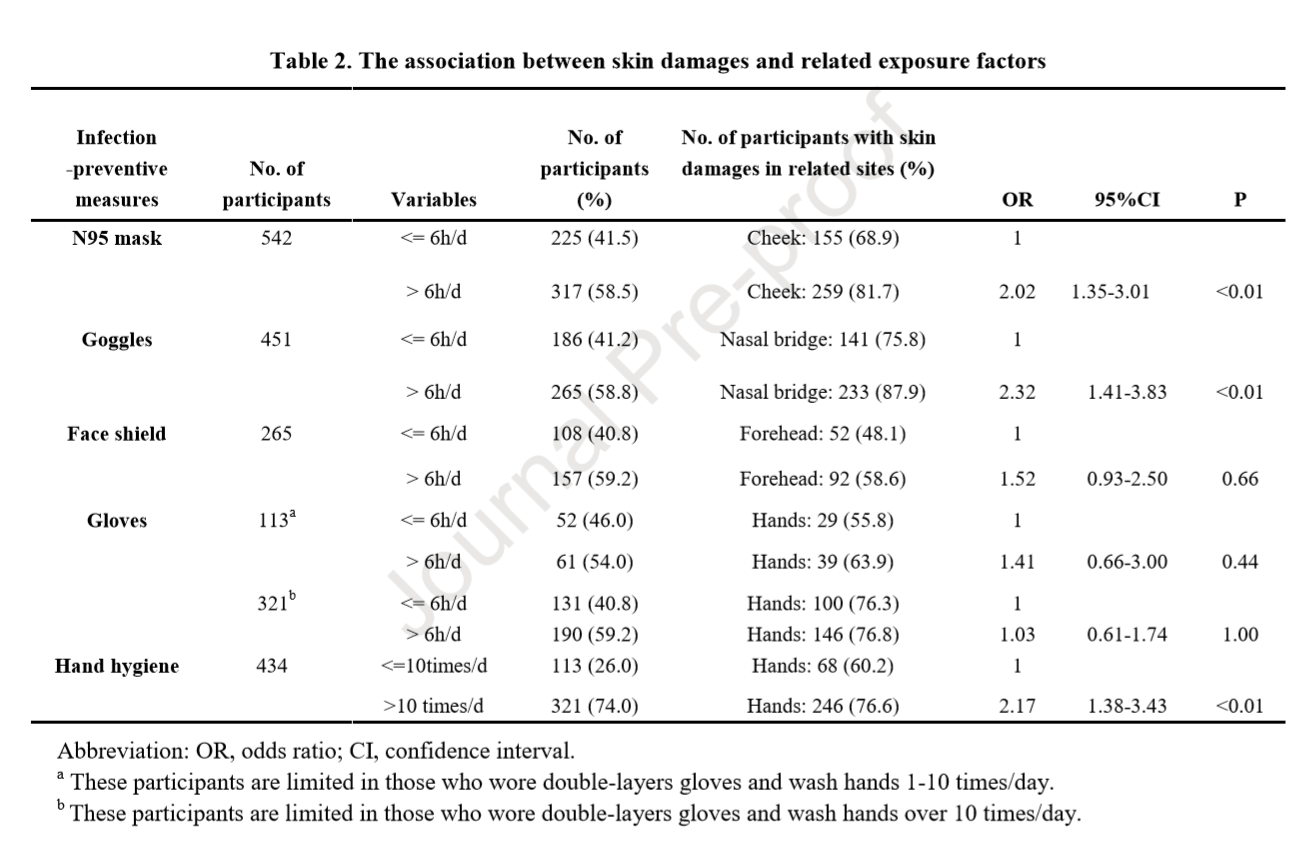
<https://journals.lww.com/ijdv/Citation/latest/Prevention_and_Treatment_of_Skin_Damage_Caused_by.99938.aspx>

1. **Skin damage among healthcare workers managing coronavirus disease-2019.**

**Author(s):** Lan J, Song Z, Miao X, Li H, Li Y, Dong L, Yang J, An X, Zhang Y, Yang L, Zhou N, Yang L, Li J, Cao J, Wang J, Tao J.

**Citation:** J Am Acad Dermatol. 2020 Mar 18. pii: S0190-9622(20)30392-3. doi: 10.1016/j.jaad.2020.03.014. [Epub ahead of print]

**Extract:** *“The healthcare workers who wore some medical devices over 6 hours had higher risks of skin damages in corresponding sites than those who did less time [ (N95 masks: OR, 2.02; 95% CI, 1.35-3.01, P < 0.01), Goggles: (OR, 2.32; 95% CI, 1.41-3.83, P < 0.01) ]. Whereas longer time of face shield wearing was not a significant risk factor in causing forehead skin damages (OR, 1.52; 95% CI, 0.93-2.50, P = 0.66). The more frequent (>10 times/d) hand hygiene but longer time of gloves wearing could increase the risk of hands skin damages (OR, 2.17; 95% CI, 1.38-3.43, P < 0.01) (Table 2)”.*

**

**Source:** PubMed. PMID: 32171808

**Full Text/URL:** <https://www.jaad.org/article/S0190-9622(20)30392-3/pdf>

1. **Letter from the Editor: Occupational skin disease among healthcare workers during the Coronavirus (COVID-19) epidemic.**

**Author(s):** Elston DM.

**Citation:** J Am Acad Dermatol. 2020 Mar 11. pii: S0190-9622(20)30390-X. doi: 10.1016/j.jaad.2020.03.012. [Epub ahead of print]

**Source:** PubMed. PMID: 32171807

**Full Text/URL:** <https://www.jaad.org/article/S0190-9622(20)30390-X/pdf>

1. **COVID-19 pandemic and the skin – What should dermatologists know?**

**Author(s):** Darlenski R & Tsnakov N.

**Citation:** Clinics in Dermatology (2020) [Epub ahead of print] https://doi.org/ 10.1016/j.clindermatol.2020.03.012.

**Extract:** *“Skin problems related to personal protective equipment (PPE) and personal hygiene measures The skin complications in COVID-19 infection are mainly due to the hyper-hydration effect of PPE, friction, epidermal barrier breakdown, and contact reactions, all of which may aggravate an existing skin disease. The dermatologic manifestations are far different from those recorded during the Influenza Epidemic of 1918-1919. Erythema, papules, maceration, and scaling are the most commonly reported skin changes due to extended wear of PPE (figure 1). Symptoms have included burning, itching, and stinging. Such findings have been attributed to the use of PPE in 97.0% of 542 frontline healthcare workers (HCWs). The most commonly affected skin sites were the nasal bridge (83% due to the use of protective goggles but not the hygiene mask, cheeks, forehead, and hands. The prolonged contact with masks and goggles may cause a variety of cutaneous diseases ranging from contact and pressure urticaria or contact dermatitis to aggravation of pre-existing dermatides. A former study pointed out that more than 1/3 of health care workers complained of acne, facial itching, and even dermatitis from wearing a N95 mask. The use of protective hats and the accompanying occlusions may induce pruritus and folliculitis or exacerbate seborrheic dermatitis. Long-term use of protective gloves leads to occlusion and a hyper-hydration state of the epidermis clinically observable as maceration and erosions, possibly leading to the development of contact dermatitis. Exaggerated hand washing with detergents/ disinfectants can impair the hydro-lipid mantle of the skin surface and may also be responsible for irritation and even the development of contact dermatitis\ (figure 2). Two-thirds of health care workers will wash their hands over 10 times a day, but only 22% are applying skin protective cream. The atopic diathesis, low humidity, frequency of hand washing, wet work, glove use, and duration of employment are important risk factors for the development and/or aggravation of hand dermatitis. In terms of contact dermatitis prevention, we recommend applying hand cream frequently, especially following hand washing and before applying PPE”.*

**Source:** World Health Organization COVID-19 Research Database.

**Full Text/URL:**

<https://www.sciencedirect.com/science/article/pii/S0738081X20300493>

**Results: Further Literature**

1. **A programme to cut inappropriate use of non-sterile medical gloves.**

**Author(s):** Dunn, Helen; Wilson, Nicola; Leonard, Amy

**Source:** Nursing Times; Sep 2019; vol. 115 (no. 9); p. 18-20

**Publication Type(s):** Periodical

Available at [Nursing Times](http://ovidsp.ovid.com/athens/ovidweb.cgi?T=JS&PAGE=fulltext&MODE=ovid&CSC=Y&NEWS=N&D=ovft&SEARCH=0954-7762.is+and+%22115%22.vo+and+%229%22.ip+and+%2218%22.pg) - from Ovid (Journals @ Ovid) - Remote Access

**Abstract:** Healthcare workers should only use non-sterile gloves for self-protection when exposure to blood or body fluids is likely. Overuse of gloves - can have negative repercussions, including higher expenditure and waste, more skin problems and missed opportunities to decontaminate hands. At Great Ormond Street Hospital, infection control audits had shown that clinical staff were not always using non-sterile gloves appropriately or complying with hand-hygiene requirements. In April 2018, an educational awareness programme was launched to help staff risk assess the use of gloves for self-protection. Created by practice educators and infection prevention and control nurses, with input from all those affected by the changes, the programme has had good initial outcomes.

**Database:** CINAHL

1. **Interventions for preventing occupational irritant hand dermatitis.**

**Author(s):** Bauer, Andrea; Rönsch, Henriette; Elsner, Peter; Dittmar, Daan; Bennett, Cathy; Schuttelaar, Marie-Louise A; Lukács, Judit; John, Swen Malte; Williams, Hywel C

**Source:** The Cochrane database of systematic reviews; Apr 2018; vol. 4 ; p. CD004414

**Publication Type(s):** Research Support, Non-u.s. Gov't Meta-analysis Journal Article Review Systematic Review

**PubMedID:** 29708265

Available at [The Cochrane database of systematic reviews](http://cochranelibrary-wiley.com/doi/10.1002/14651858.CD004414.pub3/full) - from Cochrane Collaboration (Wiley)

Available at [The Cochrane database of systematic reviews](https://pure.rug.nl/ws/files/63039803/CD004414.pdf) - from Unpaywall

**Abstract:** BACKGROUND Occupational irritant hand dermatitis (OIHD) causes significant functional impairment, disruption of work, and discomfort in the working population. Different preventive measures such as protective gloves, barrier creams and moisturisers can be used, but it is not clear how effective these are. This is an update of a Cochrane review which was previously published in 2010. OBJECTIVES To assess the effects of primary preventive interventions and strategies (physical and behavioural) for preventing OIHD in healthy people (who have no hand dermatitis) who work in occupations where the skin is at risk of damage due to contact with water, detergents, chemicals or other irritants, or from wearing gloves. SEARCH METHODS We updated our searches of the following databases to January 2018: the Cochrane Skin Specialised Register, CENTRAL, MEDLlNE, and Embase. We also searched five trials registers and checked the bibliographies of included studies for further references to relevant trials. We handsearched two sets of conference proceedings. SELECTION CRITERIA We included parallel and cross-over randomised controlled trials (RCTs) which examined the effectiveness of barrier creams, moisturisers, gloves, or educational interventions compared to no intervention for the primary prevention of OIHD under field conditions. DATA COLLECTION AND ANALYSIS We used the standard methodological procedures expected by Cochrane. The primary outcomes were signs and symptoms of OIHD developed during the trials, and the frequency of treatment discontinuation due to adverse effects. MAIN RESULTS We included nine RCTs involving 2888 participants without occupational irritant hand dermatitis (OIHD) at baseline. Six studies, including 1533 participants, investigated the effects of barrier creams, moisturisers, or both. Three studies, including 1355 participants, assessed the effectiveness of skin protection education on the prevention of OIHD. No studies were eligible that investigated the effects of protective gloves. Among each type of intervention, there was heterogeneity concerning the criteria for assessing signs and symptoms of OIHD, the products, and the occupations. Selection bias, performance bias, and reporting bias were generally unclear across all studies. The risk of detection bias was low in five studies and high in one study. The risk of other biases was low in four studies and high in two studies. The eligible trials involved a variety of participants, including: metal workers exposed to cutting fluids, dye and print factory workers, gut cleaners in swine slaughterhouses, cleaners and kitchen workers, nurse apprentices, hospital employees handling irritants, and hairdressing apprentices. All studies were undertaken at the respective work places. Study duration ranged from four weeks to three years. The participants' ages ranged from 16 to 67 years. Meta-analyses for barrier creams, moisturisers, a combination of both barrier creams and moisturisers, or skin protection education showed imprecise effects favouring the intervention. Twenty-nine per cent of participants who applied barrier creams developed signs of OIHD, compared to 33% of the controls, so the risk may be slightly reduced with this measure (risk ratio (RR) 0.87, 95% confidence interval (CI) 0.72 to 1.06; 999 participants; 4 studies; low-quality evidence). However, this risk reduction may not be clinically important. There may be a clinically important protective effect with the use of moisturisers: in the intervention groups, 13% of participants developed symptoms of OIHD compared to 19% of the controls (RR 0.71, 95% CI 0.46 to 1.09; 507 participants; 3 studies; low-quality evidence). Likewise, there may be a clinically important protective effect from using a combination of barrier creams and moisturisers: 8% of participants in the intervention group developed signs of OIHD, compared to 13% of the controls (RR 0.68, 95% CI 0.33 to 1.42; 474 participants; 2 studies; low-quality evidence). We are uncertain whether skin protection education reduces the risk of developing signs of OIHD (RR 0.76, 95% CI 0.54 to 1.08; 1355 participants; 3 studies; very low-quality evidence). Twenty-one per cent of participants who received skin protection education developed signs of OIHD, compared to 28% of the controls.None of the studies addressed the frequency of treatment discontinuation due to adverse effects of the products directly. However, in three studies of barrier creams, the reasons for withdrawal from the studies were unrelated to adverse effects. Likewise, in one study of moisturisers plus barrier creams, and in one study of skin protection education, reasons for dropout were unrelated to adverse effects. The remaining studies (one to two in each comparison) reported dropouts without stating how many of them may have been due to adverse reactions to the interventions. We judged the quality of this evidence as moderate, due to the indirectness of the results. The investigated interventions to prevent OIHD probably cause few or no serious adverse effects. AUTHORS' CONCLUSIONS Moisturisers used alone or in combination with barrier creams may result in a clinically important protective effect, either in the long- or short-term, for the primary prevention of OIHD. Barrier creams alone may have slight protective effect, but this does not appear to be clinically important. The results for all of these comparisons were imprecise, and the low quality of the evidence means that our confidence in the effect estimates is limited. For skin protection education, the results varied substantially across the trials, the effect was imprecise, and the pooled risk reduction was not large enough to be clinically important. The very low quality of the evidence means that we are unsure as to whether skin protection education reduces the risk of developing OIHD. The interventions probably cause few or no serious adverse effects. We conclude that at present there is insufficient evidence to confidently assess the effectiveness of interventions used in the primary prevention of OIHD. This does not necessarily mean that current measures are ineffective. Even though the update of this review included larger studies of reasonable quality, there is still a need for trials which apply standardised measures for the detection of OIHD in order to determine the effectiveness of the different prevention strategies.

**Database:** Medline

1. **Glove: Use for safety or overuse?**

**Author(s):** Jain, Susan; Clezy, Kate; McLaws, Mary-Louise

**Source:** American journal of infection control; Dec 2017; vol. 45 (no. 12); p. 1407-1410

**Publication Type(s):** Journal Article

**PubMedID:** 29046216

Available at [American journal of infection control](https://auth.elsevier.com/ShibAuth/institutionLogin?entityID=https://idp.eng.nhs.uk/openathens&appReturnURL=https%3A%2F%2Fwww.clinicalkey.com%2Fcontent%2FplayBy%2Fdoi%2F%3Fv%3D10.1016%2Fj.ajic.2017.08.029) - from ClinicalKey

**Database:** Medline

1. **Effect of glove occlusion on the skin barrier.**

**Author(s):** Tiedemann, Daniel; Clausen, Maja Lisa; John, Swen Malthe; Angelova-Fischer, Irena; Kezic, Sanja; Agner, Tove

**Source:** Contact dermatitis; Jan 2016; vol. 74 (no. 1); p. 2-10

**Publication Type(s):** Research Support, Non-u.s. Gov't Journal Article Review

**PubMedID:** 26364588

Available at [Contact dermatitis](https://go.openathens.net/redirector/nhs?url=https%3A%2F%2Fonlinelibrary.wiley.com%2Fdoi%2Ffull%2F10.1111%2Fcod.12470) - from Wiley Online Library Medicine and Nursing Collection 2019 - NHS

Available at [Contact dermatitis](http://search.ebscohost.com/login.aspx?direct=true&scope=site&site=ehost-live&db=mdc&AN=26364588) - from EBSCO (MEDLINE Complete)

**Abstract:** Wet work tasks are the most common exposures leading to occupational irritant contact dermatitis. Use of liquid-proof gloves is recommended when performing wet work, however, gloves may also contribute to impairment of the skin barrier and development of irritant contact dermatitis. The aim of this study is to review the literature on the effects of glove occlusion on skin barrier function. The PubMed database was searched up to 1 February 2015 for articles on the association between glove occlusion and skin barrier function, including human studies only and in English. Only experimental studies including assessment of the skin barrier function were included in the data analysis. Thirteen articles were identified, 8 with focus on occlusion alone, 7 with focus on occlusion in combination with irritant exposure (some overlapping), and 2 field studies. In conclusion, data from the literature showed that the negative effect of occlusion in itself is limited, and that only extensive and long-term occlusion will cause barrier impairment. However, studies investigating combined effect of occlusion and exposure to soaps/detergents indicate that occlusion significantly enhances the skin barrier damage caused by detergents/soaps in a dose-response fashion.

**Database:** Medline

1. **Short- and long-term effects of single and repetitive glove occlusion on the epidermal barrier.**

**Author(s):** Wetzky, Ulrike; Bock, Meike; Wulfhorst, Britta; John, Swen Malte

**Source:** Archives of dermatological research; Sep 2009; vol. 301 (no. 8); p. 595-602

**Publication Type(s):** Journal Article

**PubMedID:** 19582471

Available at [Archives of dermatological research](http://search.ebscohost.com/login.aspx?direct=true&scope=site&site=ehost-live&db=mdc&AN=19582471) - from EBSCO (MEDLINE Complete)

Available at [Archives of dermatological research](http://gateway.proquest.com/openurl?ctx_ver=Z39.88-2004&res_id=xri:pqm&req_dat=xri:pqil:pq_clntid=145298&rft_val_fmt=ori/fmt:kev:mtx:journal&genre=article&issn=0340-3696&volume=301&issue=8&spage=595) - from ProQuest (Health Research Premium) - NHS Version

**Abstract:** The aim of this study was to analyse the occlusive effects of glove materials (polyvinyl chloride, natural rubber latex) on epidermal barrier function and to relate the findings to the definitions of wet work in the current German ordinance on hazardous substances (2007) and in the German technical regulations on hazardous substances (TRGS 401; 2008). Short-term effects of wearing gloves once for 4 h, as well as the long-term effects of wearing gloves for 4 h daily for 7 days were assessed in a group of 20 healthy volunteers using non-invasive methods (transepidermal water loss (TEWL), capacitance, skin colour, skin surface pH). Data were collected 30 min and 3 h after single use, as well as 1 day after a 1-week application. TEWL and capacitance data showed hyperhydration of the horny layer 30 min after a 4-h occlusion as compared to baseline (p < 0.05). Three hours later, full recovery to basal values was observed. Additionally, a significant long-term effect after daily occlusion for 4 h for 7 days could not be demonstrated. In current literature, there is controversial evidence concerning the effects of glove occlusion. This study could not verify significant damage to skin barrier after 7 days of repeated occlusion 4 h daily in healthy volunteers. These findings require further discussion regarding the definitions in the current German ordinance on hazardous substances and in the TRGS 401.

**Database:** Medline

1. **Changes in hands microbiota associated with skin damage because of hand hygiene procedures on the health care workers.**

**Author(s):** Rocha, Lílian Alves; Ferreira de Almeida E Borges, Lizandra; Gontijo Filho, Paulo Pinto

**Source:** American journal of infection control; Mar 2009; vol. 37 (no. 2); p. 155-159

**Publication Type(s):** Research Support, Non-u.s. Gov't Comparative Study Journal Article

**PubMedID:** 19249642

Available at [American journal of infection control](https://auth.elsevier.com/ShibAuth/institutionLogin?entityID=https://idp.eng.nhs.uk/openathens&appReturnURL=https%3A%2F%2Fwww.clinicalkey.com%2Fcontent%2FplayBy%2Fdoi%2F%3Fv%3D10.1016%2Fj.ajic.2008.04.251) - from ClinicalKey

**Abstract:** BACKGROUND The purpose of this study was evaluating the microbial flora of nurses' healthy (n = 30) and damaged hand (n = 30) by frequent handwashing and/or wearing of gloves. METHODS Hand cultures were obtained both before and after washing hands with nonantimicrobial soap, through the sterile polyethylene bag method. RESULTS The bacteria counts of the hands of professionals with damaged hands were higher than those with healthy hands, and those with damaged hands presented higher frequency of Staphylococcus aureus, 16.7% versus 10%; gram-negative bacteria, 20% versus 6.7%; and yeast, 26.7% versus 20%, respectively, as well as the sum of these microorganisms. The presence of Staphylococcus haemolyticus was only seen in nurses with damaged hands (P = .02), and enterococci were not recovered from the hands of any volunteer. The presence of antimicrobial-resistant S aureus and gram-negative bacteria was also greater among damaged hands. CONCLUSION The irritation caused on the skin by frequent washing and/or wearing of gloves is associated with changes in hands microbial flora, and their potential risks should be considered when institutions/users are selecting products/formulations to assure hands skin health and consequent compliance with their own hygiene procedures.

**Database:** Medline

1. **Adverse skin reactions to personal protective equipment against severe acute respiratory syndrome--a descriptive study in Singapore.**

**Author(s):** Foo CC, Goon AT, Leow YH, Goh CL.

**Citation:** Contact Dermatitis. 2006 Nov;55(5):291-4.

**Abstract:** Severe acute respiratory syndrome (SARS) was first recognized in February 2003. It is the first severe and readily transmissible new disease to emerge in the 21st century. Healthcare workers in affected countries were exposed to the regular use of personal protective equipment (PPE) such as the N95 mask, gloves, and gowns. Our aim was to study the prevalence of adverse skin reactions to PPE among healthcare workers in Singapore during the SARS outbreak. Healthcare staff in the National Skin Centre and Tan Tock Seng Hospital were surveyed using questionnaires. Of those asked to participate, 322 (94.7%) agreed. 14.3% of the respondents were doctors, 73.0% nurses, and 12.7% other ancillary staff. Mean age of respondents was 32.4 years, with the majority being women (85.7%) and Chinese (53.7%). 109 (35.5%) of the 307 staff who used masks regularly reported acne (59.6%), facial itch (51.4%), and rash (35.8%) from N95 mask use. 64 (21.4%) of the 299 who used gloves regularly reported dry skin (73.4%), itch (56.3%), and rash (37.5%). The use of PPE is associated with high rates of adverse skin reactions. There is a need to find suitable alternatives for affected staff and to encourage awareness among staff of the role of dermatologists in their care. DOI: 10.1111/j.1600-0536.2006.00953.x

**Source:** PMID: 17026695 [Indexed for MEDLINE]

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**Databases searched:**

* + **Evidence-Based Reviews/Point-of-Care:** Cochrane Library, UpToDate, DynaMed, BMJ Best Practice.
  + **Guidance:** NICE Guidance, selected International Guidelines.
  + **Healthcare Databases:** MEDLINE, EMBAE, CINAHL, BNI, PubMed, NICE Evidence.
  + **Other:** Google, Google Scholar, World Health Organization COVID-19 collection, COVID-19 collections: BMJ/Lancet/Elsevier, MedRxiv.

**Local Guidance:** Local guidance has not been searched as part of this literature search. However, local guidelines, policies and procedures are available via the red button on the intranet.

**Search Terms:**

|  |  |
| --- | --- |
| ***Subject Headings*** | ***Free Text Words*** |
| Coronavirus Infections | 2019nCoV |
| Cross Infection | “Corona virus” |
| Disease Transmission Prevention and Control | CoV2 |
| Gloves/adverse effects | “CoV 2” |
| Gloves Adverse Effects | COVID-19 |
| Gloves (explode) | “covid 19” |
| Gloves, Protective | Glove\* |
| Infection Control | Gloves |
| Skin Diseases | Infection control |
|  | nCoV |
|  | “novel CoV” |
|  | “novel coronavirus” |
|  | Overuse |
|  | SARS-CoV-2 |
|  | sarscov2 |
|  | Skin damage |

**Search Limits:** English language, 2006-2020.

**Search History:**

**Search Example:**

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Database** | **Search term** | **Results** |
| 1 | Medline | exp "GLOVES, PROTECTIVE"/ | 4866 |
| 2 | Medline | (gloves).ti,ab | 6375 |
| 3 | Medline | (overuse).ti,ab | 10357 |
| 4 | Medline | (skin damage).ti,ab | 17383 |
| 5 | Medline | (infection control).ti,ab | 147114 |
| 6 | Medline | exp "INFECTION CONTROL"/ | 62413 |
| 7 | Medline | exp "CROSS INFECTION"/ | 58387 |
| 8 | Medline | (covid-19 OR "covid 19" OR SARS-CoV-2 OR "novel coronavirus" OR "corona virus" OR nCoV OR "CoV 2" OR Cov2 OR sarscov2 OR 2019nCoV OR "novel CoV").ti,ab | 2510 |
| 9 | Medline | exp "CORONAVIRUS INFECTIONS"/ | 9844 |
| 10 | Medline | (1 OR 2) | 8512 |
| 11 | Medline | (5 OR 6 OR 7) | 241396 |
| 12 | Medline | (8 OR 9) | 11662 |
| 13 | Medline | (3 AND 10 AND 11) | 7 |
| 14 | Medline | (3 AND 10 AND 12) | 0 |
| 15 | Medline | (4 AND 10 AND 12) | 0 |
| 16 | Medline | (4 AND 10) | 42 |
| 17 | CINAHL | (glove\*).ti,ab | 3887 |
| 18 | CINAHL | (skin damage).ti,ab | 2710 |
| 19 | CINAHL | (overuse).ti,ab | 5817 |
| 20 | CINAHL | (17 AND 18 AND 19) | 0 |
| 21 | CINAHL | (17 AND 18) | 22 |
| 22 | CINAHL | exp GLOVES/ | 3155 |
| 23 | CINAHL | exp GLOVES/ae | 164 |
| 24 | CINAHL | "GLOVES ADVERSE EFFECTS"/ | 164 |
| 25 | CINAHL | "SKIN DISEASES"/ | 10869 |
| 26 | CINAHL | "INFECTION CONTROL"/ | 28299 |
| 27 | CINAHL | "DISEASE TRANSMISSION PREVENTION AND CONTROL"/ | 2096 |
| 28 | CINAHL | (26 OR 27) | 29922 |
| 29 | CINAHL | (24 AND 25 AND 28) | 1 |
| 30 | CINAHL | (covid-19 OR "covid 19" OR SARS-CoV-2 OR "novel coronavirus" OR "corona virus" OR nCoV OR "CoV 2" OR Cov2 OR sarscov2 OR 2019nCoV OR "novel CoV").ti,ab | 396 |
| 31 | CINAHL | (17 AND 30) | 1 |
| 32 | BNI | (glove\*).ti,ab | 876 |
| 33 | BNI | (covid-19 OR "covid 19" OR SARS-CoV-2 OR "novel coronavirus" OR "corona virus" OR nCoV OR "CoV 2" OR Cov2 OR sarscov2 OR 2019nCoV OR "novel CoV").ti,ab | 212 |
| 34 | BNI | (32 AND 33) | 6 |
| 35 | BNI | (skin damage).ti,ab | 601 |
| 36 | BNI | (33 AND 35) | 0 |
| 37 | CINAHL | (skin damage).ti,ab | 2710 |
| 38 | CINAHL | (30 AND 37) | 0 |
| 39 | CINAHL | (30 AND 37) | 0 |

**Search Date: 31/03/2020**

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