Skin Health for Nurses: Prevention and management of occupational contact dermatitis

Amanda Palmer, RN, BPH, MPHC
Clinical Nurse Consultant
Occupational Dermatology Research & Education Centre,
Skin & Cancer Foundation
Setting the scene.....
Setting the scene…..

It is estimated that between 30- 50% of all healthcare workers have occupational contact dermatitis, of varying severity.

Healthcare workers are one of the most common occupational groups seen in our clinic. Nurses account for 73% of all HCW seen at SCF.
Example of dermatitis
Example of dermatitis
Example of dermatitis

Skin dryness is the first sign of damage. Contact dermatitis develops when the skin barrier is damaged.
Damaged skin barrier

- Damaged skin has the potential to carry more ‘bugs’ and lead to the spread of hospital acquired infection (HAI).

- It is suggested that poor hand hygiene may be responsible for 20% of health care associated infections—posing risk to HCW and the patient.
Why healthcare workers are at risk of skin problems?

Exposure to complex work environment - exposure to many irritants and allergens

- hand washing & scrubbing
- hand cleansers
- paper toweling
- alcohol based hand rubs
- glove wearing
Contact dermatitis
Inflammatory skin condition caused by external things touching the skin

Caused by things at home

Irritant contact dermatitis
60-70%

Caused by things at work

Allergic contact dermatitis
20-30%

Contact urticaria
5%
The stats - from SCF Melbourne

685 HCWs assessed over 22 years
555 diagnosed with work-related disorder (81%)
Nurses accounted for 73% of group

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<td>Irritant contact dermatitis</td>
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<tr>
<td>Allergic contact dermatitis</td>
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<td>Endogenous eczema</td>
<td>37%</td>
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<td>Latex allergy</td>
<td>13%</td>
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<tr>
<td>Contact urticaria (excl. LA)</td>
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65% have more than one diagnosis
What is OCD?

Occupational contact dermatitis or OCD:

- Is caused by workplace exposures, or where a pre-existing skin condition is exacerbated by work
- Can occur at any time of life
- No history of allergies needed
- Hands commonly affected, although other exposed skin may be involved such as arms, face and neck
- Not contagious, so cannot be passed on to others
Dermatitis will make the skin:

- Dry
- Red and itchy
- Split and crack
- Flake and peel
- Burn and sting
- Sometimes small blisters
Impact of OCD

- Appearance of skin
- Quality of life
- Medical costs
- Impact on work
Irritant contact dermatitis

Most common type of dermatitis.

ICD builds up over time.

Dryness between the fingers is often the first sign (sentinel sign) and gradually worsens.

Does alcohol rub sting your hands?
Irritants in health care:

- Repetitive exposure to water with hand washing
- Antiseptic skin cleaners
- Paper towels
- Sweating, especially if wearing occlusive gloves for extended periods of time
- Hot water
- Glove powder
Risk factors for ICD

• Frequency and duration of exposure to irritants (may aggravate pre-existing skin conditions)

• Atopy- eczema (even as a child), asthma, hay fever.

Eczema-comes from within the body (tends to run in families), compared to contact dermatitis which is caused by external factors touching skin
Course of ICD

• Once ICD develops - take weeks or months to heal (depending on severity).

• Even once skin looks normal, lower threshold for developing dermatitis.

• ICD can be severe enough that job modification is required e.g. change in rostering, no. of shifts, type of work etc.
Allergic contact dermatitis (ACD)

- Less common than ICD
- Is a delayed hypersensitivity
- Sensitisation required - so does not occur first time exposed to allergen
- Rash appears 1-2 days after contact with allergen
- Then can occur at any time with contact e.g. days or weeks or after years of contacting/using a product
- Rash lasts days or weeks
- Allergy is individual - one person can be allergic to something someone else can use with no problems
About allergic contact dermatitis

- ICD often precedes ACD (allergens have direct entry into body through splits and cracks in skin caused by ICD)
- Allergy is generally lifelong
- Smallest amount of contact will cause rash to reappear
- Impossible to clinically differentiate ICD from ACD
- Not all chemicals are able to cause allergy
- Diagnostic test for ACD is patch testing
Common causes of ACD in HCW

• Rubber glove ingredients such as thiurams, mercapto chemicals and carbamates (req. for elastic properties of gloves).
  • Thiuram allergy is declining

• Coconut diethanolamide, emulsifying agent found in many hospital skin cleansers, and lanolin in hand cleansers

• Methylisothiazolinone (MI)- preservative in some liquid soaps, shampoo, moisturisers and wipes
Common causes of ACD in HCW

- Other antiseptics and preservatives - formaldehyde and formaldehyde releasing preservatives (Imidiazolidinyl urea, diazolidinyl urea, Quaternium 15, DMDM hydantoin)

- Chlorhexidine is an uncommon cause approx. 2% (SCF data)

- Fragrances

- Colophony - usual cause of allergy to sticking plasters

- Don’t forget about domestic exposures
ACD caused by gloves

Allergic contact dermatitis from glove accelerators
Allergic Contact Dermatitis
A word of caution……

- Methylisothiazolinone or MI
- A frequent cause of allergic contact dermatitis.
- Check all products for this preservative
- Found in some hand washes, moisturisers, baby wipes, make-up wipes, sunscreens, shampoo and hair products, house paint
- More information about this can be found at www.occderm.asn.au
New epidemic - check your products!

Manufacturers change ingredients regularly, so check packaging or MSDS
ABHR – It stings....

• Stinging with use of ABHR means the skin is damaged - you are NOT allergic to it.
• Very few people are allergic to ABHR.
• Skin cleansers cause more cases of ACD than ABHR.
• Hand cleaners often being used when ABHR could be used.

ACD caused by hand cleansers is 8 times greater than ABHR (12% vs 1.6%)
• Contact urticaria is a different type of allergy

• Happens immediately on skin contact (usually within 10-30 mins of contact with the allergen vs hours/days with ACD)

• Initially skin redness and itching but with recurrent episodes dermatitis can develop
Contact urticaria

- Diagnosed by prick testing and/or blood serum testing

- Common causes are:
  - Natural rubber latex
  - Hairdressing bleach
  - Some foods
Contact urticaria in HCW

Latex allergy is main cause of CU seen in HCW - due to exposure to latex gloves.

Glove powder can facilitate transfer of latex allergens to skin and cause aerolisation of latex, increasing risk of latex allergy (powdered type is still the main cause of latex allergy).
Contact urticaria in HCW

- Rates of latex allergy has decreased significantly.

- Improvements in glove technology = lower amounts of latex protein in gloves.

- Remember- latex protein is different from rubber chemicals (thiurams and carbamates) which cause delayed allergic reactions.

Please note: Chlorhexidine can cause contact urticaria, but is very rare! (blood serum test is available)
Signs and Symptoms of latex allergy

- An itchy, red rash within minutes of contacting latex
- Hives or welts on the skin
- Runny nose, itchy eyes, sneezing and sometimes asthma
- Burning, itching, tingling and swelling from latex contact on mucous membranes (mouth, vagina etc)
- Sometimes LA people react to some foods also - banana, avocado, kiwi fruit, passionfruit, plum, strawberry, tomato
- Fortunately, anaphylaxis caused by latex is rare
Latex allergy – 48% HCW, followed by food handlers 16.5% and hair/beauty 13.4%

Hands most common, followed by arms and face

Latex allergy can also be caused by reusable rubber gloves (15% of latex allergy cases in SCF associated with reusable rubber gloves)

Bhaba F eta al, Contact Dermatitis 2012; 67:375-385
Risk factors for developing latex allergy

**Exposure**
Freq. use of latex gloves

**Damaged skin barrier**
(e.g. contact dermatitis) facilitates sensitisation to latex

**Atopy**
History of eczema, (even as child), asthma, hay fever increases risk of becoming latex allergic
Latex allergy
- Down trending during the study period
- Rate peaked in 1999
- Low since 2004

Annual change in occupational latex allergy, \( N=72 \)
Glove related hand urticaria

Healthcare workers were presenting with immediate symptoms from wearing gloves, which turned out NOT to be latex allergy, but a form of pressure urticaria in people with underlying dermographism.

(Dermographism is an exaggerated wealing tendency of the skin when stroked, DermNet NZ).

CORRECT GLOVE SIZING IS IMPORTANT!

Images from DermNet NZ

What to do if you have skin problems...

Are your hands dry, red, itchy, sore or sting when following hand hygiene? Do you have contact dermatitis?

Practical steps for healthcare workers with contact dermatitis

- Report skin problem to management
  - Reporting a skin problem can allow workplaces to keep a register of hand problems in a particular department or across the whole organisation. You may be asked to try alternative products.
  - Report skin problems early, don’t wait until your hands are in bad condition
  - If your hands are sore, don’t stop following hand hygiene, as you risk your own health and your patients’ health with hospital acquired infection

- Gloves
  - Ensure they are suitable for the task
  - Wear the correct size
  - Avoid powdered latex gloves

- Follow a good skin care routine

  - Reduce hand washing
    - Hand washing is the most common cause of hand dermatitis
    - Reduce hand washing where possible (unless hands visibly soiled) and use ABHR instead
    - Use mild hand wash where possible
    - Use warm water and not hot water for hand washing
    - Dry hands thoroughly

  - Use alcohol based hand rubs (ABHR)
    - Use ABHR where possible
    - ABHR may sting hands if split and cracked. If it does sting, it does not mean you are allergic to it, it means your skin is damaged

  - Moisturise
    - Moisturise regularly
    - Especially at the start of the day, at meal breaks, after work and before bed.
    - A cream in a tub or tube is more effective than a lotion in a pump pack.
    - A fragrance free moisturiser is optimal

- At home
  - Use soap substitutes where possible
  - Reduce the amount of wet work by using appropriate gloves
  - Moisturise regularly

See GP or Staff Health Clinic
If the previous advice has not improved your hand dermatitis, you will need to see a doctor:
- You may need script for topical corticosteroid ointment or cream to apply to your hands
- You may need to have a blood test to determine if you are allergic to latex (RAST)
- You may need some time off to let your skin heal, or a rostering change

See a dermatologist
If there has still not been improvement, you may need a referral from your GP to see a dermatologist or attend Dermatology Outpatient Clinic
- You may be referred to a special clinic for patch testing.
- Patch testing is used to diagnose an allergy to something that your skin is coming into contact with.

Available:
www.occderm.asn.au or
www.hha.org.au
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At home
- Use soap substitutes where possible
- Reduce the amount of wet work by using appropriate gloves
- Moisturise regularly
Gloves

Gloves are essential in the healthcare environment and offer protection for HCWs and their patients.

Can present a level of hazard for workers

1. Latex allergy
2. ACD to rubber accelerators - most common cause of allergy in HCWs
3. ICD – heat and sweating
4. Glove-related hand urticaria

Accelerator free gloves are now available - examination gloves and surgical gloves
Gloves

Vinyl gloves

These are sometimes used, but do not offer the same level of protection against microorganisms and bodily fluids as other varieties such as nitrile or latex, and so are generally not recommended for HCWs.

Remember specific gloves for specific jobs: bone cement, sterilizing equipment, chemotherapy

Talk to glove manufacturers for advice and information
The type of hand cleaner used depends on the task being performed.

**Soaps (including liquid soaps)**

- Liquid soaps are often used in the healthcare setting for ‘social’ handwashing. Allergy is not uncommon.
- Used when non-surgical procedures are being undertaken - do not contain antiseptics.
- Slightly more irritating and contain more allergens than soap substitutes.
- Bar soaps are often quite alkaline which can be very drying to the skin.
- Avoid soaps that are perfumed and contain MI.
Skin care - hand cleansers

Antimicrobial skin cleansers

Chlorhexidine is a common ingredient in many antimicrobial hand washes.

Fortunately allergy to chlorhexidine is rare.

Antimicrobial or antiseptic hand washes can sometimes be drying and damaging to the skin (but obviously play an important role in infection control).
Skin care - hand cleansers

Alcohol based hand rubs (ABHR)

• ABHR reduce the amount of hand washing, and exposure to liquid soaps and paper towels = reduce the likelihood of ICD. Use these where possible.

• Can sting if the skin is damaged

• Try different varieties

• Some have added emollients so are more moisturising
Skin care - hand cleanser

Soap substitutes

• Are less irritating than normal soaps - similar pH to the skin.
• Preferred for people with dry or damaged skin.
• Soap substitutes cannot be used as a substitute for antiseptic cleansers, but may be used instead of liquid soaps for social handwashing.
• Non-fragranced soap substitute at home may be helpful.
Skin care - moisturiser

• Moisturiser is important in the PREVENTION and TREATMENT of contact dermatitis. Moisturiser helps to restore the skin barrier.

• Used regularly but type and frequency of application will depend on your job and what works best for you.

• There are several different types of moisturiser.

“Mum’s away……..I’ll moisturise myself…….”
Skin care- moisturiser

Ointment

• An ointment is a clear, greasy and thick moisturiser

• It is most effective for healing dry and damaged skin

• Because ointments are very greasy they are not always ideal for use at work

• Maybe best used at night before bed
Skin care - moisturiser

Creams

• Moisturising creams are available in tubs or tubes.
• Creams are less greasy than ointments, which may make them preferable to use.
• Due to greasiness of creams they may be best used before bed, sometimes under cotton gloves.
• It may be possible to use a moisturising cream during a lunch break or at the end of the working day - whatever suits your work routine.

Fragrance-free products are encouraged to limit the risk of developing an allergy to the fragrance, especially when the skin is already damaged.
Skin care- moisturiser

Lotions

• A lotion is more watery than an ointment or cream - easier to apply.
• It is less greasy and may be better tolerated for use during the work day.
• Lotions are often purchased in pump packs which are convenient to use and which reduces risk for contamination when compared to a tub or tube.
• However a lotion is generally not as effective as a cream or ointment and should be reapplied regularly.

Special note: Recently there has been the development of some thick moisturising creams specifically formulated for use in pump packs.
Skin care- barrier creams

Evidence about whether barrier creams actually work as a true barrier has been conflicting.

Rather than using a specific barrier cream, using a moisturiser before work is recommended for healthcare workers.
What to do if you have skin problems...

See GP or Staff Health Clinic
If the previous advice has not improved your hand dermatitis, you will need to see a doctor:

- You may need script for topical corticosteroid ointment or cream to apply to your hands
- You may need to have a blood test to determine if you are allergic to latex (RAST)
- You may need some time off to let your skin heal, or a rostering change
What to do if you have skin problems...

About corticosteroids.....

You may need a script for topical corticosteroid ointment or cream to apply to your hands while the skin is inflamed.

- Use on affected areas and stop once the skin becomes normal.
- Corticosteroids should be applied at different times to the moisturiser or apply the corticosteroid, wait a few minutes and then apply the moisturizer.
- Use them when you won’t need to wash your hands, such as before bed.
- Most effective if used frequently and early during the itchy, inflammatory phase.
What to do if you have skin problems...

See a dermatologist

- If there has still not been improvement, you may need a referral from your GP to see a dermatologist or attend Dermatology Outpatient Clinic.
- You may be referred to a special clinic for patch testing.
- Patch testing is used to diagnose an allergy to something that your skin is coming into contact with.
Patch testing is used to either diagnose or exclude allergy as a cause of dermatitis.

Performed by dermatologists.

Small samples of chemicals are placed on discs, applied to the back for 48 hours.

Reactions are red, raised itchy spots.

Determine if reactions are relevant to their rash and found in products they are contacting.

No desensitization available.

Example of positive reactions.
Case from clinic

- 28 year old theatre nurse, 5 years in role
- Hand dermatitis worse at end of shift, much better at the start of working week
- Exposed to antiseptic hand wash, ABHR, gloves for long periods of time
- He thought he was allergic to latex
- Steroids were needed
Case from clinic

- Patch tested and reacted to thiuram mix and individual components of thiuram mix and fragrance in hand cleanser. Latex blood test was negative.

- Advice – time off work to let skin heal, moisturise regularly, find gloves that do not contain thiurams and use fragrance free hand wash.
Exciting news!

- In partnership with Hand Hygiene Australia (HHA)
- First ever “Hand dermatitis prevention module” for HCW
- Contact dermatitis information has been added to existing HHA HCW online module
- Funded by Safe Work Australia
- Visit www.hha.org.au or www.occderm.asn.au for instructions about how to access this module
Exciting news!

Hand Dermatitis Online Learning Module

Overview
It is estimated that up to 50% of healthcare workers have Occupational Contact Dermatitis (OCD) to varying extents at some stage of their career. This module aims to prevent hand dermatitis in healthcare workers and to educate about what to do if dermatitis develops.

This module was developed by the Occupational Dermatology Research & Education Centre, at the Skin & Cancer Foundation, Melbourne.

This project was funded by Safe Work Australia.

Learning Outcomes
To increase awareness about contact dermatitis
Learn how to prevent contact dermatitis
Know what to do if dermatitis develops.

Target Audience
All healthcare workers and all students entering the health field.

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How these modules can be used......

• Anyone identified with skin dryness, eczema or dermatitis are to undertake the Hand Hygiene Online Module, which contains section on occupational contact dermatitis

• The person is then reviewed 1-2 weeks later, if dermatitis is persisting despite changes to skin care, gloves & advice they are encouraged to complete the full Hand Dermatitis Prevention Module- receive certificate of completion at the end. The staff member is then reviewed. If problem persists they are referred to staff health or GP.
More information

- Occupational Dermatology Research and Education Centre, at the Skin and Cancer Foundation
  www.occderm.asn.au www.skincancer.asn.au
- email apalmer@occderm.asn.au
- Ph. 03 9623 9402
- Hand Hygiene Australia- mini module and stand alone module www.hha.org.au
- Acknowledgements- Assoc. Professor Rosemary Nixon, Dr Jennifer Cahill, Dr Claire Higgins

THANK YOU