



## **Nurses and Occupational Contact Dermatitis**

Occupational contact dermatitis (OCD) accounts for approximately 90% of all occupational skin disease; with healthcare workers one of the most commonly affected occupational groups. Because of the complex workplace environment, there is the potential for health care workers to be exposed to many irritants and allergens. Nurses may develop a work related skin condition, particularly irritant or allergic contact dermatitis.

Contact dermatitis is caused by substances touching the skin. These substances may be found at home or at work. OCD is diagnosed when the contact dermatitis is caused by work place exposures, or where a pre-existing skin condition is exacerbated by work.

The hands are commonly affected, although other exposed skin may be involved, such as the arms, face and neck.

There are two main types of contact dermatitis; irritant contact dermatitis (ICD) and allergic contact dermatitis (ACD). In addition, nurses with pre-existing eczema may experience aggravation of their skin condition. Nurses are also at high risk of developing latex allergy. It is not uncommon for nurses to have a combination of these diagnoses.

Nurses are one of the occupational groups most frequently attending the Occupational Dermatology Clinic at the Skin & Cancer Foundation in Melbourne. Data from this clinic indicates that 73% of nurses seen at the clinic are diagnosed with ICD and 44% with ACD and 12% having latex allergy, highlighting the existence of multiple diagnoses. Internationally, the findings are similar, with healthcare workers commonly rating in the top five high-risk occupations for OCD.

### **Irritant Contact Dermatitis**

Irritant contact dermatitis (ICD) is the most common form of dermatitis experienced by nurses. Frequent hand washing and drying, especially with paper towels, is a common cause of ICD. Antiseptic cleansers also add to the irritation. Heat and sweating, as a result of wearing occlusive gloves, can also damage the skin.

It has been estimated that “wet work” increases the risk of developing hand dermatitis two-fold. Successive exposures to irritants results in cumulative damage to the skin barrier. This manifests clinically with dryness and gradually worsens to ICD. This disruption to the protective layer predisposes nurses to develop allergic contact dermatitis as well.

Recent international research has suggested that use of waterless skin cleansers may reduce the likelihood of developing ICD.

ICD often starts in the web spaces between the fingers. Healing can take weeks or months. The hands may appear to have healed but for up to 3 months, may still react abnormally when exposed to contact with irritants. ICD can be severe enough that an individual requires job modification, or extended time away from work.

The table below lists the most common irritants.

**Common irritants affecting healthcare workers include:**

- **Water and wet work**
- **Antiseptic skin cleaners and soaps**
- **Drying of the skin using paper towels**
- **Heat and sweating, especially if wearing occlusive gloves for long periods of time**
- **Low humidity**
- **Glove powder**

**Allergic Contact Dermatitis**

Allergic contact dermatitis (ACD) is a less common form of contact dermatitis. It can develop at any time in a person's career and often happens after ICD has already damaged the skin.

ACD is a delayed hypersensitivity reaction caused by a sensitising substance touching the skin and the individual developing an allergy to it. Allergy can develop hours or even 1-2 days after contact with the allergen, but does not occur the first time an individual is exposed to the substance.

It is possible to develop an allergy to chemicals in products such as hand washes, moisturisers and gloves, even if they have been used for many years. Not all chemicals cause allergy. Similarly, even if a substance causes allergy, not all people will become allergic to it. The table below lists common causes of allergic contact dermatitis in healthcare workers:

**Common allergens affecting health workers include:**

- **Thiurams-, found in many gloves**
- **Colophony, found in sticking plasters**
- **Formalin and formalin releasing preservatives used in many products such as moisturizers, cosmetics and skin cleaners**
- **Coconut diethanolamide, found in many skin cleansers, especially hand washes**
- **Fragrances, used in skin cleansers and moisturizers**
- **Latex- proteins in natural rubber latex (glove powder may facilitate both transfer of latex particles to skin and aerosolisation of latex particles)**

## Appearance of occupational contact dermatitis



Signs and symptoms of OCD include:

- Dryness
- Redness
- Itchiness
- Soreness
- Flaking
- Splitting and cracking
- Blistering
- Weeping

*Example of dermatitis of the hands*

The appearance of ICD and ACD are often very similar, making the clinical diagnosis difficult. However, it is important to have an accurate diagnosis so that in particular, relevant allergens can be avoided. The skin treatment of ICD and ACD is often quite similar.

It is not uncommon for healthcare workers to have multiple diagnoses and this means one individual can have sometimes 3 or 4 diagnosis.

An example of this would be a nurse having an allergy to a fragrance in a hand wash, having irritant contact dermatitis from the frequent hand washing, and also latex allergy.

### **Latex Allergy**

Nurses have been the occupational group which has been most affected with latex allergy, although fortunately this is not as common as ICD or ACD. This is an example of a type 1 reaction, which is an immediate and potentially severe reaction which may even progress to anaphylaxis. One of the most important preventive measures for latex allergy is the use of non-powdered disposable gloves. For further information please refer to the article on latex allergy on the ODREC website.

### **Risk Factors**

People who are atopic, that is those who have a history of eczema, asthma or hay fever during their life (even as a baby), or who have a strong family history of these conditions, are at a higher risk of developing OCD. These people may not have any current symptoms. In fact having an atopic background more than doubles the risk for individuals developing work related dermatitis.

Physical factors contributing to OCD include:

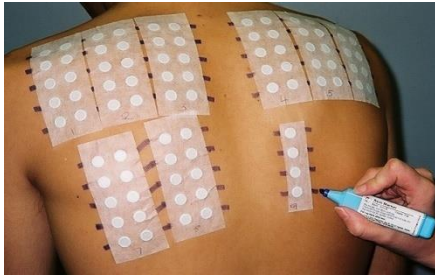
- “Wet work” - an individual who spends approximately a quarter of their shift, or more than 2 hours with hands wet are at an increased risk.
- Drying the skin with paper towels
- Exposure to heat or low humidity
- Sweating from occlusive gloves

## Diagnosis

There is no diagnostic test available for ICD related to work. Diagnosis is made according to:

- The history of exposure to irritants
- Clinical appearance
- Bodily location
- Whether the condition improves when away from the workplace
- Negative patch testing, excluding the diagnosis of ACD

Patch testing is the diagnostic test for ACD. Small amounts of chemicals, diluted according to international guidelines, are placed on the back for 2 days. When the patches are removed, the extent of the reaction (a red, raised itchy spot underneath the disc) is recorded and another reading is performed 2-3 days later. The image below is an example of patch testing.



***Example of patch testing which is performed at the Skin and Cancer Foundation, Melbourne.***

Currently, there is no cure or form of desensitization available for ACD, therefore identification and avoidance of the allergen is the key.

## Prevention and Management of Occupational Contact Dermatitis

Below is a list of suggested ways nurses may prevent and manage OCD in the workplace:

Prevention and management of occupational contact dermatitis
1) Be aware of the risks for developing OCD
2) Avoid and reduce contact with known skin irritants and allergens
3) Use an alcohol based hand rub whenever appropriate
4) Ensure appropriate moisturizer is available for all staff members. Sorbolene lotion, often purchased in pump packs is useful for moisturising during the day, but is not as effective as a cream or ointment. A greasy ointment often purchased in a tub or tube, is best and should be used at the end of a shift and at night, because of its increased effectiveness
5) Protect the skin by using gloves appropriately
6) Gloves should be changed regularly to reduce sweating
7) Appropriate gloves should be worn such as non-powdered latex (to reduce the likeliness of latex allergy), or non-latex such as nitrile gloves. Vinyl gloves are not

- appropriate for nurses if contact with bodily fluids is possible, as they are not protective against viral infections
- 8) Develop and implement an effective skin care policy in the workplace
  - 9) Implement a referral system for those with skin problems
  - 10) Liaise with infection control staff about appropriate gloves and hand washes if skin is damaged
  - 11) If skin problems persist see your local doctor/company doctor/hand hygiene specialist who may refer you to a dermatologist
  - 12) It is also important to look after skin at home, such as wearing gloves when washing dishes and regularly using a moisturizer

**Example case study of dermatitis in a nurse**

A 28 year old female nurse, who has been working in an emergency department of a metropolitan hospital for five years, was referred to the occupational dermatology clinic. She had an atopic background, with history of hay fever and asthma, but had not had any previous rash until beginning her nursing training. There was also a family history of hay fever. Her rash currently involved her hands, face and more recently her back and eyelids. She reported cracking and itchy blisters at times (refer to figure 4). At work she used various different hand washes and wore many pairs of latex gloves during a shift. She noticed that her condition improved significantly when she was on her days off work. She attended the clinic and was patch tested and also had blood taken for a RAST test, used to diagnose latex allergy. Her patch test results revealed that she was allergic to an ingredient found in the hand wash used at work. The RAST test revealed latex allergy. She also has a component of irritant contact dermatitis, significantly related to work. Her workplace now provides her with latex free gloves (powder free nitrile) and a hand wash free from the causative allergen. Three months later she was reviewed and her skin condition had greatly improved.

For further information visit: [www.occderm.asn.au](http://www.occderm.asn.au) or phone (03) 9623 9402 email [apalmer@occderm.asn.au](mailto:apalmer@occderm.asn.au)

