

Occupational Dermatitis

Pre-Employment Medical

A pre-employment health questionnaire should be completed by all those going to work with substances that can cause dermatitis. There may be limitations in employing a person who currently suffers from dermatitis.

A health assessment is usually aimed at identifying an effect of work on health, in this case on the skin. It may be required before a person commences work, especially for people with a previous known sensitivity to an irritant or sensitiser used in the workplace. People with pre-existing dermatitis are more likely to develop irritant contact dermatitis in the workplace.

The person carrying out the assessment must be familiar with the substances and processes used, standards of cleaning and hygiene, and personal protective equipment used in the workplace. The initial health assessment can be carried out by any appropriate health professional but the decision on whether an individual is suitable for a particular post is normally made by a doctor, preferably one with qualifications in occupational medicine. Dermatitis may be considered a disability and the obligations under equality legislation should be followed when determining suitability for employment.

Routine Health Surveillance

Again the decision whether to carry out health surveillance is based on the risk assessment. When the risk assessment suggests there is the potential for an employee to develop work-related dermatitis because of workplace exposure then usually health surveillance is required.

Dermatitis is normally evident first to the individual through self-examination and therefore reporting of problems is hugely important. This can only be successful if employees know what to report and to whom. Employee education and training is vital and should include the principles of prevention, skin care and the early signs of dermatitis. It should also specify who employees should report symptoms to, usually the occupational health nurse if present or company doctor.

Self-reporting can be augmented by a skin questionnaire, which should be completed again to allow comparison of results with pre-employment ones. Abnormal results should ideally lead to the individual being assessed by a doctor who is qualified and experienced in occupational medicine or dermatology.

If health surveillance indicates that an employee has developed dermatitis, it is important to try to identify the cause. If a suspect cause can be identified and the dermatitis goes away either by avoiding the suspect substance or changing work practices, such as using gloves, then usually no further action is required. If the condition persists, the opinion of a specialist occupational physician or dermatologist should be sought. The assessment may include an inspection of the workplace.

If allergic contact dermatitis is considered, patch testing may be performed. The test involves the application of various test substances to the skin under adhesive tape, which are then left in place for forty-eight hours. The skin is then examined on

the removal of these patches and again after a further forty-eight hours for any response. This can help the doctor decide which allergens the employee may be allergic to and identify those that could be aggravating the dermatitis. This is normally carried out by a dermatologist.

Any new case of dermatitis may indicate that the existing control measures are inadequate and the risk assessment should be reviewed and any necessary changes made.

Contacts/References

See the HSA's website (www.hsa.ie) for copies of:

- **Guidelines on Occupational Dermatitis.**
- **2007 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001.**



Occupational Dermatitis



Introduction

This section seeks to provide useful information to enable employers to manage the prevention of occupational dermatitis in workplaces. It describes occupational dermatitis and the substances that cause it. It also gives practical advice on complying with health and safety legislation, including the carrying out of a risk assessment and health surveillance measures.

Occupational dermatitis is still a common disease and is caused by substances in the workplace. The effects vary from mild to severe and in extreme cases an employee may not be able to remain in a particular job. However, in most cases it is easily preventable.

What is dermatitis?

Dermatitis is an inflammation of the skin. The term dermatitis is synonymous with eczema. The skin becomes red, itchy and can be blistered, hard, thickened and cracked. Many people suffer from skin conditions. Most of these are not work-related and in some instances they started during childhood. Dermatitis is the main work-related skin disease.

An important clue for diagnosis is the site of the area affected. If it is the hands, contact dermatitis should always be suspected. The next question is whether the 'contact' arises from work or outside work.

A work-related cause is suggested if:

- The rash is mainly on the hands and exposed skin.
- The condition improves away from work and relapses on return.
- More than one person is affected in same work area or handling the same materials.

A non-occupational cause is suggested if:

- There is a history of childhood or endogenous eczema.
- There is major involvement of the body trunk or covered area of skin.

What is occupational dermatitis?

Occupational dermatitis is a skin disorder caused by coming into contact with certain substances in the workplace. It is therefore termed contact dermatitis. Contact dermatitis is the most common work-related disease in Ireland. It can have long-term consequences for employees' health and in extreme cases it can hinder their ability to continue working. Research has indicated that ten years after the condition first occurs, up to 50 per cent of affected employees will still have some skin problems.

It has financial implications in terms of ongoing medical treatment, absence from work, social welfare compensation and possible civil claims. It brings other costs in terms of pain and suffering to affected employees. In many instances it may be totally preventable by simple inexpensive measures.

Occupational Dermatitis

How are skin problems caused?

The outer layer of skin is called the epidermis. New cells are constantly being formed and over a period of one to two months they migrate to the surface where they die and harden to form a protective layer called the horny layer. The protective layer is constantly being worn away by friction but normally it is also constantly being regenerated. The problem arises when the rate of damage or wearing to this layer exceeds the rate of repair.

How many types of dermatitis are there?

There are two forms of contact dermatitis: irritant and allergic.

What is irritant contact dermatitis?

In irritant contact dermatitis the substance that damages the skin is known as the irritant. A highly irritant substance is known as a corrosive. Irritant dermatitis makes up about 80 per cent of contact dermatitis cases.

There are several ways that skin damage can be caused:

- The use of detergents, soaps for repeated hand washing or solvents can remove the skin's protective oily layer and so leave the skin exposed to damage.
- Physical damage such as friction, minor cuts (e.g. from fibreglass) and grazes can break down the skin's protective layer and allow substances access.
- Chemical such as acids or alkalis can burn the skin's protective layer.

Irritation is analogous to a chemical burn. It acts by eroding or burning the outer protective layers of the skin. Irritant contact dermatitis usually occurs only on the parts of the body in direct contact with the irritant substance e.g. hands, forearms, face.

Common irritants are wet work, cutting oils, solvents and degreasing agents, which remove the skin's outer oily barrier layer and allow easy penetration of hazardous substances, alkalis and acids (see Table 9.1). Wet cement coming into contact with exposed feet and hands is a particular example of a skin irritant.

What is allergic contact dermatitis?

In about 20 per cent of contact dermatitis cases, a substance causes the person to become sensitised or to develop an allergic reaction some time after initial contact. The type of allergic mechanism is known as Type IV or delayed hypersensitivity. People do not become allergic to a substance immediately on first contact. The sensitisation period (the time between contact and the development of an allergy) can vary from a number of days to months or even years. In allergic contact dermatitis the rash can occur in areas of the skin not in direct contact with the substance.

The risk of becoming allergic depends on several factors:

- The nature of the substance. Substances with a higher likelihood to cause allergy are known as skin sensitisers.
- The nature of contact. The greater or more repeated the exposure the more likely it is for the individual to develop sensitisation.

- The vulnerability of the host. Typically people with other allergies are not particularly more vulnerable to developing contact allergic dermatitis. Individuals with a previous history of non-allergic dermatitis are more vulnerable. This may be because the sensitiser can more easily enter the blood stream in those individuals.

Once an employee becomes sensitised, each time he or she comes into contact with the sensitising substance, even in very small amounts, dermatitis will develop. This is different to irritant contact dermatitis, which is dose-related. Once sensitised, an employee is likely to remain so for life. The consequences for long-term health and ability to remain at work can therefore be significant.

Sensitisation is specific to one substance or to a group of substances that are chemically similar. Common sensitisers are chromates (found in cement), nickel (cheap jewellery), epoxy resins, formaldehyde, wood dust, flour, printing plates, chemicals and adhesives (see Table 8.1). In general the majority of an exposed occupational group do not become sensitised. It is an individual reaction.

Can an employee have both types of dermatitis together?

Both irritant and allergic contact dermatitis can occur together and it is not uncommon for employees to be exposed to several irritants and sensitisers simultaneously. An irritant contact dermatitis may also develop first, rendering the skin more susceptible to penetration by sensitisers. It is also possible that an original allergic contact dermatitis might be later sustained by an irritant.

What types of substance cause dermatitis?

Table 8.1 lists a number of well-known substances and work activities that can cause occupational dermatitis. Substances that are skin irritants or sensitisers have the symbol Xi on the packaging (bag or container). The Safety Data Sheet will also have valuable information on the health hazards associated with the substance and the appropriate protective and preventive measures. Also some substances with the toxic symbol T or very toxic T+ can affect the skin, and those with the corrosive symbol C can cause burns.

The following safety or risk phrases indicate substances that are harmful to skin:

S24: avoid contact with skin.

S37: wear suitable gloves.

R38: irritant to skin.

R43: may cause sensitisation by skin contact.

R24: toxic in contact with skin.

R27: very toxic in contact with skin.

R24: causes burns.

R35: causes severe burns.

What are my responsibilities as an employer?

You must ensure a safe working environment where exposure to substances that can cause dermatitis is prevented or controlled. You should have or provide:

- An up-to-date safety statement.
- A risk assessment.
- Adequate control measures.
- Information to employees.
- Health surveillance where appropriate.

Substance Groups	Work Activities
Irritants	
Wet cement	Contact with wet cement in construction
Cutting oils	Metalwork
Solvents	Dry cleaning, galvanising
Degreasers	Cleaning metals
Alkalis	Cleaning agents
Acids	Crystal glass manufacture
Sensitisers	
Latex	Health care, food preparation
Chromates	Contact with wet cement
Nickel	Cheap jewellery manufacture, repair
Epoxy resins	Electronic engineering
Formaldehyde	Furniture manufacture
Wood dust	Saw milling, woodworking, furniture manufacture
Flour	Handling grain at docks, milling, baking
Printing plate chemicals	Print fixing and developing
Adhesives	Book binding, installing floor coverings

How is a risk assessment carried out?

Please see Section 2 of this Toolkit on the five-step risk assessment process.

The risk assessment will identify whether there are substances in the workplace that may cause dermatitis. It should be able to answer the following questions:

- Are you using one of the substances listed in Table 8.1?
- Does the package containing the substance have the symbol Xi?
- Does the Safety Data Sheet have the safety or risk phrases S24, S37, R24, R27, R34, R35, R38 or R43?
- Who is likely to be exposed?
- To what amounts or concentrations?
- For how long?
- How often?

- Does the exposure exceed the daily occupational exposure level specified in the Chemical Agents Regulations?
- Has anybody in the workplace suffered skin problems in the past?

How is exposure prevented and controlled?

Both irritant and allergic contact dermatitis can be avoided by prevention or at least minimisation of skin contact with that substance. If the risk assessment identifies that employees are being exposed to substances, the following control measures should be considered to remove, minimise or reduce the risk:

- Removal of the substance.
- Substitution by a less hazardous substance.
- Introduction of closed systems of work that minimise employee contact with the substance.
- Removal of excess material using drainage, vacuuming or local exhaust ventilation.
- Washing, drying and applying hand creams. The most effective way of reducing dermatitis is to reduce skin contact with the hazardous substance and the easiest way to do this is to wash it off. Good welfare facilities are required, including a sufficient number of wash-hand basins with hot and cold running water or a mixture of both, hand cleaners, drying facilities and hand creams. The choice of hand cleaners is important as it needs to remove the substance but not damage the skin by removing the protective oily layer. They should not contain harsh abrasives or organic solvents.

Clean, dry towels or disposable paper towels or hot air dryers may be used. The use of hand creams or emollients after washing helps replace the skin's natural oily layer.

Barrier creams must be used with caution. Very often they are not effective barriers. In general they are not a substitute for appropriately chosen gloves. Even creams that do provide an effective barrier when first applied can wear off quickly when working and provide much less effective protection. Unlike when gloves fail, the person will not usually be aware of a cream's decreasing protection. Barrier creams may sometimes be used with gloves and sometimes are used to facilitate cleaning of the skin after work.

Use of personal protective equipment (PPE). The objective of PPE, in this case gloves and clothing, is to prevent direct skin contact with the hazardous substance. Gloves are useful but care in their selection is vital. No glove provides protection from all chemicals and care must be taken in choosing an appropriate glove. Glove suppliers can provide advice on the choice of appropriate gloves. If possible, latex gloves should be avoided because of the risk of latex allergy but there are occasions when they are still the best option. Sweat is itself an irritant and sweating in gloves can be a problem. Regularly changing gloves and using cotton under-gloves can help. Apart from gloves and protective overalls, aprons and face masks may be required.

What information should I give to employees?

Employees are entitled to information about hazards in the workplace and those contained in the risk assessment. They are also entitled to information on the protective and preventive measures to be taken.

Employees who are likely to work with and be exposed to substances causing dermatitis need information, instruction and supervision so that they know and understand:

- Labels and Safety Data Sheets for chemicals used in the workplace.
- Which substances are known to cause dermatitis in the workplace.
- Risk assessment.
- Proper use of control measures.
- The need to report any failures in control measures.
- Risks to health.
- Symptoms of sensitisation.
- The importance of reporting symptoms at an early stage.
- Role of health surveillance.
- Self-examination and reporting procedures.

What is the role of health surveillance?

Health surveillance is used to detect the early onset or symptoms of dermatitis. The earlier a skin condition is discovered the better the prognosis. It is deemed to be secondary prevention and not as effective as the primary prevention measures outlined above. Health surveillance, where used, has to be used in conjunction with these other control measures. Health surveillance can help to show that workplace control measures are working.