



Skin cancer and outdoor work

A guide for employers





Skin Cancer and Outdoor Work: A Guide for Employers

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Introduction

Employees who work outdoors for all or part of the day are at risk of skin cancer. This is because solar radiation is carcinogenic to humans¹.

All skin types can be damaged by exposure to solar ultraviolet radiation (UVR). Damage is permanent and irreversible and increases with each exposure.

Under Australian occupational health and safety legislation, employers should be considering steps to reduce this risk and protect employees from ongoing exposure to solar UVR that can lead to skin cancer.

Implementing a comprehensive sun protection program, which includes a range of simple protective measures, can prevent sun-related injuries and reduce the suffering and costs associated with skin cancer – including reduced productivity, morale and financial returns.

Occupations especially at risk due to the outdoor nature of the work include:

- building and construction workers
- telecommunications and utilities workers
- swimming pool and beach lifeguards
- police and traffic officers
- agricultural, farming and horticultural workers
- landscape and gardening workers
- fisheries workers
- road workers
- municipal employees
- postal workers
- dockyard, port and harbour workers
- catering workers
- outdoor events workers
- physical education teachers and outdoor sports coaches
- surveyors
- forestry and logging workers
- ski instructors and lift operators
- mining and earth resources workers
- taxi, bus and truck drivers and delivery and courier services
- labour hire company workers.

Purpose of this resource

This booklet explores the relationship between exposure to solar UVR and skin cancer. It provides you with information and advice to understand and confidently address sun protection in the workplace.

A comprehensive sun protection program is described, including various sun protection control measures presented as per the hierarchy of occupational hazard controls. Tips for success are included, along with a sample policy to assist with the development and implementation of your program.



THE CASE FOR SUN PROTECTION AT WORK

Australia has the highest rate of skin cancer in the world. Despite being almost entirely preventable, skin cancer continues to affect at least one in every two Australians in their lifetime².

The amount of exposure required to cause skin cancer varies greatly from one person to another. However, in most people the risk of skin cancer increases with increasing amounts of exposure to the sun.

The workplace is a major source of exposure for many adult Australians. It is not surprising that outdoor workers who are required to spend long periods of time working in the sun, year after year, have a higher than average risk of skin cancer.

The harmful health effects of solar ultraviolet radiation

Exposure to solar ultraviolet radiation (UVR) is known to cause adverse health effects on the skin, eyes and immune system.

Sunburn

Sunburn is a radiation burn to the skin. In Australia, sunburn can occur in as little as 15 minutes on a fine January day³. All types of sunburn, whether serious or mild, can cause permanent and irreversible skin damage and can lay the groundwork for skin cancer later in life.

Mild sunburn that reddens and inflames the skin is known as first-degree sunburn. Second-degree sunburn occurs with more serious reddening of the skin and water blisters. Third-degree sunburn requires medical attention.

Solar keratoses and premature ageing of the skin

Solar keratoses are red, flattish, dry, scaling areas on the skin, sometimes called sunspots. Sunspots are a warning sign that a person is prone to skin damage and skin cancer.

Most visible signs of ageing are the result of damage to the skin caused by exposure to solar UVR⁴. This can include skin wrinkling, loss of elasticity, irregular pigmentation and altered skin texture.

‘People whose jobs involve a lot of time in the sun are at high risk of developing skin cancers, and employers have a responsibility for minimising hazards in the workplace.’

**– WorkSafe WA
Commissioner
Nina Lyhne
(February 2006)**

Visit your state or territory Cancer Council website for the most recent skin cancer statistics.

Eye damage

Acute effects of exposure to solar UVR on the eye include photokeratitis (inflammation of the cornea and the iris) and photoconjunctivitis (inflammation of the conjunctiva, the membrane that lines the inside of the eyelids and white of the eye), more commonly known as snow blindness or welder's flash. Symptoms range from mild irritation to severe pain.

There is evidence that chronic exposure to solar UVR contributes to age-related macular degeneration and cataracts, both a cause of blindness. Long-term effects may also include pterygium (white or creamy opaque growth on the cornea), squamous cell carcinoma of the conjunctiva and cancer on the skin surrounding the eye.

Skin cancer: the facts

The most serious health effect of exposure to solar UVR is skin cancer.

Our body is made up of tiny building blocks called cells. Cells normally grow, divide, die and are replaced in a controlled way. Cancer is a disease that occurs when the cells of the body are damaged, causing them to grow out of control.

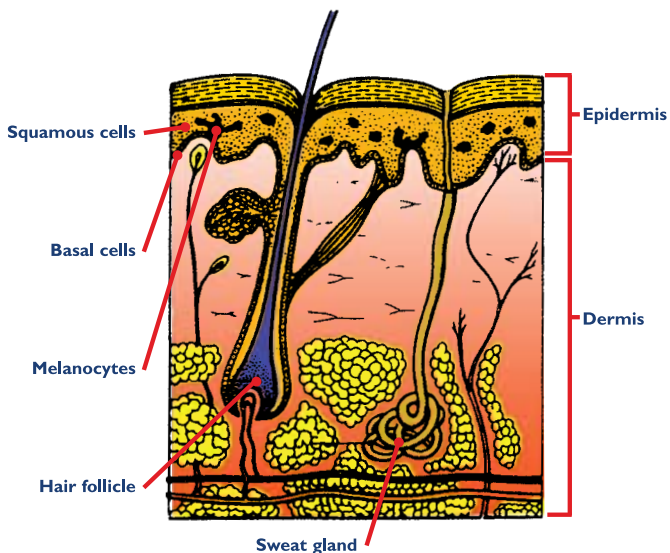
The skin is the largest organ of the body. Skin cancer can grow when the cells that make up our skin are damaged. In most cases this damage is caused by overexposure to solar UVR.

The top layer of the skin contains three different types of cells: basal cells, squamous cells and melanocytes. Skin cancer types are named after the type of skin cell in which the cancer develops.

The three types of skin cancer are:

1. Basal cell carcinoma (BCC) is the most common type of skin cancer. It grows slowly over months and years and may damage nearby tissues and organs if left untreated.
2. Squamous cell carcinoma (SCC) is less common but grows faster. It may spread to other parts of the body if left untreated.
3. Melanoma is the least common but most dangerous type of skin cancer. Most skin cancer deaths are from melanoma. It is often fast growing and can spread to other parts of the body where it can form a new cancer.

Basal cell carcinomas and squamous cell carcinomas are often grouped together and called non-melanoma or common skin cancers.





DID YOU KNOW?

Sun exposure is the cause of about 99% of non-melanoma skin cancers and 95% of melanoma in Australia⁵. A very small number of skin cancers are due to genetic predisposition. Both melanoma and non-melanoma skin cancers can appear anywhere on the body, not just sun exposed areas.

Skin cancer: an occupational disease priority area

Skin cancer can be an employment-related disease resulting from repeated and long-term exposure to a known carcinogen. Skin cancer therefore fits within the national health and safety priority action area of preventing occupational disease more effectively.

The 2006 *Report on indicators for occupational disease* highlights there was an increase in skin cancer claims per million employees/persons over a six-year period to 2004. The report says that given the long latency period associated with exposure and the onset of skin cancer, it is also likely that compensation claims greatly understate the real incidence of occupational skin cancer⁶.

Legal obligations

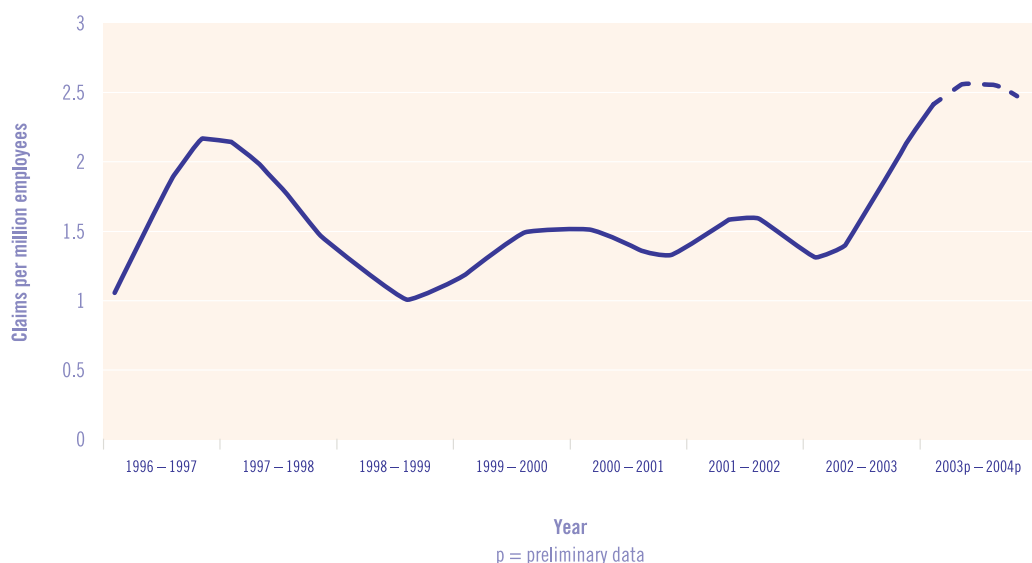
Occupational health and safety legislation, specific to each Australian state or territory, has the clear objective of preventing illness and injury at work and saving lives.

All employers must protect employees by providing a safe working environment that is free of health risks. This includes taking proper steps to reduce the known health risks associated with exposure to solar UVR for workers who spend all or part of their time working outdoors.

Employees also have a duty to take care of their own health and safety and cooperate with employers' efforts to improve health and safety. To work safely in the sun, employees must follow workplace sun protection policies and procedures, attend

'If there is potential for a worker to sustain injury, there is potential for WorkSafe inspectors to take action, and we will.'
– John Merritt,
WorkSafe Victoria
Executive Director
(February 2003)

INCIDENCE OF COMPENSATED CLAIMS FOR SKIN CANCER



Summary: Overall, the incidence of claims for skin cancer increased over the period assessed.

Source: Australian Safety and Compensation Council. *Report on indicators for occupational disease*, 2006.

Refer to your state or territory OHS authority for more information on health and safety.

training and follow instructions and advice provided, and use supplied protective equipment as instructed.

Other key documents providing technical advice and guidelines on sun protection for outdoor workers include:

- *Radiation protection standard for occupational exposure to ultraviolet radiation* – Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). Visit www.arpansa.gov.au to view or obtain a copy⁷.
- *Guidance note for the protection of workers from ultraviolet radiation in sunlight* – National Occupational Health and Safety Commission (NOHSC). NOHSC is now known as the Australian Safety and Compensation Council (ASCC). Visit www.ascc.gov.au to view or obtain a copy⁸.

Industry warned by skin cancer judgment

NSW Workers Compensation Commission Report based on court determination, September 2004.

The Workers Compensation Commission issued a milestone decision by awarding damages to an employee of the Roads and Traffic Authority of NSW for continuous, excessive exposure to the sun while at work resulting in multiple skin cancers.

Robert Ritchie suffered significant damage to his skin while employed as a labourer with the Authority for 34 years. He has had numerous procedures to remove skin cancers from his ears, abdomen, cheeks, back, arms, legs and neck.

Mr Ritchie resigned from the Authority for health concerns in 2003. He filed a claim with the Workers Compensation Commission based on having 'suffered a partial incapacity to work and suffered an injury that arose out of and in the course of his employment.' Mr Ritchie also stated that his injury could be further aggravated by exposure to sunlight.

The Commission determined that Mr Ritchie's employment substantially contributed to his injury, and awarded him weekly compensation at the maximum statutory rate, medical expenses and costs.

Skin cancer judgment a wake up call to industry

15 August 2003 (SunSmart Victoria Program Media Release)

The verdict delivered in a landmark hearing against Boral Bricks today highlights the importance of sun protection in the workplace, according to The Cancer Council Victoria.

A judge in the County Court today found that skin cancer is considered 'serious' and 'dangerous' enough for Eric Reeder, a retired truck driver, to sue his employer of 35 years for damages.

Mr Reeder has developed multiple skin cancers on his back, neck and shoulders and has had malignant melanomas removed from his back. He has to undergo regular treatment to remove multiple skin cancers.

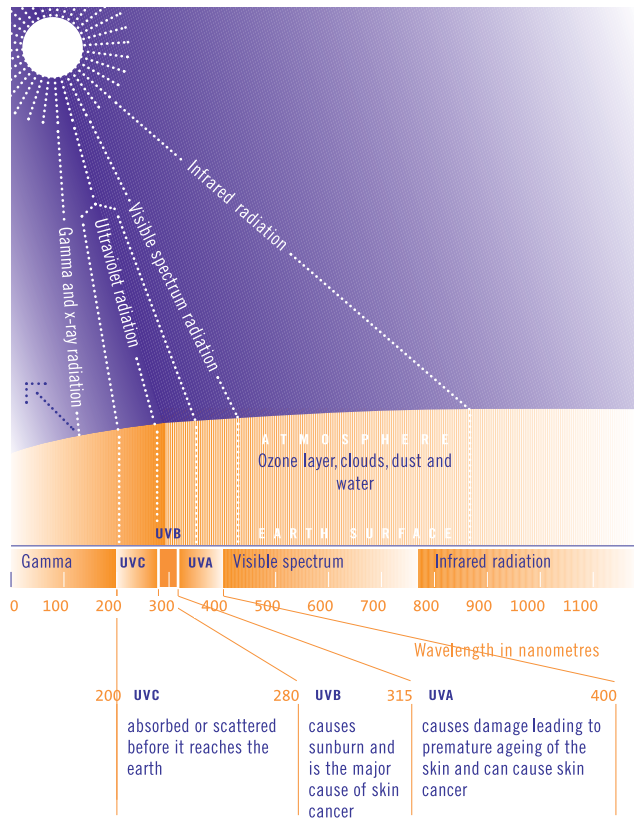
SunSmart Campaign Manager, Craig Sinclair, said, 'Mr Reeder's case is the first court case in Victoria to establish that skin cancer can be a serious occupational injury. This ruling is very significant and is a wake up call to all industries that employ outdoor workers ... This case puts sun protection on the agenda with other well known occupational health and safety issues.'



FACTS ABOUT SOLAR ULTRAVIOLET RADIATION

Understanding solar UVR is vital for understanding the sun protection control measures recommended.

UVR is part of the electromagnetic spectrum emitted by the sun. It can be divided into three types: UVA, UVB and UVC. While all UVC and most UVB radiation is absorbed by the atmosphere, all UVA and about 10% of UVB radiation does reach the earth's surface. Both UVA and UVB are known causes of skin cancer.



Source: The Cancer Council Victoria. *Shade for everyone: A practical guide for shade development*, 2004.

Visit your state or territory Cancer Council website for more information on solar UVR, vitamin D and the risks and benefits of sun exposure.

Did you know UVR from the sun:

- is high-energy radiation, capable of causing damage to living organisms
- is carcinogenic to humans
- cannot be seen or felt
- is not related to temperature
- can be high even on cool and cloudy days
- can pass through clouds
- can pass through loosely woven material
- can bounce off reflective surfaces such as metal, concrete, water and snow
- is essential to health in small amounts?

Small amounts of skin exposure to solar UVR are essential in the production of vitamin D and are beneficial for health⁹.

Australia experiences some of the highest levels of solar UVR in the world¹⁰, primarily because of our close proximity to the equator. Other reasons include:

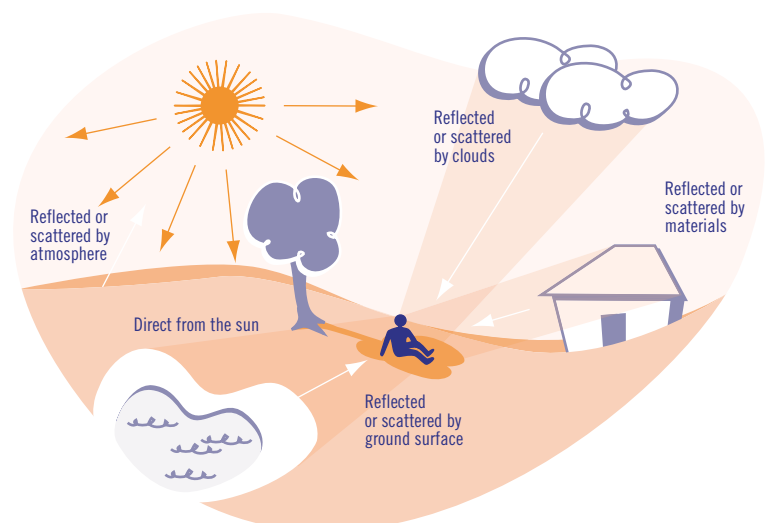
- a relatively high number of clear blue sky days
- Australia's position in the southern hemisphere, where the earth's oval shaped orbit brings us closer to the sun in summer than similar latitudes in the northern hemisphere.

Factors affecting levels of solar UVR

Solar UVR can reach you on the ground directly from the sun. It can also be scattered by particles in the air and reflected by ground surfaces such as metal, concrete, sand and snow.

The total amount of solar UVR present in a given location is affected by the following:

- Sun elevation: The higher the sun in the sky, the higher the levels of UVR at the earth's surface. Therefore levels of solar UVR are highest in the middle of the day and during summer.
- Latitude: The closer to equatorial regions, the higher the levels of solar UVR.
- Cloud cover: Solar UVR can pass through light cloud cover, and on lightly overcast days the intensity of UVR can be similar to that of a cloud-free day. Heavy cloud can reduce the intensity of UVR. Scattered cloud has a variable effect on levels of UVR, which rise and fall as clouds pass in front of the sun.

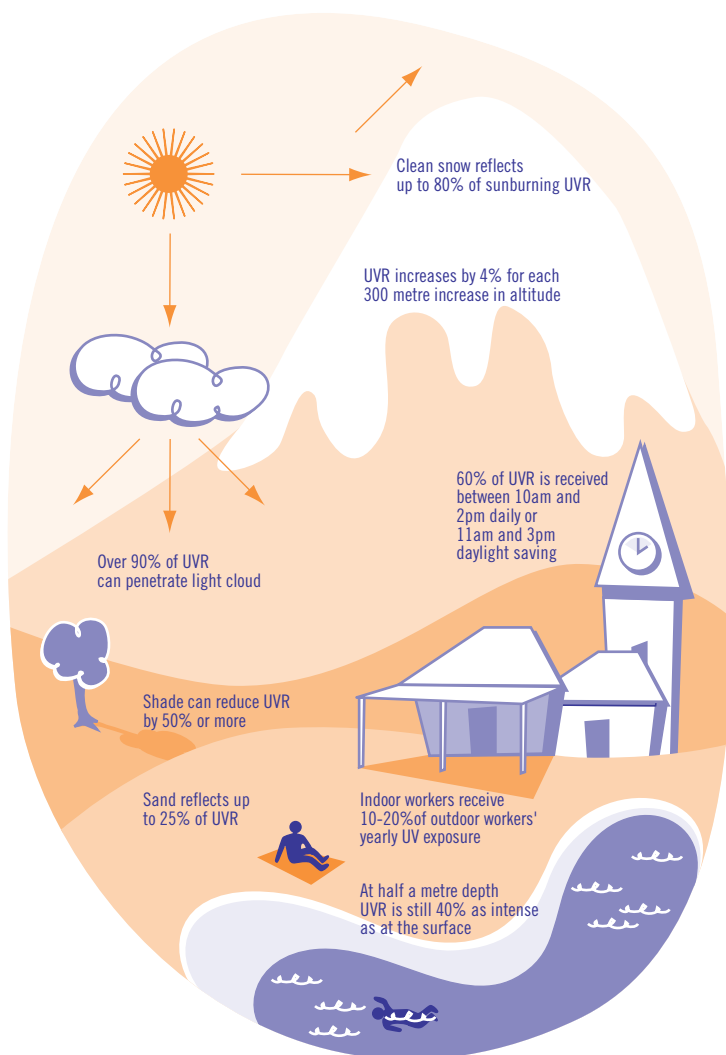


Source: The Cancer Council Victoria. *Shade for everyone: A practical guide for shade development*, 2004.

- Altitude: At higher altitudes, the atmosphere is thinner and absorbs less UVR.
- Ozone: Ozone absorbs some of the UVR that would otherwise reach the earth's surface.
- Reflective surfaces: Some building and ground surfaces such as polished aluminium, construction materials, lightly coloured concrete and water can reflect UVR back onto the skin and eyes.

When developing your sun protection program it is important to remember that your workers will need protection from exposure to both direct and indirect sources of solar UVR.

For complete protection, a combination of sun protection measures is needed.



Source: The Cancer Council Victoria. *Shade for everyone: A practical guide for shade development*, 2004.

Describing levels of solar UVR

Due to the points outlined above, levels of solar UVR vary across Australia on any given day. The UV Index, a rating system adopted from the World Health Organization, is a simple way of describing the amount of solar UVR at the earth's surface.

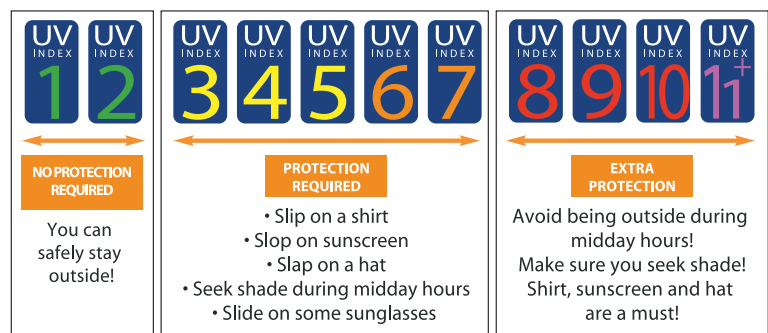
The values of the UV Index range from zero upward. The higher the number, the stronger the levels of solar UVR and the less time it takes for damage to occur.

The UV Index has five categories:

- Low: UV Index of 1–2
- Moderate: UV Index of 3–5
- High: UV Index of 6–7
- Very High: UV Index of 8–10
- Extreme: UV Index of 11 and above

The Cancer Council Australia recommends the use of sun protection measures when the UV Index is 3 or above and at all times when in alpine regions or near highly reflective surfaces.

When the UV Index is at 3 and above, the amount of solar UVR reaching the earth's surface is strong enough to damage the skin, which can lead to skin cancer.



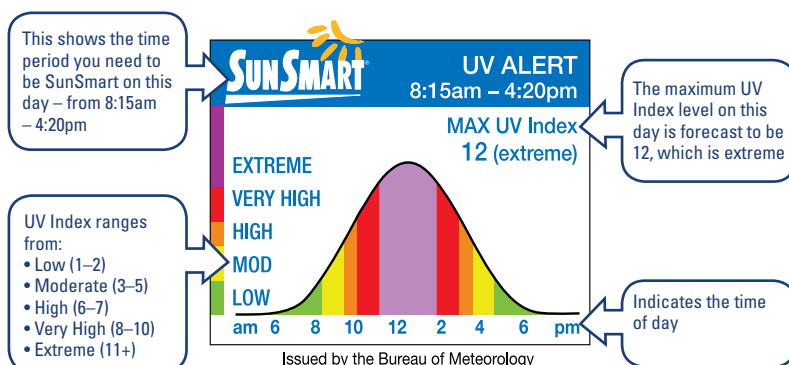
Source: World Health Organization. *INTERSUN: the global UV project: A guide and compendium*, 2003.

The SunSmart UV Alert

The SunSmart UV Alert is a tool workplaces can use to protect workers from the sun's UVR.

Based on the UV Index, the Bureau of Meteorology issues the SunSmart UV Alert whenever the UV Index is forecast to reach 3 or above.

The SunSmart UV Alert is reported daily in newspapers around Australia, some mobile phone and radio weather forecasts and on the Bureau of Meteorology website. Visit www.bom.gov.au and search for the SunSmart UV Alert.



For a detailed list of substances that cause photosensitivity refer to the Guidance Note for the Protection of Workers from Ultraviolet Radiation in Sunlight (NOHSC). Visit www.ascc.gov.au to view or obtain a copy.

Photosensitivity

Photosensitivity is an abnormally high sensitivity of the skin or eyes to UVR. This can cause the skin to burn more easily and increase your risk of skin cancer.

Photosensitivity is caused by ingestion, inhalation or skin contact with substances known as photosensitisers. Some substances that cause photosensitivity include industrial chemicals, drugs, plants and some essential oils and fragrances.

A risk assessment used to identify work situations where employees are exposed to the sun should also identify any photosensitising substances which may be associated with the work people do.

Common substances that cause photosensitivity

Coal tar and derivatives	
anthracene	phenanthrene
pitch	creosote
Dyes	
acridine	fluorescin
bromofluorescein	methylene blue
eosine	rhodamine
erythrocin	rose bengal
Chlorinated hydrocarbons	
chlorobenzols	triphenyls
diphenyls	
Plants	
bergamot	fennel
bind weed	fig
buttercup	lemon
chrysanthemum	lime
dill	St John's Wort

Source: National Occupational Health and Safety Commission. *Guidance note for the protection of workers from ultraviolet radiation in sunlight*, 1991.

Some medications can cause photosensitivity. Check with your doctor or pharmacist, as alternative medication may be available.

Solar UVR and glass

There are many different types of glass. Each provides very different levels of sun protection.

House window glass

House window glass has an ultraviolet protection factor (UPF) of 10. This means one tenth (10%) of solar UVR will pass through. The window absorbs the remaining 90%. This type of glass provides only moderate protection against solar UVR.

Office building glass

Office building glass has a UPF of 50+, which means one fiftieth (less than 1%) of solar UVR will pass through. The window absorbs the remaining 99%. This type of glass provides excellent protection.

Vehicle glass

The levels of solar UVR inside a car vary, depending on whether the side windows are open or closed and the orientation of the vehicle with respect to the sun.

Laminated windscreens, which are made of a tough plastic layer bonded between two panes of glass, have UPF ratings of 50+. However the plain window glass used in car side windows is usually about a UPF 12, which provides only moderate protection unless clear or tinted film is applied.

A person sitting in a car can still receive significant exposure to solar UVR. The Cancer Council Australia recommends that people who spend long periods of time in a car when UV levels are 3 and above use sun protection. This will ensure occupants are protected both in the vehicle and when they leave it.

Refer to The Cancer Council Australia position statement on tinting of car and window glass. Go to: www.cancer.org.au

Solar UVR and heat

In addition to UVR, the sun emits other radiation including visible light and infrared radiation. We can see visible light and we feel infrared radiation as heat.

Heat or high temperatures are not related to levels of UVR. Temperature relates to the amount of infrared radiation present in sunlight, not UVR, so it is incorrect to use temperature as a guide to determine when sun protection is needed.

Refer to your state or territory OHS authority for more information on heat illness and heat discomfort.

Heat illness

When the body is unable to cope with working in heat, heat illness can occur. Heat illness covers a range of medical conditions including heat stroke, heat exhaustion, heat cramps and skin rashes. Signs and symptoms of heat illness include nausea, dizziness, clumsiness, collapse and convulsions. If left untreated, heat illness can be fatal.



DID YOU KNOW?

It is a common misconception that you can 'feel yourself getting sunburnt'. Solar UVR cannot be seen or felt so it can damage our skin without us knowing.

Exposure to solar UVR and heat illness are separate occupational hazards for outdoor workers. However, the effect of heat must be considered when implementing a sun protection program for the following reasons:

- Working in hot conditions may contribute to non-compliance with sun protection measures. The use of personal protective equipment and clothing may decline due to heat discomfort.
- Inappropriately designed and heavy covering clothing worn for sun protection can contribute to an employee's risk of heat illness. Select material and a design that provides sun protection while keeping workers cool in hot conditions.
- In some cases, control measures can reduce workers' risk of both heat illness and exposure to solar UVR. These include:
 - Provision of shade for outdoor work.
 - Rest breaks in cooler, shaded or indoor areas. Additional breaks may be needed.
 - Provision of loose fitting, lightweight clothing for air movement and sun protection.
 - Changes to work schedules that allow heavy work to occur during cooler times of the day. This may also coincide with the times when solar UVR is less intense, such as early in the morning or late in the afternoon.
 - The use of more people and rotation of workers between cooler, shaded tasks and hot outdoor work.



PROTECTING YOUR WORKERS

When it comes to health in the workplace, prevention is far better than cure. In consultation with health and safety representatives and employees, employers should identify solar UVR exposure hazards, and introduce control measures to reduce exposure.

The Cancer Council Australia recommends that workplaces have a comprehensive sun protection program in place that includes:

- Risk assessment: periodic assessment of the solar UVR exposure risk to all employees.
- Sun protection control measures: the introduction and maintenance of protective measures in line with occupational hazard controls.
- Training employees to work safely in the sun: the provision of information, instruction, training and supervision for employees.
- Sun protection policy: documentation of the program, including control measures, in a written policy.
- Monitoring program effectiveness: a process to determine the effectiveness of control measures and identify changes that may further reduce exposure.

Making a case for sun protection: tips for success

- ☑ *Form a small working party. Seek representatives from across the organisation to investigate, plan, develop and guide implementation of your sun protection program. Health and safety representatives, where in place, should be involved in the working party.*
- ☑ *Research widely to gather information. Collect data and information on numbers of employees at risk, compensation claims for sun-related injuries, incidence of sunburn, and what similar organisations and industries are doing. Clarify your duty of care and legal obligations.*
- ☑ *Consult employees and their representatives. Ask their opinions and needs, and conduct surveys and interviews of employees to learn more about attitudes, awareness of the issue and current behaviour in regard to sun protection.*
- ☑ *Design your sun protection program. Use the recommendations in this booklet to design the program and write your policy. Circulate the draft to seek feedback and approval.*
- ☑ *Establish a budget to develop and implement the program.*
- ☑ *Officially launch the program so all employees are aware of its existence. Use newsletters and websites to publicise the program as widely as possible.*
- ☑ *Document the process. Keep a written record of what has been undertaken and the results of all actions. This will provide valuable information to review the program and policy later, and identify possible reasons for success or failure.*

Visit your state or territory Cancer Council website for more information on how to conduct a solar UVR risk assessment. The Guidance Note for the Protection of Workers from Ultraviolet Radiation in Sunlight (NOHSC) also includes a Solar UVR Exposure Checklist. Visit www.ascc.gov.au to view or obtain a copy.

Remember, for the best protection, use a combination of control measures.



Risk assessment

Risk assessment is a step in the hazard management process used to identify:

- employees who have a high risk of exposure to solar UVR
- situations or work systems where high exposure to solar UVR occurs.

Total exposure to solar UVR during outdoor jobs depends on factors such as:

- the geographical location of the job
- the time of year when outdoor work occurs
- the times of the day when outdoor work occurs
- the pattern and length of exposure – exposure can occur in an ongoing episode or via a series of shorter episodes which add up over the day
- the availability and use of control measures
- the presence of reflective surfaces
- the presence of photosensitisers.

Sun protection control measures

Once the risk has been assessed, employers and employees should work together to make changes to minimise the risk.

A comprehensive sun protection program should include the introduction of protective measures in line with occupational hazard controls including:

- engineering controls, which are measures that reduce exposure to solar UVR by a physical change to the work environment
- administrative controls, which are measures that reduce exposure to solar UVR by a change in work procedure and the way work is organised
- personal protective equipment and clothing, which are measures that reduce exposure to solar UVR by providing a personal barrier between individual workers and the hazard.

Engineering controls

Providing shade, modifying reflective surfaces and using window tinting on vehicles are all examples of engineering controls that reduce workplace exposure to direct and indirect sources of solar UVR.

Provide shade

Shade is one of the most effective forms of sun protection for outdoor workers. Shade can come naturally from trees and shrubs, or artificially from permanent or portable structures, which can be easily erected and adapted to suit different types of equipment and worksites.

Although some forms of shade can initially be expensive, the cost and health benefits are long term. Even if it is difficult for work to occur in the shade, provision should be made for shade during breaks, especially lunch breaks.

When considering shade options to protect workers from solar UVR keep in mind that:

- Shade needs to be effective. To evaluate the effectiveness of shade consider both the protection provided by the vegetation and/or material as well as the coverage the shade provides.
- The quality of shade from natural sources such as vegetation depends on the density of the foliage, the size of the canopy, the shape of the vegetation and how far the canopy is from the ground.
- There are different types of shade materials. Check the UPF rating of shade material used. Look for UPF 15 or more to ensure at least 93% of solar UVR is blocked.
- In general the larger the structure, the more protection provided.
- Position under the shade is important. Levels of solar UVR are greater near the edge of shaded areas than at the centre.
- UPF ratings for shade apply to material only. The overall protection provided also depends on the design of the structure itself, its placement relative to the sun and how it is used.
- Portable shade offers limited protection. It can provide a quick and cheap solution to shade small numbers of people, and is ideal for places where no other shade options are available. Position to allow occupants to work away from sides and openings.
- Existing shade at the worksite, such as buildings, trees and other structures, may provide shade for workers. Look to relocate jobs to take advantage of existing shade if possible.
- You can never rely on shade alone. An employee working in the shade may still receive a substantial amount of exposure from indirect sources of solar UVR such as reflection from a nearby surface. Always combine shade with personal sun protection measures.

Refer to your state and territory Cancer Council for more information on types of shade, effective shade planning and shade development.

Modify reflective surfaces

Some ground and building surfaces reflect solar UVR.

Material	Level of reflected UV radiation
Lawn grass, summer/winter	2.0% – 5.0%
Grasslands	0.8% – 1.6%
Soil, clay/humus	4.0% – 6.0%
Asphalt roadway, new (black), old (grey)	4.1% – 8.9%
House paint, white	22.0%
Boat deck, wood/fibreglass	6.6% – 9.1%
Open water	3.3%
Open ocean	8.0%
Sea surf, white foam	25.0% – 30.0%
Beach sand, wet	7.1%
Beach sand, dry, light	15.0% – 18.0%
Snow, old/new	50.0% – 88.0%
Concrete footpath	8.2% – 12.0%

Source: Sliney DH. *Physical factors in cataractogenesis: Ambient ultraviolet radiation and temperature*, 1986.

When considering changes to reduce exposure to indirect solar UVR from reflective sources, keep in mind:

- Surface type: soft and rough surfaces reflect less solar UVR than hard and/or smooth surfaces.
- Colour: simply painting a surface a less reflective colour can reduce indirect exposure.

Consider window tinting

Clear or tinted films applied to the side windows of a vehicle can substantially reduce the amount of solar UVR transmitted into a vehicle. The amount of protection varies with different products, so check with the product supplier.

Applying films and tints will only be effective if the windows are closed, so air conditioning of vehicles may also be required.

Businesses must weigh up the costs against the benefits.

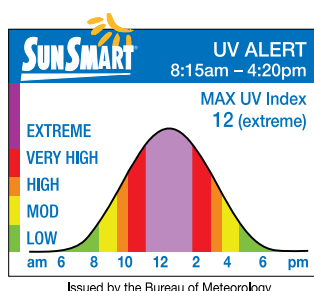
Administrative controls

An effective way to protect workers is to encourage them to minimise the amount of time spent working in the sun, particularly when levels of solar UVR are strongest.

Reschedule outdoor work programs

When considering changes to outdoor work schedules to minimise exposure:

- Plan work routines so outdoor work tasks are done early in the morning or later in the afternoon when levels of solar UVR are lower.
- Plan work routines so indoor or shaded work tasks are done during the middle of the day when levels of solar UVR are strongest.
- Move the job indoors or into shaded areas.
- Share outdoor tasks and rotate staff so the same person is not always out in the sun.



Use the SunSmart UV Alert

Introduce a new system that encourages workers to look at the SunSmart UV Alert every day. The UV Alert tells workers on a daily basis when to use sun protection measures.

- Establish a system for all employees to receive a daily text message reminder of the UV Alert.
- Ensure newspapers are available to employees and encourage them to check the UV Alert on a daily basis. Leave them open at the weather page.
- Set up a SunSmart UV Alert sign at key worksite entrance and exit points and on bulletin boards in the staff tearoom. Change the sign on a daily basis to reflect the Alert forecast for the coming day.
- Plan work schedules based on the UV Alert.
- Make SunSmart UV Alert announcements during the day.
- Ensure workers are trained in 'how to read' the SunSmart UV Alert.

The SunSmart UV Alert is reported for over 200 locations across Australia, so check and use the UV Alert for the location closest to your worksite.

Personal protective equipment and clothing

The use of personal protective equipment and clothing (PPE) in regards to sun protection includes:

- provision of sun protective work clothing
- provision and use of sun protective hats
- provision and use of sunglasses
- provision and use of sunscreen.

Choose carefully when using PPE as the control option, keeping in mind the type of outdoor work being performed. The design must balance sun protection with the need to stay cool in hot conditions.

Employees must be trained in the correct use of all PPE. It is important that design and/or usage do not create a secondary hazard such as loose clothing becoming caught in machinery.

Sun protective work clothing

One of the most effective barriers between skin and the sun is clothing. The overall protection provided by clothing depends both on the material from which it is made and the garment's design.

When selecting sun protective clothing for outdoor workers keep in mind that:

- Different types of fabric provide different protection. Closeness of weave, colour and condition can affect the ability of material to absorb solar UVR.
- Fabrics may carry a swing tag with a UPF rating. These fabrics have been tested to determine how effective they are at blocking solar UVR. The higher the UPF rating, the more protection provided. UPF 50+ provides the best protection.
- Fabrics that do not carry a UPF rating do not necessarily offer less protection. It just means they haven't been tested for sun protection.
- The design should cover as much skin as possible. Long pants and shirts with a collar and long sleeves provide the best sun protection.
- Keeping cool is also important. Specially designed work clothing is now available that is lightweight and cool, yet still provides maximum sun protection. In the heat it is important that garments draw perspiration away from the body to help the body stay cool.



Refer to your state or territory Cancer Council for more information on what to look for when choosing sun protective clothing and hats.

Sun protective hats

A sun protective hat is one that shades the face, head, ears and neck. As with clothing, the overall protection provided depends on the material from which the hat is made together with the design.

When selecting sun protective hats for your outdoor employees keep in mind that:

- You will need to check the UPF rating of the fabric. If you can see through the hat material, the sun will get through, which is why a close weave is important. As with clothing, hats will carry a swing tag if the material has been tested to determine how effectively it blocks solar UVR.
- A broad brimmed bucket or legionnaire style hat provides best protection. Research has shown that broad brimmed and bucket hats provide the most sun protection for the face and head. Legionnaire hats provide satisfactory sun protection and are more suitable when work involves a lot of bending.
- Baseball caps do not provide protection from solar UVR. Baseball caps are not recommended as they fail to shade most of the face, neck or ears.
- Broad brimmed hats should have a brim of at least 7.5cm.
- Bucket hats should have a deep crown, sit low on the head and have an angled brim of at least 6cm.
- Legionnaire style hats should have a flap that covers the neck. The side of the flap should meet with the peak to provide protection to the side of the face.
- Attachable brims and neck flaps are available for hard hats or helmets.
- Hats should always be used in combination with other forms of sun protection.
- A broad brimmed hat alone can reduce sun exposure to the eyes by 50%. When teamed with sunglasses and sunscreen, protection provided substantially increases.



Sunglasses

Sunglasses can provide excellent protection for the eyes. The overall protection provided depends on the protective qualities of the lens together with the design of the sunglasses.



Refer to your state or territory Cancer Council for more information on sunglasses.



EPF rating symbol



Symbol required when sunglasses must not be used when driving.



DID YOU KNOW?

The darkness of the lens should not be used to gauge protection from solar UVR. Some clear lenses may provide maximum protection from solar UVR, although a tint is desirable to reduce glare.

When selecting sunglasses for your employees, keep in mind that:

- All sunglasses sold in Australia must comply with the sunglass standard AS/NZS 1067:2003: Sunglasses and Fashion Spectacles.
- The sunglass standard defines five categories of lenses and all sunglasses sold in Australia must be labelled to indicate which category they comply with. Look for the words 'good UV protection' on the label or swing tag and be aware that category 0 and 1 are fashion spectacles – not sunglasses.
- Due to colour or darkness of the lens some sunglasses must not be used when driving. If your employees are required to operate vehicles, read the label description carefully to ensure sunglasses are suitable for driving.
- Some sunglasses may be labelled with an eye protection factor or EPF. This is a scale from one to 10 which is used to classify how well a lens blocks solar UVR. If a lens has been tested it may state an EPF rating on the label. Sunglasses with an EPF of 9 and 10 transmit almost no solar UVR.
- Close-fitting, wrap around style sunglasses are best. This design stops solar UVR from entering the sides and top of the lenses.
- Polarised lenses reduce glare, which is reflected visible light. This makes it easier to see on a sunny day.
- Some workers may need additional eye protection from flying objects or glare. In this case, choose specialist safety sunglasses that meet the standard for safety glasses AS/NZS 1337:1992: Eye protectors for industrial applications. Safety glasses still provide good UV protection but will require tinting for use outdoors.
- Prescription glasses, either clear or tinted, are excluded from AS/NZS 1067 but may still provide protection against solar UVR. Employees with prescription glasses or prescription sunglasses should check with their optometrist. Fit-overs are recommended for eyeglasses as few are close fitting and wrap around in style.



DID YOU KNOW?

The price of sunglasses does not have any relationship to protection from solar UVR. Low cost sunglasses that comply with the sunglass standard may also provide excellent protection from solar UVR.

Sunscreen

Sunscreen should always be used with other sun protection measures. It is important to realise that no sunscreen offers 100% protection from solar UVR.

When providing sunscreens as PPE keep in mind that:

- All sunscreen must carry a sun protection factor (SPF) rating. The Cancer Council Australia recommends the use of SPF 30+, broad-spectrum and water resistant sunscreen. Broad-spectrum sunscreen filters both UVA and UVB radiation.
- Workers must be educated on the correct way to apply and use sunscreen:
 - Sunscreen should be applied 20 minutes before going outdoors so that it can be absorbed into the skin properly.

- Regardless of the instructions on the bottle, sunscreen should be reapplied every two hours, or more often if perspiring.
- Apply sunscreen to clean, dry skin.
- Use a generous amount of sunscreen. The average-sized adult should apply at least one teaspoon of sunscreen to each arm, leg, front of body and back of body and at least half a teaspoon to the face (including the ears and neck). That is, 35ml of sunscreen for one full body application.
- Any moisturiser or make up should be applied on top of sunscreen.
- Price is not always an indication of quality. Any broad-spectrum sunscreen with an SPF 30+ rating will, if applied correctly, provide good sun protection.
- Sunscreen should be kept in easily accessible places, such as tearooms and site offices, and stocks replaced regularly to avoid deterioration.
- Sunscreen can go off, so always check the expiry date and store in a cool place below 30° C.
- Sunscreen can be bought as a cream, lotion, milk or gel. All sunscreens labelled SPF 30+, broad-spectrum work equally well.
- Lips also need to be protected with a lip balm containing SPF 30+.



Refer to your state or territory Cancer Council for more detailed information on sunscreen.



DID YOU KNOW?

The Australian Taxation Office has recognised the importance of sun protection for outdoor workers, with tax deductions available for sunscreen, hats and sunglasses. Visit www.ato.gov.au for further information.

In summary, The Cancer Council Australia recommends five simple steps to protect workers from sun damage:

1. Reduce exposure to solar UVR

2. Slip on sun protective work clothing

3. Slap on a hat

4. Slide on some sunglasses

5. Slop on SPF 30+ sunscreen



Control measures: tips for success

- ☒ Involve employees in designing and/or selecting suitable sun protective clothing and hats, sunglasses and sunscreen. Ask employees which styles and types they prefer.
- ☒ Select a manufacturer or supplier who is able to respond to the needs of your industry/workers and design/develop new sun protective products.
- ☒ Trial new initiatives. Have outdoor workers trial samples of sun protection clothing and equipment and ask for their views. Some workplaces have a timeline to phase in new uniforms.
- ☒ Document feedback. It is particularly important that any feedback, including complaints about changes to clothing or work practices, is documented as soon as it is received.
- ☒ Set an example. Ensure managers and supervisors model the use of all sun protective behaviour and practices.
- ☒ Train employees in the use of sun protective PPE. There are many misconceptions about the use of sun protection that can be dispelled when workers are informed.
- ☒ Sun protection in the workplace is more than Slip! Slop! Slap! Ensure your workers are aware of all the sun protection control measures and the importance of using each in combination, wherever possible.

Refer to your state or territory Cancer Council for resources, advice and services to help with the design and delivery of education and training for employees.

Training employees to work safely in the sun

Raising awareness and providing education and training to safety officers, health and safety representatives, supervisors, outdoor employees and new staff is essential to the success of a workplace sun protection program.

A workplace training program can:

- raise the profile of sun protection as a health and safety issue
- improve knowledge and understanding of sun protection measures
- dispel common misconceptions about solar UVR and various sun protection measures
- provide new staff with information on sun protective measures in place within your organisation
- help employees detect the early signs of skin cancer
- provide safety personnel and site supervisors with knowledge to confidently address issues that may arise
- improve sun protection behaviour of employees both 'on' and 'off' the job
- raise employees' awareness about your workplace sun protection program and policy
- demonstrate the commitment of management to providing a safe working environment
- provide a forum for feedback from employees.

Topics should include:

- harmful health effects of exposure to solar UVR
- risk factors for skin cancer
- factors affecting levels of solar UVR
- correct application and use of sun protection measures
- how to check for skin cancer
- what to look for when checking for skin cancer
- what to do if concerned about a suspicious spot.

Education and training: tips for success

- ☑ Target groups for training include management, health and safety personnel, safety officers, worksite supervisors, at risk employees and new employees.
- ☑ Tailor your training program to meet the ongoing needs of the workplace and employees. Use employee surveys, audit results and checklists to identify needs.
- ☑ Use a variety of training methods and tools including: tool box talks, guest speakers, introductory or refresher sessions, newsletter articles, poster displays, dissemination of educational brochures and flyers, health and safety noticeboard, reminders via staff meetings and SMS messages, signage and pay slip notes.
- ☑ Be creative: use incentive programs, role modelling, family events and competitions to raise awareness about the issue. Try a SunSmart employee of the month or SunSmart team of the week award. Remember, colleagues with a personal experience to share can be powerful advocates for sun protection.



A workplace sun protection policy

A sun protection policy is a written document that records why and how the solar UVR risk is to be managed by your workplace.

A sun protection policy should include the following key elements:

- description of the hazard and key reasons for the policy
- details of sun protection control measures to action
- details of education and training requirements
- an outline of who is responsible for implementation and monitoring
- procedures for managing non-compliance
- details of review processes.

(Refer to page 27 for a sample sun protection policy.)

Developing a policy: tips for success

- ☑ *Decide if your organisation needs a new policy or if an existing OHS policy can be modified to incorporate sun protection.*
- ☑ *Circulate drafts of the policy for comment.*
- ☑ *Include procedures for dealing with non-compliance and complaints. Non-compliance with the sun protection policy should be managed, as any other non-compliance issue would be. Use the organisation's standard disciplinary procedures.*
- ☑ *Ensure management is well informed and confident to deal with questions about the policy and non-compliance.*
- ☑ *Set realistic timeframes for the implementation of the policy and its ongoing review. Some workplaces designate a period for adjustment before making sun protection equipment compulsory.*
- ☑ *Regularly reassess the risk and review the policy to ensure it remains current.*

Monitoring program effectiveness

When sun protection control measures have been implemented they must be monitored and reviewed on a regular basis, or at least every two years. Employers must also provide supervision to ensure correct use and compliance with control measures.

Where possible, incorporate monitoring of sun protection control measures into existing audit tools used in the workplace, including OHS inspections, on-site supervisor reports and checklists.

Where monitoring reveals non-compliance, it should be managed, as any other non-compliance issue would be, by using the organisation's standard disciplinary procedures.

Reviewing your sun protection program

It is important to show that your overall sun protection program is successfully implemented. To review the program:

- Ask staff for comments, concerns or difficulties experienced with the new policy and/or control measures.
- Repeat the risk assessment to provide information on changes in solar UVR risk levels and success of sun protection control measures.
- Examine results of monitoring processes to identify behaviour changes in regards to sun protection and the extent of compliance with control measures.
- Repeat employee surveys to identify changes in attitudes and awareness of the issue.



Monitoring and review: tips for success

- ☒ *Monitor the program and the use of control measures closely in the first 12 months.*
- ☒ *Establish a system for collecting regular and ongoing feedback from employees. Try surveys, focus group interviews and employee quizzes.*
- ☒ *Ensure feedback is documented and considered when making changes.*
- ☒ *Consult with employees and their representatives prior to making changes.*
- ☒ *Once established, review the program and policy on a regular basis, or at least every two years.*
- ☒ *Use information gathered during monitoring processes to inform training needs.*



HEALTH SURVEILLANCE AND SKIN CANCER

Skin cancer may appear as either a new skin growth or one that has changed in colour, size, shape or texture. Skin cancer can usually be cured if treated early.

It is important to note that there is no screening program in Australia for either melanoma or non-melanoma skin cancer, as they do not meet the recognised criteria for cancer screening.

The Cancer Council Australia and the Australasian College of Dermatologists do however recommend the involvement of general practitioners to monitor and assess patients identified as high risk, or patients with concerns about skin cancer.

The early diagnosis and treatment of skin cancer relies heavily on early detection, with an emphasis on self-examination.

Recommendations for workplaces

Occupational health and safety legislation requires employers to monitor the health of employees. In regards to skin cancer, this entails encouraging employees to examine their own skin.

To enable employees to effectively examine their own skin, employers are required to provide employees with the appropriate self-examination information. This means your employees must be well informed about:

- the need to check their own skin
- the importance of becoming familiar with how their skin normally looks
- how often they should examine their skin
- tips on how to examine their skin
- what to look for when examining their skin
- what to do if a suspicious spot is noticed.

This information is available via leaflets and posters from your state or territory Cancer Council.

... there is no screening program in Australia for either melanoma or non-melanoma skin cancer ...

Early diagnosis and treatment of skin cancer relies heavily on early detection, with an emphasis on self-examination.

How to check for skin cancers

Do you check for skin cancers? It could save your life.
Carefully inspect all of your skin, looking for spots that are new or have changed colour, size or shape. See your doctor if you notice anything unusual as skin cancer can be cured if treated early.

Skin cancers - see your doctor			Warning signs	
	Melanoma	Melanoma		Solar keratosis
	Nodular melanoma	Nodular melanoma		Solar keratosis
	Basal cell carcinoma	Basal cell carcinoma		Moles
	Squamous cell carcinoma	Squamous cell carcinoma		Seborrheic keratosis

Call **The Cancer Council Helpline 13 11 20** for more information or visit www.cancersa.org.au.

Outdoor workers should regularly look at their skin for suspicious spots ... It is important that workers know what their skin looks like normally so changes will be noticed.



Refer to your state or territory Cancer Council for more information and advice on skin clinics.

Key early detection messages for employees

Outdoor workers should regularly look at their skin for suspicious spots. A good way to remember is to check your skin with each change of season. It is important that workers know what their skin looks like normally so changes will be noticed.

Tips on how to check your skin:

- Check your whole body including the soles of your feet, between your toes, your armpits, ears, eyelids, under your fingernails and scalp.
- Use a hand held mirror or have someone help you to check areas you cannot see such as your back, back of your neck and legs.
- Look for a new spot or a spot that is different from the ones around it.
- Look for a sore that doesn't heal.
- Look for a spot or mole that has changed in size, shape or colour.
- Use the information found in the educational material from state and territory Cancer Councils for pictures and descriptions of skin spots to watch.

Workers should be advised to see their doctor as soon as possible if they notice anything unusual or have concerns about their skin.

Workplace medical checks and skin cancer

The Cancer Council Australia recommends workplaces focus their health surveillance activities on encouraging workers to examine their own skin and providing information to promote the key early detection messages outlined above. However, some workplaces want to provide skin cancer checks within their regular medical examination activities.

The decision to provide a skin cancer check service for outdoor employees should be carefully considered for reasons such as:

- Skin cancer can grow quickly. There is a danger workers will come to rely on skin cancer checks provided by their workplace and therefore fail to notice a skin cancer that appears in the interim.
- A focus on skin cancer checks may result in workers becoming complacent about the use of sun protection control measures to prevent skin cancer.
- The experience and expertise and therefore the quality of service providers vary.
- Your legal obligations may not be met unless there is a clear emphasis on workers knowing how to regularly examine their own skin.
- If skin cancer checks are conducted on a voluntary basis, early detection messages, if delivered, will not reach workers who choose not to attend.

The Cancer Council Australia does not operate, recommend or endorse any skin check services or clinics. If your organisation decides to provide a skin cancer check for workers, it is important to ensure the medical practitioner conducting the checks has expertise and training in the area of skin cancer.

The medical practitioner or skin check service provider should:

- Identify workers at high risk such as those with a family history of skin cancer, workers with fair skin that burns rather than tans, workers who are aged 50 or over, workers who have solar keratoses.
- Always promote the complete early detection message – see above for key early detection messages for employees.

- Always encourage workers to 'get to know their own skin' so changes will be noticed.
- Stress the importance of workers checking their skin regularly throughout the year and not relying on workplace medical checks to detect skin cancer.
- Provide information on how to check for skin cancer.
- Undertake a full body examination for skin cancer.
- Keep a record of the skin examination including a body map documenting suspicious spots.
- Refer the employee to their own doctor or a skin specialist if skin cancer is suspected, for confirmation of diagnosis and further action.
- Stress to the employee the importance of getting further diagnosis and treatment without delay.
- Consider a process to ensure employees follow up with referrals and receive diagnosis and treatment.
- Remind your worker that prevention is better than cure.

Remember: All workers should be encouraged, and provided with information, to examine their own skin, whether they attend a workplace skin cancer check or not.

Refer to The Cancer Council Australia position statement on screening and early detection in regards to skin cancer. Go to www.cancer.org.au





A SAMPLE SUN PROTECTION POLICY FOR WORKPLACES

This sample sun protection policy is intended as a guide only. Organisations should use aspects to tailor a policy that suits the needs and practicalities of their own organisation.

(Organisation Name) sun protection policy

Rationale

Australia has the highest rate of skin cancer in the world. Despite being an almost entirely preventable disease it continues to affect at least one in every two Australians during their lifetime. Of all new cancers diagnosed in Australia each year, 80% are skin cancers.

Employees who work outdoors for all or part of the day have a higher than average risk of skin cancer. This is because ultraviolet radiation in sunlight or 'solar UVR' is a known carcinogen.

All skin types can be damaged by exposure to solar UVR. Damage is permanent and irreversible and increases with each exposure.

(Organisation Name) has an obligation to provide a working environment that is safe and without risks to health. This obligation includes taking proper steps to reduce the known health risks associated with exposure to solar UVR for outdoor workers.

Aims

This policy aims to provide ongoing organisational support to reduce employee exposure to solar UVR by implementing appropriate sun protection control measures.

Our commitment

(Organisation Name) will conduct a risk assessment in consultation with health and safety representatives and employees to identify employees who have a high risk of exposure to solar UVR, and work situations where exposure to solar UVR occurs.

(Organisation Name) will reduce employees' exposure to solar UVR by requiring the use of sun protection control measures by outdoor workers when the UV Index is 3 and above, and at all times when working in alpine regions or near highly reflective surfaces.

(Organisation Name) recognises that the SunSmart UV Alert is issued whenever the UV Index is forecast to reach 3 and above, and will use the time period displayed to inform employees when it is necessary to use sun protection control measures while working outdoors.

(Organisation Name) recognises that supervision of outdoor workers and monitoring of the use of sun protection control measures is required to ensure compliance.

(Organisation Name) recognises that standard company grievance procedures will be initiated where an employee fails to comply with sun protective control measures.

(Organisation Name) will ensure injury reporting procedures are followed when an incident of sunburn or excessive exposure to solar UVR occurs in the workplace.

(Organisation Name) recognises that a combination of sun protection control measures, which includes engineering and administrative controls and personal protective equipment and clothing, provides the best protection to employees from exposure to solar UVR.

Management will:

- provide shaded areas or temporary shade where possible
- encourage workers to move jobs where possible to shaded areas
- consider applying window tinting to work vehicles
- modify reflective surfaces where possible
- identify and minimise contact with photosensitising substances
- provide indoor areas or shaded outdoor areas for rest/meal breaks
- schedule outdoor work tasks to occur when levels of solar UVR are less intense, such as earlier in the morning or later in the afternoon
- schedule indoor/shaded work tasks to occur when levels of solar UVR are strongest, such as the middle part of the day
- encourage employees to rotate between indoor/shaded and outdoor tasks to avoid exposing any one individual to solar UVR for long periods of time
- provide daily access to the SunSmart UV Alert
- provide and ensure use of appropriate sun protective PPE in line with SunSmart guidelines including:
 - sun protective work clothing
 - sun protective hats
 - sunglasses
 - sunscreen
- provide training to employees to enable them to work safely in the sun
- ensure training is provided as part of induction for new employees
- ensure employees are provided with information to effectively examine their own skin
- ensure managers and supervisors act as positive role models
- adopt sun protection practices during all company social events
- promote the use of sun protection measures 'off the job'.

Employees will:

- cooperate with all measures introduced by management to minimise the risks associated with exposure to solar UVR
- comply with instructions and advice in regards to the use of sun protection control measures
- participate in sun protection education programs
- act as positive role models
- be responsible for their own sun protective practices at work.

Review

This policy will be reviewed on a regular basis, or at least every two years.

Name (please print): _____

Position: _____

Signature: _____

Date: _____

Date of next policy review: _____

FURTHER INFORMATION AND CONTACTS

The Cancer Council Australia is Australia's peak cancer control organisation. Its members are the eight state and territory Cancer Councils (see below), which work together to undertake and fund cancer research, prevent and control cancer and provide information and support for people affected by cancer.

People seeking information and advice about skin cancer and sun protection can:

- Call The Cancer Council Helpline on 13 11 20
- Visit www.cancer.org.au/sunsmart

The Cancer Council Australia

92–94 Parramatta Rd
CAMPERDOWN NSW 2050
Tel: (02) 9036 3100
Fax: (02) 9036 3101
Email: info@cancer.org.au
Website: www.cancer.org.au

The Cancer Council ACT

Building 44
5 Richmond Avenue
FAIRBARN ACT 2609
Tel: (02) 6257 9999
Fax: (02) 6257 5055
Email: reception@actcancer.org
Website: www.actcancer.org

The Cancer Council New South Wales

153 Dowling Street
WOOLLOOMOOLOO NSW 2011
Tel: (02) 9334 1900
Fax: (02) 9358 1452
Email: feedback@nswcc.org.au
Website: www.cancercouncil.com.au

The Cancer Council Northern Territory

Unit 2, Casi House
Vanderlin Drive
CASUARINA NT 0810
Tel: (08) 8927 4888
Fax: (08) 8927 4990
Email: admin@cancernt.org.au
Website: www.cancercouncilnt.com.au

The Cancer Council Tasmania

180–184 Collins Street
HOBART TAS 7000
Tel: (03) 6233 2030
Fax: (03) 6233 2123
Email: infotas@cancer.org.au
Website: www.cancertas.org.au

The Cancer Council Victoria

1 Rathdowne Street
CARLTON VIC 3053
Tel: (03) 9635 5000
Fax: (03) 9635 5270
Email: enquiries@cancervic.org.au
Website: www.cancervic.org.au

The Cancer Council Western Australia

46 Ventnor Avenue
WEST PERTH WA 6005
Tel: (08) 9212 4333
Fax: (08) 9212 4334
Email: inquiries@cancerwa.asn.au
Website: www.cancerwa.asn.au

The Cancer Council Queensland

553 Gregory Terrace
FORTITUDE VALLEY QLD 4006
Tel: (07) 3258 2200
Fax: (07) 3257 1306
Email: qldcf@qldcancer.com.au
Website: www.cancerqld.org.au

The Cancer Council South Australia

202 Greenhill Road
EASTWOOD SA 5063
Tel: (08) 8291 4111
Fax: (08) 8291 4122
Email: cancersa@cancersa.org.au
Website: www.cancersa.org.au

Sun protection products can be purchased from your nearest Cancer Council retail outlet. For more information call Toll Free 1300 363 433.

REFERENCES

1. WHO/IARC. Volume 55: Solar and ultraviolet radiation. *IARC monographs on the evaluation of carcinogenic risks to humans*. Paris: World Health Organization/International Agency for Research on Cancer, 1992.
2. Calculated by M. Staples from data contained in National Cancer Control Initiative. *The 2002 National Non-melanoma Skin Cancer Survey*. A report by the NCCI Non-melanoma Skin Cancer Working Group. Edited by MP Staples. Melbourne: NCCI, 2003.
3. Roy CR, Gies P. Ozone depletion and its calculation effect on solar UVB radiation levels for some Australian cities. *Health effects of ozone layer depletion*, Report of the NHMRC 1989.
4. Leyden JJ. Clinical features of ageing skin. *British Journal of Dermatology* 1990; 122: 1–3.
5. Armstrong BK. How sun exposure causes skin cancer: An epidemiological perspective. In: Hill D, Elwood JM, English DR, eds. *Prevention of skin cancer*. Dordrecht, the Netherlands: Kluwer Academic Publishers, 2004, 89–116.
6. Australian Safety and Compensation Council. *Report on indicators for occupational disease*, 2006.
7. Australian Radiation Protection and Nuclear Safety Agency. *Radiation protection standard for occupational exposure to ultraviolet radiation*, 2006.
8. National Occupational Health and Safety Commission. *Guidance note for the protection of workers from ultraviolet radiation in sunlight*. Australian Government Publishing Service, 1991.
9. World Health Organization. *INTERSUN: the Global UV Project: A guide and compendium*. 2003.
10. Australian Radiation Protection and Nuclear Safety Agency. *Resource guide for UV protective products*, 2003.
11. Azizi E, Flint P, Sadetzki S, Solomon A, Lerman Y, Harari G, Pavlotsky F, Kushelevsky A, Glesinger R, Shani E, Rosenberg L. A graded work site intervention program to improve sun protection and skin cancer awareness in outdoor workers in Israel. *Cancer Causes and Control* 2000; 11: 513–521.

REFERENCED MATERIAL

Queensland Cancer Fund. *SunSmart policy guidelines: Working towards a SunSmart Queensland*.

Queensland Government, Workplace Health and Safety. *Safety Link - Health: Controlling excessive exposure to ultraviolet radiation*, 2001.

Sliney DH. *Physical factors in cataractogenesis: Ambient ultraviolet radiation and temperature*. Investigative Ophthalmology and Visual Science 1986; 27:781–790.

The Cancer Council Australia. *Position statement: Screening and early detection of skin cancer*, 2004.

The Cancer Council Australia. *Position statement: Sun protection in the workplace*, 2005.

The Cancer Council Australia. *Position statement: Tinting of car and window glass for protection against solar ultraviolet radiation*, 2004.

The Cancer Council NSW. *How to check your skin*, (website information) 2004.

The Cancer Council NSW. *Your guide to skin clinics*, (website information) 2004.

The Cancer Council NSW. *Sun safety at work: Policy on protection from ultraviolet radiation for outdoor workers*, 2004.

The Cancer Council SA. *Your guide to skin clinics*, 2004.

The Cancer Council Victoria. *Shade for everyone: A practical guide for shade development*, 2004.

The Cancer Council WA. *Workplace series: The workplace sun protection policy guidelines and sample policy*, 2004.

The Cancer Council WA. *Workplace series: Protecting workers from the sun*, 2004.

The Cancer Council WA. *Workplace series: The sun and outdoor workers*, 2004.

WorkSafe Victoria. *Information for employees: Occupational Health and Safety Act 2004*, 2005.

WorkSafe Victoria. *Information for employees on health and safety*, 2006.

WorkSafe Victoria. *Information for employers: Occupational Health and Safety Act 2004*, 2005.

EXPLANATION OF TERMS AND ABBREVIATIONS

ARPANSA: Australian Radiation Protection and Nuclear Safety Agency.

Carcinogen: Any substance that can cause cancer.

Employee: Covers all staff with a verbal or written contract of employment or training. This includes direct employees, managers or supervisors, group training placements or apprentices. An employee also includes an independent contractor engaged by the employer, a sub contractor or an employee of that contractor, or a person whose services are provided to an employer by a labour hire or recruitment agency.

Erythema: Reddening of the skin due to UVR exposure, as in sunburn.

Eye protection factor (EPF): A measure of the amount of protection against solar UVR provided by sunglasses that have been tested in accordance with Australian Standard, AS 1067: 2003.

NOHSC: National Occupational Health and Safety Commission.

Outdoor worker: An employee who in the course of their duties is required to work outdoors for part or all of the day.

PPE: Personal protective equipment and clothing.

Skin cancer: Cancer that starts in the cells of the skin. Types include basal cell carcinoma, which starts in the basal cells of the skin; squamous cell carcinoma, which starts in the squamous cells of the skin; and melanoma, which starts in the melanocytes of the skin.

Solar radiation: Electromagnetic radiation emitted by the sun. At the earth's surface it consists of visible light, infrared radiation and ultraviolet radiation or UVR.

Solar ultraviolet radiation (solar UVR): Refers to the components of ultraviolet radiation emitted by the sun that reach the earth's surface. It contains radiation in the range 290 to 400 nanometres. Wavelengths in the range 100 to 280 nanometres (all UVC and 90% of UVB) are completely absorbed in the atmosphere.

Sunburn: Reddening of the skin due to UVR exposure, also known as erythema.

Sun protection: Various health and safety issues can arise during outdoor work due to exposure to the sun. For the purpose of this booklet, the term sun protection refers to the modification of the work environment or use of equipment or clothing specifically to reduce exposure and protect against solar UVR.

Sun protection factor (SPF): A measure of the amount of protection provided by a sunscreen against solar UVR. SPF ratings are determined by testing sunscreens on the skin of human volunteers in accordance with Australian Standard AS2604: 1998.

SunSmart UV Alert: A tool which informs people about when UV Index levels will be high enough to damage the skin and when it is necessary to use sun protection measures. The SunSmart UV Alert is issued by the Bureau of Meteorology when the UV Index is forecast to reach 3 or above.

Ultraviolet protection factor (UPF): A measure of the UVR protection provided by fabric. UPF ratings are determined by testing fabrics in a laboratory in accordance with Australian Standard AS/NZS 4399: 1996.

Ultraviolet radiation (UV radiation or UVR): Part of the electromagnetic spectrum emitted by the sun. Ultraviolet radiation refers to all ultraviolet radiation in the range 100 to 400 nanometres which can be further classified by wavelength into three regions: UVA, UVB and UVC.

UVA: Ultraviolet radiation in the range 315–400 nanometres.

UVB: Ultraviolet radiation in the range 280–315 nanometres.

UVC: Ultraviolet radiation in the range 100–280 nanometres.

UV Index: A unitless number that describes the amount of solar UVR that reaches the earth's surface. The higher the UV Index, the more solar UVR present and the greater the potential for skin and eye damage.

NOTES

[illegible]



