

# Activity 25: A SunSmart policy for your school

## Aims

- To consider issues of who is responsible for sun protection.
- To consider ways a school community could protect the health of its members.

**Assessment outcomes** English 4.4; H&PE 4.6, 5.7; S&E 4.11

**Reference fact sheets** Fact sheet 1: Skin cancer  
Fact sheet 4: Ultraviolet radiation  
Fact sheet 7: Sunscreens  
Fact sheet 8: Hats  
Fact sheet 9: Sun protection from clothing

**Worksheet** Worksheet 25: A SunSmart policy for your school

## Requirements

Copies of the relevant school policies and student rules relating to SunSmart.

## Teacher guidelines

- 1 Begin by raising the issue of whether the school has a responsibility to ensure students are SunSmart, particularly in light of already having considered the risks of skin cancer. To what extent should the students take individual responsibility?
- 2 You will need to explain how a policy impacts on actual practice in the school. Give some examples to illustrate this point, such as a uniform policy, student well-being or camp/excursion policies.
- 3
  - a) Debate: 'That it is the school's responsibility to protect student from UV radiation'.
  - b) Debate: 'That students who don't bring their own hats and sunscreen should get detention'.
- 4 Students should conduct an evaluation of the school's approach to SunSmart by discussing the answers to the following questions in small groups:
  - Does the school recommend that students wear hats in terms 1 and 4? If not, why not? Should it be compulsory?
  - What type of hat does the school recommend students wear? How is this monitored?
  - How many students usually wear hats in terms 1 and 4?
  - Does the school actively encourage teachers to wear hats while outside in terms 1 and 4?
  - Has the school uniform been designed to be SunSmart?
  - Does the school provide SPF 30+ sunscreen for student use in terms 1 and 4?
  - Does the school encourage students to bring SPF 30+ sunscreen to school?
  - Does the school have any guidelines that recommend skin protection is included in the curriculum? Have students learnt about being SunSmart in other subjects?
  - Does the school need more shade than is currently available? Are there plans to increase the amount of shade over the next few years?
  - What types of shade are available for student use?
  - What percentage of school outdoor areas provide appropriate shade from 10 am until 3 pm?
  - Does the school need more shade than is currently available? Are there plans to to increase the amount of shade?

## Activity 25: A SunSmart policy for your school (cont.)

- Is the timetable designed to minimise outdoor activities between 10 am and 3 pm in terms 1 and 4?
  - Are students encouraged to be SunSmart during outdoor activities such as during physical education classes, sport days, camps and other all-day events?
- 5 a) Look at any existing school SunSmart policy and discuss this with the class, in the light of the evaluation undertaken in small groups. Is it an effective policy? How is it monitored? Are there any changes that should be made?
- b) If there is no SunSmart policy, discuss what should be included in light of the evaluation. Include:
- shade
  - organisation of outdoor lessons and breaks
  - all-day events
  - curriculum/school programs
  - clothing
  - sunscreen
  - staff sun safety.

At what times of the year and day would the policy need to particularly apply?

How can the policy be made effective? How can students and teachers be encouraged to follow the policy?

- 6 Distribute Worksheet 25: 'A SunSmart policy for your school'. In small groups, students should consider each statement of an allocated section of the policy document and suggest whether it should be a high, medium or low priority in the development of a new school policy. Groups should report back to the class on the priorities for their particular section.
- 7 Discuss what steps students believe would need to be taken to actually develop or amend a school SunSmart policy. Depending on the feedback from the class, you may like to consider one of suggested extension activities listed below.
- 8 Students will need to consider the options available for carrying out their campaign, particularly the organisational issues. These will include the gaining of permission from the appropriate people such as the principal, assistant principal and relevant coordinators.

### Extension activities

- Write a proposal to school council recommending changes. This could involve a complete SunSmart policy or a particular section of interest to students.
- Organise a debate on one of the more contentious issues that may have been raised.
- Consider ways to monitor or evaluate the effectiveness of a SunSmart policy. How frequently should this be done? How best to use the results?

### Reference

More information is provided in *UV risk reduction: a planning guide for secondary school communities*, 2001, which is available by contacting **The Cancer Council Helpline 13 11 20**.

# Worksheet 25: A SunSmart policy for your school

**SunSmart school policies are built on a partnership between school councils, parents, staff and students.**

**Evaluate each statement as to whether it is of high (H), medium (M) or low (L) priority with respect to the development of a SunSmart policy within the school.**

<b>1. Goals for a SunSmart policy</b>	<b>H</b>	<b>M</b>	<b>L</b>
Increase student and community awareness of skin cancer.			
Adopt practical skin protection measures.			
Develop strategies which encourage responsible decision making about skin protection. Work towards a safe school environment which provides shade for students and staff.			
Encourage students, parents, teachers and staff to wear protective clothing, hats and sunscreen at high risk times such as lunch times, and for sport, excursions and camps.			
Inform parents during student enrolment of the school's SunSmart policy.			

<b>2. Implementation: Curriculum</b>	<b>H</b>	<b>M</b>	<b>L</b>
Include skin cancer awareness issues in the Health and Physical Education Learning Area. Additional activities can also be included in the Science Learning Area or other Learning Areas.			
Events and activities that are timetabled from the beginning of September to the end of April, within higher risk periods of the school day are planned with care.			
Provide access to up-to-date information on skin cancer and its prevention. Staff should attend workshops on the topic at the beginning of each year.			

<b>3. Implementation: Behaviour</b>	<b>H</b>	<b>M</b>	<b>L</b>
The recommendation of broad brimmed, bucket or legionnaire-style hats which provide protection for the face, neck and ears.			
Consideration of a SunSmart hat as part of the school uniform.			
Wearing a SunSmart hat at recess, lunch time and during sporting and other outdoor activities.			
The recommendation of clothing made of a close-weave material with long sleeves and collars.			
The promotion of broad-spectrum SPF 30+ sunscreen.			
Education in the correct application of sunscreen.			



## Worksheet 25: A SunSmart policy for your school (cont.)

<b>4. Implementation: School organisation</b>	<b>H</b>	<b>M</b>	<b>L</b>
Outdoor assemblies to be held under shade from beginning of September to end of April where possible.			
All students to be sun protected during outdoor physical education and sport classes.			
Maximise the use of indoor and shaded facilities and plan for physical education lessons outside of the high-risk UV radiation times.			
Apply the SunSmart policy to the swimming program.			
Students who are not actively competing in the swimming program should be encouraged to wear an appropriate top in the water.			
Suitable hats, clothing and sunscreen should be required for all camps and excursions.			
These items i.e. hats, clothing and sunscreen, should be listed on the parent 'permission' form for camps and excursions.			
Appropriate behaviour should be modelled by teachers and parents to reinforce policy.			
Students should be required to participate in activities out of the sun if they are not appropriately protected.			
Consideration should be given to students eating lunch indoors if there is inadequate shade in the yard.			
Consideration should be given to sun protection for all teachers involved in outdoor activities, including yard duty.			
Physical education teachers should be encouraged to take appropriate sun protection measures as they are particularly at risk from UV radiation.			
Protection of ancillary staff from the sun should also be considered when developing a SunSmart policy.			
Skin cancer protection strategies should be initiated and implemented through the school council in the interests of student and staff health and in the development of a healthy school environment.			
School councils have a major responsibility to initiate and implement skin cancer prevention strategies in the interests of student health and long term healthy environments.			

<b>5. Implementation: Environment</b>	<b>H</b>	<b>M</b>	<b>L</b>
Assess the use of school grounds in relation to the availability and use of shade.			
Facilities/grounds committee to develop long-term shade strategies for the school grounds.			
Plant shade trees.			
Consider temporary shade structures as a short-term measure.			
Plan shade for high-risk areas such as canteens and assembly points.			

## Worksheet 25: A SunSmart policy for your school (cont.)

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<b>6. Monitoring and evaluation</b>	<b>H</b>	<b>M</b>	<b>L</b>
Review the sun protective behaviour of students and staff on an annual basis.			
Continue to evaluate and update the skin cancer prevention component of the curriculum.			
Assess plans for future buildings and grounds with regards to shade provision.			
Review the effectiveness of SunSmart strategies in your school on an annual basis.			

*Excerpt from the former Anti-Cancer Council of Victoria's SunSmart School Policy Guidelines.*



# Fact sheet 1: Skin cancer

## Structure and function of the skin

The skin is the largest organ of the body. It has several important functions. It acts as a protective layer against injury and disease and also regulates our body temperature and maintains its hydration.

The skin consists of three layers:

- the epidermis, or the outer layer
- the dermis, or the inner layer
- the subcutaneous fat layer.

The epidermis is made up of cells that produce keratin, a substance that covers the outside of the skin and resists heat, cold and the effects of many chemicals. The cells in the epidermis also produce melanin, the substance that gives our skin its colour. Melanin is able to absorb ultraviolet light and provide some protection from its damaging effects.

## What is cancer?

Cancer is a disease of the body's cells. Normally the body's cells grow and divide in an orderly manner so that growth and healing of injured tissue occurs.

Occasionally some cells behave in an abnormal way and may grow into a lump which is called a tumour.

Tumours can be non-cancerous [benign] or cancerous [malignant]. Benign tumours do not spread to other parts of the body.

A malignant tumour is made up of cancer cells. These cells have the ability to spread beyond the original site and if left untreated may invade and destroy surrounding tissues. Sometimes cells break away from the original [primary] cancer and spread to other organs. When these cells reach a new site they may form another tumour often referred to as a secondary cancer or metastasis.

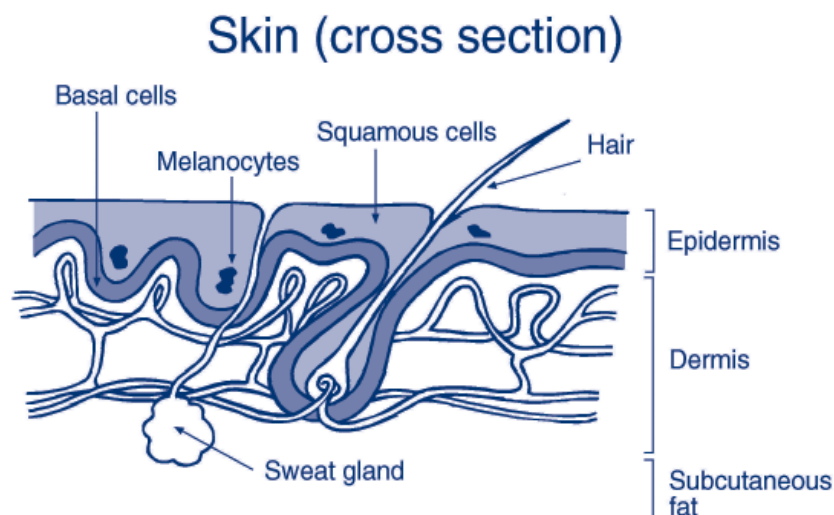
## What is skin cancer?

Skin cancer is a type of cancer that begins in the basal layer of the epidermis. There are three main types of skin cancer: basal cell carcinoma, squamous cell carcinoma and melanoma. Melanomas start in the pigment cells [melanocytes] while basal and squamous cell carcinomas develop from the epidermal cells. [Carcinoma is a term used for some types of cancer].

### Basal cell carcinoma [BCC]

Basal cell carcinomas are the most common but least dangerous type of skin cancer. They grow slowly over months to years but if left untreated a deep [rodent] ulcer may form. Fortunately they very rarely spread to other parts of the body. If you have one basal cell carcinoma you may have others, either at the same time or in later years.

Basal cell carcinomas are most commonly found on the face, neck and upper trunk. They appear as a lump or scaly area and are pale, pearly or red in colour. They may have blood vessels on the surface.



# Fact sheet 1: Skin cancer (cont.)

## Squamous cell carcinoma [SCC]

Squamous cell carcinomas are less common but more dangerous than basal cell carcinomas. They usually grow over a period of weeks to months. These cancers may spread to other parts of the body [metastasise] if not treated promptly.

Squamous cell carcinomas appear on areas of the skin most often exposed to the sun. They have scaling, red areas which may bleed easily and ulcerate, looking like an unhealed sore.

These common skin cancers generally occur in people over the age of 40. However basal cell carcinoma can occur in younger adults. The major cause of these skin cancers is sun exposure over many years.

## Melanoma

Melanoma is the rarest but most dangerous skin cancer. If left untreated melanoma can spread to distant parts of the body to form secondary cancers or metastases.

Melanomas can appear anywhere on the body not only in areas that get a lot of sun. The first sign of a melanoma is usually a change in a freckle or mole, or the appearance of a new spot on normal skin. Changes are normally seen over a period of several weeks to months, not over several days. The changes are in size, shape or colour.

Melanoma can occur from adolescence onwards and is the most common cancer in the 15–44 year age group. In rare instances it may develop in children.

## How common is skin cancer?

Skin cancer rates are higher in Australia than anywhere else in the world. It is the most common form of cancer in Australia affecting all age groups from adolescents upwards. Most common is basal cell carcinoma which accounts for about 75% of all skin cancers. Squamous cell carcinoma accounts for 20% and melanoma less than 5%.

One out of two Australians will develop a skin cancer in their lifetime – usually a basal cell carcinoma. In South Australia in 2003 the lifetime risk for developing melanoma was 1 in 31 for men and 1 in 39 for women.

## Signs and symptoms

As skin cancers are visible, they can be seen and checked as soon as they develop. Early symptoms of skin cancer may seem quite minor but any suspicious spot should be seen by a doctor immediately.

The signs to look for are:

- A crusty, non-healing sore.
- A small lump which is red, pale or pearly in colour.
- A new spot, freckle or mole changing in colour, thickness or shape over a period of several weeks to months. Particular attention should be paid to spots that are dark brown to black, red or blue-black.

## Diagnosis

If a doctor suspects a skin cancer, a biopsy may be performed. A biopsy is the removal of all or part of the affected skin, generally under local anaesthetic. It is a simple procedure that can be done by your family doctor or you can be referred to a specialist. The piece of skin that has been removed is then examined under a microscope. However in many cases the whole tumour is removed and a specimen is then sent to the laboratory for diagnosis.

## Treatment

### Common skin cancers



A variety of methods are available to treat the common skin cancers. Your doctor will choose your treatment by taking into consideration a number of factors. These will include the type of skin cancer, its size and position on your body and your personal preference.

Surgery can be used to remove the skin cancer and a small area of normal skin. This is quite simple and can usually be done under local anaesthetic.

Sunspots or pre-cancers can be briefly frozen with liquid nitrogen. This is called cryotherapy. Following cryotherapy the skin can become intensely red and peel away. Healing will begin in about a week.

Another technique is simply scraping off small common cancers [curettage] and burning the spot [cautery or diathermy].

# Fact sheet 1: Skin cancer (cont.)

Radiation therapy is another option although less commonly used now. It causes a crusting sore which takes some weeks to heal and then leaves a scar.

## Melanoma

Surgery is the preferred method of treatment for melanoma. Very thin melanomas are usually removed along with a small area of normal skin, under local anaesthetic.

For deeper melanomas a wide area of skin may need to be removed to make sure that all the cancer cells have been taken out. The local lymph glands may also be removed at this time.

## Outlook

Virtually all basal and squamous cell carcinomas that are found and treated early are cured.

The majority of people with early melanoma which is appropriately treated do not have any further trouble with their disease. However because there is a chance that the melanoma will reappear, your doctor will examine you at regular intervals.

For further details on outlook you should speak to your own doctor who is familiar with your full medical history.

## Causes of skin cancer

The major cause of skin cancer is exposure to the ultraviolet rays of the sun over many years.

### Sunlight exposure

Childhood exposure to the sun is an important factor in the development of skin cancer later in life. Research also suggests there may be a link between sunburn during childhood and melanoma in adulthood.

### Occupation

People who work outdoors have a greater risk of developing the common skin cancers than indoor workers. This is because of their greater exposure to sunlight. Workers in some industries have to take precautions against other known causes of common skin cancers, such as arsenic, polycyclic hydrocarbons and a number of other chemical compounds.

## Who is at risk?

Everyone is at risk of skin cancer, although people with skin that burns easily and rarely tans are at the greatest risk. Those who burn in early summer and then tan are also at high risk if they do not protect their skin. Unprotected skin, whether tanned or not, is likely to be damaged by the sun and may develop skin cancer later in life.

### Skin type

Skin cancer is seen most often in fair skinned people who have lived in Australia all their lives. It is most common in people of Celtic [Scottish, Irish and Welsh] background. However it also occurs in people whose parents migrated from Southern Europe e.g. Greece or Italy and who have themselves spent all or most of their lives in Australia. This is because the Australian sunlight is very harsh.

### Existing skin damage

Solar keratoses [sunspots] are dry, rough spots on the skin that are common in people over 40. They are not skin cancers but an indication that the skin has had enough sun exposure to develop skin cancer. People with keratoses should take particular care to protect their skin from the sun. Keratoses may progress and develop into SCCs.

They should also be examined to make sure a skin cancer is not present.

## How can you reduce your risk?

- Minimise your time in the sun between 10.00 am – 3.00 pm.
- Use shade as much as possible when outdoors.
- Wear protective clothing - a wide brimmed hat and cover-up clothing.
- Apply SPF 30+ broad spectrum sunscreen to skin which isn't covered by clothing.

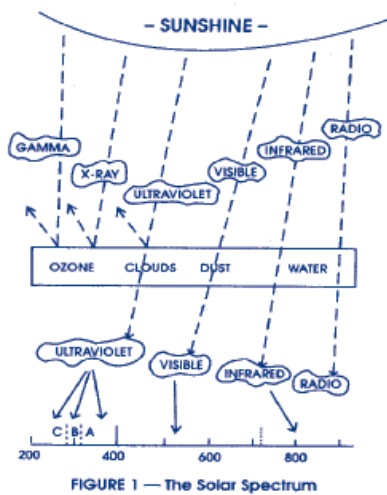


# Fact sheet 4: Ultraviolet radiation

## What is Ultraviolet Radiation (UVR)?

Ultraviolet radiation is the part of sunlight which causes sunburn and skin damage leading to premature ageing and skin cancer.

Sunshine is made up of different rays which travel in waves. The distance between the waves [the wavelengths] for each ray is different and allows us to categorise them. The diagram below shows the different rays arranged according to their wavelengths. The wavelengths are measured in nanometres.



Visible rays are the light-giving rays of the sun while infrared rays provide heat. There are three types of ultraviolet rays, UVA, UVB and UVC.

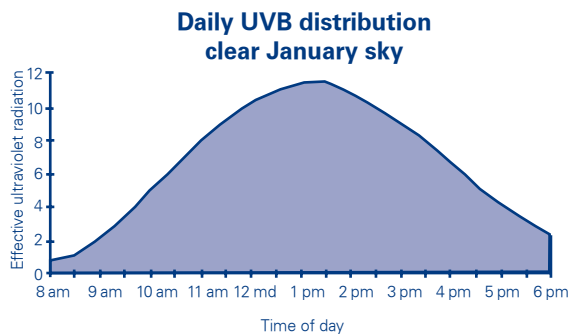
Naturally occurring UVC does not reach the earth's surface as it is absorbed or scattered in the atmosphere. However UVC can be produced artificially by arc welders and sterilising lamps and people working with such equipment should protect themselves.

UVA and UVB are the naturally occurring ultraviolet rays which are of concern because of their potential to cause skin cancer.

## The danger period for UVR is between 10 am and 2 pm (11 am and 3 pm daylight saving)

The amount of UVR reaching the earth's surface varies throughout the day. On a cloud-free day, maximum UVR occurs when the sun is directly overhead at solar noon,

12 midday (1 pm daylight saving time). High levels of UVR also occur during the two hours before and after solar noon. So the danger period for UVR is between 10 am and 3 pm. These are the hours when skin damage occurs fastest. Damage can also occur before and after these hours - it just takes longer!

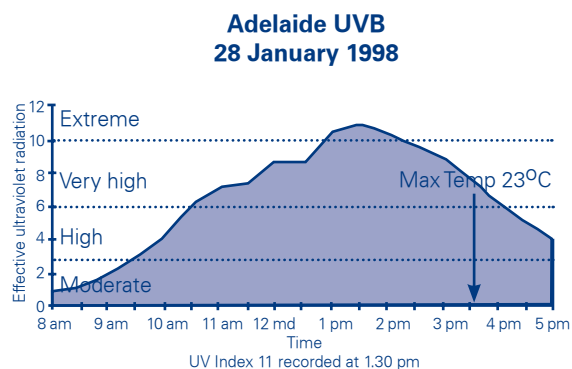


Source: Australian Radiation Protection & Nuclear Safety Agency

## UVR levels are not related to the air temperature

UVR cannot be seen or felt and the intensity of such radiation is not related to the air temperature. The air temperature rises during the day as a result of the earth being heated by the sun's infrared rays. The maximum daily temperature usually occurs during the mid to late afternoon whereas maximum UVR occurs at around midday. There can be high levels of UVR on cool days.

A cool front which will cause a sudden drop in temperature has no effect on the level of UVR unless it is accompanied by substantial cloud cover.



Source: Australian Radiation Protection & Nuclear Safety Agency

## Fact sheet 4: Ultraviolet radiation (cont.)

### You can still get burnt while under shade

About 50% of UVR reaches you directly from the sun while the remaining 50% is scattered about the sky and reaches you indirectly. Light coloured and shiny surfaces such as concrete, sand and water reflect UVR which can reach you even if you are in the shade. Reflected UVR can reach your face under a hat.

### You can still get burnt on cloudy days

Skin damage can still occur on days with a thin cloud cover. The cloud scatters the UVR in all directions and although you receive less direct UVR you may receive more indirectly. Heavy cloud does decrease the amount of UVR but scattered cloud has little or no effect on UVR levels.

### More UVR at high altitudes

At high altitudes where the atmosphere is thinner, the amount of UVR reaching your skin can be as much as 20% higher than at sea level.

Fresh snow reflects up to 80% of UV, thereby increasing the amount of UVR which reaches skiers' faces and other exposed areas.

UVR levels are higher during the summer months than in the winter months. In winter the UV rays have to pass through more of the atmosphere because of the angle of the sun in relation to the earth's surface. However UVR levels do vary from day to day and a high UVR day in April or October may be more damaging than an overcast day in January.

### What are the risks from UVR?

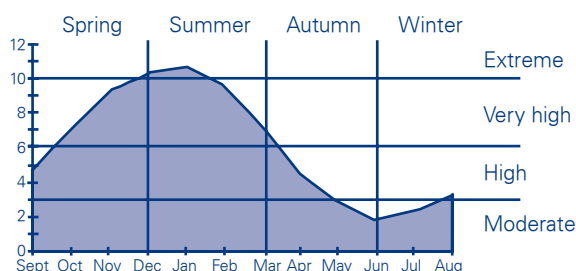
The immediate risk from over-exposure to UVR is sunburn. The more serious, long-term risk is skin cancer. UVR also causes premature ageing, causing the skin to become leathery, wrinkled and blotchy.

The eyes can also be damaged from long-term exposure to UVR.

### Be SunSmart - protect yourself from UVR!

- Take particular care the sun between 10 am and 2 pm (11 am and 3 pm daylight saving) if possible.
- Wear a broad brimmed hat - this will reduce the UVR reaching your face and eyes by 50%. Sunglasses will also protect your eyes.
- Wear cover-up clothing - shirts with long sleeves and a collar, made of closely woven fabrics give good protection.
- Apply a SPF 30+ Broad Spectrum sunscreen on any exposed skin that cannot be protected with clothing.
- And remember: you can still get skin damage on cool, slightly overcast days.

**Average monthly UV Index  
Adelaide 1997-1998**



Source: Australian Radiation Protection & Nuclear Safety Agency

# Fact sheet 7: Sunscreens

## What are sunscreens?

Sunscreens are products which protect the skin against the damaging effects of the sun's ultraviolet radiation (UVR).

They contain chemicals which either absorb or reflect the UV rays which would otherwise burn and damage the skin.

## Ultraviolet radiation and skin damage

There are three types of UV radiation - UVA, UVB and UVC.

Naturally occurring UVC does not reach the earth's surface as it is absorbed or scattered in the atmosphere.

UVB is primarily responsible for sunburn, suntan and, after many years, premature ageing and skin cancer. UVB also depresses the immune response which is the body's system for fighting infection.

UVA causes skin damage contributing to premature ageing and skin cancer.

## What protection do sunscreens give?

SPF 30+ sunscreens filter out about 97% of UVB rays. Sunscreens that are labelled BROAD SPECTRUM also filter out at least 90% of UVA.

Sunscreens are tested on human volunteers. Using a grid pattern, some patches of their skin are covered with sunscreen and some are left uncovered. They are then exposed to an artificial source of UVB in a laboratory. The Sun Protection Factor (SPF) is determined by comparing the time it takes for the patches of skin with sunscreen to show minimal redness with the time it takes to produce the same amount of skin redness without sunscreen.

The SPF on a sunscreen label should only be seen as a guide to the strength of the product. It should not be used to calculate the period of protection offered by the sunscreen.

As many things affect the time it takes for an individual to burn, it is impossible to calculate accurately a 'burn time'. Therefore the SPF rating on a sunscreen label should not be used to determine a 'safe time' before burning will occur.

Damage to the skin begins as soon as the skin is exposed to the sun. Sunburn is the extreme

level of this damage. It is a mistake to believe that damage only occurs if there is sunburn. The effects of the sun on the skin are cumulative so the damage is building up even without burning.

No sunscreen offers complete protection against UV radiation. Even if a sunscreen is reapplied regularly, a small amount of UV still reaches the skin. It is still possible for the skin to be sun damaged, even with sunscreen protection, if exposed to the sun repeatedly for prolonged periods.

## What are the regulations regarding sunscreens?

Australia has had a standard for the testing and labelling of sunscreens since 1983 which has been revised regularly since then. Prior to March 1997 the maximum SPF allowed on a sunscreen label in Australia was 15+. Since then the maximum SPF that can be claimed for a sunscreen is 30+.

The current regulations for sunscreens are documented in the Australian/New Zealand Standard, AS/NZS 2604:1998 and apply to sunscreens produced and available in Australia. It specifies how sunscreens should be tested, the standard they must reach and how they should be labelled. The testing is done under strict laboratory conditions. The Australian Standard also refers to the water resistance of a sunscreen which relates to the product's ability to remain on the skin after immersion in water and still test at its SPF number.

'Protection times' shown on labels relate only to this water resistance. They do not relate to the degree of protection against sunburn offered by using the product, ie the SPF number.

In Australia sunscreens have to be listed on the Therapeutic Goods Administration's (TGA) Australian Register of Therapeutic Goods (ARTG). They can only be listed on this register if they comply with the Australian/New Zealand Standard.

## What is the correct way to use sunscreens?

Sunscreens should be applied to clean, dry skin twenty minutes before being exposed to the sun. It is not necessary to rub sunscreen creams into the skin until they vanish. The cream will be absorbed into the skin over the twenty minutes prior to exposure to sunlight.

## Fact sheet 7: Sunscreens (cont.)

The amount of sunscreen applied should be enough to easily cover the exposed skin, eg one teaspoonful of cream for one arm. If it is difficult to spread the sunscreen over the area it is likely that not enough has been applied.

Sunscreen should be reapplied about every two hours. The reason for this is not because sunscreens lose their effectiveness after two hours, but because they may have been inadvertently removed during normal activity such as nose-blowing, sweating or brushing up against something. It is not uncommon for areas of skin to be missed or inadequately covered during the first application of sunscreens. Reapplication will reduce the risk of inadequate protection.

### How effective are roll-ons?

The testing of sunscreens as set out in the Australian Standard does not include testing the method of application. As it is difficult to judge how much sunscreen has been applied when using a roll-on, it is recommended that an ordinary sunscreen cream or lotion be used for the first application and roll-ons used for top-up reapplications.

### What are the costs and benefits of using sunscreens?

It has been clearly shown that sunscreens reduce the risk of sunburn. As sunburn is a risk factor for all types of skin cancer, the recommendation to use sunscreens has been based on the assumption that preventing sunburn should reduce the risk of skin cancer.

Sunscreens should not be the only approach to preventing skin damage. They should be used in conjunction with clothing, hats and where possible, avoiding the direct sun in the middle of the day. Sunscreens are not a substitute for these other forms of protection.

Short-term side effects from sunscreens may include skin irritation, and less commonly, skin allergy, blackheads and acne formation and dryness or oiliness of the skin depending on the type of sunscreen used. The likelihood of these reactions occurring depends on the sensitivity of the skin and the number and concentration of the chemicals in the sunscreen.

Although most people focus their concerns on the active suncreening chemicals in a product, there

are other chemicals in the sunscreen base which can cause problems.

In general, the incidence of true allergy to the chemicals in sunscreens is low. The more common side effect is skin irritation.

The long-term side effects of regular sunscreen use are unknown. Sunscreens have not been available for long enough or used by a sufficient number of people for an extended length of time for there to be any guarantees against long-term side effects. However to date there is no evidence to suggest that long-term side effects are likely.

Para amino benzoic acid (PABA), a chemical rarely used in currently available sunscreens, was linked to a higher risk of skin allergy. There was also some concern, in the past, about its carcinogenic effect but this has never been supported in laboratory testing.

Oxybenzone, which is also called Benzophenone-3, is a chemical which absorbs UVA rays. It is sometimes included in sunscreens. It has been used for about thirty years and has never been shown to be toxic to humans or animals.

Current information indicates that there is much more to be gained from using a sunscreen in conjunction with other forms of protection, than avoiding its use and risking sunburn, premature ageing and skin cancer.

### How do I choose a good sunscreen?

There are many different brands of broad spectrum sunscreen available. They can be bought as creams, milks, gels and clear lotions.

Different brands use various combinations and proportions of chemicals. For this reason, one brand may suit your skin better than another.

Creams are thicker and tend to be more expensive per gram than lotions. Lotions can be milky or clear. Clear lotions and gels have an alcohol base and are less sticky but more drying than creams and milks which usually contain moisturisers.

Some manufacturers incorporate substances like Titanium Dioxide and/or Zinc Oxide in their sunscreen. These provide a thin film of micro-fine particles which reflect the UV rays. These products may leave a white film or sheen on the skin.

Chain stores and supermarkets often sell their

## Fact sheet 7: Sunscreens (cont.)

own brands which are usually cheaper than others. Sunscreens produced by cosmetic companies are generally the most expensive.

### What about sunscreens labelled for babies and toddlers?

These sunscreens contain the same suncreening chemicals as 'adult' products. Generally the only difference is that they use a gentler base and do not contain perfumes.

There is no evidence to suggest that the use of sunscreen on small areas of a baby's skin is associated with any long-term side effects. For a small proportion of babies, like adults, some sunscreens can cause minor skin irritation. In such cases it is recommended to try a product which is specially formulated for sensitive skin.

Babies must be protected against sunburn; the damage that begins in childhood can lead to skin cancer later in life.

The best protection for your baby is to avoid direct sunlight especially in the middle of the day during summer. When outdoors, babies and toddlers should be protected by hats, clothing and shade as much as possible. Sunscreen should be applied to those areas that cannot be protected by clothing.

### Do sunscreens deteriorate after time?

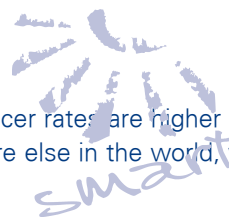
Sunscreens have a shelf life of between two and three years. Sunscreen products have been required to carry an expiry (use-by) date since 1 September 1994.

Sunscreens can deteriorate if they are exposed to heat and/or air for long periods. Store sunscreens in a cool dry place and ensure the cap is replaced tightly after use.

### Key points about sunscreens

- No sunscreen offers complete protection against the sun. Hats, clothing and shade should also be used.
- A thick coating of zinc cream does block out the UV totally. It works by reflecting the rays. However as it is thick and completely coats the skin it is only appropriate for small areas such as noses, ears and lips.
- All brands of broad spectrum sunscreen with a SPF 30+ which comply with the Australian/New Zealand Standard AS/NZS 2604 provide effective protection when applied correctly.
- Using a SPF 30+ rather than a SPF 15 sunscreen halves your risk of sunburn for the same length of time in the sun. SPF 30+ however should not be used to increase the amount of time you spend in the sun.
- Sunscreens should be applied to clean, dry skin twenty minutes before exposure to the sun. They should be applied liberally - e.g. about one teaspoonful of cream for one arm.
- Babies under one year old should not be exposed to the direct sun. When taking babies outdoors avoid doing so between 10 am and 3 pm if possible. Natural protection, that is hats, clothing and shade, is best. However small amounts of sunscreen can be applied to areas that cannot be protected by clothing.

Skin cancer rates are higher in Australia than anywhere else in the world, with skin cancers



# Fact sheet 8: Hat guidelines for schools

accounting for around 80% of all new cancers diagnosed each year<sup>1</sup>.

The major cause of skin cancer is over exposure to the ultraviolet radiation (UVR) from the sun over many years, particularly during childhood and adolescence<sup>2</sup>. Even if exposure does not cause obvious sunburn, damage still occurs and accumulates over the years. It is never too late to start protecting your skin.

Skin protection is important in South Australia particularly from August to May.

## Why hats?

Common sites of skin damage and skin cancer are the neck, ears, temples, lips, face and nose. These areas are constantly exposed to the elements and therefore, generally receive more UVR than other body parts.

Wearing a hat is one strategy that is recommended by The Cancer Council South Australia to protect the face, back of the neck and ears.

Hats should always be used in combination with other forms of sun protection practices such as:

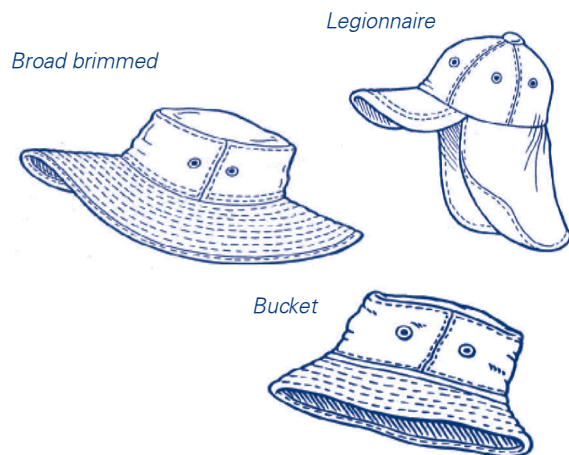
- seeking shade where possible between 10 am and 3 pm, particularly from August to May
- wearing protective clothing - lightweight shirts with collars and long sleeves, long pants or skirts
- applying SPF 30+ broad spectrum, water-resistant sunscreen and reapplying regularly (every two hours).

## Which type of hat?

The Cancer Council recommends wearing a hat that provides good shade to the face, back of the neck and ears when outdoors.

Broad brimmed hats should have a brim at least 7.5 cms wide. A broad brimmed hat that provides good shade can considerably reduce the exposure of UVR to the face.

Bucket or surfie style hats should have a deep crown and sit low on the head. The angled brim should be at least 6 cm and provide the face, neck and ears with good protection from the sun.



Legionnaire style hats should have a flap that covers the neck and meets the sides of the front peak to provide protection to the side of the face.

Baseball caps and sun visors are NOT recommended as they leave the ears and back of the neck exposed.

Ventilation should also be a consideration if the hat is to be used during physical activity or warmer weather.

Stylish, fashionable hats that meet The Cancer Council requirements are now widely available.

## UVR and temperature

In South Australia, the UVR levels are highest from August to May.

UVR cannot be seen or felt and the intensity of such radiation is not related to air temperature<sup>3</sup>.

People often get sunburnt on a cooler day because they tend to stay out in the direct sun for longer, rather than seeking shade or covering up as on a hot day<sup>4</sup>.

## References

- 1 Australian Institute of Health and Welfare & Australasian Association of Cancer Registries 2000. Cancer in Australia 1998.
- 2 R Marks, D Jolley, S Leats, P Foley. "The role of childhood exposure to sunlight in the development of solar keratoses and non-melanocytic skin cancer." Medical Journal of Australia, 152 (1990), 62-65.
- 3 D Hill, JM Elwood & DR English (Eds.) Cancer Prevention - Cancer Causes. Prevention of Skin Cancer. Kluwer Academic Publishers, 2004.
- 4 R Marks and D Hill. Melanoma Control, Prevention and Early Detection, Australian Cancer Society, 1992.

## Fact sheet 9: Sun protection from clothing

Wearing clothing that covers most of the body, a broad brimmed hat, applying a SPF 30+ sunscreen and seeking shade are the best ways to protect your skin against the harsh Australian sun and reduce the risk of skin cancer.

The following information is provided to enable you to make an informed choice when choosing appropriate clothing to protect against the sun's ultraviolet rays.

The design of the garment is the most important factor. It should cover as much of the skin as possible. Shirts/blouses with collars and long sleeves and long trousers/skirts offer the best protection. However in some circumstances, elbow-length sleeves and knee-length shorts may be more appropriate and offer an acceptable compromise.

Testing of different fabrics by the Australian Radiation Laboratory in 1992 showed that approximately two thirds of cotton and cotton-polyester fabrics offered 95% protection against ultraviolet radiation. The tests showed that the tightness of the weave of the fabric was the factor which most affected the amount of ultraviolet radiation transmitted. Colour was also a factor with dark colours giving more protection than light colours.

In 1996 an Australian Standard (AS/NZ 4399:1996 Sun protective clothing - evaluation and classification) was published to provide information to consumers on the relative capability of fabrics and clothing to protect the skin against solar ultraviolet radiation.

This information is provided in the form of a labelling system which uses the term Ultraviolet Protection Factor (UPF) to rate the sun protectiveness of fabrics and clothing. The Standard regulates the sun protective claims that manufacturers can make about their products.

The UPF rating is based on a test that measures the amount of ultraviolet radiation that passes through fabrics or clothing. Unlike the test

method used to rate sunscreens that uses volunteers and measures the amount of transmission of ultraviolet radiation by human skin reactions, the testing of fabrics and clothing is done using machines.

The test method of this Standard relates to unstretched, dry fabrics and clothing. The UPF rating of a garment could be lower when it is stretched or wet.

The UPF rating only relates to the fabric that garments are made of. The rating does not cover the design of the garment which can affect its sun protectiveness. Fabrics and clothing will only provide protection to the skin areas they cover.

When choosing a garment for sun protection, the important considerations are:

- the design (in terms of the amount of skin coverage)
- the closeness of the weave
- comfort (while dark colours offer more protection, they also absorb heat and tend to be less comfortable to wear in hot weather).

Fabrics and clothing which do not carry a UPF rating do not necessarily offer less protection than those that have been tested. Buying fabric or clothing which has been rated does take the "guess work" out of assessing the sun protectiveness offered by the weave. However you will still need to consider the design and comfort factors.

### UPF classification system

UVR protection	% UVR transmission	UPF ratings
Good	6.7 – 4.2	15, 20
Very good	4.1 – 2.6	25, 30, 35
Excellent	<2.5	40, 45, 50, 50+