



SunSmart audit tool for skin cancer prevention in outdoor workers

Skin cancer is the most common cancer in Ireland with over 11,000 cases diagnosed annually and the NCRI has estimated that between 2015-2045 the incidence of skin cancer will almost double¹. Ultraviolet (UV) radiation from the sun and artificial sources (i.e. sunbeds) is the main risk factor for the development of skin cancer. The International Agency for research on cancer (IARC) classifies UV radiation as carcinogenic to humans (Class 1)².

In the recently published Skin Cancer Prevention Plan (2019-2022) outdoor workers have been identified as a high-risk group as the nature of their occupation exposes them to increased UV radiation from the sun³. Outdoor workers can be exposed to between 2-3 times more solar UV radiation than indoor workers⁴.

Carrying out an audit to assess your organisations sun protection activities for skin cancer prevention can help inform planning and monitoring.

1	Planning	Considerations	Please detail current status	Progress
1.1	Workplace specifics			
1.1.1	How many outdoor workers are in your organisation?	<ul style="list-style-type: none"> Workers that are outdoors for all or part of the day regularly. 		
1.1.2	What is the nature of the work carried out by these outdoor workers?	<ul style="list-style-type: none"> Different categories of outdoor workers e.g. construction workers, grounds keeper, gardener. 		
1.1.3	Does your organisation use sub-contractors who work outdoors, please indicate how many.	<ul style="list-style-type: none"> You may want to offer sub-contractors and visitors to the workplace solar UV protection also. 		



1 Planning		Considerations	Please detail current status	Progress
1.2	Risk Assessment			
1.2.1	Are workers outdoors more at certain times of the year?	<ul style="list-style-type: none"> Identify which workers are outside between April to September. Solar UV levels are strongest in Ireland during these months. The UV index is used to indicate when the sun is most dangerous. It measures the strength of the sun's UV rays so that you will know how to protect the skin when outdoors. When the index is 3 or above the skin and eyes should be protected. (Appendix 1). 		
1.2.2	What time of the day are these workers outdoors?	<ul style="list-style-type: none"> Identify which workers are outdoors between 11am-3pm UV levels are strongest in Ireland at these times between April-September. 		
1.2.3	Is the exposure on-going throughout the day or shorter episodes throughout the day?	<ul style="list-style-type: none"> Workers who spend all day or part of their day outdoors are advised to use sun protection at all times during April to September because of their increased exposure to UV. 		
1.2.4	Are outdoor workers exposed to reflective surface?	<ul style="list-style-type: none"> Reflective surfaces can expose workers to increased levels of UVR when UV radiation is present. Surfaces that reflect more UV radiation include e.g. concrete, snow, white paint and surfaces that reflect less UV radiation are – darker coloured (new asphalt) and grassland surfaces. 		
1.2.5	Are your workers exposed to photosensitising agents in their workplaces?	<ul style="list-style-type: none"> Some substances can cause a person's skin or eyes to have increased sensitivity to UV radiation e.g. chlorinated hydrocarbons, certain dyes or plants (Appendix 2). 		
1.2.6	Do your workers spend extended periods of time in vehicles?	<ul style="list-style-type: none"> Clear or tinted films applied to the side windows can reduce the amount of solar UV that gets into the vehicle. 		



2	Sun Protection Control Measures	Considerations	Please detail current status	Progress
2.1	<p>Does your organisation offer engineering controls to reduce solar UV exposure?</p> <p>How could they be improved?</p> <p>Link to repository document</p>	<p>Examples - provide shade, modify reflective surfaces and use window tinting.</p> <ul style="list-style-type: none"> • Shade can be natural or artificial from permanent or portable structures. • Shade should be provided for break times if working in shade is not possible. Portable shade options may be considered. An option may be to relocate jobs to take advantage of existing shade if possible. • Soft and rough or natural surfaces e.g. grass and soil reflects less UV than hard and/or smooth surfaces. • Dark colours reflect less UV; therefore painting a surface darker will help. • Clear or tinted films applied to the sides of windows can substantially reduce the amount of UV transmitted into a vehicle. 		
2.2	<p>Does your organisation use administrative controls to reduce UV exposure?</p> <p>How could they be improved?</p>	<ul style="list-style-type: none"> • Plan outdoor tasks to be carried out when UV is lower • Plan work around shade availability or indoors when UV is high • Move tasks to a shaded area or indoors when possible • Rotate staff on outdoor tasks to reduce exposure • Use the UV index to support this action 		



2	Sun Protection Control Measures	Considerations	Please detail current status	Progress
2.3	<p>Does your organisation use personal protective equipment and clothing to reduce UV exposure?</p> <p>How could they be improved?</p>	<p>This includes sun protective work clothing, hat, sunglasses or safety glasses and sunscreen.</p> <ul style="list-style-type: none"> • For clothing choose – medium to dark fabrics, UPF50+ protection rating (UPF 15 blocks 93.3% UV; UPF 30 blocks 96.7% UV and 50, 50+ blocks 98% UV)⁷, long sleeves and pants, natural fibres or close weave e.g. cotton, check clothing is not worn as thin material will allow UV through. • Hats – shades the face, head, neck and ears. UPF50+ protection rating (UPF 15 blocks 93.3% UV; UPF 30 blocks 96.7% UV and 50, 50+ blocks 98% UV)⁷, tight weave fabric, wide- brimmed – bucket or legionnaire style, hard hats and helmets can have attachable brims and neck flaps attached. • Sunglasses – should reflect UV, close fitting wraparound style sunglasses are best with 100% UVA and UVB protection. Sunglasses should meet the EN 170/EN 172 standards to protect eyes from UV radiation. • Sunscreen – A broad spectrum (UVA/ UVB) sunscreen with a sun protection factor (SPF) of at least 30+, with high UVA protection, and water resistant should be used. Apply sunscreen 20 minutes before going out in the sun so that it can be absorbed into the skin, then re-apply every two hours and after perspiring. The average-sized adult should apply at least one teaspoon of sunscreen to each arm, leg, front of body and back of body and head (including the face, ears and neck) - that is, 35ml (seven teaspoons) of sunscreen for one full body application⁷. Sunscreen should be easily accessible to workers and expiry dates checked regularly. No sunscreen offers 100% protection from solar UV; it should be used alongside other protective measures such as clothing and shade. 		



2	Sun Protection Control Measures	Considerations	Please detail current status	Progress
		<ul style="list-style-type: none"> • SPF30+ lip balm should be used on the lips. • Involve workers in selecting protective clothing and hats, sunscreen etc. Trial different methods and gather feedback on what works for different workers. Use managers/supervisors as role models. 		

3	Training and education	Considerations	Please detail current status	Progress
3.1	Does your organisation provide training and education on UV radiation protection? Link to repository document	<ul style="list-style-type: none"> • Raising awareness and providing training is essential to different categories of staff. • Link training and education to on-going monitoring from consultation and surveys for messaging and behaviour change. 		
3.2	Does your organisation target different groups of workers for training and education on UV protection?	<ul style="list-style-type: none"> • Consider induction, management training, supervisor training, toolbox talks, peer to peer training, early detection training, messaging to bring home to family and friends. • Use a variety of training methodologies and tools. 		
3.3	Does your organisation have a communication plan for UV protection?	<ul style="list-style-type: none"> • Use different media channels available e.g. newsletter, flyers, leaflets, posters, e-mail alerts, text messages, pay slip notes, guest speakers. • Use family events, competitions, SunSmart incentives, personal stories and so on. 		
3.4	Does your organisation know how and where to signpost staff to various skin cancer early detection and diagnostic services?	<ul style="list-style-type: none"> • Encourage staff to check their skin regularly and to attend their GP if they have any concerns. 		



4	Solar UV Protection Policy	Considerations	Please detail current status	Progress
4.1	Do you understand your requirement to protect outdoor workers from the harmful effects of ultraviolet rays from the sun? Link to repository document	<ul style="list-style-type: none"> Under Health & Safety legislation you have a duty to protect your outdoor workers from ionizing radiation. 		
4.2	Does your organisation have a UV protection policy? Is the policy publicised and readily available to all workers? Is training or a briefing provided on the policy?	<ul style="list-style-type: none"> This should be a policy detailing why and how UV radiation risk will be managed in your organisation. The policy should detail all aspects in the UV protection framework and staff should receive training on the policy. 		
4.3	Is the policy reviewed frequently?	<ul style="list-style-type: none"> Should be reviewed annually in line with other policies 		

5	Monitoring	Considerations	Please detail current status	Progress
5.1	Does your organisation have a UV protection working group? Link to TOR document	<ul style="list-style-type: none"> Seek representatives from across the organisation to develop, implement and monitor your UV workplace initiatives. 		
5.2	Does your organisation collect data and information from workers on sunburn incidence, UV risk and exposure and sun protective behaviour?	<ul style="list-style-type: none"> Research should be conducted with workers to monitor baseline measurements of UV protection and sunburn incidence and monitor progress. 		
5.3	Does your organisation consult with workers and management on knowledge, attitudes, and behaviour in relation to UV protection? See sample questionnaire	<ul style="list-style-type: none"> Ongoing surveys, questionnaires, feedback should be sought from workers and management to monitor attitudes, awareness and understanding. 		



5	Monitoring	Considerations	Please detail current status	Progress
5.4	<p>Does your organisation have a Skin Cancer Prevention framework and annual action plan?</p> <p>See Framework document</p>	<ul style="list-style-type: none"> An overall framework for UV protection should be developed. From this an annual work plan should also be developed. 		
5.5	<p>Does your organisation have a dedicated annual budget for UV protection and associated action plan?</p>	<ul style="list-style-type: none"> Consider all costs associated with your annual action plan and ring fence budget accordingly. 		
5.6	<p>Does your organisation publicise their UV protection framework and annual action plan?</p>	<ul style="list-style-type: none"> Ensure on-going awareness for staff of the UV protection actions annually, use all communication channels available to publicise widely. 		
5.7	<p>Does your organisation have a monitoring system for the UV protection framework?</p>	<ul style="list-style-type: none"> Document all elements of the process including planning, implementation and evaluation of the framework. Record all actions in detail for reviewing the framework. This will identify successes and challenges. UV protection data may also be gathered in Health and Safety inspections or supervisor checklists, onsite reviews etc. 		

Appendix 1 – UV Index

UV INDEX		UV INDEX	UV INDEX	UV INDEX	UV INDEX	UV INDEX	UV INDEX	UV INDEX	UV INDEX	
1	2	3	4	5	6	7	8	9	10	11
LOW		MODERATE			HIGH		VERY HIGH			EXTREME
<ul style="list-style-type: none"> ✓ Minimal sun protection needed for normal activity ✓ Wear sunglasses on bright days ✓ If outside for more than one hour you should cover up and use sunscreen 		<ul style="list-style-type: none"> ✓ Take care ✓ Cover up, wear a hat and sunglasses, and use sunscreen, especially if you are going to be outside for 30 minutes or more ✓ Stay in the shade near midday 			<ul style="list-style-type: none"> ✓ Protection needed ✓ This level of UV damages the skin and can cause sunburn ✓ Reduce your time in the sun between 11am and 3pm ✓ You need to cover up, wear a hat and sunglasses, and use sunscreen 		<ul style="list-style-type: none"> ✓ Extra care is needed ✓ Skin will become damaged and will burn quickly ✓ Stay out of the sun between 11am and 3pm ✓ You need to cover up, wear a hat and sunglasses, and use sunscreen 			<ul style="list-style-type: none"> ✓ Take complete care ✓ Skin will become damaged and will burn in minutes ✓ Avoid the sun completely between 11am and 4pm ✓ You need to cover up, wear a hat and sunglasses, and use sunscreen

Adapted from: www.who.int/uv / www.bccancer.bc.ca

Appendix 2 – Photosensitising substances

Table 1: Examples of common medications that cause photosensitivity⁵

Medications	Examples
Antibiotics	<ul style="list-style-type: none"> - Tetracyclines - Fluoroquinolones (e.g ciprofloxacin) - Sulfonamides
Nonsteroidal anti-inflammatory drugs (e.g Nurofen & Voltaren)	<ul style="list-style-type: none"> - Ibuprofen - Naproxen - Ketoprofen - Celecoxib
Diuretics (water pills)	<ul style="list-style-type: none"> - Frusemide - Bumetanide - Hydrochlorothiazide
Retinoids (skin creams)	<ul style="list-style-type: none"> - Isotretinoin - Acitretin
Hypoglycaemics (diabetic medication)	<ul style="list-style-type: none"> - Sulfonylureas (e.g glipizide, glyburide)
Antipsychotics	<ul style="list-style-type: none"> - Phenothiazines (e.g chlorpromazine, fluphenazine) - Thioxanthenes (e.g chlorprothixene)
PDT Pro-photosensitisers (cancer treatment)	<ul style="list-style-type: none"> - 5-aminolevulinic acid - Methyl-5-aminolevulinic acid - Photofrin
Targeted therapies (cancer treatment, including chemotherapy)	<ul style="list-style-type: none"> - Vemurafenib (50%) - Dabrafenib - Imatinib - Vandetanib - Fluorouracil
Other drugs (heart medication, blood pressure medication, antifungal medication)	<ul style="list-style-type: none"> - Amiodarone - Hydroxychloroquine - Diltiazem - Enalapril - Quinine - Dapsone - Quinidine - Voriconazole

Table 2: Common substances that cause photosensitivity⁶

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		

References

1. National Cancer registry. Cancer incidence projections for Ireland 2020-2045. Cork: NCRI; 2019.
2. International Agency for Research on cancer. Radiation Volume 100D; A review of human carcinogens. Lyon: IARC: 2009.
3. Skin Cancer Prevention Plan (2019-2022). Department of Health, 2019.
4. CAREX Canada. Occupational Exposure Estimate for Solar UV Radiation. (2018)
5. Dermnet New Zealand
6. Safe Work Australia. Guide on Exposure to Solar Ultraviolet radiation (UVR), 2013.
7. Skin cancer and outdoor work. A work health and safety guide. Cancer Council Victoria, 2018.