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Australian Radiation Protection and Nuclear Safety Agency

# Improvement In Queensland Outdoor Workers Sun Protective Practices and UV exposures

K. King<sup>1</sup>, K. Coles<sup>2</sup> and P. Gies<sup>1</sup>

<sup>1</sup> Australian Radiation Protection and Nuclear Safety Agency

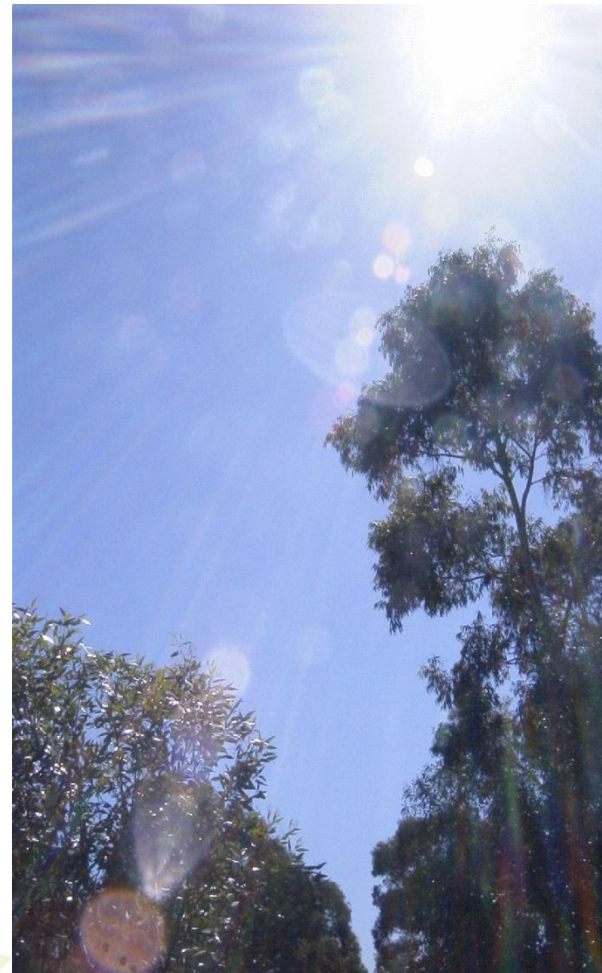
<sup>2</sup> Health Services Support Agency, Department of Health Queensland





# Overview

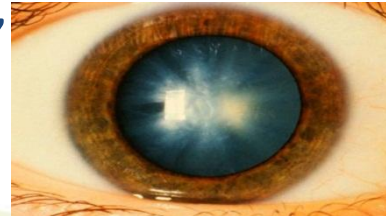
- Health effects of UVR
- Queensland's UVR Levels
- Outdoor Worker UVR Protection
- Occupational Exposures to Solar UVR
- Studies of UVR exposures in Queensland
- What has changed?





# Health Effects of UVR

- In Australia in 2010 there were 12,500 melanomas (37 per 100,000)\*
- Mortality ~ 1450 deaths in 2010\*
- Incidence ~1M treatments (NMSC) and cost ~ \$700M 2015#
- In 2004 there were 403,900 cataracts in people over 55, with 6100 resulting in blindness
- 462,200 Cataract operations in 2004,
- demand increased 7.3% since 1993^



\*AIHW 2012

# Fransen et al. MJA 2012; 197: 565–568

^ AMA Ophthalmology Survey August-September 2009



# Health Effects of UVR (continued)

## Queensland

- highest rate of skin cancer in the world
- incidence rate double other Australian states

## Occupational exposures to ultraviolet radiation

- 200 melanomas\*
- 34,000 NMSC\*
- Solar worker compensation claims doubled from 2009-2012 (average >\$50,000) #



\*Fritschi & Driscoll (2006) Cancer due to occupation in Australia. Aust N Z J Public Health 2006 Jun;30(3):213-9

#Queensland Parliament Report No. 28 May 2013 At 4.6.2 Solar Claims page 91





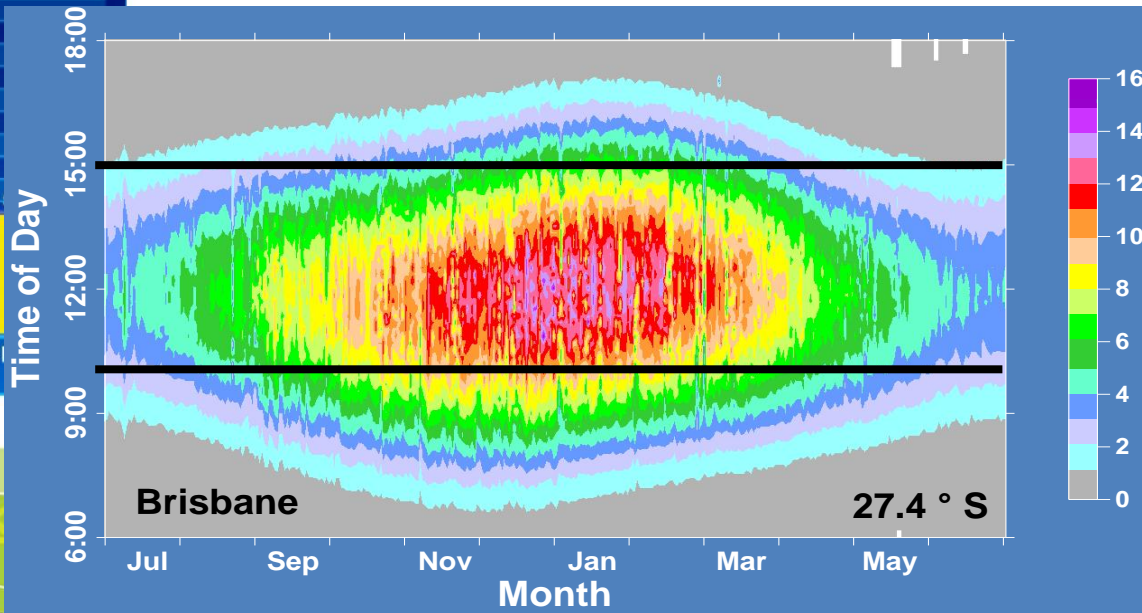
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# Queensland UV Levels

UV Index for Brisbane, Australia

Monthly Average UV-Index  
Brisbane



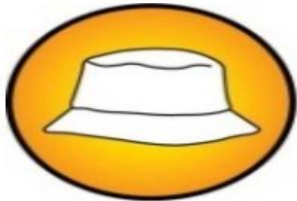


# Personal UV Protection measures

- seek shade - minimise time in the sun between 10.00 am and 3.00 pm
- slip on clothing
- slop on minimum SPF 30+ sunscreen
- slap on a hat
- slide on sunglasses.



Credit: Queensland Health 2010





# Outdoor Worker UVR Protection

- Provide shade or ensure shade is available
- Reorganise work schedules
  - outdoor tasks are done before 10.00 am and after 3.00 pm
- Rotating tasks that involve direct sun exposure
- Provide training and education on sun hazards and protection – sun protection policy
- Provide and ensure workers
  - use the appropriate personal protective equipment (PPE)





# Occupational Situation prior to 2002

- QLD Sunshine Coast (26°S) in 1992#
  - PE Teachers
  - Ground staff
  - Lifeguards
- In 2001, 107 construction sites throughout Qld

Credit: Surf Life Saving NSW



Credit: ABC



# Gies et al 1995





# Occupational Exposures to Solar UVR

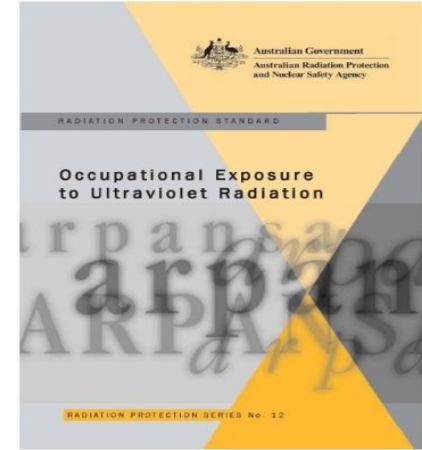
	Number	UV Exposure in SEDs		Fraction of Ambient (%)	Ambient UVR (SEDs)
		Min	Max		
<b>1995 study 8hr day</b>					
Lifesavers	7	1	9	$12 \pm 10$	11 - 53
PE Teachers	16	2	14	$19 \pm 9$	11 - 53
Grounds Staff	12	3	10	$18 \pm 11$	11 - 53
<b>2001 study (approx. half an 8 hour day)</b>					
Traffic Controllers	4	5	12	$69 \pm 11$	5 - 16
Roofers	32	1	24	$45 \pm 77$	1 - 16
Labourers	83	0.5	26	$33 \pm 118$	1 - 26
Carpenters	29	0.5	17	$32 \pm 37$	0.5 - 21
Bricklayers	21	1	20	$32 \pm 40$	1 - 20

Note - 2 SEDs sufficient to cause sunburn in a fair skinned person



# 2001 Study Results

- Key observations:
  - 49 of 493 workers received less than the Exposure Limit of RHS12
  - Almost half of the workers  $> 4$  times the Exposure Limit
  - 75% were skin types 1, 2 or 3
  - PPE was ad hoc with no planned approach to controlling risk
  - Even when a control was available it was not always used





# Study Conclusions

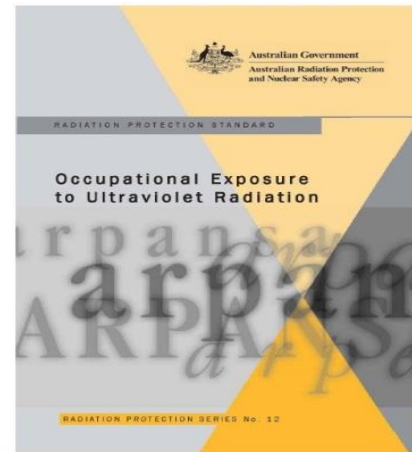
- UVR exposures would have been higher - Summer
- The results suggest that solar UVR exposures
  - not taken seriously as a hazard in workplaces
- That there is a significant risk to the health of outdoor workers in QLD from occupational UVR exposure





# What Has Changed?

- *Code of Practice on Protection of Workers from UVR in Sunlight* 2004 (deleted in 2012)
- Strong campaigning by Cancer Councils
- ARPANSA RPS12 (2006)
- Qld Health promotes Sun Safe Queensland Workplaces 2006, and republished a sun safety bulletin in 2010







# What Has Changed? (continued)

- Harmonised Work Health and Safety Laws
  - onus on Employers to protect all workers from hazards, including the sun
- Guide to Outdoor exposure to Solar Ultraviolet Radiation (2013)
- WorkSafe Qld Sun Safety Audits
- Sun protective PPE
  - tax deductible



Credit: Queensland Health 2010



# Follow Up Study (continued)

- 3 organisations:
  - Qld Government(QTMR)
    - Qld Transport and Main Roads
    - 10-12 workers each at 4 sites (road projects)
  - Medium Size Company (Company B)
    - Promotes children's physical activities and sports (child care centres, public parks)
    - 20-30 outdoor workers, unsupervised
  - Small Size Company (Company C)
    - 3-4 construction workers





# Follow-up Study

- ~ 50 outdoor workers
- Due to loss of dosimeters/non-wearing
  - 40 subjects
- 1 to 3 weeks of data from many of the subjects
  - 321 days measureable UV exposures
  - 18 and 21 days for 2 subjects





# Summary of Potential UVR Exposures

	Measured Total UVR Exposures (SEDs)			
	<2	2-10	10-30	> 30
QTMR	13	7	3	4
Company B*	3	4	1	-
Company C	-	-	1	1

\* QLD Winter





# Sun Protection Provided vs Used

	QTMR	Company B	Company C
Sunscreen	35/ <b>27</b>	0/ <b>5</b>	0/0
Hats	35/35	16/ <b>13</b>	0/0
Sun protective Clothing	35/35	16/ <b>10</b>	0/0
Sunglasses	35/35	0/ <b>3</b>	0/0
Shade	35/ <b>21</b>	0*/ <b>3</b>	0/0
Reorganise work	8 / 7	0#/ <b>3</b>	0/0
Sun Protection Policy Seen	35	16	0
Reported Sunburns/total	0/36	0/16	<b>3/4</b>

\*Parks with natural shade used #Many sessions after 4pm



# Observations

- Qld Government
  - sun protective policies
  - provide PPE and shade (enforced)
- Company B
  - sun protection policy
  - some PPE but not all
  - did not ensure workers use them
- Company C
  - do not have policies in place
  - did not provide PPE



NEEDS  
IMPROVING





# Summary

- The smaller the organisation
  - less resources tasked for sun-protection
- Visible PPE
  - easier to enforce than sunscreen
- Multiple agencies are working on sun protection education:
  - Commonwealth, State and Cancer Councils
- State and Federal Governments
  - provide incentives for sun-protection i.e. tax deductible PPE
  - Support and funding for education and research
- Legislation
  - requires workers be protected from hazards includes solar UVR



# Conclusions

- The tools for reducing skin cancers in outdoor workers are available
  - protective clothing and equipment prevents sunburns
  - Education and tax deductions
- Multi-Agency approach is working
  - Departments of Health (Qld, Commonwealth)
  - Cancer Councils (Australia, SunSmart, QLD)
  - WorkSafe Queensland
- Support for small to medium companies
  - implement and enforce sun protection practices
  - education



Image courtesy of Queensland Health 2010





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# THANK YOU

## CONTACT ARPANSA

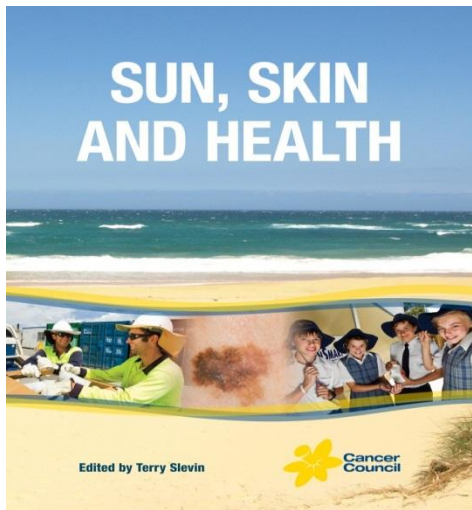
**Email:** [info@arpansa.gov.au](mailto:info@arpansa.gov.au)

**Website:** [www.arpansa.gov.au](http://www.arpansa.gov.au)

**Telephone:** +61 3 9433 2211

Freecall 1800 022 333

**General Fax:** +61 3 9432 1835



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