SY1-2 Skin Cancer Prevention in Australia

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NHMRC CRE Funding: 1099021; NHMRC Fellowship: 1045247
MORE THAN 2000 DIE FROM SKIN CANCER EACH YEAR

AT LEAST 2 in 3 AUSTRALIANS WILL BE DIAGNOSED WITH SKIN CANCER BEFORE THE AGE OF 70
Melanoma in Australia Compared to World

World Age-Standardised Incidence Rates of melanoma per 100,000 Population, World Regions 2008

Age-Standardised Incidence Rates/Year

MELANOMA
35 new cases per 100,000

NON-MELANOMA SKIN CANCER
BCC: 884 new cases per 100,000
SCC: 387 new cases per 100,000
Melanoma Rates

- Still rising in older people, but!! - good news
- Falling in young people (<40 years).

Source: AIHW analysis of the Australian Cancer Database.
a) Estimated “at risk” populations (0-29 years)

b) Melanoma incidence trends according to estimates of migration (Australia, 0-29 years, invasive melanomas)

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Comprehensive Skin Cancer Prevention Campaigns

SLiP! SLOP! SLAP!
Evolving over the years
Primary prevention programs are cost-effective

SunSmart campaigns prevented 120,000 DALYs over a lifetime per intervention

For each $1 invested save $2.

Newer data even estimated $3.85

New challenges

1. Sustainability of primary prevention efforts
2. Trend to social media
3. Dealing with interruptions
4. Better communication and personalisation
New challenges

1. Sustainability of primary prevention efforts
Frequency of Sunburn in Queensland Adults

- 12% men and 8% women in Queensland sunburnt on the previous weekend.
- 18-24 years 7x more likely and those 35-44 years 5x more likely to report sunburn than older people.
- Sunburn remains a public health problem, especially in young people.

Proportion of sunburnt in the last 12 months for 2013-14 by age (4 groups) - Persons

QLD Health - Preventive health survey results

Note: Data with missing values indicate data values that do not meet releaseability requirements.
Sunscreen

- Regular sunscreen use prevents:
  - 9.3% squamous cell carcinomas
  - prevented fraction 14% of melanoma.

- Typical levels of sunscreen use reduce skin cancer incidence by 10-15%.

The effect of \(MC1R\) variants and sunscreen on the response of human melanocytes in vivo to ultraviolet radiation and implications for melanoma

Elke Hacker\(^1,2\), Zachary Boyce\(^1\), Michael G. Kimlin\(^1\), Leesa Wockner\(^3\), Thomas Pollak\(^2\), Sam A. Vaartjes\(^1,2\), Nicholas K. Hayward\(^2\) and David C. Whiteman\(^1,2\)

**Significance**

Melanoma, the most lethal form of skin cancer, arises from melanocytes. It is postulated that the proliferative response of melanocytes following sun exposure may play a role in melanoma development. Whether the magnitude of the proliferative response is the same for all people, and whether the effect is modified by topical sunscreens, is unknown. This study confirms the role of ultraviolet radiation in initiating melanocytic proliferation, implicates \(MC1R\) as a key mediator in this process, and demonstrates the effectiveness of sunscreen in preventing these molecular responses.
UV Skin Study Conclusions

- Sunscreen applied to the skin before exposure to 2 MED SSUVR completely blocked the UV-induced skin damage measured.

- The density of epidermal melanocytes 14 days after exposure to 2 MED SSUVR was two-fold higher than baseline (unirradiated) skin.

- The change in epidermal melanocyte counts among people carrying the red hair gene \((MC1R)\) was significantly lower than those with wild-type \(MC1R\).
New challenges

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New challenges

2. Trend to social media
Melanoma Likes Me 🌞 Every time you’re in the sun, melanoma is watching. 🌞

www.melanomaprevention.com.au

249 posts 524 followers 1,699 following
QLD Government unleashes 'Sun Mum' in new campaign to encourage sun safety via Junior

Thursday 10, December 2013 at 11:46 AM by Ricki

A tough problem calls for tough love. That's the reasoning behind the new campaign developed by Junior to get young Queenslanders to be more sun safe.

The campaign asserts that no one is better at nagging them about sun safety than their mum, but that's not working, so she's been
Text message interventions worldwide

- Systematic review
- 8 studies fulfilled inclusion criteria (5 RCTs, 2 controlled clinical trials, 1 cohort study).
- 5 used text messages, 2 mobile phone apps, 1 electronic messages via email.
- All studies resulted in at least one improved self-reported behaviour.
- Only one study used objective measure of electronically monitored sunscreen.

New challenges

2. Trend to social media
3. Dealing with interruptions
4. Better communication and personalisation
New challenges

3. Dealing with interruptions
Interrupters

Survey of Australian adults

- People who worry about getting enough vitamin D
  - wear sunscreen less often ($p=0.001$); 
  - wear shorts more often ($p=0.04$); and 
  - tend to spend more time in the sun ($p<0.001$).

PhD thesis Ngadiman Djaja
Change in Sun Protection Due to Concern About Vitamin D Status

Fresh concern over nano-particles hidden in sunscreen

AM  By Rachel Carbonell

Updated 5 Mar 2013, 1:12pm
Temperature

Australia’s mean temperature has warmed by 0.9 °C since 1910.

Annual mean temperature changes across Australia since 1910.

Source: Bureau of Meteorology
Temperature

Very warm months that occurred just over 2% of the time during the period 1951 to 1980 occurred nearly 7% of the time during 1981 to 2010, and around 10% of the time over the past 15 years.

At the same time, the frequency of very cool months has declined by around a third over the same period.
New challenges

4. Better communication and personalisation
Background influence

- Past behaviour
- Demographics & culture
- Attitudes towards targets (stereotypes & stigma)
- Personality moods and emotions
- Other individual difference variables (perceived risk)
- Intervention exposure media exposure

Flowchart:

1. Past behaviour
2. Demographics & culture
3. Attitudes towards targets (stereotypes & stigma)
4. Personality moods and emotions
5. Other individual difference variables (perceived risk)
6. Intervention exposure media exposure

- Behavioural beliefs and outcome evaluations
  - Attitude
  - Norm
  - Self efficacy
  - Control beliefs and perceived power

- Normative beliefs and motivation to comply
  - Intention
  - Skills and abilities

- Environmental factors

- Behaviour
Personalised Risk Information

Personal risk score for developing a keratinocyte cancer in the next 3 years

Please enter answers to ALL of the following questions from the drop-down menus in the boxes:

How old are you?
40 - 49

What sex are you?
Female

What is your ancestry? (That is, where did most of your ancestors come from?)
Note: "other" includes Asia, Pacific Islands, Africa, Indigenous Australian
Europe

How would you describe your natural skin colour on areas never exposed to the sun (like under your arm)?
Dark
Personalised Risk Information

Find out your risk of melanoma

Australia, "the sunburnt country", has amongst the highest incidence of skin cancer in the world with a lifetime risk of invasive melanoma of 1 in 14 for males and 1 in 22 for females (to age 85).

Using this calculator, you can calculate your risk of developing skin melanoma within the next 5 years. Versions of the same calculator have been developed for health professionals and the general public.

Health professionals
For health professionals or those with a working knowledge of medical terminology.

- Calculate melanoma risk for health professionals

General public
For people without medical knowledge who want to know their risk of melanoma.

- Calculate your melanoma risk for the general public
Personalised Risk Information

Skin Cancer Risk Survey

Risk Level
To get an accurate result from this survey you should complete ALL questions

Progress: 0 / 7

Gender?
- Female
- Male

Age?
- up to 34
- 35 - 44
- 45 - 54
- 55 - 64
- 65 - 74

How many sunburns did you get where the skin peeled during your childhood and teenage years?
- None
- 1 - 4
- 5 - 9
- 10 or more

What was your natural hair colour when aged 13?
- Dark brown/black
- Light brown
- Blonde
- Red

How many freckles did you have on your arms when aged 13?
- None
- Few
- Several
- A lot

How many moles do you have on your right and left arm combined (counting from the tip of your shoulder down to your hands)?
- None
- 1
- 2
- 3 or more

Have you had any skin cancer before (Melanoma, BCC or SCC)?
- No
- Yes
Research needed

- Do risk calculators – indicators – apps assist people making optimal decisions?
- Do they improve sun protection or screening behaviours?

- Evidence so far is largely negative
- Need better data on how they may impact behaviours

Key Elements to Successful Skin Cancer Prevention Programs

- R/ship between social, political, and economic environment
- Established, effective, and well-resourced organisation
- Access to resources
- Congruency of aims among partners
- Strategic planning
- Strong research and evaluation base
- Awareness of system change
- Strategies across the whole system
- Tailoring media message to environment
- Potential negative effect of strategies
- Motivating ‘hard-to-reach’ groups

Skin cancer screening?
Skin Cancer: Screening
Release Date: July 2016

Recommendation Summary

<table>
<thead>
<tr>
<th>Population</th>
<th>Recommendation</th>
<th>Grade (What’s This?)</th>
</tr>
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<tbody>
<tr>
<td>Asymptomatic adults</td>
<td>The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of visual skin examination by a clinician to screen for skin cancer in adults.</td>
<td><img src="https://chart.png" alt="" /></td>
</tr>
</tbody>
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To read the recommendation statement in JAMA, click here.
To read the evidence summary in JAMA, click here.

Read Full Recommendation Statement
PDF Version (PDF Help)
Melanoma Screening trial

Clinical whole-body skin examination reduces the incidence of thick melanomas

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Survival from melanoma is strongly related to tumour thickness, thus earlier diagnosis has the potential to reduce mortality from this disease. However, in the absence of conclusive evidence that clinical skin examination reduces mortality, evidence-based assessments do not recommend population screening. We aimed to assess whether clinical whole-body skin examination is associated with a reduced incidence of thick melanoma and also whether screening is associated with an increased incidence of thin lesions (possible overdiagnosis). We conducted a population-based case-control study of all Queensland residents aged 20–75 years with a histologically confirmed first primary invasive cutaneous melanoma diagnosed between January 2000 and December 2003. Telephone interviews were completed by 3,762 eligible cases (78.0%) and 3,824 eligible controls (50.4%). Whole-body clinical skin examination in the three years before diagnosis was associated with a 14% lower risk of being diagnosed with a thick melanoma (≥0.75 mm) (OR = 0.86, 95% CI = 0.75, 0.98). Risk decreased for melanomas of increasing thickness: the risk of being diagnosed with a melanoma 0.76–1.49 mm was reduced by 7% (OR = 0.93, 95% CI 0.79, 1.10), by 17% for melanomas 1.50–2.99 mm (OR = 0.83, 95% CI = 0.65, 1.05) and by 40% for melanomas ≥3 mm (OR = 0.60, 95% CI = 0.43, 0.83). Screening was associated with a 38% higher risk of being diagnosed with a thin invasive melanoma (≤0.75 mm) (OR = 1.38, 95% CI = 1.22, 1.56). This is the strongest evidence to date that whole-body clinical skin examination reduces the incidence of thick melanoma. Because survival from melanoma is strongly related to tumour thickness, these results suggest that screening would reduce melanoma mortality.
Skin Awareness Study – men 50+

Intervention only

Intervention & control

10 step guide

Teledermatology

Remote delivery of dermatology services

Store and forward

Videoconferencing

See Peter Soyer’s presentation on Saturday
Outlook

- Sustainability of programs
- Opportunities and challenges with new media
- Stringent Evaluation
- Many competing risks/health
SAVE THE DATE!

9th WORLD CONGRESS OF MELANOMA
A JOINT MEETING WITH THE SOCIETY FOR MELANOMA RESEARCH

18–21 October 2017
Brisbane Australia
www.worldmelanoma2017.com