Primary prevention of skin cancer

Sun protection - looking for a change

A/Prof Tony Reeder  Bronwen McNoe
Where we are
Superimposing NZ on the respective Northern Hemisphere Latitude

Courtesy of Ben Liley, NIWA, Lauder, NZ.
Superimposing NZ on the respective Northern Hemisphere Latitude

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## Where have we come from?

<table>
<thead>
<tr>
<th>Major ethnic groups (2013 Census)</th>
<th>Number</th>
<th>%*</th>
</tr>
</thead>
<tbody>
<tr>
<td>NZ European</td>
<td>2,969,391</td>
<td>74.0</td>
</tr>
<tr>
<td>Māori</td>
<td>598,605</td>
<td>14.9</td>
</tr>
<tr>
<td>Pacifica</td>
<td>295,944</td>
<td>7.4</td>
</tr>
<tr>
<td>Asian</td>
<td>471,711</td>
<td>11.8</td>
</tr>
<tr>
<td>Middle East /Latin American /African</td>
<td>46,953</td>
<td>1.2</td>
</tr>
<tr>
<td>Other</td>
<td>67,752</td>
<td>1.7</td>
</tr>
</tbody>
</table>

* Multiple identification is possible so total % exceeds 100

Peak UV index values by location

Southern hemisphere summer

Not to scale!
Melanoma/100,000 pop (age standardised)

NZ incidence rates more than double
Melanoma/100,000 pop (age standardised)

NZ incidence rates more than double

USA

UK

IARC. GLOBOCAN 2012, Estimated Cancer Incidence, Mortality and Prevalence Worldwide in 2012: Lyon, France
Skin cancer: a **substantial** public health issue

- skin cancer by far the most common cancer in NZ
- melanoma skin cancer the 3\(^{rd}\) most commonly registered cancer (for males & females)\(^1\)
- 513 skin cancer deaths (2011) *(305 motor vehicle deaths)\(^1\)*
- $57 million+ annual health system treatment cost (2006)\(^2\)
- between 2002-6 & 2007-11 the average annual total treatment cost in USA increased 126%\(^3\)

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2. O’Dea D. The cost of skin cancer to New Zealand. University of Otago School of Medicine, Wellington, 2009
“…a serious public health concern we cannot ignore…”

“…time for a comprehensive approach to prevent skin cancer…”

“The word prevention cannot be emphasised enough…”

“…we can truly have a significant impact on skin cancer-related illness, death and health care costs.”

“...a serious public health concern we cannot ignore...”

“...time for a comprehensive approach to prevent skin cancer...”

“The word prevention cannot be emphasised enough...”

“...we can truly have a significant impact on skin cancer-related illness, death and health care costs.”

“with a cure still a long way away, all efforts should be concentrated on prevention.” ²
Rationale for primary prevention research

• high NZ melanoma skin cancer rates

• substantial additional burden of skin cancers other than melanoma that is *not* recorded by the NZ Cancer Registry$^1$-$^2$

• high skin cancer treatment cost to health system$^3$ & personally for those affected

• *yet about* 90% of skin cancers *(in NZ)* potentially preventable through reduced harmful/excessive UVR exposure$^4$

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3. O’Dea, D. The costs of skin cancer to New Zealand. Wellington School of Medicine, University of Otago, Wellington, 2009.
Skin cancer is largely ........ preventable

avoid excessive exposure to UVR \(^1\)


Never use sunbeds \(^2\)
UV Index: DUNEDIN 21/09/2015

- Sun Protection Alert Period: 10:40 to 14:25
- $U_{V I}^{\text{MAX}}$ (Clearsky): 4.1
- $U_{V I}^{\text{MAX}}$ (Cloudy): 3.5

Courtesy of NIWA
Health begins where we live, learn, work & play

- Home
- Workplaces
- Preschool
- Secondary school
- Primary school
- University
- Recreation

Good Health
What is our role?

- ensure that efforts are focused which will result in the reduction of UV exposure for people, reducing their risk of skin cancer

- provide scientific evidence to inform colleagues at the Cancer Society (and other organisations working in this area) for their work in health promotion and advocacy
What is our role?

- ensure that efforts are focused which will result in the reduction of UV exposure for people
- provide scientific evidence to inform colleagues at the Cancer Society (and other organisations working in this area) in their work in health promotion and advocacy

- evaluation of health promotion programs
Evaluation of SunSmart schools

% of schools by level of accreditation

- Low (1-4 items)
- Medium (5-8 items)
- High (9-12 items)

2005
Evaluation of SunSmart schools

% of schools by level of accreditation

- Low (1-4 items)
- Medium (5-8 items)
- High (9-12 items)

2005
- Low: 10%
- Medium: 60%
- High: 30%

2009
- Low: 5%
- Medium: 40%
- High: 55%
What is our role?

• provide scientific evidence to inform colleagues at the Cancer Society (and other organisations working in this area) in their work in health promotion and advocacy

• evaluation of health promotion programs

• advocacy (e.g. to WorkSafe NZ regarding sun protection for outdoor workers)

• develop programmes for primary prevention of skin cancer
Our current focus: adolescents

UVR exposure in early life is associated with later skin cancer
What we know about teens’ sun protection?¹

• teenagers know that sun exposure is a risk factor for skin cancer

• often poor sun protective behaviour

• any consequences tend to be viewed as far in the future

Why target secondary schools?

- School hours include peak UVR hours

![UV Index: DUNEDIN 11/02/2015](image-url)
Why target secondary schools?

• school hours include peak UVR hours

• schools provide: outdoor activities
Why target secondary schools?

• school hours include peak UVR hours

• schools provide:
  - outdoor activities
  - built environments/shade
Why target secondary schools?

- School hours include peak UVR hours

- Schools provide:
  - Outdoor activities
  - Built environments
  - Learning opportunities

![Image of children with text: SunSmart Appearances SunSmart Scientists](Curriculum Level 4 Unit Plan)

![Image of Stonehenge with text: SunSmart Fact and Fiction SunSmart Scientists](Curriculum Level 2 Unit Plan)

![Image of giraffe with text: SunSmart Animals SunSmart Scientists](Curriculum Level 1 Unit Plan)
National secondary school survey – 2014/15

- Are sun protection messages conveyed to students?
- Do students learn about UV light & skin cancer?
- Do schools provide physical environments where students can be safe from excess sun?
- Are school uniform options suitably sun protective?
Responses by schools to selected questions....

- UV taught in curriculum: 31%
- Broad spectrum sunscreen provided at outdoor events: 87%
- (Optional) Sun protective hat in school uniform: 42%
- Written sun protection policy: 50%
- Shade available for passive activities (e.g. lunch): 53%
Observation of 10 Dunedin secondary school athletics days

- less than 5% of students wore a sun protective hat
- 50% of schools provided sunscreen
Where to next?

- program(s) to reduce teenagers’ UVR exposure needed
- cannot be haphazard – need good scientific evidence that program(s) are likely to be effective
- appearance focused interventions show promise of effectiveness
- the aim is strengthen motivation for sun protective behaviour
How does photography with work?

- photo’s with cameras with UV filters reveal changes in the skin from past UVR exposure
- signs include freckles, dark patches & wrinkles
Using sun protection
UV photography demonstration

• shows UVR damage *not* skin cancer – if concerned about your skin ask your GP

• need to remove makeup prior to photograph to see ‘real results’ – makeup often includes sun protection which blocks some UV light

• available during the break or at the end
Acknowledgements

- Health Promotion Agency (HPA) for loan of camera & equipment
- Cancer Society (NZ) & University of Otago for supporting us