1 Policies and legislation on UV exposures

Further regulation of sunbed operations (beyond the under-18 ban implemented in 2018) is still under consideration.

In 2018 Standards New Zealand proposed to withdraw the best practice Standard for commercial sunbed operations AS/NZS 2635:2008 Solaria for cosmetic purposes. All the organisations in New Zealand involved in skin cancer prevention opposed withdrawal. As this is a joint New Zealand/Australia Standard, Standards NZ is currently consulting with Standards Australia.

The Ministry of Health has completed an internal assessment of the options for addressing, the public health risks posed by non-health services provided by appearance industry providers (including the use of lasers, IPL etc for cosmetic purposes) and is now exploring which of these can be implemented as part of its core business, or through other government agencies.

Following the Sunscreen Summit at QIMR Berghofer Medical Research Institute in Brisbane last year, where a consensus statement was agreed on “when to apply sunscreen”, an article was published in the Australian and New Zealand Journal of Public Health, outlining the new recommendation that people apply sunscreen daily as part of a regular routine (when the UV index is forecast to reach 3 or above). New Zealand formally adopted this consensus statement on 3 November 2018 at the 6th Melanoma Summit in Auckland, where it was agreed to add this new recommendation to the New Zealand Skin Cancer Primary Prevention and Early Detection Strategy 2017 to 2022.

2 Public information activities

2.1 Health Promotion Agency (HPA)

The HPA is a Crown entity which leads and supports national health promotion initiatives. HPA delivers a skin cancer prevention programme under the “SunSmart” umbrella.

The HPA has published a summary of the 2018 Early Detection research on men aged 50-64 years and the resulting skin cancer infographic. The aim of this research was to gain an insight into typical attitudes to early detection, alongside general behaviours and attitudes toward overall health in older working men. The infographic is intended to assist health professionals talk to their patients about skin cancer. It includes facts about skin cancer, the “ABCDE” guide for melanoma and how to self-check.

The HPA produced a national ultraviolet radiation (UVR) awareness campaign titled ‘What’s your look? Don’t make it #dumbburn’. This campaign ran from late January to mid-March 2019. It targeted young people in the 18 to 24 age group, as evidence shows they are at greater risk of sunburn through over-exposure to UVR. The focus was on the immediate consequences of over exposure to UVR ie, pain and inconvenience to their life, embarrassment, and appearance-based cues such as unattractive tan lines and peeling. The campaign was informed by formative research, and benefitted from consumer

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1 www.sunsmart.org.nz
testing. Using both outdoor and digital channels it generated promising levels of reach - Facebook 200,000 accounts, Instagram 300,000 accounts and in Youtube 700,000 people. The sentiment of engagement on social platforms was positive.

2.2 NZ Smartphone apps for iPhone and Android
The two New Zealand UV apps, uv2Day and GlobalUV, have been updated, and the text messages changed to reflect that sun damage can occur with prolonged exposure even in low UVI conditions.

The new NIWA Weather app, presently being tested within NIWA, includes UVI forecasts.

2.3 Cancer Society of New Zealand (CSNZ)
The CSNZ is the leading NGO in New Zealand for the prevention of skin cancer and advocates for strong policy and regulation that will reduce New Zealand’s high rate of skin cancer.

Through evaluations from participants, the Cancer Society has continued to monitor and improve the SunSmart online professional development module for Early Childhood educators. We completed A comprehensive review of the module was completed in March 2019 to see how it is tracking since its launch in October 2017.

Over 800 teachers have completed the module. Following analysis of the metrics and two recommendations the CSNZ is working to:

- create a culturally appropriate resource for Kohanga Reo (that captures the UV information and why it is important to protect young children)
- investigate why early childhood centres in high deprivation areas are less likely to have completed the module.

2.4 Melnet
With support from the HPA MelNet hosted the 5th Melanoma Summit in Auckland on 2-3 November 2018. Attracting 215 national and international delegates working in melanoma prevention, diagnosis, treatment, care and research, the meeting examined and discussed recent developments in melanoma control and identified priorities for action for New Zealand. The priorities included lobbying for a ban on commercial sunbeds, championing sunscreen regulations (to ensure consistent quality), advocating for sun safety to be part of the routine school assessment undertaken by the Ministry of Education, and raising awareness of skin cancer through working with journalists and patient advocates.

MelNet has added the Sun Protection Alert as a permanent feature on the MelNet website.

2.5 Melanoma New Zealand
Melanoma NZ is a registered charity whose sole focus is dedicated to preventing avoidable deaths and influencing behaviour to reduce the incidence and impact from melanoma.

3 cancernz.org.nz/early-childhood-sunsmart-pd-module
4 Pre-school education focused on total immersion in Māori language and culture.
6 http://www.melanoma.org.nz
2.6 DermNet NZ
DermNet NZ is operated by the DermNet New Zealand Trust and aims to make authoritative information about the skin accessible to anyone in the world with an internet connection.

The site contains several pages covering skin cancer. Last year the page on sunbeds and solaria was updated, and DermNet NZ added and updated several pages to its website related to ultraviolet radiation/sun exposure and its effect on the skin. The website displays geographic-specific UV information on the sidebar of every desktop page and above the footer on mobile devices. The UV forecast is now powered by UVLens, who can give us the automated global data needed for a global audience.

2.7 Royal Society of New Zealand
The Royal Society of New Zealand published a review of the effects of artificial blue light on health and the environment, and an associated fact sheet. The review concludes that exposure to a lot of blue light in the evenings and at night can disrupt circadian rhythms, leading to poor sleep and effects on other body processes that depend on the body clock, such as digestion.

3 Research activities

3.1 Public health units
Public Health Units (PHUs) have made a sixth check of solarium operations against recommended best practice. They found a further small improvement since the previous check, but only in Auckland where compliance with the best practice procedures is mandated by a bylaw. Overall compliance in the rest of the country remained at the same level as in 2017. There was evidence that some operators may not be complying with the ban on users under 18 years old, and this is being followed up.

3.2 University of Otago Cancer Society Social & Behavioural Research Unit

3.2.1 Testing a sun protection intervention at secondary school sports days
Secondary school students take part in many outdoor activities such as camps, sports days and swimming sports during which, unfortunately some get sunburnt. There are potential opportunities for improving sun protection during these activities. During the summer of 2018/2019 we have piloted the use of a randomised controlled trial design to test the observed effect of displaying real time UV levels on a large scale monitor at the event venue.

3.2.2 Using Google Earth to assess shade for sun protection in urban recreational spaces
A collaborative team (Wellington School of Medicine, Cancer Society SBRU, Victoria University School of Architecture) was funded by the Cancer Society of New Zealand Inc. and University of Otago. Existing methods of auditing shade require on-site monitoring, whereas free Google Earth software permits the use of aerial images to estimate shade in urban open spaces at solar noon summer solstice. The accuracy and reliability of this method as a feasible tool for assessing neighbourhood shade availability in a sample of outdoor recreational spaces (playgrounds, beaches and pools) was investigated in four NZ cities. Field observations (n=86) were made in Wellington to assess accuracy.

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7 https://www.dermnet.org.nz
8 https://www.dermnetnz.org/topics/sunbeds-and-solaria
The method was acceptably accurate and reliable for assessing shade at playgrounds and beaches. A paper was published in the Journal of Community Health.

### 3.2.3 Traditional media coverage of sun protection issues during springtime in NZ.
By helping to shape public narratives and social norms about cancer prevention, traditional news media content can, over time, significantly impact population sun safety behaviours. Our study, funded by the Cancer Society of New Zealand and University of Otago, aimed to describe news media reportage on skin cancer issues during spring (September to November inclusive). Overall, skin cancer related reports represented 3.6% of all cancer stories published, mainly concerning primary prevention (72%), early detection (37%) and survivorship (27%). The main risk factors identified were sun exposure (49%) and tanning (25%). It was heartening that most stories included prevention information. A paper was published in the Health Promotion Journal of Australia.

### 3.2.4 Consideration of SunSmart Policy: Documents by New Zealand National Sporting Organisations
Outdoor recreational environments such as swimming pools and sports grounds are recognised as being very important for skin cancer control, as they are places where people spend long periods of time outdoors while engaged in sporting or recreational pursuits. If the overarching governing bodies for each of the individual sports (National Sporting Organisations (NSO)) consider health outcomes when developing their policies this can have a very real impact on the UVR exposure of sporting participants, officials and spectators. During this study we interviewed representatives from 57 NSOs about whether they consider sun protection when developing national policies and guidelines, and if they do whether these are both comprehensive and comply with current scientific evidence of best practice in skin cancer prevention.

### 3.2.5 Reducing harm from commercial sunbeds
The Unit has been monitoring the sales of second hand sunbeds on the Trade Me website for more than three years. Over the past 12 months there have been about 5 sunbeds for sale each month with an average sale price of NZ $172 per sunbed.

### 3.2.6 The Ultraviolet Radiation Environment and Sun Protection at Secondary School Rowing Regattas in Otago
The primary focus of this research is to measure the erythemally weighted UVR experienced by secondary school students during rowing competitions using electronic dosimeter badges. It also aims to achieve detailed insights into the sun protection practices that schools currently have in place for their rowers during competition.

### 3.2.7 Unintended sunburn in a NZ population
Previous research showed that nearly 14% of sunburns were unintended. Those experiencing unintended sunburn are important to target with public health sunburn prevention messages, as this group may be most amenable to skin cancer reduction efforts. However, to date, little research has examined this population. A University of Otago team, led by Dr Geri McLeod, used data from the 2016 Health Promotion Agency Sun Exposure Survey to identify statistical predictors of unintended sunburn while controlling for potentially confounding factors, including climatic variables.

Of 2,164 respondents included in the analysis, 89% reported an outdoor status of ≥ 15 minutes, 10am-4pm on the target weekend. Sunburn was experienced by 14% of whom most were classified as experiencing unintended sunburn. Of these, 58% wanted to avoid getting a suntan and 89% knew that
the weather conditions were such that they could expect to get sunburned on the target day if they did not use adequate sun protection.

No socio-demographic characteristics were associated with unintended sunburn indicating that anyone outdoors during fine summer weekends is at risk for sunburn regardless of their biological or social characteristics. Some outdoor behavioural variables were associated with unintended sunburn, including: being outdoors for longer periods of time, or outdoors for longer than intended; not using shade; and not covering up sufficiently with clothing and a hat.

An oral presentation was given at the *NIWA UV workshop: UV radiation and health*, Wellington, New Zealand. Dr McLeod was funded by a Genesis Oncology Professional Development Award to fund workshop attendance.

### 3.2.8 Unintended sunburn as an explanation for sunburn paradoxes

Previous research using survey data collected 2000-6 suggested that paradoxes exist whereby sunburn is more likely among those who do not like to tan, have higher sun protection knowledge and use sunscreen. That analysis found that 14% of respondents were sunburned despite not attempting to tan during summer. It was theorized that unintended sunburn may be the driver of sunburn paradoxes. This study aimed to examine sunburn and unintended sunburn with respect to known sunburn paradoxes using data from the 2016 Health Promotion Agency *Sun Exposure Survey*. Specifically, it was hypothesised that respondents who experienced sunburn or unintended sunburn on the target interview day would have lower positive attitudes towards tanning, higher sun protection knowledge and used sunscreen.

The hypotheses were partially confirmed in that sunburn was associated with more sun protection knowledge. However, contrary to the hypotheses: sunburn was associated with more positive attitudes towards tanning, and sunscreen use was not associated with increased odds of sunburn. No associations were found between unintended sunburn and the paradox variables under investigation. Therefore, we were unable to confirm that unintended sunburn is the result of influence from the sunburn paradox.

A poster was presented by Dr McLeod at the 4th *International Conference on UV and Skin Cancer Prevention*, Toronto, Canada. Genesis Oncology Professional Development Award to fund conference attendance.

### 3.3 National Institute for Water and Atmospheric Research (NIWA)

The WMO and UNEP 2018 reports of the environmental effects of stratospheric ozone depletion, UV radiation and climate change are now in print (*Photochem and Photobiological Sciences*, 18(3): 595-828). The next meeting of the UNEP committee is in Alexandra, New Zealand in September 2019.

A paper by Richard McKenzie and Robyn Lucas (*Scientific Reports*. 10.1038/s41598-018-32056-3) showed that even on days when the peak UVI is below the threshold for advising protection, the daily dose of sun-burning UV available frequently far exceeds the threshold for damage to fair skin.

### 3.4 HPA

The HPA commissioned research to provide an insight into typical attitudes to early detection alongside general behaviours and attitudes toward overall health in working men aged 50 to 64 years of age. New Zealanders 50+ years are most at risk of skin cancer, and men are twice as likely to die
from melanoma as women. A summary of the findings is available\textsuperscript{10}, and suggests that workplaces and sports clubs are good places to promote skin checks in this group.

New Zealand Ministry of Health
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