

# Chapter 7

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# Reaction to the 2000/01 SunSmart Campaign: results from a telephone survey of Victorians

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## Introduction

The Cancer Council Victoria has run a skin cancer control program since 1980. It began with the Slip! Slop! Slap! Campaign, and was followed by the SunSmart Campaign, launched in 1988 with substantial funding from the Victorian Health Promotion Foundation.

The long-term aim of the SunSmart Campaign is a reduction in the incidence of morbidity and mortality from skin cancer in Victoria. The short-term objectives are based on changing attitudes, beliefs and behaviours that affect individual skin cancer risk, and in modifying the environment to facilitate skin protection.

### **Spring–summer 2000/01 campaign overview**

The spring–summer 2000/01 SunSmart Campaign targeted young adults and as in previous years continued to focus on structural and policy issues.

SunSmart received wide television coverage for its spring media launch. A general practitioner, skin specialist and three recently treated melanoma patients were available to be interviewed. The patients, including a young woman, agreed to have their deep scars from removal of the melanoma filmed for television. This focus on early detection and prevention tied in well with the paid media buy for summer of the second year's screening of the *Timebomb* television commercial. The total media buy for this season, \$74,084, was spent on metropolitan television (\$54,125) and regional television (\$19,959). No radio or press coverage was bought. Unfortunately the TARPS for the summer media buy showed a low audience reach during January and there was only limited unpaid media over the summer. In November during National Skin Cancer Action Week and at a SunSmart Week media launch in January, SunSmart launched statistics on the number of young people sunburnt each summer

Each of SunSmart's program areas continues to provide up-to-date advice, resources and professional development on skin cancer control. As in 1999 to 2000, the Community Program placed less emphasis on the summer media weeks, to encourage service providers to promote skin cancer education and shade provision year-round. The Schools Program continued to promote the development of sun protection policy in this sector. An accreditation program is offered to schools and preschool and childcare centres that have developed policy addressing three key areas: regulations for hat wearing, provision of shade, and provision of sunscreen. For a number of years SunSmart has implemented a sponsorship program to various sporting and community groups. Although a very successful strategy for SunSmart (Dobbinson, Borland & Anderson 1999), 2000 to 2001 represents the last year incorporating signage rights and social marketing into the agreements with these sporting and community groups. This represents a future shift to focus more closely on promoting structural change at the 'grass roots' club level (AIPC 2001). Earlier efforts have relied more on implementing change via working closely with the state associations of these groups.

## Revised evaluation methodology

This paper examines Victorians' reaction to the spring–summer 2000/2001 SunSmart campaign. Since 1999, the impact of the campaign has been evaluated at the population level through an annual survey of Victorians conducted in weekly telephone interviews over summer. This method closely follows that used in the Centre for Behavioural Research in Cancer's triennial survey of sun-protective behaviours of Melbourne residents (Hill et al. 1992; Hill et al. 1993; Hill & Boulter 1996). This replaces the method used in previous years, a consumer opinion trends omnibus survey conducted face to face at the end of the summer campaign in March (no longer available).

This paper reports on the results of a population survey conducted in summer 2000/2001 and comparison with results from the summer 1999/2000 survey. The report for the 1999/2000 survey included a more detailed rationale for the change in survey method (Dobbinson 2004).

The aim of the telephone survey was:

- to quantify awareness of and reaction to the campaign
- to quantify attitudes to tanning and solarium use
- to quantify the extent of reported sun-protective behaviour
- to quantify the prevalence and extent of reported sunburn over summer
- to quantify parents' perceptions of efforts made to promote children's sun protection in schools
- to compare the above levels with the baseline data collected in 1999/2000.

## Method

Approximately 100 telephone interviews of Victorians were conducted on each Monday or Tuesday evening over 13 weeks from December 2000 to February 2001. A total of 1,426 Victorians aged 14–69 years were interviewed. The sample frame was designed to over-represent people aged under 35 years. In addition regional residents of Victoria were under-represented in the sample. The original unweighted sample comprised: 45% of respondents aged 14–29 years, 38% aged 30–49 years, and 17% aged 50–69 years; equal numbers of men and women; and 20% of residents from rural and provincial Victoria and 80% of Melbourne metropolitan residents.

For this report results based on the population of Victoria were of interest. Weights based on the 1999 Australian Bureau of Statistics estimates of population by age and gender and by region (Total Melbourne versus the remainder of Victoria) were applied to the data to obtain results representative of the population of Victoria (Czaja & Blair 1996). The weights applied to each demographic group were divided by the mean weight for the sample to retain the original power of statistical tests. The weighted sample was representative of people in Victoria aged 14–69 years; compared to the original sample, the weighted sample was slightly older (32% aged 14–29 years, 41% aged 30–49 years, and 26% aged 50–69 years) and included more regional residents (26% resident of rural and provincial Victoria). The weighted sample is referred to for the remainder of this report.

Sunburn rates are an important marker of exposure, however, for evaluation purposes tracking the component of sunburn attributable to sun-related behaviour is the most relevant measure of prevention efforts. Variation in ultraviolet (UV) radiation levels is an important non-behavioural influence on sunburn. As data to adjust for UV radiation levels is not available across the whole state, it is not possible to report the trends in sunburn

incidence for Victoria relating to prevention efforts. A more robust analysis of trends in sunburn is periodically conducted on the data collected for Melbourne residents (Hill et al. 1993).

Other demographic features assessed were respondents' skin type, education and a measure of socio-economic status based on occupational status of the main income earner in the household. Approximately one-third of respondents had highly sensitive skin (just burn not tan on exposure to spring sun sunshine for 30 minutes), 45% had moderately sensitive skin (burn first then tan) and 22% did not have sensitive skin (does not burn). Owing to previously observed interactions between age and education levels, education effects were only reported when they were significant after controlling for age.

All results reported are significant at the .05 level unless otherwise indicated. Some figures do not add to 100% due to rounding.

## Results

### **Awareness of the *Timebomb* television commercial**

A media buy of the *Timebomb* commercial was purchased by SunSmart for the 2000/2001 summer. The *Timebomb* commercial was originally developed for the SunSmart Campaign in 1999. It was launched for a second year of viewing in the first week of January 2001. As mentioned in Chapter 6, the commercial featured graphic scenes of a young man being sunburnt, then a dark mole appeared to grow on his neck followed by scenes of an operation removing a metastatic tumour caused by the melanoma. The accompanying script for the commercial was 'Every time you go out in the sun unprotected you're putting a timebomb under your skin. Timebombs that can spread and explode into other parts of your body. To avoid developing skin cancer in future Slip! Slop! Slap!'

SunSmart had a limited budget for this season's media buy. Two hundred and seventy TARPS (the percentage of the specified target audience that a specific media vehicle will potentially deliver at a given point in time) were purchased with Channel 10 to be shown over January and February. This compared with 340 TARPS purchased in summer 1999/2000 for both metropolitan and regional stations. Owing to its graphic nature, this commercial was rated 'PG' and could only be shown on television after 8.30 pm. This restricted attraction of any substantial number of community service announcements (unpaid media).

Data from Williams Media indicated the performance for this season's media buy was lower than expected and much of this achieved later in the season (personal communication, Williams Media Services 18 June 2001).

Awareness of the *Timebomb* commercial was assessed by asking 'Do you remember seeing an advertisement on TV which showed scenes of a young man with a large mole on his neck? Do you remember ever seeing this advertisement?' Table 7.1 tracks the level of awareness of the commercial by the weekly TARPS for the commercial (personal communication, Williams Media Services 18 June 2001). The pattern of weekly awareness followed the weekly peaks and troughs of the audience levels, as indicated by the weekly TARPS. The greatest awareness was achieved in the last week of the survey. Before the launch of the commercial, in January, there was a steady decline in the proportion of respondents who recalled ever seeing *Timebomb*. Towards the end of the campaign recall of the commercial increased to a peak of 63%. The limited awareness of the commercial in the earlier weeks of interviewing suggests it will have had only limited influence in promoting sun protection during the earlier months of this summer.

In 2000/01, 54% of respondents interviewed in the weeks following the launch reported they saw the commercial, 43% reported not seeing it and 4% were unsure if they had seen it.

**Table 7.1 Tracking awareness of *Timebomb* commercial by weekly TARPS**

Week	Interview date	% Aware	Weekly no. interviews n	TARPS purchased <sup>†</sup>	TARPS achieved
1	4/12/00	51%	114	0	
2	11/12/00	46%	105	0	
3	18/12/00	43%	103	0	
4	27/12/00	42%	103	0	
5 → TVC launch	2/01/01	44%	106	31	13
6	8/01/01	51%	107	35	18
7	15/01/01	49%	109	32	16
8	22/01/01	61%	117	24	4
9	29/01/01	51%	116	29	27
10	5/02/01	50%	113	28	12
11	12/02/01	59%	110	36	56
12	19/02/01	54%	117	36	69
13	26/02/01	63%	107	19	49

<sup>†</sup> Note: A total of 270 TARPS was purchased for January & February, while most of the TARPS were achieved over the last 3 weeks of February.

The overall awareness of the SunSmart commercial in the weeks following the launch in summer 2000/2001 was similar to awareness levels in summer 1999/2000 ( $X^2=2.2$ ,  $df=2$ ,  $p=.338$ ), see Table 7.2. SunSmart might have expected an increase given this was a second year of viewing, however, there may have been less opportunity to view the commercial this year given the relatively low TARPS achieved until weeks nine and 11.

In summer 2000/2001 some demographic groups were more likely to report having seen the commercial. Comparison of groups was made amongst respondents interviewed in the weeks following the launch of the commercial. Residents from rural or regional Victoria compared to Melbourne residents (66% compared to 52%;  $X^2=15.1$ ,  $df=1$ ,  $p<.001$ ); younger respondents (59% of respondents aged 14–29 years, compared to 59% of respondents 30–49 years, and 46% of respondents 50–69 years;  $X^2=11.9$ ,  $df=2$ ,  $p<.01$ ); and men compared to women (59% compared to 52%;  $X^2=4.0$ ,  $df=1$ ,  $p<.05$ ) were more likely to recall seeing *Timebomb*. There were no consistent differences in recall of *Timebomb* by education across all age groups. There was a small trend by income, with respondents from lower socio-economic status households more likely to recall seeing the commercial (linear-by-linear  $X^2=7.1$ ,  $df=1$ ,  $p<.01$ ).

**Table 7.2 Reported recall of *Timebomb*, of respondents interviewed following the week of its launch, summers 1999/2000 and 2000/01**

	1999/2000	2000/2001
Saw <i>Timebomb</i>	52%	54%
Did not see <i>Timebomb</i>	42%	43%
Could not say if they saw <i>Timebomb</i> or not	5%	4%

Some figures do not add to 100% due to rounding.

## Intentional sun exposure: suntanning

A steady decline in Victorians' desire for a sun tan has been noted in previous years due to the anti-skin cancer campaign (Hill et al. 1993). In the current study a number of questions further assessed Victorians' preference for a tan, recent tanning attempts, beliefs about safety and use of solariums, knowledge and use of artificial tanning products.

### Preference for a tan

When asked 'Do you like to get a suntan or not?' 61% of all respondents interviewed reported they did not like to get a tan and 39% reported they liked to get a tan. The type of tan preferred was commonly a moderate tan, with 61% of those who reported they liked to get a tan preferring a moderate tan. Twenty per cent of those who liked to get a tan preferred a 'light tan', 13% a 'dark tan', 4% a 'very dark tan' and 2% 'could not say' how dark a tan they liked. Table 7.3 shows that more Victorians in summer 2000/2001 reported they liked to get a tan than in summer 1999/2000 (39% compared with 33%;  $X^2=9.6$ ,  $df=1$ ,  $p<.01$ ) and the trend was also for a darker tan (linear-by-linear  $X^2=13.7$ ,  $df=1$ ,  $p<.001$ ).

**Table 7.3 Do you like to get a suntan?**

	1999/2000	2000/2001
No tan	67%	62%
Light tan	10%	8%
Moderate tan	18%	24%
Dark tan	4%	5%
Very dark tan	1%	2%

*Some figures do not add to 100% due to rounding.  
Excludes n=16 'Can't say' how deep a tan they liked.*

### Tanning attempts

There appears to have been an increase in the proportion of people who attempted a suntan over the last summer (see Table 7.4). Nineteen per cent of Victorians reported attempting a suntan in the 2000/2001 summer season as compared with 15% of Victorians in the 1999/2000 summer season ( $X^2=9.3$ ,  $df=1$ ,  $p<.01$ ). Females were more likely than males to report they attempted a suntan in 2000/2001 ( $X^2=5.0$ ,  $df=1$ ,  $p<.05$ ) while in 1999/2000 males and females were equally likely to report they attempted a suntan ( $X^2=2.5$ ,  $df=1$ ,  $p=.114$ ). As in the previous year, in 2000/2001 younger respondents were more likely to report they attempted a suntan (30 % of respondents aged 14–29 years, compared to 15% of respondents 30–49 years, and 12% of respondents 50–69 years;  $X^2=49.9$ ,  $df=2$ ,  $p<.001$ ). Melbourne city residents were also more likely than respondents living in regional areas to report they attempted a suntan in 2000/01 (21% compared with 13%;  $X^2=14.0$ ,  $df=1$ ,  $p<.001$ ).

**Table 7.4 Attempted a suntan this season?**

	1999/2000	2000/2001
Males	13%	17%
Females	16%	21%
Males and females	15%	19%

Nevertheless in the previous year, area of residence was not significantly associated with attempting a suntan (15% compared with 13%;  $X^2=1.6$ ,  $df=1$ ,  $p=.279$ ). Socio-economic status was not significantly associated

with attempting a suntan in summers 2000/2001 (linear-by-linear  $X^2=0.7$ ,  $df=1$ ,  $p=.399$ ) or 1999/2000 (linear-by-linear  $X^2=1.6$ ,  $df=1$ ,  $p=.201$ ). Although in 1999/2000 a small association with tanning attempts by education level was noted for some age groups (linear-by-linear  $X^2=3.9$ ,  $df=1$ ,  $p<.05$ ), in 2000/2001 respondent's education level was not associated with attempting a suntan (linear-by-linear  $X^2=0.005$ ,  $df=1$ ,  $p=.944$ ).

### **Solarium tanning**

There has been a rapid increase in the number of solariums opening for business in Victoria in recent years (Fox 2001). To assess Victorians' beliefs about solariums respondents were asked whether they agreed or disagreed that 'You can get a safer suntan in a solarium than at the beach'. Only one-third of respondents strongly disagreed with this statement while a further 27% mildly disagreed with this statement. Thus, 40% of respondents were either 'unsure' about the *safety of solariums* (18% 'could not say' and 8% 'neither agreed nor disagreed') or thought they *were safe* (12% 'mildly agreed' and 3% 'strongly agreed' with the statement) when compared to sun tanning at the beach. There were some differences in knowledge/beliefs about the safety of solariums by gender, education and area of residence. Males were more likely than females (47% compared with 33%;  $X^2=28.8$ ,  $df=1$ ,  $p<.001$ ); people living in regional areas were more likely than Melbourne residents (44% compared with 38%;  $X^2=4.0$ ,  $df=1$ ,  $p<.05$ ) and people with less education over 30 years of age ( $X^2=14.0$ ,  $df=3$ ,  $p<.01$ ) to be misinformed about the safety of solariums.

Respondents were also asked two new questions assessing the prevalence and frequency of solarium use in the last year. Despite a large proportion of the population believing that using a solarium is a relatively safe way to get a suntan, currently few Victorians actually use them. Three per cent of Victorians in summer 2000/2001 reported they had attended a solarium in the past 12 months to get their skin tanned. Nonetheless, the majority of these respondents (57%) had attended a solarium more than five times in the past 12 months. Given the low prevalence of solarium use, the power of analysis for demographic effects was limited and is not reported here although use appears to be more common among females, young people and metropolitan residents.

### **Artificial or fake tanning products**

Eleven per cent of Victorians reported that over the present spring or summer they had used a cosmetic product to make them look more tanned than they were. Eighty-nine per cent of Victorians had not used an artificial tan or fake tan product and less than 1% of respondents 'could not say' whether they had used this type of product this spring or summer.

In previous years there was some concern over inaccurate beliefs about the protection from sunburn afforded by use of fake tan products (Purchase & Borland 1994; Dixon, Shatten & Borland 1997). To assess the current knowledge on these products, respondents were asked whether they agreed or disagreed with the statement that 'An artificial tan you get from applying a cosmetic product protects you from the harmful rays of the sun'. The majority of respondents correctly believed that artificial tans did not provide protection from the sun (43% strongly and 32% mildly disagreed with the statement). Few respondents agreed (7% mildly agreed and 2% strongly agreed that artificial tans provided protection from the sun) but a further 12% of respondents 'could not say' and 5% were 'undecided' whether these products provided protection from the sun or not.

## Reported sun-protective behaviour

### Weekend sun protection

Respondents were asked a series of questions about their sun protection during time spent outside between 11 am and 3 pm on the previous summer weekend.

Results in Table 7.5 show the prevalence with which people engaged in specific sun-protective behaviours on summer weekends in 2000/2001. This was determined by time spent outside on the most recent Sunday, or if outside on Saturday only then their activity for Saturday is reported. Seventy-four per cent of respondents reported they were outside for more than 15 minutes between 11 am and 3 pm on the previous weekend. Forty-four per cent of the respondents who were outside on the weekend reported wearing a hat, cap or sun visor, while only 20% of respondents reported wearing a wide-brimmed hat. Just over one-third of respondents reported they had used sunscreen while outside.

Nonetheless, most people who had used sunscreen reported they had used a sunscreen with an SPF of 15 or 15+. Twenty-six per cent of respondents were 'mostly in the shade', a further 20% spent 'equal time in the shade and in the open' and 54% were 'mostly in the open' when outside on the weekend. In addition, respondents were asked about whether they had at any time between 11 am and 3 pm chosen to avoid the sun by staying inside. Sixty-two per cent of all respondents reported they chose to stay inside to avoid the sun during that time on either Sunday or Saturday.

**Table 7.5 Respondents' sun protection on summer weekends**

	1999/2000	2000/2001
Chose to stay out of the sun <sup>a</sup>	44%	62%***
Total outside on Sunday or Saturday	n=898	n=1051
<b>When outside 11 am–3 pm Sunday/ Saturday ...</b>	64%	74%***
Wore a hat, cap or sun visor	43%	44%
Wore a wide-brimmed hat	19%	20%
Wore a long-sleeved or 3/4-sleeved top	23%	13%***
Used sunscreen <sup>b</sup>	34%	38%
Used 15+ sunscreen	32%	36%*
Wore sunglasses	51%	55%*

<sup>a</sup> Chose to stay inside on Sunday or Saturday.

<sup>b</sup> Excludes -1% only wearing make-up with a sunscreen.

\*\*\*  $p < .001$

\*\*  $p < .01$

\*  $p < .05$

Table 7.5 also shows the prevalence of sun protection used on weekends in summer 2000/2001 compared to respondents in summer 1999/2000. Respondents were more likely to have stayed inside to avoid the sun on the weekend in 2000/2001 than in 1999/2000 ( $X^2=86.5$ ,  $df=1$ ,  $p < .001$ ). Respondents were also less likely to wear long-sleeved tops in 2000/2001 ( $X^2=29.9$ ,  $df=1$ ,  $p < .001$ ), perhaps due to slightly higher average monthly temperatures in summer 2000/2001. Nonetheless, demographic groups more likely to spend time outside were generally similar for both survey years. As in the previous year, in 2000/2001 more men than women (82% compared to 65%;  $X^2=53.7$ ,  $df=1$ ,  $p < .001$ ) and more younger people than older people (77% of respondents aged 14–29 years, compared to 77% of respondents 30–49 years, and 65% of respondents 50–69 years;  $X^2=19.5$ ,  $df=2$ ,  $p < .001$ ) were outside between 11 am and 3 pm on the

weekend. Respondents from regional areas compared to metropolitan areas were more likely to have spent time outside (78% compared to 72%;  $X^2=4.7$ ,  $df=1$ ,  $p<.05$ ). Other demographic effects were weak and not consistent over the two survey years. In 2000/2001 respondents from lower blue collar households were less likely to be outside ( $X^2=8.8$ ,  $df=3$ ,  $p<.05$ ); while in 1999/2000 respondents from lower white collar households were less likely to be outside on the weekend ( $X^2=12.3$ ,  $df=3$ ,  $p<.01$ ).

Patterns of sun protection on the weekend also varied somewhat by age and gender in summer 2000/2001. Of respondents outside on the weekend men were more likely than women to report wearing a hat, cap or sun visor on the weekend (53% compared to 34%;  $X^2=34.6$ ,  $df=1$ ,  $p<.001$ ), but they were equally likely to report wearing a wide-brimmed hat ( $X^2=1.6$ ,  $df=1$ ,  $p=.210$ ). Women were more likely than men to have used a sunscreen on the weekend (46% compared to 32%;  $X^2=22.6$ ,  $df=1$ ,  $p<.001$ ) or to have used sunscreen with SPF 15 or 15+ ( $X^2=19.7$ ,  $df=1$ ,  $p<.001$ ). Moreover, women were more likely to have reported they chose to stay inside between 11 am and 3 pm on the weekend to avoid the sun (64% compared to 59%;  $X^2=4.4$ ,  $df=1$ ,  $p<.05$ ) or to be 'mostly' in the shade during their time outside (30% compared to 22%;  $X^2=14.8$ ,  $df=3$ ,  $p<.01$ ). Men and women were equally likely to report wearing a top with long or three-quarter length sleeves on the weekend ( $X^2=0.001$ ,  $df=1$ ,  $p=.975$ ). Women were also more likely to report wearing sunglasses on the weekend (60% compared with 51%;  $X^2=5.6$ ,  $df=1$ ,  $p<.01$ ).

Younger respondents were less likely to report they wore a hat, cap or sun visor on the weekend (36% of respondents aged 14–29 years, compared to 50% of respondents 30–49 years, and 47% of respondents 50–69 years;  $X^2=16.8$ ,  $df=2$ ,  $p<.001$ ). Younger respondents were also less likely to report they wore a wide-brimmed hat on the weekend (11% of respondents aged 14–29 years, compared to 22% of respondents 30–49 years, and 30% of respondents 50–69 years;  $X^2=38.2$ ,  $df=2$ ,  $p<.001$ ). Sunscreen use, as reported in summer 1999/2000, continues to be similar across all age groups ( $X^2=1.0$ ,  $df=2$ ,  $p=.597$ ). Nonetheless, in earlier reports Victorians' use of sunscreen was more common among younger age groups (Dobbinson & Borland 1999 a & b). The prevalence with which respondents wore tops with long or three-quarter-length sleeves was not significantly different by age ( $X^2=1.7$ ,  $df=2$ ,  $p=.432$ ). Younger respondents were also less likely to have reported they chose to stay inside between 11 am and 3 pm on the weekend to avoid the sun (57% of respondents aged 14–29 years, compared to 63% of respondents 30–49 years, and 65% of respondents 50–69 years;  $X^2=7.8$ ,  $df=2$ ,  $p<.05$ ); or be in the shade during their time outside (21% of respondents aged 14–29 years, compared to 28% of respondents 30–49 years, and 29% of respondents 50–69 years;  $X^2=34.3$ ,  $df=6$ ,  $p<.001$ ).

As in summer 1999/2000, there were few other demographic effects for weekend sun-protective behaviours. Nevertheless, socio-economic status of households was associated with some sun-protective behaviours. Respondents from households of lower socio-economic status were less likely to have worn a wide-brimmed hat (linear-by-linear  $X^2=9.0$ ,  $df=1$ ,  $p<.01$ ), sunglasses (linear-by-linear  $X^2=9.4$ ,  $df=1$ ,  $p<.01$ ) or to have used sunscreen when outside on the weekend (linear-by-linear  $X^2=15.7$ ,  $df=1$ ,  $p<.001$ ). Except for wearing of sunglasses ( $X^2=24.4$ ,  $df=1$ ,  $p<.001$ ), respondents' sun protection was not significantly different by education level across all age groups. In 2000/2001 there were no significant differences in people's sun protection by respondents' area of residence.

### ***Incidence of summer weekend sunburn***

To monitor the outcome of respondents' efforts to protect themselves from the harmful effects of the sun on the weekend, respondents were asked, 'Did you get at all sunburnt yesterday? What about Saturday?' Respondents were also asked to describe their sunburn, including which parts were sunburnt and the severity of the sunburn. Towards the end of the interview respondents were further asked about the extent of their worst burn, whether they had been trying to protect themselves or not, and other reasons they might have on why they got sunburnt.

As previously mentioned, analysis of trends in the incidence of weekend sunburn among Victorians is limited and would even be somewhat misleading in terms of monitoring the behavioural component of sunburn and evaluating the efficacy of our skin cancer control program. This is because other non-behavioural factors, such as UV radiation levels and temperature, influence sunburn—the latter through indirectly influencing people’s outdoor activities and sun protection. For these reasons trends in sunburn are monitored by more robust analyses which adjust for UV radiation and temperature (Hill et al. 1993). UV radiation data are currently not available for the whole state; this data is only available for the Melbourne metropolitan area. Thus trends in sunburn incidence for Victoria are not reported in our evaluation reports, as this does not provide a clear picture of prevention efforts. Trends in sunburn for Melbourne residents will be reported elsewhere.

The incidence of sunburn (not UV adjusted), on summer weekends in 2000/2001, was 15% of Victorians aged 14–69 years (see Table 7.6). Sunburn varied by skin type, age and gender. Respondents with highly sensitive (just burn and not tan afterwards) or moderately sensitive (burn first, then tan afterwards) skin types were more likely than those with less sensitive (just tan) skin to be sunburnt on the weekend (14% and 7%, respectively were sunburnt, compared to 5%;  $X^2=17.8$ ,  $df=2$ ,  $p<.001$ ). Men were more likely than women ( $X^2=19.2$ ,  $df=1$ ,  $p<.001$ ) and younger people more likely than older people (18% of respondents aged 14–29 years, compared to 15% of respondents 30–49 years, and 9% of respondents 50–69 years;  $X^2=14.8$ ,  $df=2$ ,  $p<.001$ ) to report being sunburnt on weekends. Weekend sunburn was equally common among other demographic groups, with sunburn not significantly different by area of residence ( $X^2=0.01$ ,  $df=1$ ,  $p=.905$ ), education (linear-by-linear  $X^2=2.4$ ,  $df=1$ ,  $p=.119$ ) or socio-economic status (linear-by-linear  $X^2=0.08$ ,  $df=1$ ,  $p=.782$ ).

**Table 7.6 Incidence † of summer weekend sunburn among Victorians (2000/2001)**

	<b>Males n=713</b>	<b>Females n=713</b>	<b>Overall n=1426</b>
Melbourne residents (n=1051)	19%	10%	15%
Regional residents (n=375)	18%	11%	14%
Overall Victoria	19%	11%	15%

† Not adjusting for UV radiation levels.

### **Extent and severity of sunburn**

Sunburnt respondents were most commonly burnt on their face or other parts of the head (40%), followed by their arms or hands (35%), neck (27%), shoulders (23%), trunk (22%) and legs or feet (14%).

Of sunburnt respondents, 70% reported their worst sunburn was ‘red, without being tender’, 26% had ‘red and tender’ sunburn while only four% had ‘red, tender and blistered’ sunburn. Twenty-one per cent of respondents reported the part of their body worst burnt extended over ‘most of’ that body part, 35% said it was ‘half’, 20% ‘under half’, and 24% that it was ‘a small strip’ that was sunburnt. People most commonly reported that their ‘neck’ (18%) or ‘face’ (17%) was sunburnt worst.

### **How people got sunburnt**

To further explore why people got sunburnt, respondents were asked whether during the time they got sunburnt they were trying to protect the part of their body that was worst sunburnt (see Table 7.7). Thirty-six per cent reported they had ‘tried to protect that area’ and 64% reported they had not. Among the sunburnt respondents, all demographic groups were equally likely to be trying to protect themselves.

The common reasons given for being sunburnt among those *who tried to protect themselves* (n=75) included that they did not protect themselves ‘all the time’ (29%), the ‘sunscreen wore off’ (24%), or they ‘missed

applying sunscreen' to the burnt area (23%). Other reasons were less commonly given. Sixteen per cent reported they got sunburnt 'through the sunscreen' and 2% 'through clothing' while 7% 'could not say how' they got sunburnt. Of those respondents *who did not try to protect the area* sunburnt worst (n=133), 49% said they 'did not think they needed to protect' the area, 30% simply 'forgot to protect', 15% 'could not be bothered to protect' and 6% 'could not say why' they did not protect the area.

Overall the two most common reasons people were sunburnt in summer 2000/2001 were because they either 'did not think they needed to' protect themselves or simply because they 'forgot' to protect themselves from the sun.

**Table 7.7 Perceived reasons for sunburn**

	Of those who used sun protection n=75	Of those who did not use sun protection n=133	Overall people sunburnt n=208
<i>Sunburnt while trying to protect the area that was worst burnt</i>			
Not protecting all the time	29%	–	10%
Area 'missed' with sunscreen	23%	–	8%
Sunscreen wore off	24%	–	9%
Burnt through sunscreen	16%	–	6%
Burnt through clothing	2%	–	0.8%
Could not say	7%	–	3%
<i>Sunburnt but not trying to protect the area that was worst burnt</i>			
Forgot to protect	–	30%	19%
Could not be bothered	–	15%	10%
Did not think they needed to	–	49%	31%
Could not say	–	6%	4%
<b>Total sunburnt</b>			<b>n=208</b>

### ***Children's outdoor activity and sunburn***

In summer 2000/2001 new questions were asked of parents about their children's outdoor exposure on the weekend. Twenty-eight per cent of respondents (n=393) reported they were parents of one or more children aged under 16 years. The mean age of the youngest child in the household was 5.6 years.

Parents were asked about whether their youngest child was outside for more than 15 minutes between 11 am and 3 pm on Sunday or Saturday and whether the child was sunburnt on Sunday or Saturday. Sixty-seven per cent of parent's reported their youngest child was outside between 11 am and 3 pm on at least one day on the weekend and 49% were outside on both days. Three per cent of parents reported their youngest child had been sunburnt on the weekend.

**Table 7.8 Proportion of children spending time outside and incidence of sunburn on weekend (parents' proxy report of youngest child in the household, n=393)**

	<b>Children &lt; 16 years</b>
Children outside 11 am–3 pm	67%
Children sunburnt on either day	3%

### ***Support for children's sun protection at school***

Twenty per cent of parents' youngest child attended crèche, childcare or kindergarten (n=80). Fifty-eight per cent of parents (n=229) had one or more children attending primary school and 32% had one or more children attending secondary school (n=125).

There is little data on efforts made to encourage children's sun protection during the preschool years. We have some evidence on support for sun protection in schools as given by primary school principals reports (Dobbinson et al. 2000). Nonetheless, the pre-school sector (childcare, kindergarten and crèche) is more varied in structure and staff have less time available to complete surveys. To assess the prevention efforts made by the pre-school sector a set of new questions was asked of parents about their opinions on the efforts made by the pre-school, primary school, or secondary school their child attended. They were then prompted to describe in what ways these efforts were made.

Table 7.9 describes the pattern of perceived support provided for children's sun protection in the different sectors. Overall the parents' opinions of efforts made were encouraging, with almost all parents reporting support for sun protection was offered at preschool and primary school. In contrast, only 59% of parents with children attending a secondary school believed the secondary school had made an effort to protect the children from sunburn when outside during breaks or sport. Some caution should be used in drawing conclusions on the subjective assessments of efforts made, as perhaps, parents may be less aware or involved with what is happening at their children's secondary school as compared to primary school or pre-school.

The strategies parents were aware were in use also varied somewhat by sector. Many parents were aware of promotion of hat-wearing at their children's pre-school (83%) or primary school (90%). Similarly, hat-wearing was commonly mentioned (48%) as a sun protection strategy by parents of secondary school students, but as with other strategies these were less prevalent over all than in the other sectors. Provision of sunscreen and shade were also comparatively common strategies parents were aware of but appear to be more often adopted by the pre-school sector. Moreover, scheduling of activities to limit time outside during peak UV radiation periods, although not a common strategy, appears to be best addressed by pre-schools, with just under one-quarter of parents with children in pre-school mentioned limiting activities between 11 am and 3 pm. Nonetheless, while parents were aware of a good range of strategies being used to promote their children's sun protection in schools and pre-school it was disappointing that less than one-third of parents were aware of sun protection policy in place.

**Table 7.9: Parents' awareness of support for their children's sun protection at school and pre-school**

	Pre-school n=80	Primary n=229	Secondary n=125
Made an effort	95%	96%	59%
Have sun protection policy	26%	29%	16%
Provide shade	50%	38%	21%
Provide sunscreen	65%	43%	21%
Hat-wearing	83%	90%	48%
Limit activities 11 am–3 pm	24%	15%	5%
Protective sports uniform	4%	4%	2%
Other	4%	2%	1%
Can't say	1%	–	0.6%
Play indoors only	2%	–	–
No effort or missing	4%	4%	41%

## Discussion

Over the years SunSmart's available funds for a media buy have suffered an actual reduction in the budget from \$251,000 in spring–summer 1991/92 to just under \$75,000 in spring–summer 2000/01. In addition, the audience achieved per dollar spent has greatly been reduced from approximately \$170 per TARP in 1991/92 to \$278 per TARP in 2000/2001. It is encouraging that despite these difficulties SunSmart has managed to continue to achieve a high level of recall of the commercials developed through seeking innovative concepts that fit well with the determinants of skin cancer and health promotion theory. The selected concepts are then further refined through consultation with experts and intensive pre-testing with the target audience.

The challenge was no less difficult in the spring–summer 2000/2001 campaign. The limited budget and the PG rating for the *Timebomb* commercial resulted in most time slots being late at night. Nevertheless, over the 2000/2001 summer, the screening of *Timebomb* appeared to lift the declining awareness levels noted before the commercial's launch. By the end of February awareness levels overall were comparable to those achieved with the same commercial in the previous summer. Nonetheless, this was somewhat disappointing for SunSmart given that in most cases a second season of viewing of the television commercials has usually resulted in slightly higher recall of the commercials (Dobbinson & Borland 1999b). The recall of the commercial was more common among regional residents and it may be that the commercial received more screening on regional television.

Earlier studies have indicated the value of *Timebomb* in conveying the early detection and prevention messages for skin cancer to the target group (Dobbinson 2004). In addition, *Timebomb* is the first of SunSmart's commercials to also convey the risk of metastasis of a primary tumour.

Anecdotal support for the benefits of screening this early treatment message is also worth noting. SunSmart received a letter from a melanoma patient who expressed their appreciation of this commercial. In response to viewing the commercial the patient had checked under their arm for secondary lumps and was able to seek early treatment. Another strength of these commercials is their ability to graphically convey the consequences

of treatment for skin cancer as a prompt for prevention efforts. They show that skin cancer treatment often results in the need for painful and disfiguring operations.

Raising public awareness of skin cancer through its media campaign is only one aspect of SunSmart. SunSmart is a multi-faceted, broad-based community program whose strategies and activities promote structural change and supportive environments in a range of settings including schools, sporting and other community groups. Some evaluation data on the sun-protective environments in the school and pre-school and childcare settings was collected in the current population survey, with encouraging results in particularly the childcare and primary school sector. In addition, evaluation of progress in developing supportive environments for sun protection is usually conducted through various other studies within specific settings (Dobbinson, Borland & Anderson 1999; Dobbinson et al. 2000; Dobbinson & Knight 2001; Dobbinson et al. 1999; Pearson & Dobbinson 2004; Dobbinson and Hayman 2002; Gartland & Dobbinson 2004).

Results of the population study reported here assess whether such improvements in structural support for sun protection also translate into improvements in Victorians' sun-related knowledge, attitudes and behaviour. This evaluation of the short-term impact of the program is essential given the 20 to 30-year lag between exposure and skin cancer. In addition, such data can be used to continue to identify groups of most risk of skin cancer to target in interventions, as well as identifying gaps in knowledge or awareness for which specific messages or other health promotion efforts need to be implemented.

Sun-protective behaviour is often contingent upon prevailing weather conditions (Hill & Boulter 1996). The maximum temperatures for summer weekends in 2000/2001 were much higher than in the 1999/2000 summer. This is likely reflected in people's sun-related behaviour, with more people spending at least 15 minutes outside during the peak UV radiation period in the 2000/2001 summer than in 1999/2000; in 2000/01 people were also more likely to have opted to stay indoors for at least some of the peak UV radiation period. In fact opting to avoid the sun was the most common form of sun protection used during these peak UV radiation periods at 49% of respondents, compared to hats (44%) and sunscreen (38%) which were also fairly commonly used. Use of protective long-sleeved shirts was rare. It is likely that use of clothing such as shirts is seldom worn for sun protection and rather is more a behaviour contingent on appropriate attire for the setting. Overall, trends in sun-protective behaviour in the current year were at least as prevalent as in the previous summer.

As previously mentioned, monitoring of trends in the incidence of sunburn requires more complex analysis than in the data presented here due to the confounding of the prevailing UV radiation and temperature over time. Nevertheless, some interesting findings were that most people's sunburn appeared to be relatively mild and most frequently occurred on the upper body, particularly the head. The most common reason for the worst part sunburnt was through thinking they did 'not need to protect that area' or simply 'forgetting to protect the area' that was sunburnt. This would suggest that SunSmart needs to continue to prompt people to remember to protect themselves fully from the sun. In addition, young people and males continue to be most likely to report they were sunburnt, perhaps because they are more likely to spend time outdoors in peak UV radiation periods. In contrast, as indicated by parents' reports, it was particularly encouraging that very few children (3%) were sunburnt when outside on summer weekends.

There was also some evidence of a shift towards pro-tan attitudes among Victorians, however, the trend is not comparable to those of the late 1980s where the majority of people preferred a suntan (Hill et al. 1993). Nevertheless, the trend is cause for concern. Melanin is the body's natural response to exposure to ultraviolet light. Recreational exposure to sunlight is strongly associated with the incidence of melanoma and basal cell carcinoma (English et al. 1997). Fortunately, at this stage the pro-tan attitudes do not appear to have translated into poorer sun-protective behaviour in general; rather, there is an increase among a minority in attempting to gain a suntan. The data presented here do not explore what has prompted this change.

Nevertheless, females' attitudes to suntanning may be highly influenced by trends in fashion and media promoting other means of improving appearance and health, and further research is needed in this area.

Another emerging threat to the work of the anti-skin cancer campaign has been the rapid increase in the number of solariums open for business across Victoria in recent years (Fox 2001). Before the introduction of more stringent controls in advertising, claims such as 'no risk of sunburn' and 'safe, specialised tanning' were being made. Although only a minority of the population use solariums, the latest data show the impact this type of advertising may cause. Up to 40% of Victorians were either misinformed or uncertain about the relative safety of the UV radiation emitted by solariums compared with UV radiation in natural sunlight. Solariums typically emit higher levels of UVA than in natural sunlight. A recent study on human skin found UVA, as well as solar radiation, induced damage to cellular DNA, suggesting UVA may play a role in tumorigenesis (Burren et al. 1998). SunSmart needs to continue to work with the industry to ensure users of solariums and the general public are well informed about the hazards of solarium use.

## Conclusions

The success of SunSmart's efforts in changing sun-related attitudes and behaviours appear now to be translating into reductions in the incidence of skin cancer among Victorians under 40 years of age (Staples, Marks & Giles 1998). Furthermore, current data show that many Victorians are using various strategies to protect themselves from the sun, including opting to stay inside during peak UV radiation periods. Nevertheless, some people are still getting sunburnt on summer weekends and it appears prompts and instruction on adequate protection are needed particularly for correct application of sunscreen use and other protection for the neck and head.

In addition to continued efforts to promote supportive environments for sun protection, SunSmart needs to continue to monitor and address emerging issues that may counter prevention messages such as fashions for a suntan, increased access to solariums and trials for skin cancer vaccines and treatment creams. The recent increase in people preferring and seeking a suntan is cause for concern and requires further research to identify potential reasons for the change and monitoring to establish if this is likely to be an ongoing problem.

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