Developing an effective UV Alert: a qualitative study

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Abstract. The SunSmart UV Alert shows the times each day between which the UV index is forecast to reach 3 or above, when sun protection is recommended. The bell curve design that has been mostly widely used in Australia to communicate the UV Alert is poorly understood. In this study, focus groups explored the use and barriers to the use of the bell curve and alternative UV Alert designs in five outdoor settings. The results point to a need to simplify the design to focus on the times and key message of using sun protection when the UV is 3 and above.

Background

Managing sun exposure is a balancing act between too much (increasing risk of skin cancer) and too little (increasing risk of Vitamin D deficiency) [*Kimlin and Tenkate*, 2007]. This requires people to make judgements on when sun protection is required. Since 2005 in Australia, the SunSmart UV Alert shows the times each day between which the UV index is forecast to reach 3 or above, when the WHO and SunSmart recommend sun protection. The UV Alert is available for many locations either in text form and/or as a bell curve graphic in newspapers and on the Bureau of Meteorology website. However, previous research has shown poor understanding and low levels of use of the UV Alert [*Makin et al.*, 2007].

Study aims

This study aimed to explore the use and barriers to the use of the current UV Alert bell curve and potential alternative UV Alert designs in a range of relevant outdoor community settings. Specifically the study aimed to:

1. based on communications theory, develop two designs for dissemination of the UV Alert; and
2. pre-test the design alternatives within a number of settings to determine ease of use, acceptability, attractiveness, comprehension and intention to use.

Methods

Two new designs based on a communications theory checklist were developed by Kent Woodcock Creative Solutions (Figures 1-2). In addition, the existing bell curve design (Figure 3) was tested, and in Victoria a previously tested fourth design developed by Trinity (Figure 4) was also tested.

Five focus groups were conducted with adults over 18 in Sydney, NSW, and five in Melbourne, Victoria, in November and December 2008. Two focus groups (one in each state) were conducted with respondents who worked in five selected settings in which responsibility is taken for the sun protection of others: early childhood services, primary schools, secondary schools, outdoor workplaces and public swimming pools and beaches.

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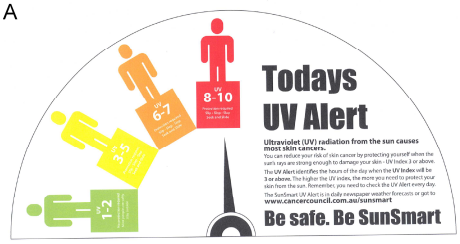

Figure 1. 'Dial' UV Alert design

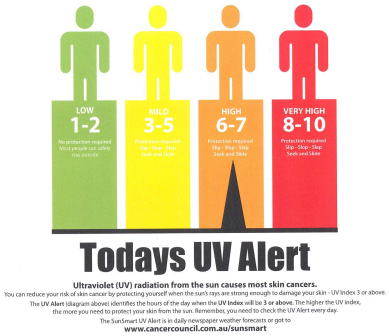

Figure 2. 'Slider' UV Alert design

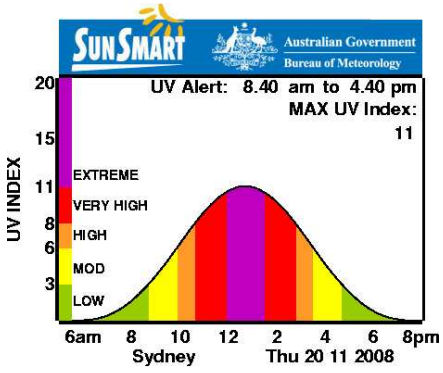

Figure 3. 'Bell curve' UV Alert design

Figure 4. SunSmart sign

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The discussion guide covered:

- Sun protection practices in the workplace
- UV knowledge
- Reactions to the designs, and ranking according to which design (i) best conveyed the message "use sun protection between time A and time B, outside these times sun protection is not required", (ii) was easiest to use, and (iii) was most likely to get people to use sun protection at the appropriate times.
- Attitudes towards the UV Alert message

General results

There was low knowledge regarding UV in terms of peak times, cloud cover, seasonal variation, and vitamin D requirements. Certain beliefs may act as a barrier to using forecast indicators of UV in some settings, including perceptions that the UV is always high (schools), using temperature to prompt behaviour (outdoor workers), and believing sun protection is required all day in summer regardless of UV levels, showing that the more nuanced message of safe times for sun exposure is yet to gain widespread acceptance.

The general consensus was that the SunSmart message has been very effective, and that sun protection policies and practices are well observed in primary schools and early childhood settings and to a lesser extent in workplaces. There was some concern that making sun protection dependent on the UV Alert may cause some tension with these blanket policies and potentially undermine the sun protection message in these settings.

This suggests that the UV Alert message has limited applicability in early childhood and school settings. For much of the time when a UV Alert is issued, the times encompass the whole school day, reducing the relevance of the UV Alert times. In addition, implementing sun protection for the entire day was considered easier, as varying the sun protection message throughout each day may confuse younger children and create conflict with adolescents. One suggestion was to provide one UV Alert per term, which would show the average pattern of UV levels, as an educational tool and reminder.

Many participants in the outdoor workplace groups reported that their workplaces had sun protection policies; however implementation and enforcement was reported to be less common than in early childhood and school settings. There was some concern regarding the UV Alert message challenging general sun protection policies; however these groups were more positive regarding possible application of the message. The swimming pool/beaches group participants were the group most open to the idea of adopting a UV Alert design.

Results for specific designs

The use of the UV Index numbers was not generally seen as useful and was confusing in some contexts; descriptive labels and recommendations/icons for sun protection at each level were preferred.

There were common issues associated with the multiple colours/icons used on the two newly developed designs ('Dial' and 'Slider') and the bell curve. There was a general perception that different colours/icons should correspond to different levels of sun protection – having the same sun protection recommendations for all colours except green was seen as confusing, inaccurate and/or not useful. Several participants expressed the view that there would be a tendency to only use sun protection when the Alert showed high/extreme.

From a practical perspective, most participants agreed that it would be difficult to use both alternative designs developed specifically for this study ('Dial' and 'Slider'), due to the increased workload and responsibility of staff required to access information and move the dial/slider several times each day. The absence of any mention of times on the two new designs caused some confusion. Even when used correctly, the designs would only reflect the forecast UV for the present time – they gave no indication to anyone who was not near the display all day of how the UV might vary and when sun protection might be required during the remainder of the day.

The bell curve was recognised by some participants, and favourably received in some groups. However, in general it was poorly understood, and some doubt was expressed across groups regarding its appropriateness for display and use as a daily reminder. Suggestions for improvements included adding sun protection requirements for each UV level, reducing the amount of text/numbers, changing the colour for extreme from purple to red (signifying danger), and adding clear markers on the x axis for the relevant times of day.

The fourth design ('SunSmart sign') was tested only in Victoria; without testing in other states it is difficult to draw firm conclusions from the results. However, some groups (outdoor workplace representatives and swimming pool staff) expressed a preference for this design, rating it as more direct than the other designs, easier to implement, and self-explanatory.

What next?

The focus on communicating times for sun protection should be continued and enhanced through future design iterations, noting that in pre-testing of the bell curve design a text-only version was rated as effective but less attractive and credible [*Carter*, 2005]. Focussing on the times when the UV is 3 or above comes at the expense of showing variability throughout the day, but simplifies the message. A two-colour version of the Alert should be developed and tested, with colours corresponding to on/off sun protection times. This could also assist in broadening the use of the Alert to focus on 'safe' times for exposure for Vitamin D production. Further opportunities for communicating the UV Index in real time via mobile technology should be explored.

References

Carter, O.B.J., November 2005. Testing the 'UV Alert' and 'Bell-Curve' concepts for the National Skin Cancer Committee. Perth: Centre for Behavioural Research in Cancer Control, Curtin University of Technology.

Kimlin, M.G., and Tenkate T.D., 2007. Occupational exposure to ultraviolet radiation: The duality dilemma, Reviews on environmental health, 22(1), 1-37.

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