



Farmers sun exposure, skin protection and public health campaigns: An Australian perspective

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ABSTRACT

Non-melanoma skin cancer is a common and costly cancer in agricultural populations. Prevention and early detection are an effective way to decrease the burden of disease and associated costs. To examine sun exposure and skin protection practices in agricultural workers and farmers a thematic review of the literature between 1983 and 2014 was undertaken. Comparison between studies was complicated by differences in study design, definitions of skin protection, and analytic methods used. Farmers are the most exposed to harmful ultraviolet (UV) radiation of all outdoor workers and the level of reported skin protection by farmers is suboptimal. Years of public health campaigns have failed to adequately address farmers' specific needs. Increased rates of skin cancer and subsequent higher costs are expected. Estimates of sun exposure and skin protection practice indicate that protective clothing is the most promising avenue to improve on farmers' skin protection. Early detection needs to be part of public health campaigns. This review explores the quantitative data about Australian farmers and their skin protective behaviours. We investigate what the documented measurable effect of the public health campaign Slip!Slop!Slap! has had on agricultural workers and farmers and make recommendations for future focus.

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Introduction

Since the 1980s it has been known that ultraviolet (UV) exposure from the sun causes damage to the skin and increases the risk for developing skin cancer (Marks et al., 1990). In 1992 the International

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Agency for Research on Cancer classified solar radiation as a Group One carcinogenic hazard, that is, known to cause cancer in people (International Agency for Research on Cancer, 1992).

Australia has the highest rate of skin cancer in the world (Thursfield and Giles, 2007; Jelfs, 1999; Makin, 2011) and is increasingly vulnerable to higher rates of skin cancer in the future (Makin, 2011) with climate projections of hotter and longer heat waves. In Australia, 2036 people died from skin cancer in 2012, with 1515 due to melanoma, and 521 due to non-melanoma skin cancer (Australian Institute of Health and Welfare & Australasian Association of Cancer Registries, 2012). In the US nearly 5 million people are treated for skin cancer each year (Guy et al., 2015). According to Karia et al. (2013), the mortality for melanoma was 9710 and between 3900 and 8800 died from squamous cell carcinoma, a non melanoma skin cancer. Globally rural and agricultural populations are known to have higher risks for skin cancer (Blair and Zahm, 1991) due to the nature of their work and in Australia farm men have been shown to have a higher standardised mortality rate due to melanoma and other skin cancers (Fragar et al., 2011).

Early research from the 1980s showed that sunscreen cream use is an effective way to reduce the harmful effect of the sun on the skin and reduce skin cancers (van der Pols et al., 2006; Naylor et al., 1995). In 1981, the Anti Cancer Council of Victoria (1981) launched an extensive social marketing campaign to prevent high rates of skin cancer. The Slip! Slop! Slap! SunSmart Campaign¹ focused on multiple ways to avoid the sun, and protect the skin and eyes (Montague et al., 2001): The early Slip! Slop! Slap! Campaign (1981) promoted 'slipping on a shirt, slopping on sunscreen and slapping on a hat'. The original television advertisements¹ featured outdoor workers as well as outdoor recreational pursuits and included a farmer working in the sun using a tractor and plough. The Slip! Slop! Slap! message became part of the Australian language.

By the late 1990s numerous evaluations of these public health campaigns (Smith et al., 2002; Keeney et al., 2009) and their impact on knowledge, attitudes and skin protective behaviours reinforced the Slip!Slop!Slap! approach (Montague et al., 2001; Dobbinson et al., 2008). Although, more recently there has been criticism of the campaigns attributed success in reducing the rate of melanoma in young people in Australia (Czarnecki, 2014). In 2004, it was proposed that skin protection be mandatory for Australian outdoor workers to reduce UV exposures (Glanz et al., 2007; Woolley et al., 2004). However, farms as workplaces are by nature small, independent, geographically spread and mostly family run businesses, making both the implementation of workplace policies and targeted public health campaigns difficult (Strickland and Fritschi, 2014).

The later Slip!Slop!Slap! video advertisements promoted beach activities with the animated 'Sid the Seagull' at the beach. In 2005 these campaigns included the addition of new prevention messages of Seek! (seek shade) and Slide (slide on wrap around sunglasses). These additions extended the prevention message into Slip! Slop! Slap! Seek! and Slide!² In the 2007 video campaign there was no reference or display of outdoor workers shifting to a more recreational and sea-side approach to skin protection. In the USA different campaigns have been held by different institutions, such as 'be SunAWARE'³ encouraging A-Avoid sun exposure, W-wear sun protective clothing, including a wide brimmed hat and sunglasses, A-apply broad spectrum sunscreen, R-routinely check your skin for any suspicious changes and E-educate others about the risks of sun exposure.

More commonly accepted in the USA is the adaptation to the Australian model in the 'Slip!Slop!Slap! and Wrap' campaign. The addition of 'wrap' is emphasising the need to wear wrap-around sunglasses.

¹ <http://www.sunsmart.com.au/tools/videos/past-tv-campaigns/slip-slop-slap-original-sunsmart-campaign.html>.

² <http://www.cancer.org.au/preventing-cancer/sun-protection/campaigns-and-events/slip-slop-slap-look-slide.html>.

³ www.sunaware.org and American Cancer Society: www.cancer.org.

Method

A literature search was undertaken in PubMed and primary articles were included in the review. The literature was examined from 1983 to enable inclusion of initial pioneering articles from that era. Search words included farmer sun exposure OR farmer UV exposure OR farmer skin protection OR slip, slop, slap OR farmer skin cancer. Articles were selected based on full text articles in English, and based on relevance to farmer health. They were journal articles, peer reviewed articles, including literature reviews, theses and editorials. Whilst the primary focus was on studies from Australia, articles from the United States (US) and Europe were included. The citations of these articles were screened for additional relevant publications using the snow balling technique. One more article was found that was not listed in PubMed, which was about human behaviour adaptation models in relation to farmers and promoting skin protection. Websites of the Australian and American Cancer Council and the Royal Australian College of General Practice were accessed for additional information relevant to the review. See Table 1.

Selected articles were analysed for themes such as UV exposure and farmers, skin protective behaviour, effectiveness of public health campaigns, early detection and cost of skin cancer. These themes are summarised in separate subheadings under findings. Thirty-three articles specifically about skin protective behaviours were included in a word frequency search to aid understanding of where most research focus has been.

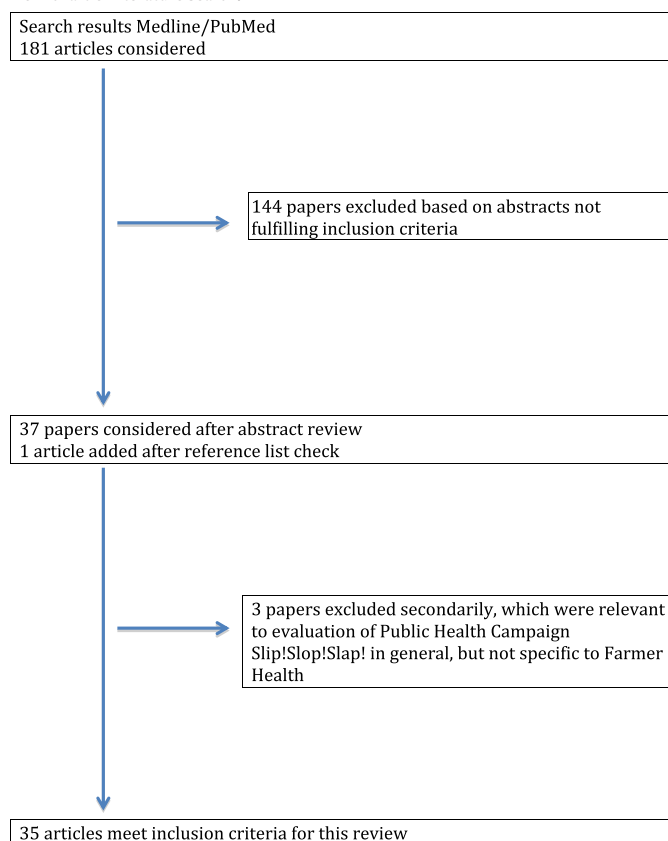
Results

UV exposure and farmers

Little work has been done globally on the amount of actual UV exposure farmers receive. However, the work that has been done indicates

Table 1

Flow chart of literature search.



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