

What is behind the declining incidence of melanoma in younger Australians?

Anne E Cust^{1,2} , Richard A Scolyer AO^{2,3,4,5}, Georgina V Long AO^{2,3,4,6,7}

Australia is globally lauded for its leadership in preventing skin cancer, predominantly caused by ultraviolet radiation from the sun, and the impact of its national and state-based public education campaigns, including the iconic Slip! Slap! Slop! (Seek! Slide!) campaign¹ and others focused on changing attitudes to tanning and sun protection behaviours, particularly among children and young adults.² These campaigns are recognised as key factors in the gradual reduction in the incidence of melanoma in people under the age of 30 years in Australia over the past 25 years,^{1,3} whereas melanoma incidence continues to increase among older people in Australia and in all age groups in most other countries.^{3,4} In Australia, high sun exposure is a more costly risk factor than tobacco use with respect to health system expenditure on cancer treatment.⁵ Government investment in skin cancer prevention, at a tiny fraction of the cost of skin cancer treatment, provides about three times return on investment, and is therefore considered excellent value for money.¹

It is important that high quality, robust evidence guides health policy decisions. One methodological concern regarding the impact of skin cancer prevention campaigns is whether the decline in melanoma incidence among young Australians might be explained by an increasing proportion of migrants at low risk of melanoma, primarily because of their skin pigmentation, which would lower the overall risk in a population otherwise at high risk of melanoma.⁶

This question is carefully addressed in the study by Whiteman and colleagues⁷ reported in this issue of the *MJA*. The authors used Australian census data on the reported ancestry of participants' parents to classify people as being at high, moderate, or low risk of melanoma, and modelled invasive melanoma incidence trends for each of these ancestry groups during 2006–2021. Whiteman and his colleagues⁷ found that the ancestry-based composition of the Australian population, and thus its melanoma risk profile, had indeed changed over time, with the proportion of people at high risk of melanoma (ie, people with two parents of European ancestry) falling from 85% in 2006 to 71% in 2021, with concomitant rises in the proportions for the moderate risk (from 5% to 10%) and low risk categories (from 10% to 19%). As more than 95% of diagnosed melanomas were in people in the high risk ancestry group, the changing population composition was indeed associated with a decline in melanoma incidence. However, it did not fully explain the falling melanoma incidence in younger age groups; when incidence patterns for the high risk ancestry group were examined separately to remove the confounding effect of population change, declines in incidence in younger age groups were still noted.

While the decline in melanoma incidence among young people has generally been attributed to skin cancer prevention

campaigns, it is difficult to precisely identify the responsible factors, as successful skin cancer prevention initiatives are often multifactorial and undertaken in educational, recreational, and occupational settings.^{1,8}

Whiteman and colleagues⁷ postulate that increased screen time and declining amounts of time spent outdoors may be other factors that contributed to the decline. Changes in the use of sunbeds (indoor tanning) over the past decade, including the banning of their commercial use in Australia, may have also contributed to the declining incidence of melanoma in younger people.⁹ However, Whiteman and his colleagues⁷ noted melanoma incidence rates had declined among both younger men and women in Australia, New Zealand, and white people in the United States, whereas women are much more likely to use sunbeds.⁹ Another possible influence on incidence rates is the reclassification by pathologists of some melanomas as melanocytomas. These tumours, classified by the World Health Organization as an intermediate subgroup of melanocytic tumours between benign naevi and malignant melanomas,¹⁰ are most commonly found in younger people.

The key conclusion of the report by Whiteman and colleagues⁷ is that the decline in melanoma incidence among younger Australians over the past few decades is only partially explained by migration patterns, so changes in sun exposure and protective behaviours probably underlie the decline. Given that the incidence of melanoma and other skin cancers is highest in Australia,¹¹ and that they are the most expensive cancers to treat,⁵ ongoing skin cancer prevention campaigns and other targeted initiatives will be essential for further reducing the burden of this highly preventable disease.

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¹The Daffodil Centre, the University of Sydney, a joint venture with Cancer Council NSW, Sydney, NSW. ²Melanoma Institute Australia, the University of Sydney, Sydney, NSW. ³The University of Sydney, Sydney, NSW. ⁴Charles Perkins Centre, the University of Sydney, Sydney, NSW. ⁵Royal Prince Alfred Hospital and NSW Health Pathology, Sydney, NSW. ⁶Royal North Shore Hospital, Sydney, NSW. ⁷Mater Hospital, Sydney, NSW. ✉ anne.cust@sydney.edu.au • doi: 10.5694/mja2.52411 ■ See Research (Whiteman)

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