

A dermoscopy training program for Victorian GPs to improve skin cancer prevention and detection

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Introduction

General practitioners (GPs) play a pivotal role in the prevention, early detection and management of skin cancer in Australia. It is the most common cancer managed by GPs, who have historically been the first interaction for patients seeking a skin examination. Skin examinations also provide doctors with an opportunity to deliver important preventive advice to patients.

Skin cancer incidence rates in regional and remote areas are higher than in major cities.¹ Overall, melanomas account for 9.3% of cancers reportable to registries diagnosed among regional Victorians, and regional Victorians are 40% more likely to be diagnosed with melanoma than those living in major cities.² Basal and squamous cell carcinomas are not reportable to Australian cancer registries, although Medicare data show there are more than 1 million treatments for these cancers nationally each year.³ Dermatologists play an important role in the management of skin cancer, however a shortage of dermatologists in regional areas emphasises the importance of GPs being able to detect skin cancer at an early, more treatable stage, and refer more complex and advanced cases to specialists. In the US, the suggested ratio of dermatologists is 4 per 100 000 people to provide adequate care for the community.⁴ In Victoria in 2019, there were approximately 1.6 dermatologists per 100 000 Victorians, suggesting there is a continued need for additional workforce capacity.⁵

Australian clinical practice guidelines for melanoma recommend that clinicians working to detect skin cancer should be trained in and use dermoscopy.⁶ Dermoscopy improves GPs' ability to triage lesions without increasing the number of unnecessary specialist referrals.⁷ However, it has been estimated that only 34–43% of Australian GPs use dermoscopy, with barriers such as the need and time required for training, and equipment and technology costs, being commonly reported.⁸ Dermoscopy is a skill that takes training and experience to improve diagnostic accuracy.⁹ While the overarching landscape of skin cancer early detection in Australia is set out in detail elsewhere¹⁰, this report provides an overview of SunSmart's

Dermoscopy for Victorian General Practice Program; a model of upskilling GPs that could be replicated in other jurisdictions.

Cancer Council Victoria's SunSmart Program developed the program with the aim of facilitating more accurate diagnosis of skin cancer by Victorian GPs, particularly in regional areas. Comprehensive training included access to an initial optional 6-hour online skin cancer training module, and to the Australasian College of Dermatologists (ACD) Practical Dermoscopy course. The ACD course consisted of an online training program of a further six education modules (8–15 hours), a virtual clinic (10–20 hours) and webinars that were completed before attendance at a 1-day face-to-face training workshop (8 hours), where participants received a fully funded dermatoscope. To be eligible to attend the face-to-face training workshop and receive a dermatoscope, GPs must have completed at least 85% of the ACD online training program.

The selection process for the program used a scoring system that prioritised general practices with no or limited access to a dermatoscope and those from regional areas. The 2019 Dermoscopy Program evaluation aimed to assess the implementation and short-term impacts of the program, and to provide recommendations for future programs.

Methods

The evaluation was a pre-post intervention study design. Data was collected from participating GPs in the three 2019 course intakes via online surveys conducted on program application and approximately 3.5 months after participating in the face-to-face training workshop. The post-intervention survey included items to assess the usefulness of training components and frequency of dermatoscope use (process evaluation) and self-reported confidence, provision of preventive information and improvements in skin cancer-related practice (impact evaluation). Responses to the following items were dichotomised for reporting: usefulness of resources (very/fairly useful vs a little/not at all useful); confidence statements (strongly agree/agree vs neither/disagree/strongly disagree); provision of preventive information (increased a lot/little vs no change/decreased a little/lot); and, quality of patient care and referral decision making (improved to large/moderate/small amount vs no change/worsened to a small/moderate/large amount).

Number of self-reported skin examinations, lesions excised, and basal/squamous cell carcinomas (BCCs/SCCs) and melanomas with histological confirmation were reported by GPs for the year prior to program participation by season, and were compared with responses for the corresponding season directly after program participation, using Wilcoxon signed-rank tests. The program evaluation proposal was reviewed by the Cancer Council Victoria's Institutional Review Committee

and ratified as a quality assurance activity exempt from ethical review.

Results

A total of 360 applications were received and 130 GPs participated in the 2019 program (Table 1). Almost two-thirds of successful GPs practised in non-metropolitan primary health network areas (63.8%) (See Supplementary Figure 1, available from: doi.org/10.6084/m9.figshare.19205028.v1) and most had never previously participated in skin cancer education (70.0%).

Seventy-nine GPs completed the post-program evaluation survey (60.7% response rate). Three months after program participation, the vast majority of GPs rated the four training components as either very or fairly useful – written resources (91.1%), face-to-face training (97.5%), online training (96.2%), receiving the dermatoscope (98.7%). Almost three-quarters of GPs (74.4%) reported sharing with others at least some of the knowledge gained from participating in the program. The supplied dermatoscopes were used frequently by GPs, with 31.6% using it many times a day, 39.2% daily, 27.8% weekly and 1.3% monthly or less. The dermatoscope was also used by other GPs in the clinic, with 7.9% using it many times a day, 32.9% daily, 38.2% weekly and 21.1% monthly or less. GPs used the dermatoscope to differentiate skin cancer types for treatment (89.9%) and triage lesions for referral (64.6%).

Since participating in the program, GPs agreed they were more confident in using a dermatoscope (97.5%), diagnosing melanoma (89.9%) and diagnosing non-melanoma skin cancers (88.6%). Furthermore, 93% reported that they had increased preventive information provided to high-risk patients, and during skin examinations. Overall, GPs reported that the program had improved their quality of patient care regarding early detection of skin cancer (98.7%) and their assessment and decision making in referring patients to dermatologists (91.1%).

There was a significant increase in lesions excised from the corresponding season before program participation (median = 5) to after (median = 10) ($p = 0.014$), and also in confirmed keratinocyte carcinomas from before program participation (median = 3) to after (median = 5) ($p = 0.013$) (Table 2). No significant differences were found for skin examinations or confirmed melanomas.

Table 1. Characteristics of applicants, successful applicants and evaluation survey participants

		Applicants <i>n</i> = 360 %	Successful applicants <i>n</i> = 130 %	Evaluation survey participants (<i>n</i> = 79) ^a %
General practitioner characteristics				
Previous skin cancer education	No	66.9	70.0	67.1
	Yes	33.1	30.0	26.6
General practice characteristics				
Primary Health Network	Metropolitan	63.3	36.2	30.4
	Non-metropolitan	36.7	63.8	63.3
SEIFA ^b	Quintile 1 – most disadvantaged	21.4	30.8	30.4
	Quintile 2	18.1	19.2	20.3
	Quintile 3	18.4	18.5	13.9
	Quintile 4	15.6	13.8	15.2
	Quintile 5 – least disadvantaged	26.4	17.7	13.9
Access to a dermatoscope	No access	36.1	41.5	36.7
	Access	60.3	56.9	54.4
	Other	3.6	1.5	2.5
Number of general practitioners employed	1–3	25.3	22.3	15.2
	4–6	27.2	33.8	36.7
	7–9	20.3	19.2	13.9
	10–12	15.3	13.1	13.9
	13+	11.9	11.5	13.9

SEIFA = Socio-Economic Indexes for Areas

^a Five evaluation survey participants missing application data, does not add up to 100%

^b One applicant missing SIEFA data, does not add up to 100%

Table 2. Skin examinations and excisions for the season pre- and post-program participation

	Pre-program		Post-program		Wilcoxon signed-rank test	
	<i>n</i>	Median (IQR ^a)	<i>n</i>	Median (IQR ^a)	<i>n</i>	<i>p</i> -value
Skin examinations conducted	73	24.0 (9.0–50.0)	78	30.0 (15.0–50.0)	73	0.442
Lesions excised	72	5.0 (2.0–15.0)	78	10.0 (3.75–20.0)	72	0.014 ^b
Confirmed basal/ squamous cell carcinomas	72	3.00 (0.0–5.75)	76	5.00 (2.0–10.0)	70	0.013 ^b
Confirmed melanomas	74	0.0 (0.0–1.0)	75	0.0 (0.0–1.0)	71	0.604

^a IQR = Interquartile range (25th to 75th percentile values)

^b Significance set at *p* < 0.05

Note: some responses were missing.

Discussion and recommendations

The evaluation of the 2019 Dermoscopy for Victorian General Practice Program indicates the program has increased the use of dermoscopy equipment and training in Victorian general practices, including regional areas where access to dermatologists and other cancer treatment services may be limited.⁵ Greater confidence in diagnosing skin cancers was reported by GP participants, along with increased provision of skin cancer prevention information to patients. Additionally, self-reported increases in diagnoses of keratinocyte cancers and lesions excised was evident. Further data on whether these lesions were benign or malignant and to estimate diagnostic accuracy are required in order to assess improvement in quality of care.

With current funding, it is anticipated that more than 350 GPs and GP registrars will have directly benefitted from the Dermoscopy for Victorian General Practice Program by the end of 2022, representing approximately 20% of all Victorian GP practices. Recommendations to improve the delivery, impact and evaluation of the program include technical improvements to the online training program and strengthened evaluation using objective measures to assess change in service and diagnostic accuracy. Determining the cost-effectiveness of the program may assist policy makers to inform future funding and delivery of skin cancer services.

Conclusion

With appropriate training, dermoscopy can aid improvements in skin cancer detection including sensitivity, specificity and number needed to excise.¹¹ We demonstrate that training GPs in the use of dermoscopy for the early detection of skin cancer is feasible and has an impact on practice. Assessing the public health impact of these changes will require additional data and must consider the relative value of detecting early non-melanoma skin cancers and the risk of overdiagnosis. The demonstrated success of the program in equipping regional Victorian GPs in the use of dermoscopy may provide a framework that other Australian state and territory governments can replicate.

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Peer review and provenance

Externally peer reviewed, invited.

Competing interests

Cancer Council Victoria is a member of Cancer Council Australia. Cancer Council Australia derives income from the sale of sun protection products that is used to fund cancer research, prevention and support activities. Cancer Council Victoria receives funding from the Victorian Government to run the SunSmart Victoria (formerly Slip! Slop! Slap!) program, including the Dermoscopy for Victorian General Practice Program.

Author contributions

All authors contributed to the design, drafting, interpretation, reviewing and editing of the manuscript.

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