Post-diagnosis skin cancer follow-up in rural general practice

A mixed-method study

Ei T Aung, David G Campbell, Eleanor KL Mitchell

Background and objectives
The literature reveals a lack of consensus on recommendations for follow-up of skin cancer in general practice for all types of skin cancer. The objective of this paper was to evaluate post-treatment surveillance practices for both melanotic and non-melanotic skin cancers (NMSC) by general practitioners (GPs) in regional Victoria, and to identify challenges in follow-up for skin cancers in rural areas.

Method
A mixed-method study involving a survey and semi-structured interviews with GPs and registrars in Gippsland was carried out in 2015.

Results
The survey of 65 participants showed that 69% (45/65) followed up NMSC opportunistically, while 66% (43/65) reported using a structured follow-up practice for melanoma. Six practitioners from the interviews identified the patient's level of education, time constraints, practitioner accessibility and specialists' availability as some common challenges in follow-up.

Discussion
We recommend that rural GPs review follow-up strategies for all skin cancers, through the establishment of guidelines and a recall system.

THE INCIDENCE OF SKIN CANCER is increasing among people aged ≥65 years, particularly in remote and rural areas of Australia.[1] Non-melanotic skin cancer (NMSC), which includes basal cell carcinoma (BCC) and squamous cell carcinoma (SCC), is the most commonly diagnosed and most costly cancer in Australia.[1–5] Findings from the Bettering the Evaluation and Care of Health (BEACH) surveys of general practice conducted between 2006 and 2016 showed that skin cancer was one of the top 10 conditions managed by general practitioners (GPs).[3] Melanoma is the fourth most common cancer in Australia and mortality from melanoma is higher in regional areas than major cities, particularly in males.[6,7] Farmers have a 60% higher mortality rate due to melanoma and other skin cancers than the general population.[2,6]

Despite the rising incidence of skin cancer worldwide, guidelines for post-treatment follow-up vary between countries, hospitals and specialties.[8–10] Marciano et al conducted a systematic review on evidence supporting the follow-up recommendations in clinical guidelines. Their study found that the recommendations were based on low-level evidence or consensus expert opinions concerning frequency and duration of follow-up appointments and the use of imaging or diagnostic tests.[8]

In Australia, GPs provide an essential role in the prevention and management of skin cancer. On average, GPs will each see approximately 20 patients per year with skin cancer.[3] A randomised controlled trial in the UK comparing GP-led melanoma follow-up and hospital-based follow-up showed higher satisfaction scores in service delivery – such as easy access to the service, continuity of care and thorough clinical examinations during consultations – in GP-led follow-up.[11–13] However, there is limited research on ideal follow-up arrangements in general practice, especially in rural general practice. Furthermore, there is minimal research on skin cancer follow-up practices by GPs. The aim of this study was to evaluate post-treatment surveillance practices for both melanotic cancers and NMSCs by GPs in regional and rural Victoria, and to identify the challenges in follow-up.

Survey research has been used in qualitative, quantitative and mixed-methods research strategies, using both research strategies to collect information from the participants.[14] Interview research methods are useful in following up responses from questionnaires and to investigate responses in detail.[15] Studies have variously used questionnaires and surveys to explore patients' and GPs' perspectives on follow-up care of cancer in primary care.[16–19] Murchie et al conducted

semi-structured interviews to understand the practical experiences of GPs in GP-led melanoma follow-up.[11] In our study, we used a survey to collect information about skin cancer follow-up practices in regional Victoria and explore the challenges in the follow-up, and interviews to collect in-depth information about the practices and challenges.

Method

The study was a mixed-method two-stage study with a cross-sectional survey in the first stage, followed by a semi-structured interview in the second stage, conducted between 2014 and 2015. Prior to developing survey and interview questions, a literature search was carried out by the authors to identify areas for exploration in the survey and interviews.[8,11–13] Our questionnaire was informally piloted by the general practice supervisors and colleagues of the authors, and further edited by the co-investigators according to the feedback. The survey included 21 items and was divided into the following sections: demographics of participants and average skin cancer consultations by the participants; follow-up structure of each major skin cancer – BCC, SCC, melanoma (type, frequency, investigations and examination at follow-ups); recall system for each skin cancer; role of guidelines in follow-up for each skin cancer type; and suggestions for improvement and challenges in skin cancer follow-up (open-ended questions).

In the first stage, a self-administered descriptive survey was distributed to 240 GPs and registrars affiliated with Southern GP Training, a regional general practice training provider in Gippsland, rural Victoria. The survey was distributed via email from Southern GP Training using the password-protected online platform Qualtrics. As a result of privacy laws, the authors had no control over the accuracy and number of email addresses, and the number of recipients was uncertain. The survey was open for two months and reminder emails were sent twice during the recruitment. To increase the response rate, potential participants at the Southern GP Training conference and registrars' workshops were informed of the project. An estimated 10–15 minutes was required to complete the survey. The data were stored in Qualtrics. The survey questions are available in Appendix 1 (online only).

In the second stage, semi-structured interviews were conducted by ETA with survey participants from the Gippsland region. Participants who via a link at the end of the survey expressed interest were recruited for one-on-one interviews. The main focus of the interviews was to collect a more detailed perspective from GPs regarding skin cancer follow-up, strategies to improve follow-up and challenges in post-treatment follow-up. Interview questions were generated based on findings from a literature search as well as responses from the survey. Interviews were conducted either face to face or by phone. Interviews were audio-recorded and transcribed verbatim. Interview duration was generally between 30 and 45 minutes. The interview questions are available in Appendix 2 (online only). Interview transcripts were read and assessed using thematic analysis by all authors and relevant themes identified by each author independently, then compared with those identified by the other authors. Themes were reviewed and inconclusive themes discussed, and a consensus was reached.

Ethics approval for this research was obtained from the Monash University Human Research Ethics Committee (CF14/746 – 2014000301).

Analysis

Quantitative survey results are presented using descriptive statistics focusing on univariate analyses of each characteristic. These are expressed through frequency distributions. Qualitative data were coded, and a content and narrative analysis of the short, open-ended survey questions, and thematic analysis of the interviews, was carried out by all authors.[20] Theoretical thematic analysis was used to code the transcripts and develop themes.[20]

Results

Seventy-two participants were recruited and 65 participants completed the survey. There were 33 GPs (53% of whom had >20 years' experience) and 32 registrars. Eight participants expressed interest in participating in an interview, with six interviews conducted. Two participants were unable to participate because of difficulties with scheduling an interview time. The interviews were conducted with five GPs, three of whom had a special interest in skin cancer, and one registrar. Demographics of participants and responses from the survey are presented in Table 1. As a result of the overlapping nature of the themes from surveys and interviews, thematic analysis of GPs' perceptions of the challenges and recommendations to improve follow-up in general practice were combined and are presented in Table 2.

Skin cancers in general practice

The frequency of skin cancer consultations among respondents was wide-ranging. Six participants (9.3%) reported more than 15 consultations per week, 12 participants (18.8%) reported 10–14 consultations per week, 12 participants (18.8%) reported 5–9 consultations per week and 24 participants (37.5%) reported fewer than five consultations per week.

Skin cancer follow-up guidelines

Forty-five survey respondents (70%) had no personal or practice guidelines in place for NMSC follow-up. For those who used guidelines, seven used personal guidelines, nine used practice-based guidelines, seven used national guidelines and two reported using guidelines from elsewhere. Almost all respondents stated they followed National Health and Medical Research Council guidelines for follow-up management of melanoma. However, follow-up for NMSC was mostly opportunistic, although some reported using their own follow-up intervals. Structured approach to follow-up for all skin cancers was noted among the GPs specialising in skin cancers, who had developed their own guidelines and often shared them with other clinicians in their clinic. GP suggestions included that developing local guidelines for NMSC follow-up 'with a brief explanation of follow-up, a brief explanation as to why that follow-up period exists, what should

Table 1. Survey questions and responses

Survey questions	Number of participants (n = 65)	Percentage (%)
Demographics		
General practitioners	33	51
Registrars	32	49
Years of practice		
Unknown	10	15
1–10 years	30	46
11–20 years	8	12
>20 years	17	26
Area of practice		
West Gippsland	23	35
East Gippsland	21	32
South Gippsland	11	17
Mornington Peninsula	5	8
Undisclosed	5	8
Use of follow-up guidelines at the practice		
Yes	20	31
No	45	69
Type of follow-up guidelines used		
Personal	7	27
Practice	9	35
National	8	31
Others	2	8
Frequency of usage of guidelines		
None	3	16
Seldom	0	0
Occasional	6	32
Often	4	21
All the time	6	32
Frequency of follow-up of BCC	(n = 57)	
Opportunistic	32	56
Scheduled	17	30
Upon request	3	5
Others/not specified*	5	9
Frequency of follow-up of SCC	(n = 57)	
Opportunistic	29	51
Scheduled	20	35
Upon request	3	5
Others/not specified*	5	8
Frequency of follow-up of melanoma	(n = 57)	
Opportunistic	4	7
Scheduled	45	79

Table 1. Survey questions and responses (cont'd)

Survey questions	Number of participants (n = 65)	Percentage (%)
Frequency of follow-up of melanoma (cont'd)	(n = 57)	
Upon request	0	0
Others/not specified*	8	14
Lifelong follow-up	(n = 57)	
BCC	27	47
SCC	28	49
Melanoma	44	77
Use of recall system at general practices	(n = 57)	
Yes	23	40
No	34	60
Type of recall	(n = 32)	
Post	23	72
Phone call	6	19
SMS	3	9
Email	0	0
Who facilitates the recall?	(n = 23)	
Doctor-led	11	48
Nurse-led	8	35
Receptionist-led	4	17
Follow-up examinations†		
Whole-body skin check	44	33
Review of scar/site of operation	45	34
Relevant lymph nodes examination	32	24
Imaging (eg ultrasound, CT)	5	4
Others‡	7	5
Average skin consultations per week	(n = 55)	
<5	25	45
5–9	12	22
10–15	12	22
>15	6	11
Per cent of shared care with specialists		
BCC	Mean 20%	SD 24
SCC	Mean 25%	SD 21
Melanoma	Mean 75%	SD 27

BCC, basal cell carcinoma; CT, computed tomography; SCC, squamous cell carcinoma; SD, standard deviation

**Others – free-text responses: 'advised annual skin cancer follow-up'; 'follow-up with skin cancer clinic'; 'return if signs of recurrence'; 'annual for low-risk and more frequent for high-risk melanomas'; 'often happens through secondary centre'; 'specialist referral and follow-up for melanoma'*

†More than one response could be chosen

‡Others – mole mapping for melanoma patients, lymph node examination in melanoma patients, extent of follow-up depends on type of skin cancer (eg more extensive if high-risk melanomas)

be involved in an examination' for each type of skin cancer would be a useful guide and reference, especially for rural GPs working in isolation; and that 'a national document would make it much easier for all GPs to be on the same page'. There were, however, a variety of opinions expressed by those interviewed, despite agreement on the need for guidelines. One participant opined that guidelines 'are longwinded and it is difficult to extract relevant concise information'. The majority of the interview participants also acknowledged the lack of evidence for the duration of skin cancer follow-up, especially for NMSCs, and that the evidence that does exist was conflicting.

Clinical examinations or investigations during skin cancer follow-up

Seventy per cent of the participants surveyed (n = 45) reported that skin cancer follow-up examinations involved a whole-body skin check and examination of excision site/s (n = 45), with 50% (n = 33) also reporting checking regional lymph nodes. Additional imaging modalities were used rarely (n = 6). Interviewed GPs also detailed the importance of patient education and discussion as part of the follow-up, and that patients should be prompt in raising concerns if they discover any new lesions.

Frequency and duration of follow-up by skin cancer type

Melanoma follow-up was mostly scheduled, with only four participants surveyed reporting opportunistic follow-up. Sixty-seven per cent of the participants surveyed (n = 43) opted for lifelong follow-up for melanoma, as well as lifelong follow-up for BCC and SCC (45%, n = 29). Only small numbers of respondents chose shorter follow-up periods for NMSCs (n = 6 opted for five years; n = 9 opted for three years). However, follow-up for NMSC was quite arbitrary, with just under half of the surveyed GPs reporting the use of opportunistic follow-up (n = 31 for BCC follow-up; n = 29 for SCC follow-up) and approximately one-third opting for scheduled follow-up (n = 19 for BCC follow-up; n = 22 for SCC follow-up). GPs with a special interest in skin cancer reported using their own scheduled follow-up intervals for NMSCs. These intervals varied, with interviewed participants noting follow-up intervals ranging between three and 12 months. These intervals were influenced by many patient factors.

Patient factors that influence follow-up intervals in general practice

The majority of participants stated that patient factors influenced their follow-up practices, except two GPs who asserted that they would not change their follow-up intervals because of patient factors. These factors included the patient's age; general health (including cancer-related anxiety) and co-morbidities (including immunosuppression and mobility); previous skin cancer and family history of skin cancers; general skin health; the histology (size, type, aggressiveness, stage) and excision margin of the skin cancer.

These factors often led to more frequent follow-up visits with patients; for example, when factoring previous skin cancers into follow-up intervals, one GP stated:

> *... someone who grows cancers all the time and every time you see them they've got three more new ones, I'll see them at three-monthly intervals then I have them on six-monthly checks forever. If it's a simple excision, first skin cancer and they've had a skin check, then I'll probably see them six-monthly, and then annually after that.*

Conversely, another GP gave the example of:

> *a patient who had one BCC removed in 2008 and they haven't had another one since ... I can get them down to the point of saying, look just come back when the next thing arises.*

When factoring in the age and general health of the patient, several participants noted that they combined skin cancer follow-up with a regular appointment.

Rural-specific factors influencing follow-up were accessibility to the clinic and the patient's preference for follow-up. As one GP noted:

> *Some patients preferred to go to a specialist rather than a GP. You don't see that often in rural GP practice but you tend to come across one or two patients who request specialist referrals.*

In exploring the opportunities for shared care between specialists and GPs, all participants reported this depended mostly on patient preference and the type of skin cancer. Patients with thick melanomas, high-grade SCCs, high-risk skin cancer locations (ears, eyes and face) and patients with complex skin disorders or rashes were all commonly referred to specialists (dermatologists or plastic surgeons) for initial treatment and tended to be followed up by the specialist. The proportion of shared-care follow-up of skin cancer at general practice reflects these perceptions, with surveyed participants reporting an average of 20% of BCC, 25% of SCC and 75% of melanoma patients currently in shared-care follow-up by GPs and specialists (Tables 1 and 2).

For lower-risk skin cancers, the participants felt that follow-up can be primarily undertaken in general practice. As one GP noted, 'I can't see a lot of reasons for people to see dermatologists or plastics for skin checks'. Significantly, it was also noted that 'most people tend to lose focus in the long run' and rural patients were unlikely to persist with regular specialist follow-up because of factors such as cost, accessibility and travel.

Among the GPs who were interviewed, the issue of communication between specialists and GPs in managing skin cancer was raised. One commented:

> *I have a very good working relationship with one of the local surgeons ... I guess that's how I see a GP–specialist relationship. They're called consultants because you can seek their advice when you're stuck.*

The participants commented on the cost of consultations, travel time and limited access to specialists in rural Victoria. For example, one participant noted:

> *I often consult via teleconference [with a specialist] or I can send her [local dermatologist] pictures or ring her up and I probably do that every week or two.*

Recall systems for skin cancer follow-up

Only 22 (34%) surveyed GPs reported having a recall system at their practice. Among the different types of recall systems, half had a doctor-led recall system (n = 11), with the others reporting either a nurse-led (n = 7) or administrator-led recall system (n = 4). Sending reminders or recalls by post (n = 22) was the main mode of patient communication.

Twenty-five per cent of the participants (n = 16 survey and all interviewed) also recommended establishing a computerised recall system to send reminders to patients for follow-up checks, similar to systems already in place for Pap smears or breast screening. Most of the interviewed GPs agreed that having a dedicated skin check appointment would be ideal but in reality it happened rarely in general practice. An alternative recommendation was to establish quarterly skin cancer clinics within the community setting (n = 4), similar to an annual flu vaccine clinic, to help address this issue.

Challenges for skin cancer follow-up and recommendations to improve skin cancer follow-up in general practice

Table 2 outlines the most frequently perceived challenges for GPs in regard to skin cancer follow-up in rural general practice.

Three major themes were identified as major challenges for skin cancer follow-up: workload and time constraints for consultations; GP support, resources and infrastructure; and patient factors.

During the surveys and interviews, participants outlined ways that some of these challenges could be addressed – for example, by patient education (n = 8). One interview participant noted, 'You just have to convince people that it [follow-up] is worthwhile and you are doing it for a good reason'. Other patient education measures included providing information on 'sun protection' and that 'looking for signs of recurrence and that [a] regular skin-check is important'. Suggestions from GPs to improve patient skin health literacy included using nursing staff in the practice, providing clear patient handouts on skin cancer, and encouraging patients to access internet sites on skin cancer prevention.

Time constraint was another major issue noted by many of the participants (n = 17). Time constraints included that follow-up skin examinations were often only part of a consultation that included multiple other health issues, or that often dedicated follow-up skin examination time was lost to a new acute issue. Suggestions from GPs to improve this were limited, but having good infrastructure and nursing support did assist the process. The magnitude of this issue was exacerbated for some because of the high frequency and volume of skin cancer presentations they had to manage.

Guidelines for skin cancer follow-up in general practice

Many GPs (n = 14, 21%) requested clear flowchart guidelines from their national bodies specifically focusing on follow-up in a primary care setting, as well as practice protocols. They also expressed a need for more professional development (n = 4) in competencies associated with skin cancer and follow-up. Participants stated that they needed training in dermatoscopy, with a recommendation that 'someone in the practice [has] done extra training on skin cancer'. This was deemed especially important because registrar training and exposure to skin cancer was highly variable, depending on the demographics of patients attending a clinic.

Discussion

Our study showed that skin cancer consultations were reasonably frequent in rural general practice. The follow-up practices were largely dependent on the type of skin cancer. Almost all participants reported following national guidelines for melanoma follow-up, while >70% reported not having a guideline for NMSC follow-up. The follow-up frequency showed similar trends, with lifelong (79%) and regular reviews (77%) for melanoma patients and opportunistic reviews (>50%) for NMSC patients. The findings of good adherence to melanoma guidelines in general practice were similar to those from a randomised controlled trial in UK comparing GP and specialist follow-up.[13] Currently, there are no evidence-based best practice guidelines to suggest the follow-up frequency for NMSC.[21] It has not been shown that patients with previous NMSC will benefit from regular medical review compared with observation by the patient themselves.[21] The opportunistic screening of NMSC was one of the recommended follow-ups in previous NMSC guidelines from 2008, which is currently under review.[21] The GPs in this study have provided a range of reasonable follow-ups for NMSC patients.

Factors influencing patients' regular attendance of follow-up consultations are complex. Our study identified a number of wide-ranging factors, including patient factors such as health literacy and financial burden; and clinician factors such as time constraints, inconsistencies between guidelines, not having a robust recall system and poor support network, including a lack of specialists in rural areas. Fennell et al reported being older (>63 years) and less educated were barriers for people seeking help for skin cancer detection in rural Australia.[22]

The majority of participants in the current study agreed that patient education, continuing medical education of GPs and registrars on skin cancer, and having effective recall systems were important to improve skin cancer follow-up. Based on the findings, it would be beneficial for rural GPs to review and/or establish follow-up strategies suited to rural populations for both NMSC and melanoma skin cancers.

For example, GPs can explore effective recall systems suitable to their practice, such as using medical record software for reminders, nurse-led recalls or receptionist-led recalls. Educating patients about the importance of regular reviews and having a scheduled appointment for skin checks instead of opportunistic review could reduce time pressure and improved compliance with return for further follow-ups.

The study was limited by a number of factors. The participants were recruited via Southern GP Training and this could lead to selection bias, as well as missing contributions from unaffiliated GPs. The response rate was also low (<30% of all invited), which could be a confounding factor in generalising these findings.

Table 2. GPs' perceptions of major challenges and their associated recommendations for GP-led skin cancer follow-up

Major challenges (with a selection of GP comments from surveys and interviews)	Number of surveyed GPs
Workloads and time constraints for consultations	
A follow-up skin examination is often part of a consultation for multiple issues or lost to a new acute issue	17
• *Finding time in the consult to cover it [follow-up] because usually it's an add on to the consult, it's usually not the sole reason for the consult and someone's come in for their blood pressure script and just finding the time to do a skin check.*	
• *By doing it in a general practice context, so often that becomes, can you do my skin check and can you do my blood pressure, and I need some scripts, and … it becomes quite an involved consult.*	
• *If you've got an 80-year-old lady who's got 16 layers of clothes on and she's in for a skin check and her scripts and everything else, by the time she's got undressed, had her skin checked and got her clothes back on and done whatever else needs to be done it's fifteen minutes.*	
• *Doesn't seem enough time to do full body checks in addition to what they are already coming in with.*	
High frequency and volume of skin cancer presentations	3
• *… the volume of skin cancer–related presentations … Skin examinations are tedious to do properly*	
GP support, resources and infrastructure	
Availability and accessibility of affordable specialists and tertiary units	15
• *There's no plastic surgeon visiting Gippsland and there's no plastic surgical service in Gippsland*	
• *Access to dermatologists and plastic surgeons without excessive cost and transport presents difficulties for the patient*	
Follow-up procedures and guidelines are inconsistent between practices or non-existent	9
• *… there's a lot of data out there that conflicts so I choose the data that seems to be most relevant*	
• *… follow up procedures differ between practices*	
GPs' ability to maintain current competencies and knowledge needed for skin cancer follow-up	7
• *Maintaining and updating skills and knowledge, particularly surgical skills*	
• *… engaging in ongoing training*	
• *… there's so many freaking guidelines that you never really quite know where to refer*	
• *… better training in full body examination including hidden areas*	
GPs have no successful recall system in place	6
• *We haven't got a proper system, we're not a skin cancer clinic and that's the problem but that's something we need to look at … because patients forget*	
Poor support and resources readily available to GPs	2
• *You need a proper treatment room. You need proper lighting and I don't think this room is good enough for a skin check, you need privacy, you need gowns and everything else and you need a nurse that's trained to help you*	
• *If I'm doing it in my room it takes me 10 minutes to set up and do the biopsy and pack it all up again, you're running behind by doing that. If I try and squeeze it into the treatment room, then I have cranky nurses who are trying to squeeze in patients who weren't booked into the treatment room, into the treatment room, and that becomes a hassle as well*	
Patient factors	
Poor health literacy and motivation to attend follow-up among patients	10
• *People don't want to come back for check-up*	
• *It's cut out and it's gone, so therefore I don't need to worry about it unless I find another lump*	
• *Persuading patients to re-attend when they are symptom-free is difficult*	
• *The patient's lack of awareness in coming back for follow-up. From their point of view, everything is all-ok … people don't see skin cancer as something that's going to knock them off*	
Continuity of patient care with patients moving to other GP practices or to another location	3
• *Patients move around a lot*	
• *They have started seeing another GP*	
• *All the caravaners will drive up to Queensland and they'll have their annual skin check … it'd be nice if they were to do a skin check on one of my patients to write back a letter … then you're not chasing around for ages trying to find out what's been done*	

GPs, general practitioners

The study was conducted in Gippsland, Victoria, and the findings might not be generalisable to other states in Australia. However, there is still a paucity of research on patients' views on follow-up after treatment of skin cancers and barriers to follow-up in Australia. This study highlights the need for further research into post-diagnosis skin cancer follow-up in general practice.

Implications for general practice

- GPs in this study complied with the melanoma follow-up guidelines.
- In the absence of evidence-based guidelines for NMSCs, GPs in this study provided a range of reasonable follow-up processes, procedures and recommendations.
- The results from this study may help inform the development of evidence-based guidelines for NMSC follow-up.

Authors

Ei T Aung MBChB, FRACGP, Lecturer, School of Rural Health, Monash University, Vic. etaung@yahoo.com

David G Campbell MBBS, FRACGP, FACRRM, Director, School of Rural Health, Monash University, Vic

Eleanor KL Mitchell PhD, Lecturer, School of Rural Health, Monash University, Vic. Eleanor.Mitchell@monash.edu

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correspondence **ajgp@racgp.org.au**