Melanoma follow-up: time to generate the evidence

Research is needed into current melanoma follow-up practices and their implications for patients and society. We highlight the need and suggest a way forward.

Australia has the world's highest incidence of cutaneous melanoma [1, p. 19]. Melanoma is Australia's fourth most commonly diagnosed cancer [2], with 10,342 new cases in 2007 (representing 10% of all cancers) and 1,279 deaths from the disease [1]. The incidence rate for melanoma is increasing, as is the survivor population, mainly due to improvements in diagnosis and primary treatment [3]. In 1988-2004, melanoma patients had a five-year survival rate of 92% [4]. The growing population of survivors increases the significance of decisions regarding follow-up care and its impact on the health budget and workforce, particularly since melanoma is the most common cancer diagnosed in Australians aged 15-29, who may need life-long follow-up [5].

Regular follow-up after the successful treatment of invasive melanoma represents standard care. The conventional aim of melanoma follow-up is to improve survival through the early detection of recurrence and through the prevention (via SunSmart education) and early detection of any new primary melanoma and non-melanoma skin cancer. The risk of developing a second primary melanoma is 8-12% [6, 7, 8]. The risk of melanoma recurrence is dependent on the cancer staging, with 10-year recurrence rates ranging from less than 10% for stage IA to approximately 67% for stage IIC [9]. Recurrence has been known to occur up to 16 and even 27 years after primary treatment [10, 11]. This underscores the need for longer-term follow-up, as well as for educating patients about possible recurrence.

What challenges face melanoma follow-up in Australia? Australian and New Zealand guidelines are based on low-level evidence, mainly expert opinion (Level IV evidence) [2].

Given the low level of evidence available, it is unsurprising that guidelines in other countries, such as the USA and UK [12, 13], vary considerably on key issues, including:

- which practitioners should provide follow-up;
- the frequency of follow-up visits;
- what the content of follow-up should be, namely whether it should include SunSmart education and any of a wide range of different diagnostic tests; and
- the stratification of follow-up recommendations by prognostic variables (e.g. sentinel lymph node status).

It is reasonable to hypothesise that lower-level evidence results in increased variation in clinical practice, as clinicians give less weight to guidelines and more to individual judgement and experience. There is evidence of variation in melanoma follow-up practices overseas [14]. A recently published systematic review found significant worldwide variation in melanoma follow-up with respect to the frequency of scheduled visits, the type and frequency of imaging and laboratory assessment used, and the specialty of treating doctors [15]. No published research has examined such variation in Australia.

Pilot data from a 2012 survey of 117 Australian melanoma follow-up patients point to wide variation in practice [16]. This data indicate that melanoma follow-up is provided by a range of practitioners, including dermatologists, surgeons and general practitioners, with patients sometimes reviewed by more than one provider. Within this framework, there is opportunity for the duplication of effort and testing and for inconsistent care. With regard to visit frequency, Turner et al. argue that current Australian and New Zealand guidelines "probably provide rather small gains (in terms of earlier diagnosis of recurrence or new primary) at the expense of a large number of additional clinic visits" [9]. Moreover, anecdotal evidence suggests that a variety of diagnostic tests, including Computed Tomography (CT) and Positron Emission Tomography (PET) scanning, are frequently used in melanoma follow-up

in Australia, when there is no evidence that they provide benefit. Besides ultrasound "performed by experienced ultrasonographers ... [n]o other tests have significant value in patients with localised disease" [2]. Given the expense of these tests, this has significant resource implications. Finally, guidelines lack the evidence needed to tailor recommendations to particular patient groups based on prognostic criteria. For example, "thin" (<0.1mm) melanoma is considered "cured" by primary excision. This compares to melanoma with adverse prognostic features (such as ulceration and lymphovascular invasion), sentinel-node-positive melanoma and "thick" (>4mm) melanoma, all of which require a more comprehensive follow-up regime, but exactly how recommendations should be tailored is unknown.

In short, despite their potential impact on patient outcomes and health resources, melanoma follow-up practices in Australia remain poorly documented and understood. As the survivor population increases, so too does the need to identify existing melanoma follow-up practices, to examine their costs and benefits, and to agree on possible enhancements.

But how should this be done? First, we need to identify existing follow-up practices and classify them into a limited number of alternative models of care. This enables the comparison of variables such as provider, visit frequency and diagnostic testing. It is also helpful to define follow-up, so as to begin with a list of health outcomes that are of interest when comparing models of care. We propose the following definition of cancer follow-up:

> *Follow-up is the scheduled pattern of activity initiated by a health practitioner to follow primary cancer treatment for a specified or indefinite period of time for the purpose of:*
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> - *monitoring treatment outcome, detecting early any recurrence or new primary cancer, detecting and managing treatment-related side-effects, preventing new primary cancer (via patient education about risk-reducing behaviour); and*
> - *detecting and addressing psychological or other problems.*

Activities may include:

- *taking patient histories, clinical examination, diagnostic testing, educating patients about self-examination;*
- *counselling regarding return-to-work and relationship issues, patient involvement in organised support groups, and physical rehabilitation.*

It is important to broaden the conventional aim of follow-up to include the assessment of psychological problems, as addressing these stands to improve patient well-being and adherence to follow-up schedules [17]. There is evidence that approximately 30% of melanoma patients report clinically relevant psychological distress [18]. While there is some evidence that early detection of recurrence can improve patient survival [15, 19, 20] and the benefit of detecting early a new primary melanoma is generally accepted [21], evidence is inconclusive whether intensive surveillance can meaningfully contribute to early detection [2, p. 123]. 75% of patients detect their own recurrence outside of scheduled follow-up visits [2, 9].

Evidence first needs to be generated on current follow-up practices to identify models of care (e.g. different providers). Mixed methods can then be used to undertake comparison. The use of mixed methods in evaluating cancer care programs has already been established [22]. An observational study could begin by linking routinely collected data obtained from different sources, such as practice notes, Medicare, the Pharmaceutical Benefits Scheme, and hospital databases [23]. This would enable the comparison of existing models of care with respect to financial costs and key health outcomes, e.g. time to detection of recurrence, time to detection of second primary tumours, and overall survival. Observational studies in cancer are essential to generate evidence over the long follow-up period and to identify best practice within a reasonable time frame [24]. Interviews with melanoma patients and practitioners could be conducted to identify factors that are important in melanoma follow-up beyond those evaluated as part of an observational study and for which metrics may not be available, e.g.

the degree to which follow-up care is accessible independent of patient income and postcode, and the degree to which care is co-ordinated across the primary treatment and follow-up stages, such that patients avoid disorientation and gaps in care. Finally, deliberative processes could be used to generate stakeholder consensus on an enhanced model of care [25]. Deliberation could draw on the evidence generated earlier and seek to identify the relative importance of key health outcomes and stakeholder preferences.

In summary, no published study has reviewed current melanoma follow-up practices in Australia and their implications for patients and society. We need to identify existing practices in melanoma follow-up and establish how they vary. We can then use mixed-methods research to compare costs and effects and to examine patient and practitioner preferences for care, along with any emerging ethical issues. It may be that less intensive follow-up is preferable to some patients and more cost-effective with respect to health outcomes. For instance, psychological problems may be increased as much as diminished by intensive follow-up, insofar as many patients experience increased anxiety prior to and during follow-up visits: "a balance is required between inducing additional patient anxiety and providing much wanted reassurance" [26]. Moreover, practitioners may prefer to adopt a shared care approach, in which specialists and general practitioners alternate or otherwise co-ordinate care, with different combinations possible [27]. Patients may also prefer this kind of shared care if travel [26] or waiting times are significant for them. The suggested approach could generate the evidence needed to ensure safe, effective and economically sustainable melanoma follow-up that is acceptable to patients and providers.

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