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## **Skin checks and skin cancer diagnosis in Australian general practice before and during the COVID pandemic, 2011-2020**

Dear Editor,

Reports from several European countries suggest COVID-19 had a profound impact on referral for cancer diagnoses. A Dutch study using their National Cancer Registry reported that skin cancer diagnosis reduced by 60% six weeks after the first confirmed case of COVID-19 was identified in that country, while for other cancer types, this reduction was 26%.<sup>1</sup> In the United Kingdom, reductions of 56% for referrals of all skin cancers and 53% in diagnoses for skin cancers were reported<sup>2</sup>, with similar results found in one Australian state.<sup>3</sup>

Even though Australia has been spared much of the devastating consequences of COVID-19 (i.e., ~29,000 confirmed cases and 909 deaths as of 1<sup>st</sup> April 2021), the impact of lockdowns changed the way primary care is provided, with a shift to telehealth.<sup>4</sup> Data from MedicineInsight – a large general practice database involving general practices from all Australian regions and states<sup>5</sup> – and the national Medicare Benefits Schedule (MBS) Service were used to explore trends and the impact of the pandemic on the prevalence of recorded skin checks (i.e. screening), recorded skin cancer diagnosis and recorded skin lesion removals.

De-identified electronic health records (EHR) from 370 general practices and 241,468 ‘regular’ adult patients (i.e. three or more visits in two consecutive years, with at least one in each of these years; 58.8% females, mean age 53.5±19.3 years ) within MedicineInsight were used to identify consultations where skin checks were recorded, or a diagnosis of skin cancer was recorded as a diagnosis or encounter reason. We excluded all patients with a diagnosis of skin cancer (i.e. melanoma, basal cell carcinoma (BCC), squamous cell carcinoma (SCC) or non-specified skin cancer) in the preceding 12 months and thus restricted our analysis to those

considered 'at risk' of skin cancer. The proportion of recorded skin checks with a positive reported skin cancer diagnosis (i.e. reported skin cancer diagnosis within six months of skin check) was then estimated. The prevalence of recorded skin checks (per 1,000 patients), reported skin cancer diagnosis (per 1,000 patients) and proportion of skin checks that led to a subsequent cancer diagnosis (%) were analysed quarterly (age and sex-adjusted). MBS data related to claims for skin lesion removals (i.e. items 31356-31376) were extracted for 2017-2020 only, as data were unavailable for previous years.<sup>6</sup> MedicinesInsight data was analysed in Stata 16.0, using the "variance covariance (vce) cluster" method, with practices as clusters. Between January 2011 and September 2020, a total of 67,933 recorded skin screening checks and 28,762 records of new skin cancer diagnosis (12.7% melanoma, 43.3% BCC, 38.2% SCC, 5.8% non-specified skin cancer) were identified.

Figure 1A reflects the seasonal pattern of recorded skin cancer diagnosis: higher rates in quarter one of each year (i.e. summer in the southern hemisphere), decreasing in quarters two and three. The peak of any skin cancer diagnosis in quarter one of 2020 (6.9 per 1,000 adults) was 20% lower than the prevalence observed in the same quarter in three previous years (8.6 per 1,000 adults), and remained lower in quarter two of 2020. A similar pattern was observed for BCC and SCC, with a greater reduction for melanoma (32%). Figure 1B shows that, compared to previous years, the expected peak of screening checks in quarter one of 2020 did not occur. A 29% decrease in the rate of skin checks was identified in the second quarter of 2020 compared to the second quarter of 2019, which coincided with 14% fewer MBS claims for skin lesion removals than the same period the previous year. Nonetheless, the proportion of patients with a recorded skin cancer diagnosis after screening remained steady in 2020.

The reduction in skin checks performed by general practitioners in Australia could account for the reduction in melanoma notifications, and by extrapolation the reductions noted in England.<sup>2</sup> In Australia, these checks peak in the late summer months, but COVID-related changes affected this pattern in 2020, reducing skin cancer diagnosis. Apart from the personal impact, delayed diagnosis can have a profound impact on health cost, as the average annual cost of melanoma increases from AU\$1681 per patient for stage 0/I/II to AU\$115,109 for stage III unresectable/IV.<sup>7</sup> Although the total number of general practice consultations in Australia remained steady in 2020, it rapidly switched from face-to-face to telephone consultations<sup>4</sup> – an approach that may be permanent because telehealth is now government-funded. Therefore, the potential negative impact of telehealth on skin cancer diagnosis requires monitoring, as poor image quality of pictures obtained by patients<sup>8</sup> and missed opportunistic skin checks during face-to-face consultations for another reason can undermine the identification of malignant lesions. Dermatologists and general practitioners should work together to ensure adequate case finding and opportunistic skin cancer screening.

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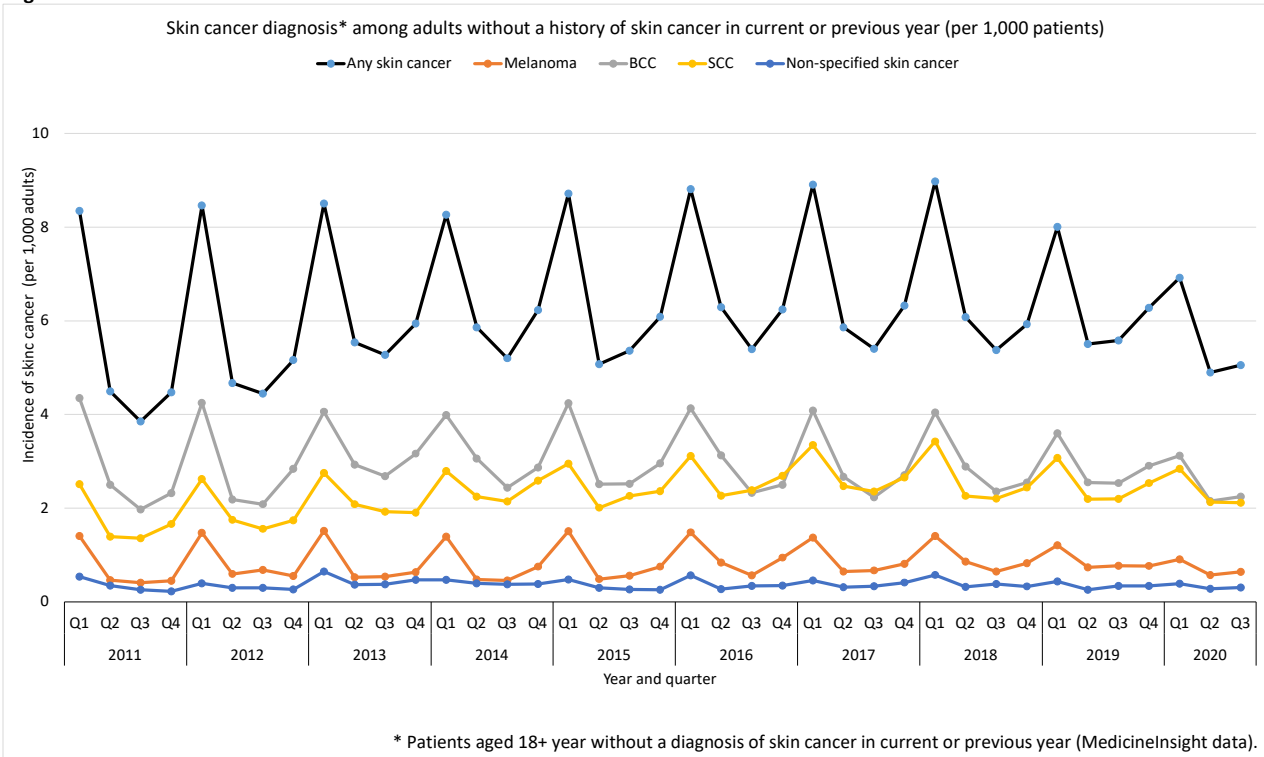
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## Figure legends

**Fig 1.** Skin cancer diagnosis recorded by skin cancer type in 'at risk' patients (1A); skin checks recorded per 1,000 patients by quarter for 2011 to 2020, MBS items claimed per 1,000 persons enrolled in Medicare, and skin cancer diagnosis recorded within six months after the screening diagnosis (1B).

MBS data reflects the period in which the service was claimed and not the period in which the service was performed.

**Figure 1A**



**Figure 1B**

