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MEDIA RELEASE

AI's POTENTIAL IN SKIN CANCER MANAGEMENT COMES WITH A WARNING

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ARTIFICIAL intelligence (AI) use in dermatology is primed to become a powerful tool in skin cancer assessment, but it remains to be seen how diagnostic devices in dermatology will influence decision making in the clinic and affect patient outcomes, according to the authors of a Perspective published online today by the *Medical Journal of Australia*.

In dermatology the primary focus for the use of AI has been on developing machine learning systems that facilitate classification and decision support for skin cancer management.

"Recent studies show that machine learning algorithms have the potential to surpass the diagnostic performance of experts, and the challenge now is how to implement this new technology safely into clinical practice," wrote the authors, led by Associate Professor Victoria Mar, a consultant dermatologist and Director of the Victorian Melanoma Service at Alfred Hospital.

"There are two potentially negative implications for clinical practice: first, clinicians may have difficulty upskilling by following the algorithms' outputs; and second, there exists the potential for deskilling and underperforming due to an over-reliance on technology.

"Algorithm performance is dependent on both the size and quality of the training image dataset and on whether the algorithm is used in situations for which it was intended," wrote Mar and colleagues.

"The device may be limited in its ability to diagnose specific lesions (eg, non-pigmented), or lesions in certain skin types (eg, darker skin) or sites (eg, scalp or acral). Retrospective image databases used to train algorithms may be associated with bias. In addition, artefacts (eg, hair, dermoscopic gel, air bubbles, rulers, pen markings, reflections) can distract from key features."

There has been a "striking" increase in the incidence of in situ melanoma over the past decade, from 32 cases per 100 000 population in 2004 to 80 per 100 000 population in 2019, with age-standardised mortality remaining fairly stable.

"[For the purposes of screening for melanoma] AI-assisted targeted screening of high-risk individuals is likely to be a more effective strategy to save lives than the current opportunistic approach," wrote Mar and colleagues.

"Our ability to identify lesions associated with sinister biological potential will improve, thereby reducing unnecessary biopsies, minimising overdiagnosis and other potential harms associated with screening."

Using AI in clinical practice has advantages and disadvantages, Mar and colleagues wrote.

"An artificial intelligence system used as a triaging tool before clinician assessment would enable automated risk stratification of individuals and/or lesions. This approach could dramatically improve clinician workload and timely access to specialist care for people requiring urgent attention.

"Alternatively, artificial intelligence consulted following an examination by the clinician may act as a second opinion to improve diagnostic sensitivity and reduce unnecessary biopsies.

"The latter is more closely aligned with current clinical workflows and therefore likely to be preferred while the field matures," they wrote.

"There is potential for over-reliance on artificial intelligence systems in both scenarios."

In terms of safety, Mar and colleagues urged caution particularly in relation to smartphone applications available to the public.

“Some of these provide skin lesion risk assessment, although they may state that they are not intended to be used as a diagnostic device.

“There is concern that, if this is not immediately obvious to the consumer, unregistered applications may be used in lieu of seeking medical advice. Unsupervised consumer-operated diagnostic devices would require careful testing before they can be recommended.

“Ultimately, responsibility for patient care remains with the clinician and, as such, a high level of clinical acumen must be maintained,” they concluded.

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