

Reflectance confocal microscopy: a pre-implementation study for skin cancer diagnostic accuracy



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Australia has one of the highest rates of skin cancer in the world. As one of the most expensive cancers this costs the Australian health economy approximately \$1.7 billion a year¹.

However, the majority of skin cancers are avoidable and curable, which is why primary prevention of skin cancers should remain high on the public health agenda.

Introducing a model of remote imaging

Reflectance confocal microscopy (RCM) is an evidence-based, cost-effective and accurate diagnostic technology, which uses laser technology to visualise skin on a cellular level, both in-vivo and non-invasively.

"We are analysing a model of imaging for diagnosis of skin cancers," explains Dr Ho. "Currently the use of RCM is limited to tertiary referral centres, so my study will analyse if images captured by a technician can be then transmitted via a cloud-based platform for interpretation and diagnosis."

Remote imaging would fill one of the gaps that currently exist, which is the limitation of access to referral centres.

"In Australia, limitations to RCM accessibility are due to the lack of trained specialists and machines. Currently, there are only specialist referral centres with RCM machines in Sydney, Melbourne and Brisbane," says Dr Ho.

Overcoming barriers

"General population skin cancer screening is currently not recommended, partly due to the variable diagnostic accuracy of subjective clinical examinations and the lack of cost-effectiveness stemming from unnecessary biopsies of benign lesions," explains Dr Ho.

The current diagnosis for skin cancer requires surgery and invasive modalities. Access to RCM may also potentially save patients from unnecessary biopsies, which will reduce morbidity and associated costs.

Although RCM is being used widely overseas, Australia has been slower to follow. With any new technology or service provision, it is important to assess how it can be implemented. This study will not only analyse the diagnostic accuracy of a remote model of RCM, but it will also look at implementation outcomes from the perspectives of patients and clinicians involved.

Dr Genevieve Ho is an Early Career Research Program award recipient and has recently completed a Master of Philosophy at the University of Sydney.



Diagnostics and implementation are an area of huge potential, considering the ongoing emergence of new technologies such as RCM and artificial intelligence. It is an exciting time to be in the field!"

¹ Gordon LG, Shih S, Watts C, Goldsbury D, Green AC. *The economics of skin cancer prevention with implications for Australia and New Zealand: where are we now?* Public Health Res Pract. 2022;32(1):e31502119. 22 Dec 2021. www.phrp.com.au/issues/march-2022-volume-32-issue-1/skin-cancer-economics