

Does teledermoscopy validate teledermatology for triage of skin lesions?

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Teledermatology utilizing a store-and-forward format has continued to grow around the world, with improvements in communications and imaging technologies enabling a specialist opinion where access to a dermatologist may be difficult due to geographical distance or excessive demand. In particular, recent studies have confirmed its value as a triage tool for skin lesions.^{1,2} Analysis of 2009 teleconsultations for skin cancer triage from Spain has shown a 51% filtering percentage with 2% pick-up rate for melanoma and 28% for other malignant or premalignant lesions.² This correlates well with data for 2-week cancer referral teleconsultations from our own unit where 52% could be discharged, 19% needed face-to-face reassessment or biopsy and 29% direct surgical management.³

A previous editorial in this *Journal*⁴ has suggested that final evaluation of the role of teledermatology in the U.K. remains some way off. None the less, integrated teledermatology systems are currently used successfully as a supplement to standard consultation for thousands of referrals per year to secondary care in England, Scotland, Wales and Northern Ireland. At a time when there are many unfilled consultant posts, increasing referral numbers, government-imposed targets for diagnosis and treatment, and escalating economic pressures on commissioners and providers, can we feel confident in the safety and efficacy that teledermatology may offer? Concern over confidence in diagnosis of cutaneous malignancy using teledermatology is reflected in current U.K. NICE guidance that all suspected skin malignancy should be seen face to face, and the use of teledermatology for pigmented lesions remains controversial. However, the incorporation of high-quality teledermoscopic images in addition to macroscopic images may challenge this view. Comparisons have shown face-to-face and teledermoscopic diagnostic accuracy of pigmented lesions to be similar.^{5,6} In a larger study, diagnostic accuracy in 542 patients with pigmented lesions using a panel of dermatologists found teledermatological accuracy to be inferior to clinic assessment although rates of appropriate management plans were superior for teledermatology.⁷ The same group of authors also found similar results in 728 patients with non-pigmented lesions, with inferior diagnostic accuracy for teledermatology macroscopic images but equivalent diagnostic accuracy when dermoscopic images were included.⁸ Management plans were equivalent in both groups.

In this issue Tan et al.⁹ report a controlled study considering the diagnosis and management plan for 200 patients with 491

lesions, referred to a hospital skin lesion clinic in New Zealand. All patients were seen face to face by two out of three dermatologists, and after a period of 4 weeks the same lesions were reviewed anonymously by two using a standardized history, macro digital images and corresponding dermoscopic images. The exact concordance between face-to-face and teledermatology diagnosis was 74%, with predominantly minor discrepancies such as benign naevus/seborrhoeic keratosis or Bowen disease/actinic keratosis. It is of relevance that the face-to-face diagnostic concordance between dermatologists was only 75.5–82.2% but for clinically significant lesions the exact concordance was 83% for both face-to-face and teledermoscopy. Furthermore, histological examination of suspected malignant lesions showed the teledermoscopic diagnosis to be more accurate than face-to-face diagnosis. This seemingly unlikely observation may relate to the ability to enlarge and contemplate images on a computer screen which is simply not possible during examination of the patient with a hand-held dermatoscope.

Sceptics may pontificate on the impersonality of teledermatology as well as its inability to palpate the lesion, but evidence is lacking to show that, at least as far as diagnosis of lesions is concerned, the presence of a dermatologist at the consultation is mandatory. What studies clearly demonstrate is that even if diagnostic accuracy of lesions may be slightly lower for teledermatology, it has the ability to triage out clearly benign lesions, allowing obvious malignancy and equivocal lesions to be appropriately managed in secondary care facilities. It is, of course, important to remember the limitations of teledermatology including the dependence on good clinical history and high-quality photography as well as the risk of missing other clinically important lesions. It is therefore essential that the emphasis on establishing a good and safe teledermatology service is on training a 'melanographer' with strict protocols including how to obtain optimal images with multiple views where necessary and recognition of other suspicious lesions.

In summary, teledermatology should not be seen as a quick fix or a simple solution to the problems currently facing dermatology provision in the U.K.; however, evidence is continuing to gather which proves its position in a supportive role both to primary care and in enabling timely and appropriate treatment to our patients as part of a fully integrated service.

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Key words

teledermatology, teledermoscopy, skin cancer, triage

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