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Why a randomised melanoma screening trial may be a good idea

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We read with interest the letter by Halvorsen *et al.*¹ These authors demonstrated in Table 1¹ that the number needed to invite to prevent one melanoma death is inversely proportional to the mortality rate in the cohort. Whether or not a screening trial is feasible depends on this and many other factors, including the primary outcome, incidence, the screening test's accuracy, and contamination of the control group (in the case of a melanoma screening by opportunistic skin checks).

The US Preventive Services Task Force suggested to "...focus on evaluating the effectiveness of targeted screening in those considered to be at higher risk for skin cancer", but Halvorsen *et al.*¹ considered it "unrealistic" to identify high-risk individuals. Improvements in risk prediction,² online risk calculators,³ risk factor information available in ongoing cohort studies or sampling from national health insurance records may enable a risk-stratified approach. This would reduce the required trial sample size, and overdiagnosis compared with age-based screening.⁴ New technologies such as total-body photography plus dermoscopy, and artificial intelligence,⁵ rather than making a trial "obsolete", could be incorporated into the trial design and lead to improvements in sensitivity, specificity, and benign to malignant excision ratio, thus making screening more cost-effective and also assisting to overcome the risk of contamination of the control group. We agree that detection of keratinocyte cancers as part of a screening program "adds to the costs and high workload" but excluding the impact they have on quality of life would underestimate the benefits gained from their improved diagnosis and early excision.^{6,7}

In summary, we believe a trial may be feasible with a different design or conducted in other regions of the world where melanoma is more common. By providing stringent quality control, follow-up and reminder procedures, systematic screening could overcome many of the downfalls of opportunistic screening that exacerbate socio-demographic inequities in melanoma outcomes, and lead to many, potentially avoidable, excisions in worried-well population subgroups. Given that most melanomas are visible on the skin, and morbidity and mortality directly correlate with the extent of local invasion of the tumour at diagnosis, early detection is feasible and crucial. From an economic perspective, recent developments in immunotherapy treatment for late-stage disease are placing an increasingly unsustainable burden on the health care system. The feasibility of a randomised trial to assess the benefits, costs, and harms of a targeted melanoma screening program remains worthy of further consideration.

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