

Lindqvist Pelle G (Orcid ID: 0000-0002-1652-8235)

## On the potential beneficial effects of indoor tanning

Dear Editor,

We have with great interest read the article from Eden *et al.*<sup>1</sup> entitled “*Cost-effectiveness of a policy-based intervention to reduce melanoma and other skin cancers associated with indoor tanning*” concluding that banning of indoor tanning would save lives (Br J Dermatol. 2022 Feb 10. PMID: 35141876.)

We agree with the Eden *et al.*<sup>1</sup> that a cost-effectiveness analysis of indoor tanning is needed. A key limitation of their paper is that they included only the hazardous events and not the beneficial effects of indoor tanning.<sup>2</sup> In our large prospective cohort, indoor tanning is associated with a 20% increased risk of malignant melanoma mortality (HR 1.2, 95% CI 1.0-1.6), while at the same time a 23% lower all-cause mortality risk (HR 0.77, 95% CI 0.7-0.8) during study interval.<sup>3</sup> Thus, indoor tanning seem to give a survival advantage, at least in a low ultraviolet radiation (UV) region.

We are well aware that the findings of a prospective observational study do not give causal results. However, the dose-dependent relationship, plausible mechanisms, and supporting findings in experimental studies increase the likelihood of a causal relationship between active sun exposure habits and a decreased rate of all-cause mortality.

We agree that the more UV exposure, the higher the rate of keratinocytic skin cancer. However, since the UV risk factor for malignant melanoma is mainly overexposure, proper targeted guidelines should keep the risk low and optimize health. Further, since indoor tanning is the underprivileged source of sun light, a ban of indoor tanning might increase health inequalities.

We agree with Eden *et al.*<sup>1</sup> that policy-makers need robust economic knowledge when taking decisions. Unfortunately, the paper by Eden *et al.* does only give information of one side of the coin. In addition, there is no proof that banning indoor tanning would save lives Northern Europe, it is hypothetical. On the contrary, there is evidence that banning indoor tanning would instead increase the mortality rate due other causes, such as hypertension, thromboembolism, and type 2 diabetes mellitus.<sup>2,3</sup> Thus, a quick fix of a complex problem like banning of indoor tanning is unlikely to save lives in UK or Sweden.

A multidisciplinary approach to optimize sun exposure for maximal health benefit, and minimize the risk of malignant melanoma will supposedly be a winning concept. It should be

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process which may lead to differences between this version and the [Version of Record](#). Please cite this article as doi: [10.1111/bjd.21829](https://doi.org/10.1111/bjd.21829)

possible to target guidelines against (episodic) overexposure of UV, indoor tanning abuse, to question the reliance on sun blockers, and still get UV exposure for optimal health.

Pelle G. Lindqvist,<sup>1</sup> Elisabeth Epstein<sup>1</sup> and Mona Landin-Olsson<sup>2</sup>

<sup>1</sup> Department of Obstetrics and Gynecology, Karolinska Institutet, Stockholm, Sweden

<sup>2</sup> Department of Endocrinology, Lund University, Lund, Sweden

**Correspondence:** Pelle G. Lindqvist

**Email:** pelle.lindqvist@ki.se

**Funding:** None

**Conflict of interest:** The authors report no conflict of interest

## References

1. Eden M, Hainsworth R, Gordon LG, *et al.* Cost-effectiveness of a policy-based intervention to reduce melanoma and other skin cancers associated with indoor tanning. *Br J Dermatol* 2022. 10.1111/bjd.21046
2. Lindqvist PG, Epstein E, Landin-Olsson M. Sun Exposure - Hazards and Benefits. *Anticancer Res* 2022;42:1671-7. 10.21873/anticancer.15644
3. Lindqvist PG, Epstein E, Landin-Olsson M, *et al.* Avoidance of sun exposure is a risk factor for all-cause mortality: results from the Melanoma in Southern Sweden cohort. *J Intern Med* 2014;276:77-86. 10.1111/joim.12251