

EPIDEMIOLOGY OF CUTANEOUS MALIGNANT MELANOMA IN WESTERN SWEDEN

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Avhandlingen baseras på följande delarbeten:

- I. **Claeson M, Andersson EM, Wallin M, Wastensson G, Wennberg AM, Paoli J, Gonzalez H.**
Incidence of cutaneous melanoma in Western Sweden, 1970-2007. Melanoma research 2012; 22(5):
392-398.
- II. **Claeson M, Holmström P, Hallberg S, Gillstedt M, Gonzalez H, Wennberg AM, Paoli J.**
Multiple primary melanomas: a common occurrence in Western Sweden. Accepted for publication
in Acta Derm Venereol.
- III. **Claeson M, Gillstedt M, Whiteman DC, Paoli J.** *Lethal melanomas: a population-based registry
study in Western Sweden from 1990-2014.* Submitted.
- IV. **Claeson M, Hallberg S, Holmström P, Wennberg AM, Gonzalez H, Paoli J.** *Modelling the future:
System dynamics in the cutaneous malignant melanoma care pathway.* Acta Derm Venereol. 2016;
96(2): 181-185.

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Abstract

The incidence of cutaneous malignant melanoma (melanoma) has been rising worldwide for the past decades, causing a major public health problem. The overall aim for this thesis was to study the epidemiology of melanoma in Western Sweden and to suggest secondary preventive interventions.

In study I, data from the Swedish Cancer Registry demonstrated that the melanoma incidence in Western Sweden quadrupled among men and tripled among women between 1970-2007. Coastal areas and the city of Gothenburg showed a higher incidence than inland areas. Analysis of meteorological maps of Western Sweden and a sun exposure survey showed that this could be due to high annual average duration of sunshine and high sun exposure on holidays abroad. In studies II and III, data from the Swedish Melanoma Registry and the Swedish Cause of Death Registry were analysed. Study II showed that, during 1990-2013, 7.4% of all melanoma patients developed multiple primary melanomas. Subsequent melanomas presented with a higher proportion of melanoma in situ. Study III demonstrated that thin melanomas (≤ 1 mm Breslow) constituted 55.2% of all invasive melanomas and accounted for 14.7% of all melanoma deaths, between 1990-2014. Significantly poorer survival was identified for ulcerated melanomas 0.26-1 mm Breslow and for non-ulcerated melanomas 0.76-1 mm Breslow. In study IV, a system dynamics computer model was developed that projected the number of future melanoma cases. The model compared five plausible future scenarios, showing that after ten years, improved overall secondary prevention would have resulted in a shift towards thinner melanomas.

This thesis concluded that the high incidence of melanoma in Western Sweden justifies a focus on preventive interventions to this area. Patients and physicians need to be alerted about the risk of multiple primary melanomas. The identified subgroup of lethal thin melanomas suggests that these patients may benefit from closer surveillance in follow-up programmes. Lastly, system dynamics modelling proved to be a valuable tool, which can help policymakers select the preventive interventions with the greatest impact.

Keywords: Cutaneous malignant melanoma, Epidemiology, Prevention, Incidence, Mortality, Multiple primary melanomas, Thin melanomas, System dynamics modelling

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