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### Title

Comparing survival of patients with single or multiple primary melanoma in The Netherlands: 1994- 2009

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**Abstract**

**Comparing survival of patients with single or multiple primary melanoma in The Netherlands: 1994- 2009**

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**Dermatology Online Journal 22 (9)**

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There is conflicting literature as to whether the survival of patients with multiple melanoma is worse than that of single melanoma cases. We used extended Cox-proportional hazard models to estimate hazard-ratios (HR) of patients with multiple melanomas against single melanomas. Data from the nationwide Dutch Cancer Registry was used to retrieve cutaneous melanoma cases between 1994 and 2009 and linked with municipal records to assess the vital status. To account for the longer survival in the multiple melanoma cases we modelled multiple melanoma as time-varying variable, as well as Breslow thickness, histological subtype and nodal/distant metastasis. In total, 42,733 melanoma cases were identified, of which 1210 (3%) developed a new primary melanoma during a total follow-up of 11 years. The adjusted HR for multiple melanoma was 1.32 (95 %CI: 1.17-1.50) adjusting for age, sex, Breslow thickness, histological subtype and presence of nodal and distant metastasis. Our study showed that patients with multiple melanomas have an increased risk of dying when compared with single melanoma cases, and suggests that the improved survival of patients with multiple melanoma shown in previous studies was an artefact due to survival bias. Based on our findings we advise, within the guideline of five years of follow-up, to focus on high-quality patient-education about skin self-examination and the risks of subsequent melanomas.

