

The association between melanoma Breslow thickness and long-term patient survival: an Australian population-based analysis

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Background

The prognosis of a patient with a primary cutaneous melanoma is known to be related to its **Breslow thickness**. Thickness is categorised to guide patients' management according to the internationally-accepted melanoma staging system published by the American Joint Committee on Cancer (AJCC) and endorsed by the International Union Against Cancer (UICC). This system is updated periodically, most recently with publication of the 8th Edition of the AJCC staging manual.

Objectives

- This study aimed to determine the **long-term** (30-year) relationship between Breslow thickness and survival outcomes.
- To assess the relative effect of a 0.8mm **Breslow thickness** threshold with respect to the incidence of both melanoma-related and non-melanoma-related death.
- To determine the association between the risks of melanoma-death and non-melanoma death for **each 0.1mm increase** in Breslow thickness from 0.1mm to 1.0mm.

Methods

- **Registry data** for all Australians diagnosed with **thin invasive primary melanomas** between 1982 and 2014 were analysed.
- The cohort consisted of data for **210,042** patients including **144,447** patients with thin melanomas (**≤1.0mm** in thickness).
- The primary outcomes included: incidence of **melanoma-related death**, incidence of **non-melanoma-related death**, **melanoma-specific survival (MSS)** and **overall survival (OS)**.

- The **Kaplan-Meier** method and **cumulative incidence function curves** were used to describe outcomes.
- **Multivariable Fine & Gray model¹** and a **Cox model²** were simultaneously performed.
- **Subgroup analyses** were conducted for **sex**, **age** (18-25 years, 26 to 50 years, 51 to 75 years and >75 years), and **anatomic site** (head & neck, trunk, lower limb, and upper limb).

Results

Figure 1: Melanoma-Specific Survival stratified by T-category

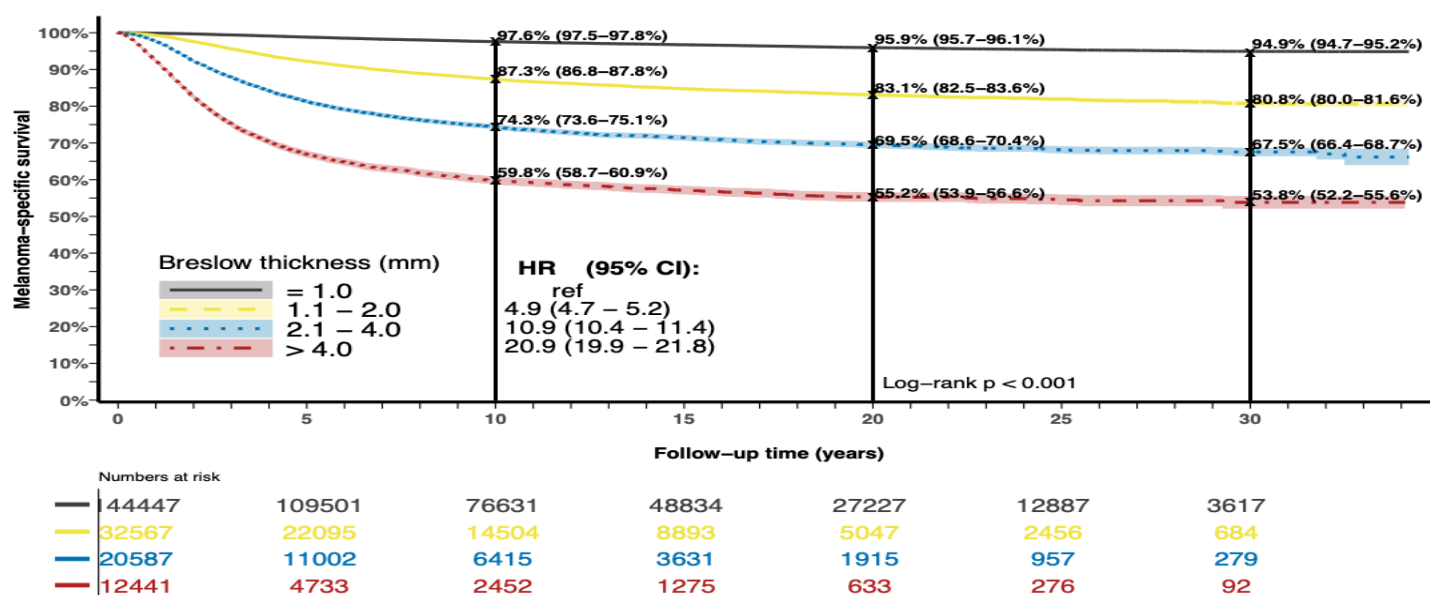


Figure 2: Cumulative Incidence function of Melanoma-related death stratified by T-category

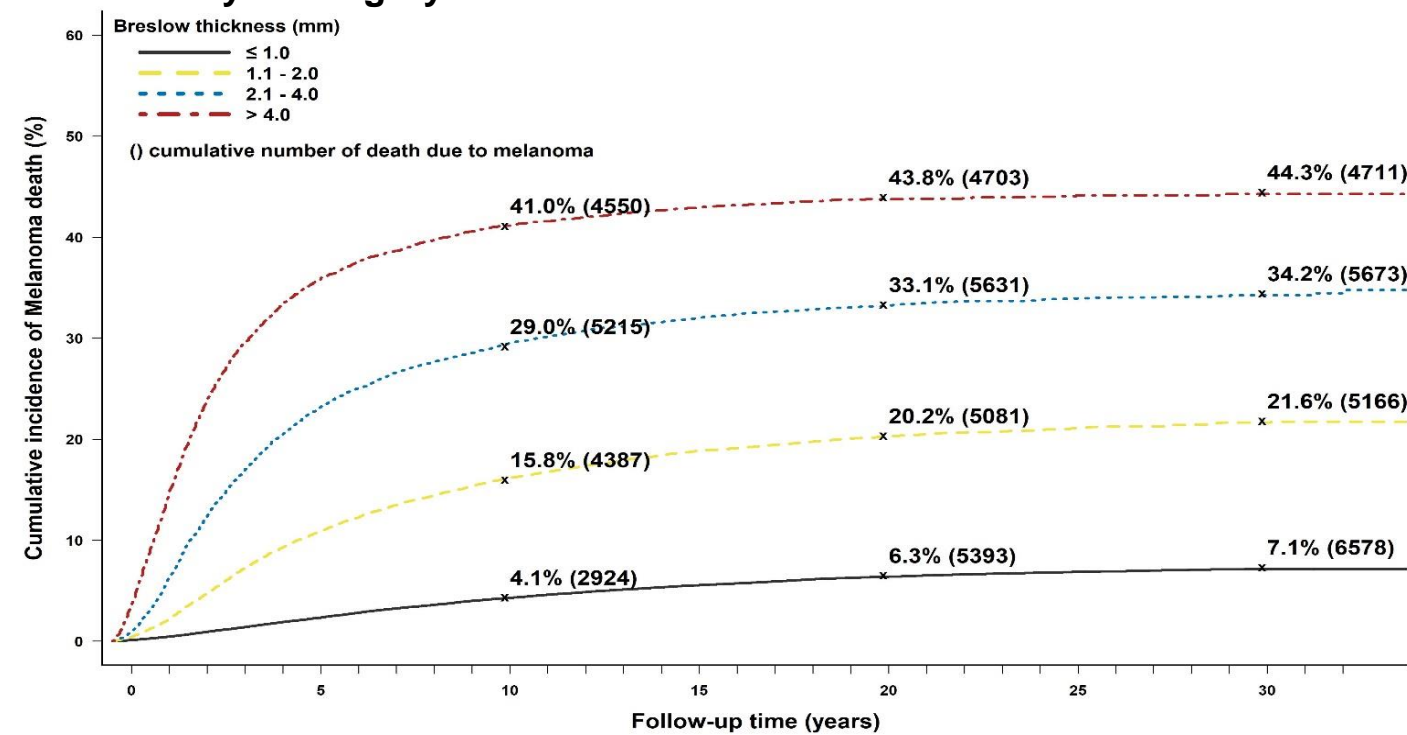
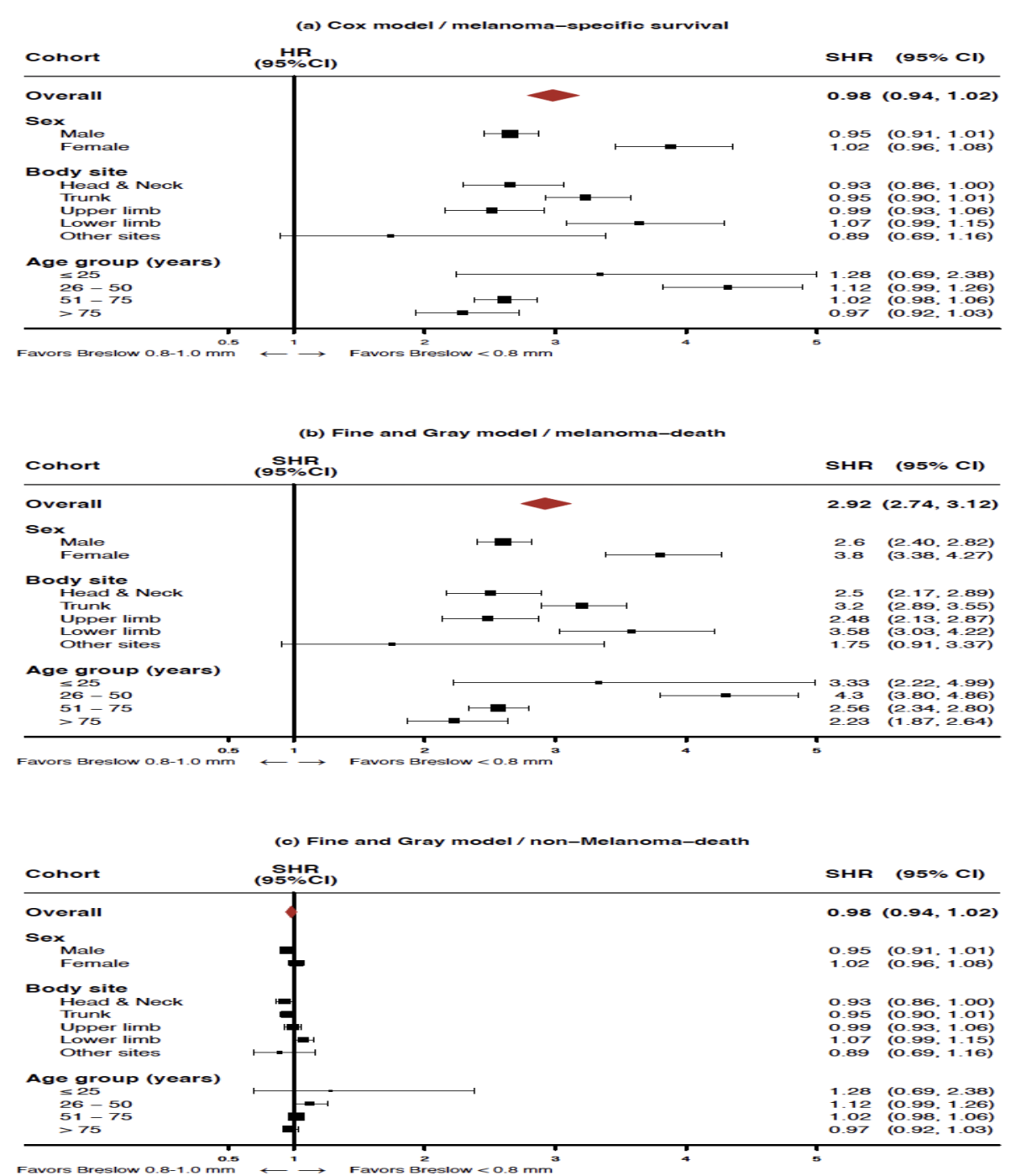


Figure 3: Effects of a 0.8mm threshold (overall and subgroup) on: (a) MSS, (b) melanoma-death and (c) non-melanoma-death



Conclusions

- ❖ A plateau in melanoma-related deaths occurred in T4 patients after 20 years but there were ongoing melanoma-related deaths for the other T-categories beyond 30 years.
- ❖ A progressive rise in the risk of death from other causes occurred across all T-categories.³

- ❖ The risk of melanoma-related death **increases significantly** for patients with primary tumors **0.8-1.0mm** in thickness.
- ❖ The risk of death from non-melanoma causes was similar across Breslow thicknesses of 0.1 to 1.0mm.
- ❖ This analysis confirms the importance of a 0.8mm threshold for guiding the care of patients with thin primary melanomas.⁴

References

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