

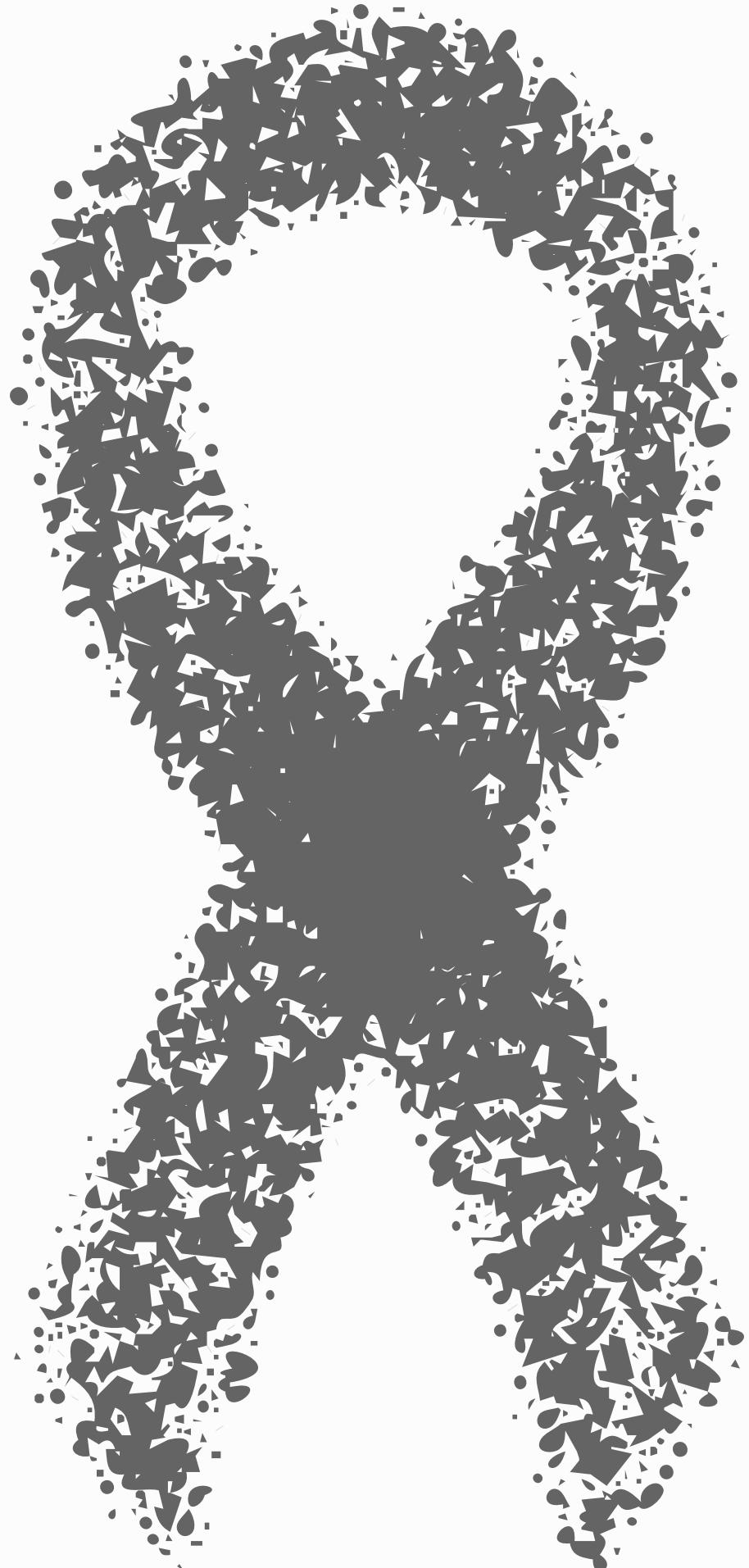
Melanoma survival by tumour thickness

in Norway, 1983–2019

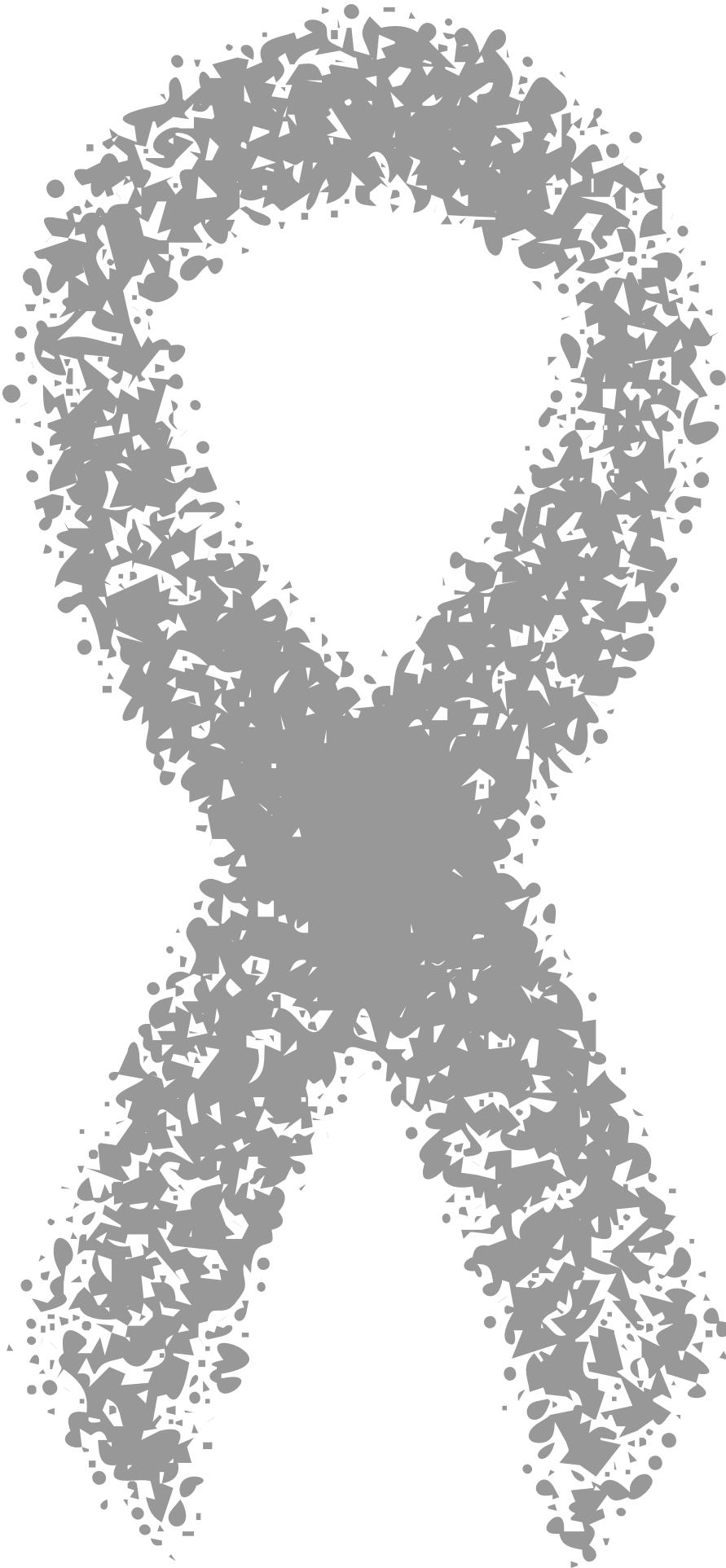
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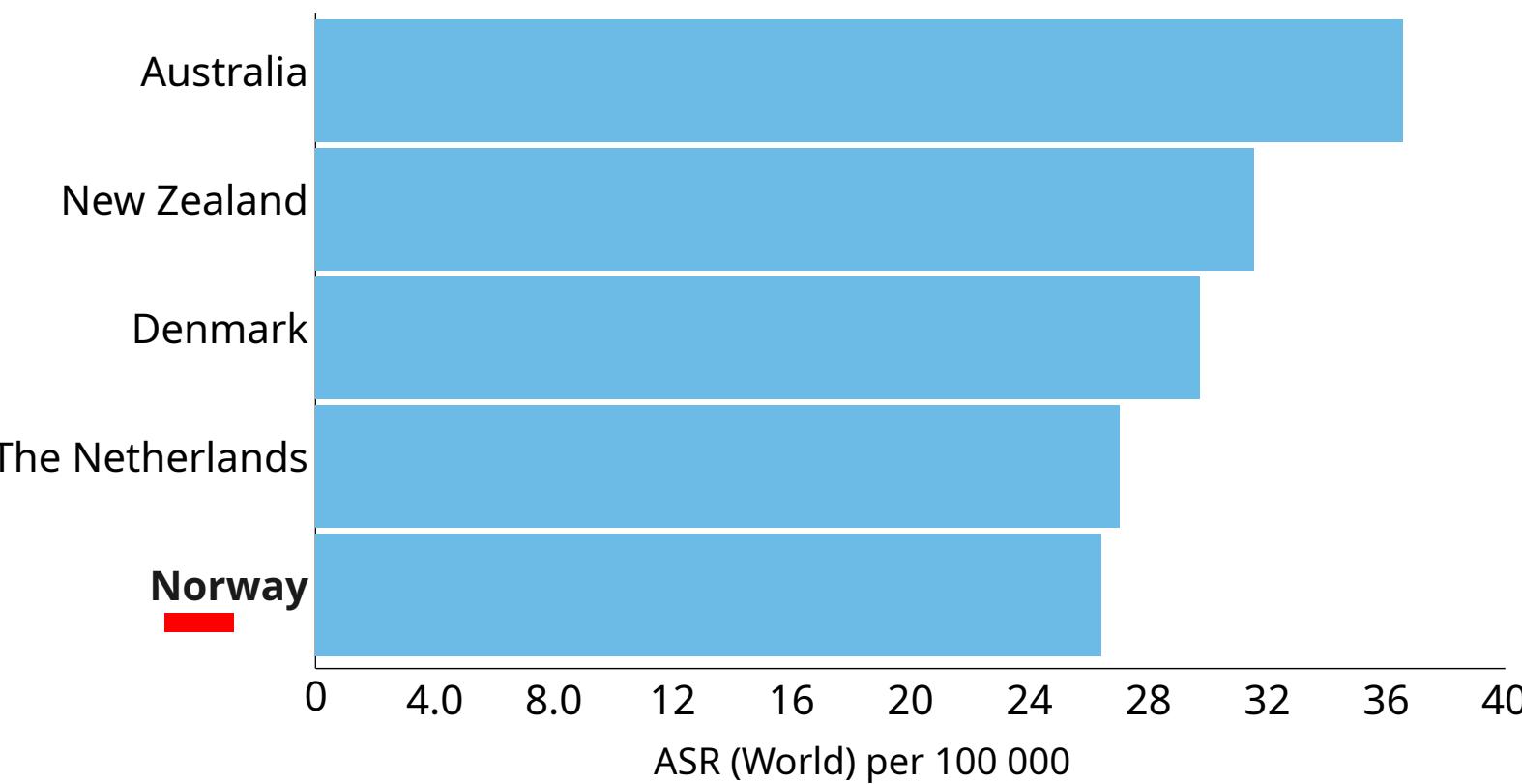
15 November 2023



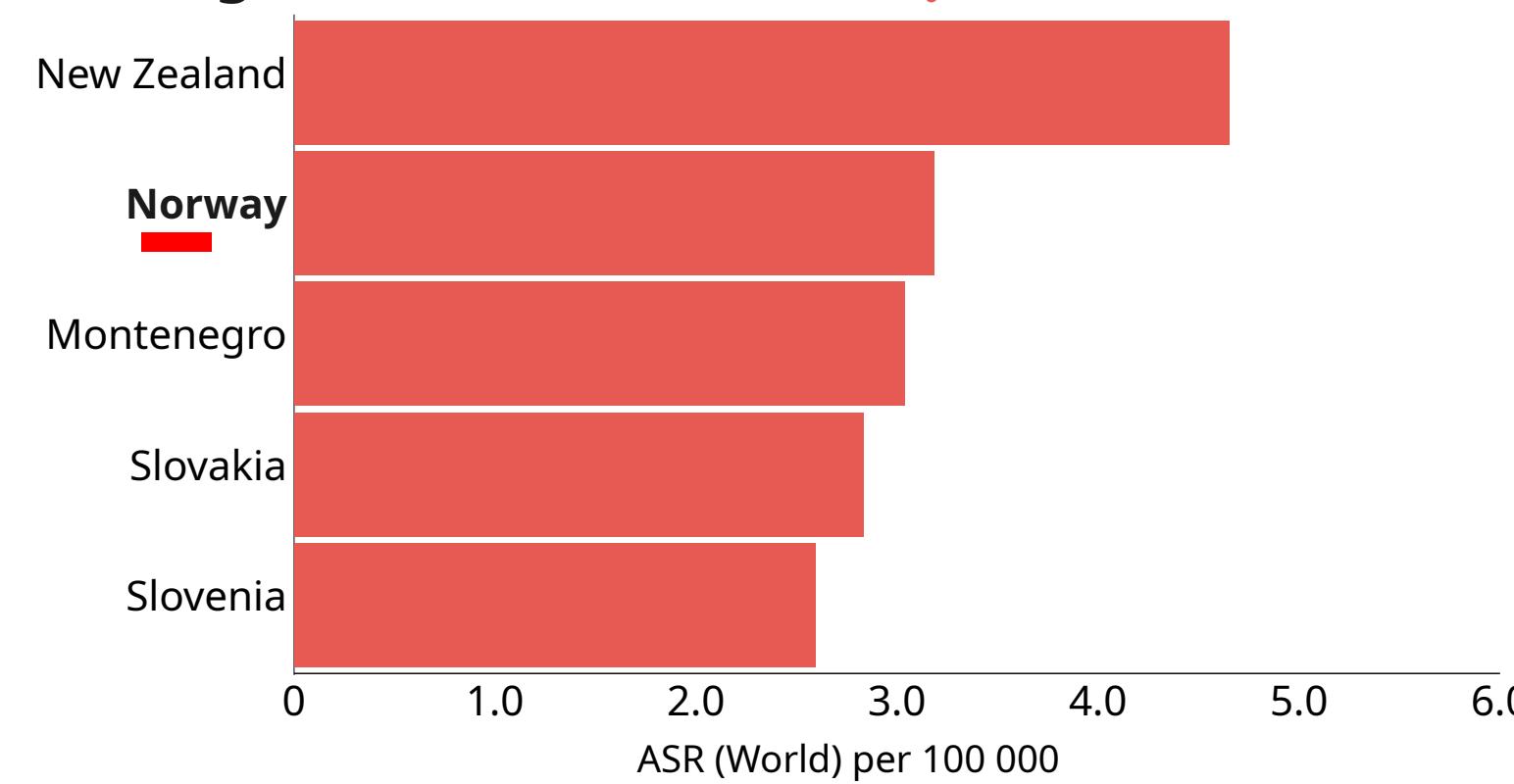
Background



Age-standardized incidence rates (World) in 2020



Age-standardized mortality rates (World) in 2020

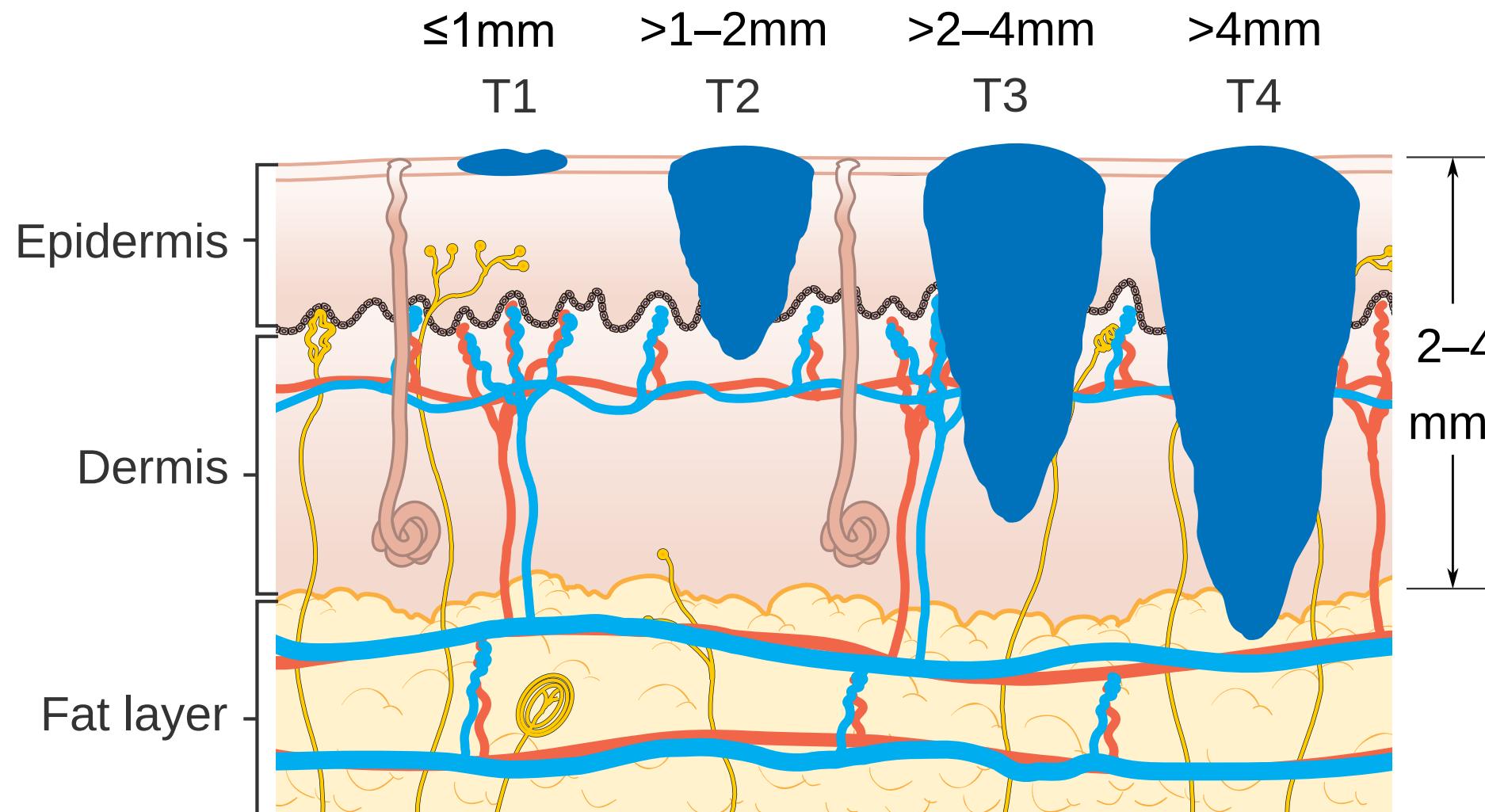


Data source: GLOBOCAN 2020
Graph production: Global Cancer Observatory (<http://gco.iarc.fr/>)
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International Agency for Research on Cancer
 World Health Organization

Melanoma staging and tumour thickness

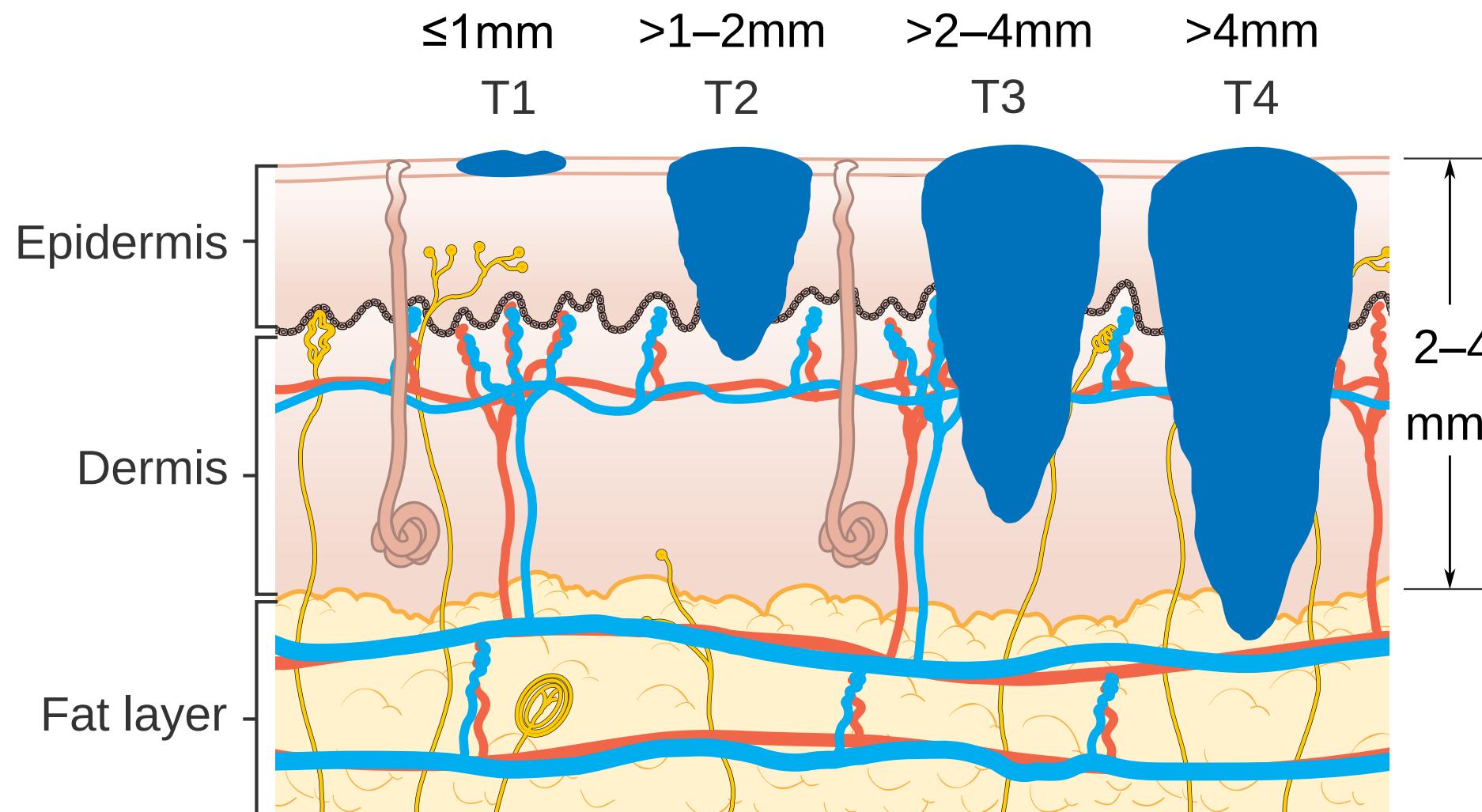
Tumour thickness (T-categories)



Source: <https://www.cancerresearchuk.org/about-cancer/melanoma/stages-types/tnm-staging>

Melanoma staging and tumour thickness

Tumour thickness (T-categories)



Clinical staging

Localized

No spread

Regional Metastasis

Spread to nearby structure or lymph nodes

Distant Metastasis

Spread to distant body parts

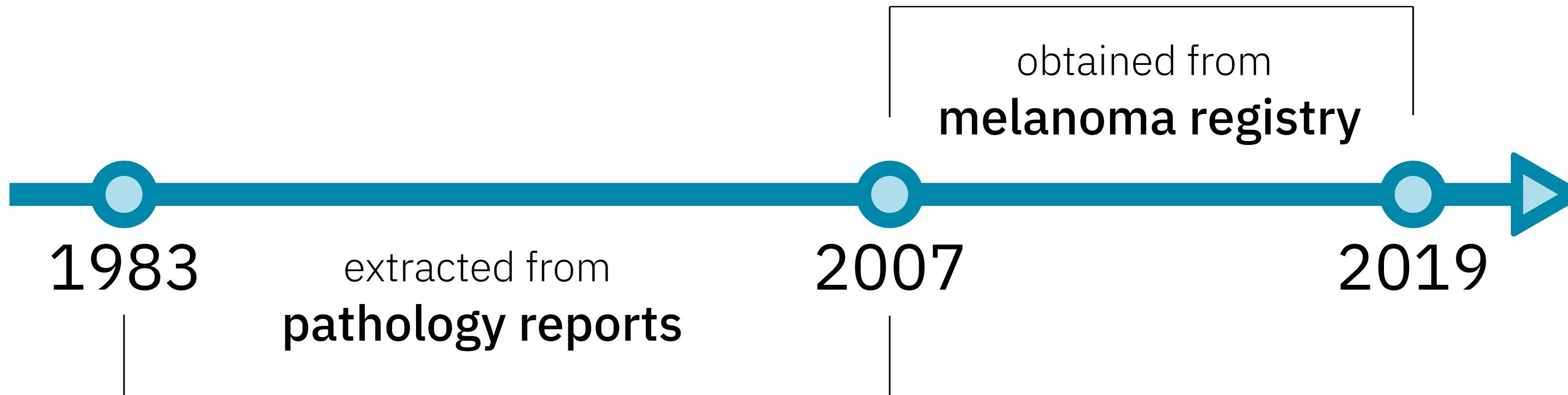
Source: <https://www.cancerresearchuk.org/about-cancer/melanoma/stages-types/tnm-staging>

Research Objective

To examine *mortality* and *survival* by *tumour thickness* overall and in important subgroups such as sex and *clinical stage* in a unique nationwide case series over a 35-year time period.

Case series

Patients records from Cancer Registry of Norway



- All histologically verified first primary cases
- Aged between 15 and 90



Basic characteristics of data

Age and Thickness

	Men	Women
Frequency	21,864	23,053
Percentage	48.7	51.3
Age at diagnosis¹	64 (52-74)	60 (46-73)
Tumour thickness¹	1.1 (0.7-2.5)	1 (0.6-1.9)

¹ Median (IQR)

- More women were diagnosed with melanoma than men.
- Men were diagnosed with thicker cases and at older age.

Clinical stage

78% cases were localized melanoma

50% of localized were in T1 category

T3/T4 were more common in regional and distant metastasis cases

70% distant metastasis cases had unspecified thickness

Analysis

Net survival

Net survival compares the survival of people with melanoma with those who don't over a certain period of time.

Computed as the proportion of observed survivors to the expected survivors in a comparable cohort of patients.

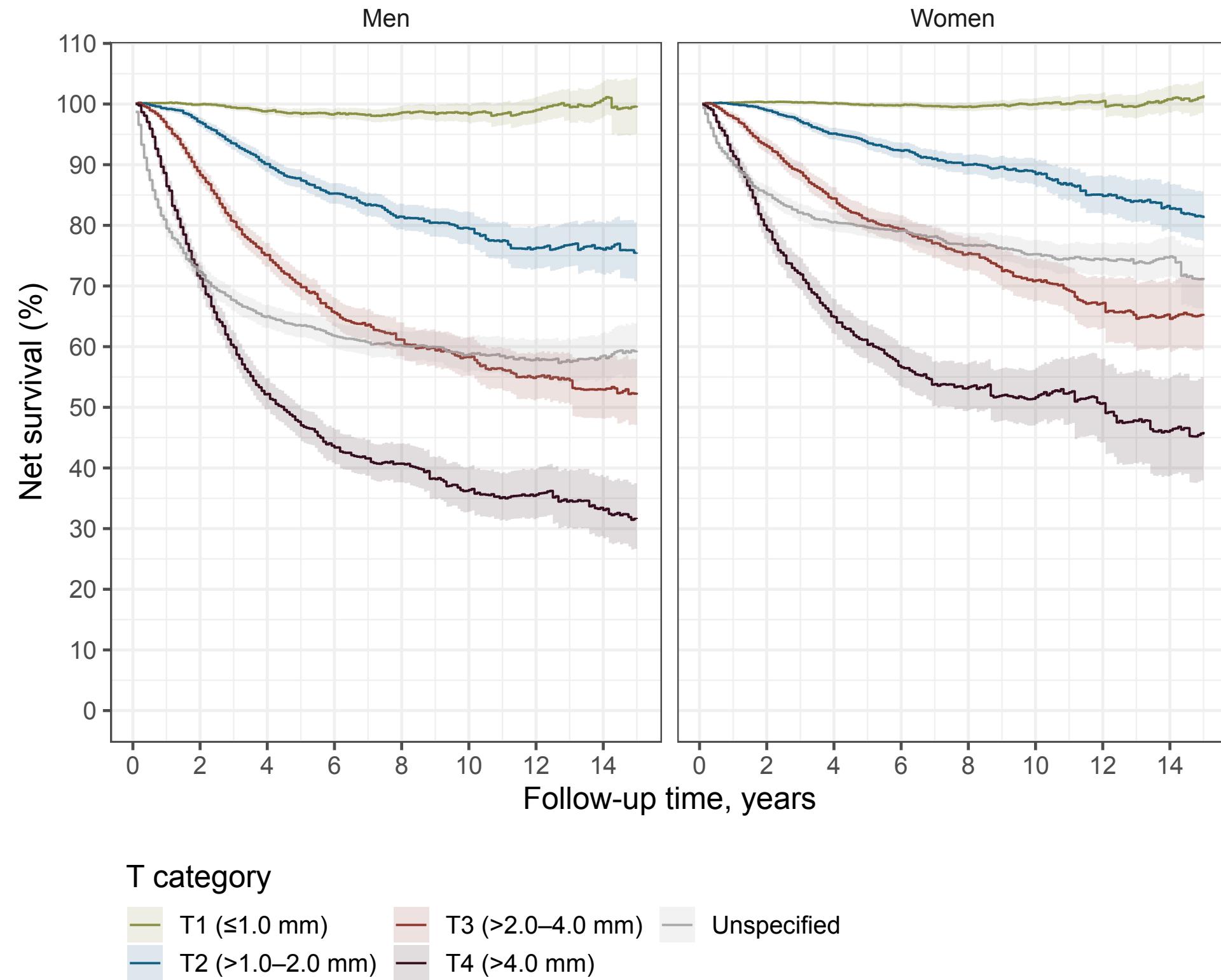
Estimated with Pohar-Perme method and age-adjusted using International International Cancer Survival Standards (ICSS2) weights.

Net survival

By sex and T category

More than 10% decrease in net survival with one step increase in T category

Lower net survival in men than women

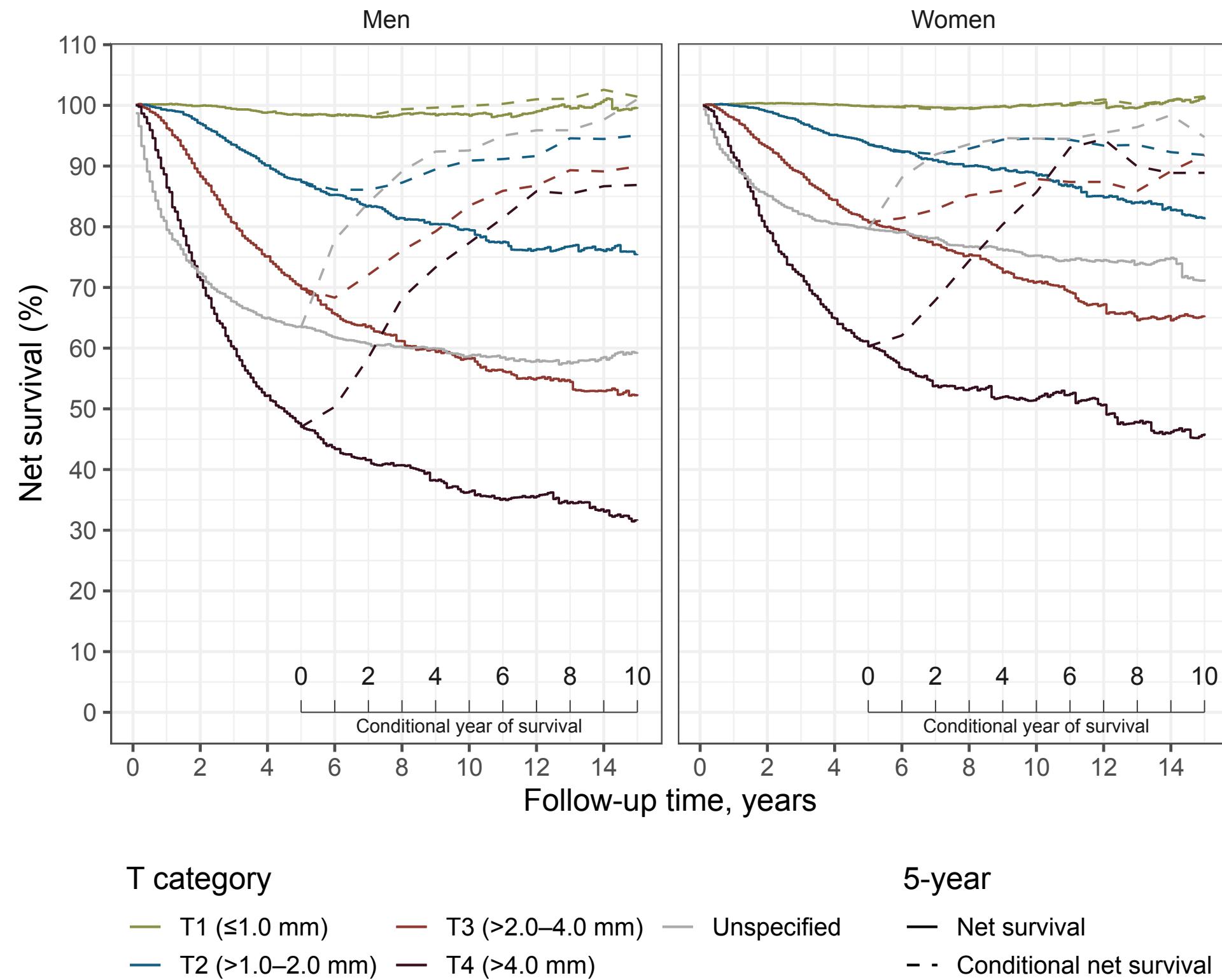


Net survival

Conditional net survival

The 5-year net survival started becoming similar in all T categories after surviving for certain number of years.

For example, two patients diagnosed with T2 and T3 melanoma respectively have similar 5-year net survival after surviving from 10 years.



Cumulative mortality

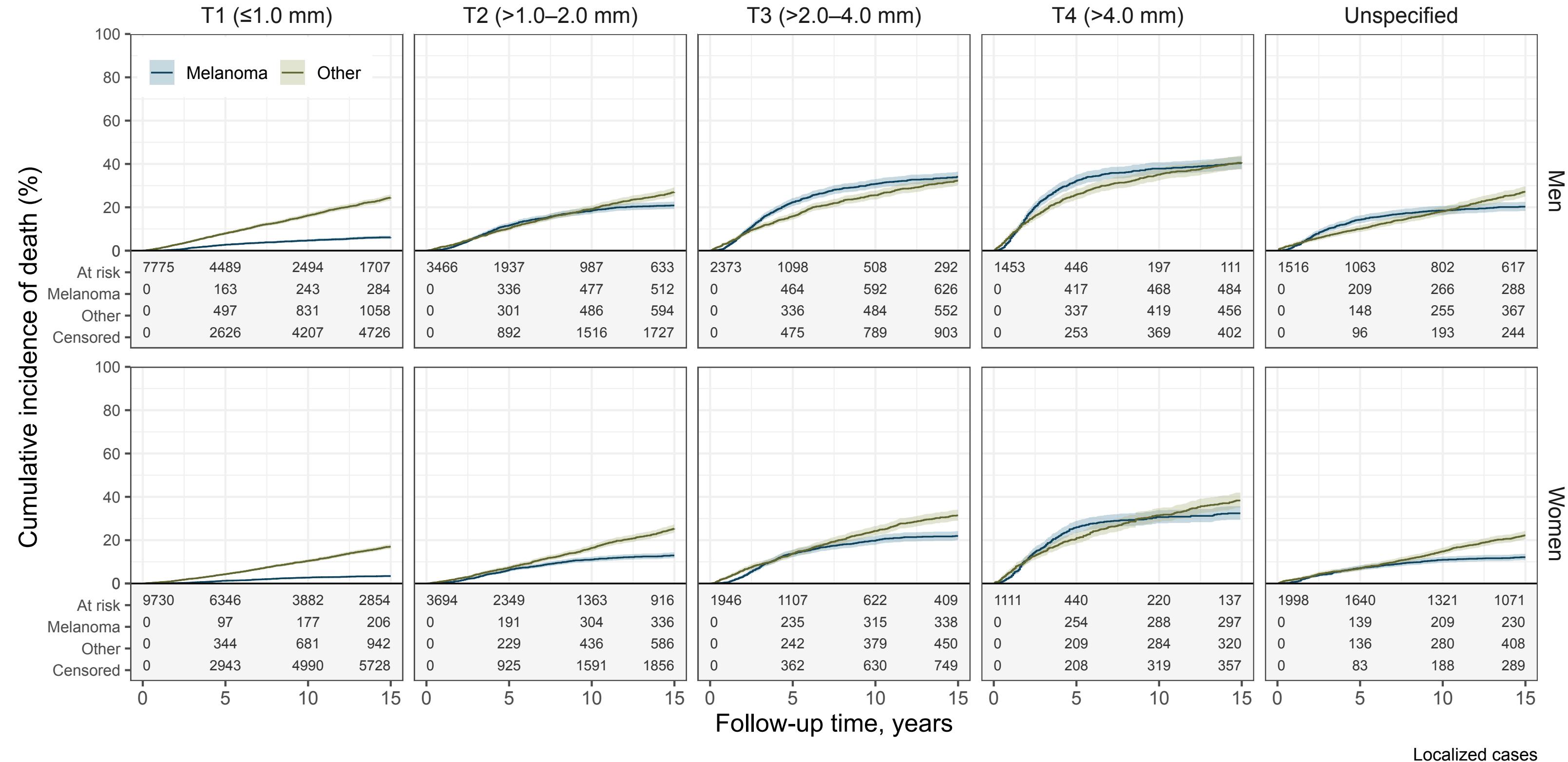
(Cumulative incidence of death)

The cumulative incidence of death up to a given time is the probability of an individual dying by that time.

In the presence of competing risk:

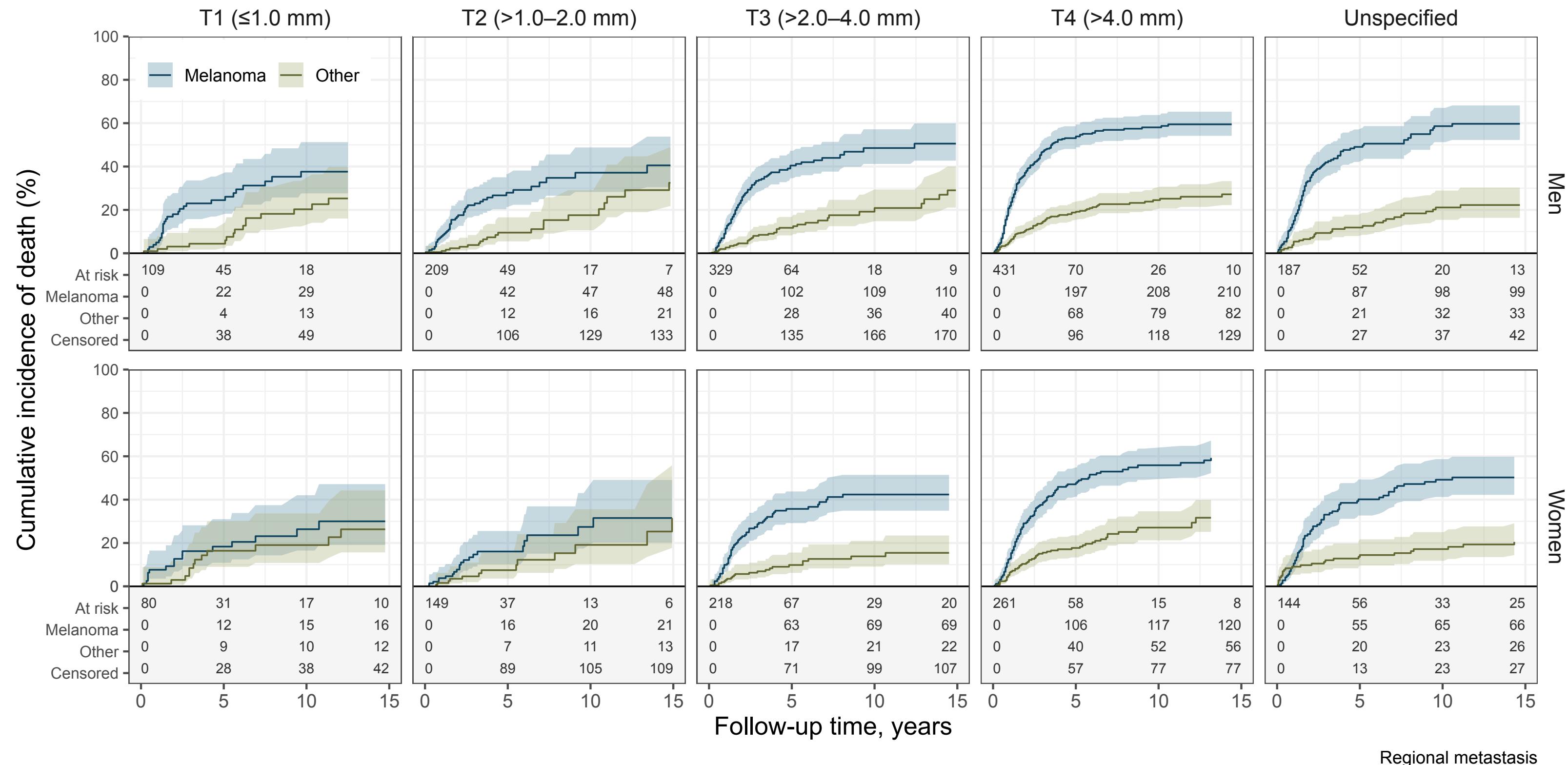
Total cases = proportion of alive + melanoma death + death due to other causes

Localized



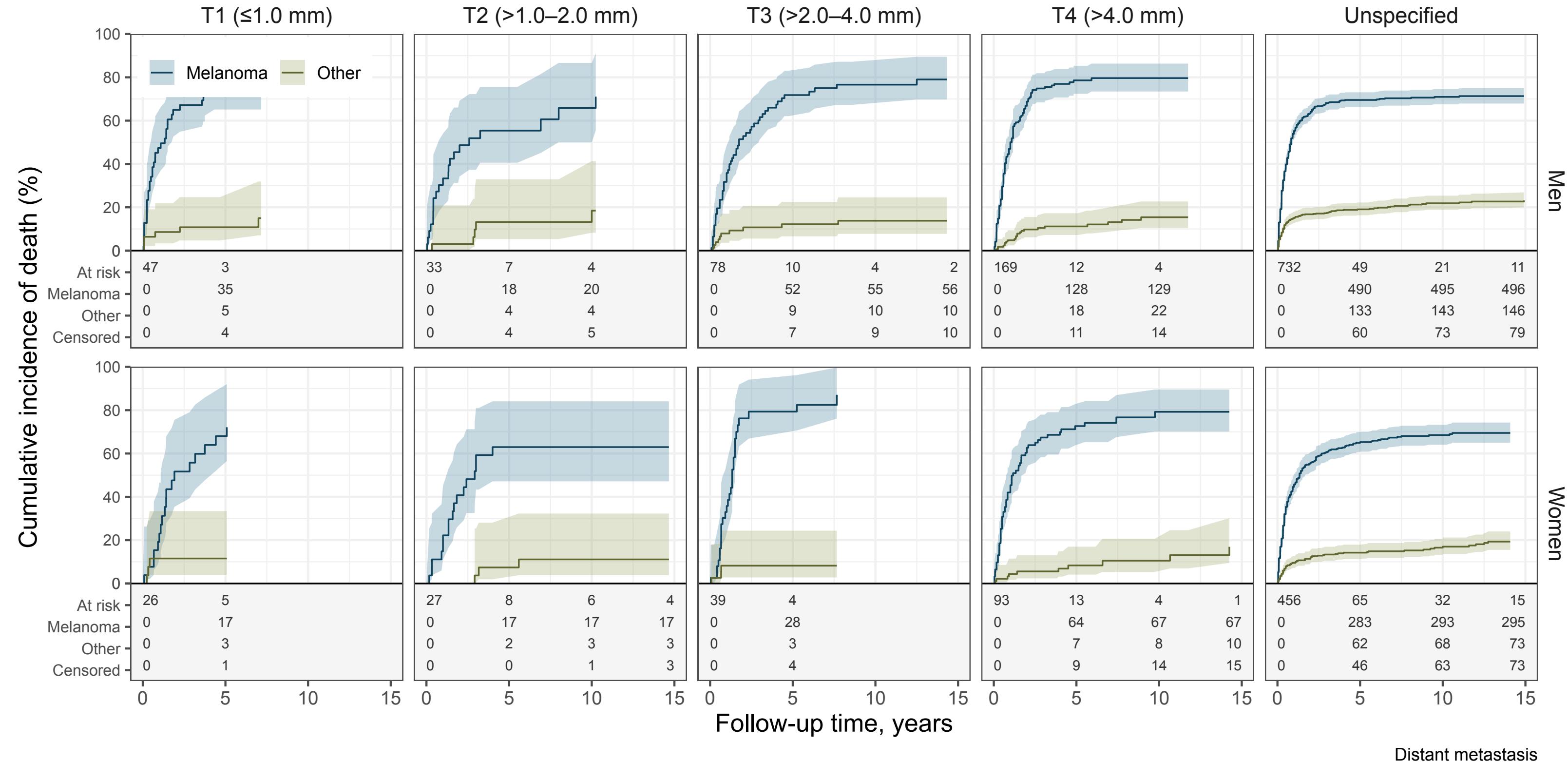
► Increased melanoma specific death with increasing tumour thickness

Regional metastasis



- Higher Melanoma specific death compared to death from other causes

Distant metastasis



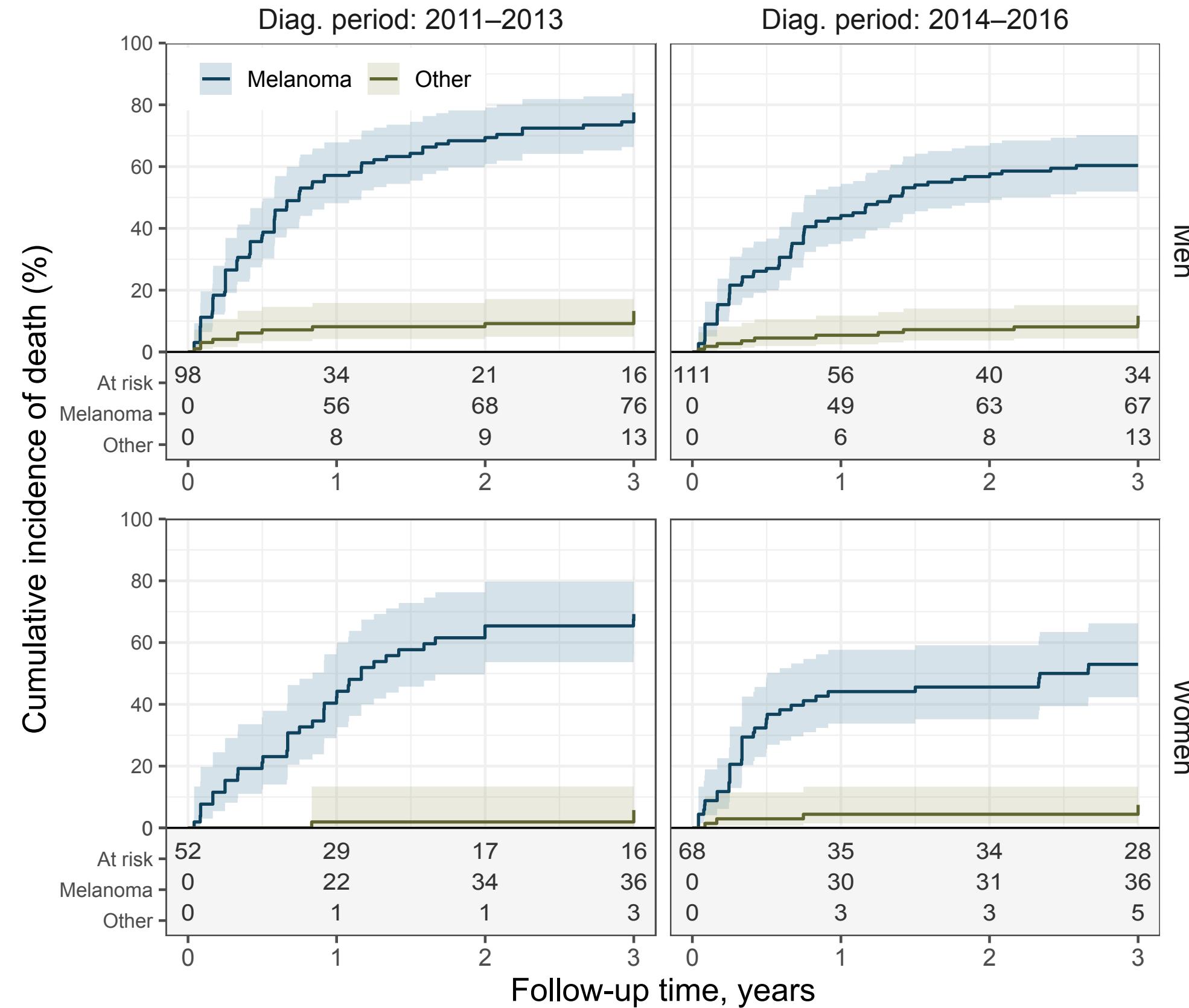
- ▶ Few cases of thin melanoma, not possible for longer follow-up.
- ▶ Cases with unspecified tumour thickness had mortality similar to T3/T4 melanoma.

Is this the effect of treatment?

Melanoma with distant metastasis

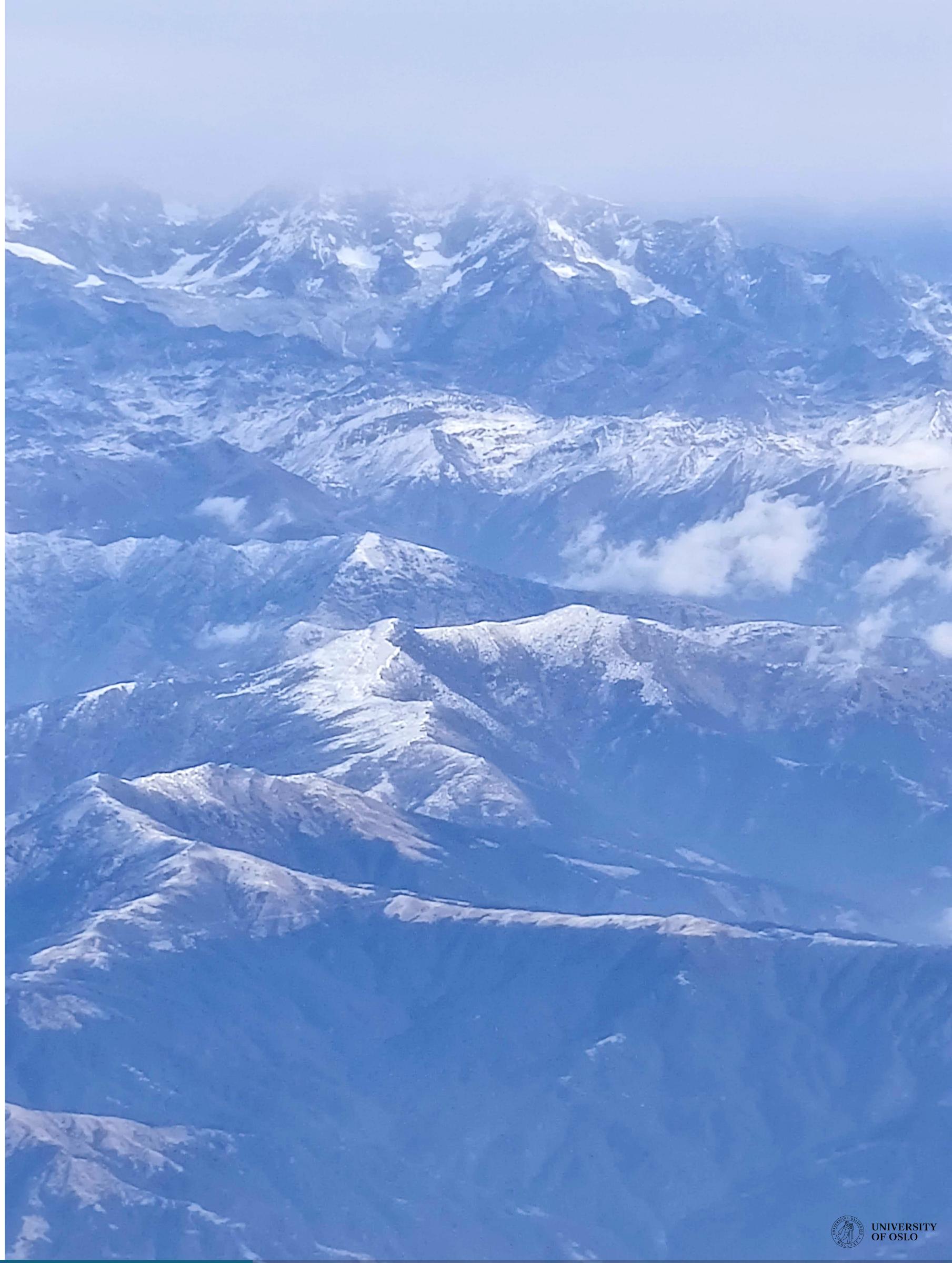
Around year 2014, immunotherapy was introduced in Norway for stage IV melanoma.

Improved survival was observed in 2014–2019 compared to 2008–2013.



Summary

- Men have worse net survival than women in all T categories



Summary

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- With every increase in T-category, net survival decreases by more than 10% in both sexes.



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Summary

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- Melanoma specific death increases with increasing tumour thickness.



Summary

- Men have worse net survival than women in all T categories
- With every increase in T-category, net survival decreases by more than 10% in both sexes.
- After surviving certain number of years, thickness is less relevant
- Melanoma specific death increases with increasing tumour thickness.
- Improved survival in Stage-IV melanoma after introduction of immunotherapy.



Collaborators



UNIVERSITY
OF OSLO



QIMR Berghofer
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[International Agency for Research on Cancer](#)



Funded by:



Coauthors



Raju Rimal



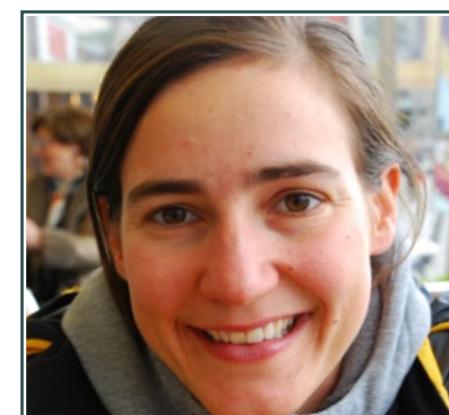
Trude E Robsahm



Adele Green



Reza Ghiasvand



Corina S Rueegg



Assia Bassarova



Petter Gjersvik



Elisabete Weiderpass



Odd O Aalen



Bjørn Møller



Flavie Perrier



Marit B Veierød

Extra slides

Basic characteristics of data

Localized

	T1	T2	T3	T4	Un	Sum
Local						
frequency	17505	7160	4319	2564	3514	35062
% overall	39.0%	15.9%	9.6%	5.7%	7.8%	78.1%
% within Local	49.9%	20.4%	12.3%	7.3%	10.0%	100.0%
% within T category	87.5%	83.3%	75.6%	64.1%	53.3%	
T1: ≤1.0 mm, T2: >1.0–2.0 mm, T3: >2.0–4.0 mm, T4: >4.0 mm, Un: Unspecified						

- More than 78% of cases are localized melanoma out of which almost 40% were in T1 category.
- Out of all localized melanoma almost 50% cases had thinner tumour upto 1mm.

Basic characteristics of data

Regional metastasis

	T1	T2	T3	T4	Un	Sum
Regional metastasis						
frequency	189	358	547	692	331	2117
% overall	0.4%	0.8%	1.2%	1.5%	0.7%	4.7%
% within Regional	8.9%	16.9%	25.8%	32.7%	15.6%	100.0%
% within T category	0.9%	4.2%	9.6%	17.3%	5.0%	
T1: ≤1.0 mm, T2: >1.0–2.0 mm, T3: >2.0–4.0 mm, T4: >4.0 mm, Un: Unspecified						

Thicker cases (T3 and T4 categories) were common in melanoma with regional metastasis

Basic characteristics of data

Distant metastasis

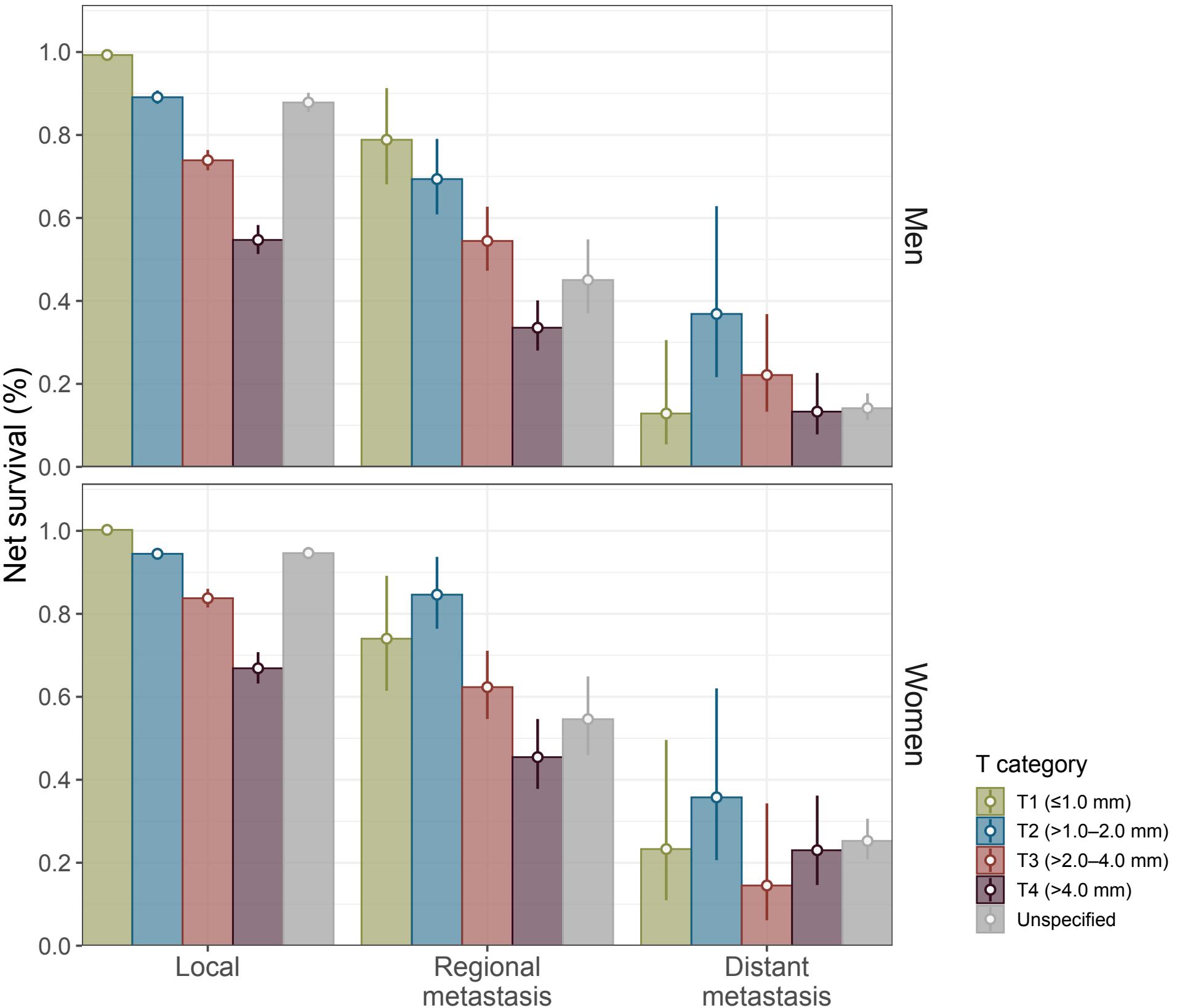
	T1	T2	T3	T4	Un	Sum
Distant metastasis						
frequency	73	60	117	262	1188	1700
% overall	0.2%	0.1%	0.3%	0.6%	2.6%	3.8%
% within Distant	4.3%	3.5%	6.9%	15.4%	69.9%	100.0%
% within T category	0.4%	0.7%	2.0%	6.5%	18.0%	
T1: ≤1.0 mm, T2: >1.0–2.0 mm, T3: >2.0–4.0 mm, T4: >4.0 mm, Un: Unspecified						

- Almost 70% of the melanoma cases with distant metastasis had thickness unspecified.
- Around 13% of the cases had unspecified clinical stage and 3% had both clinical stage and thickness missing.

Net survival

By clinical stage

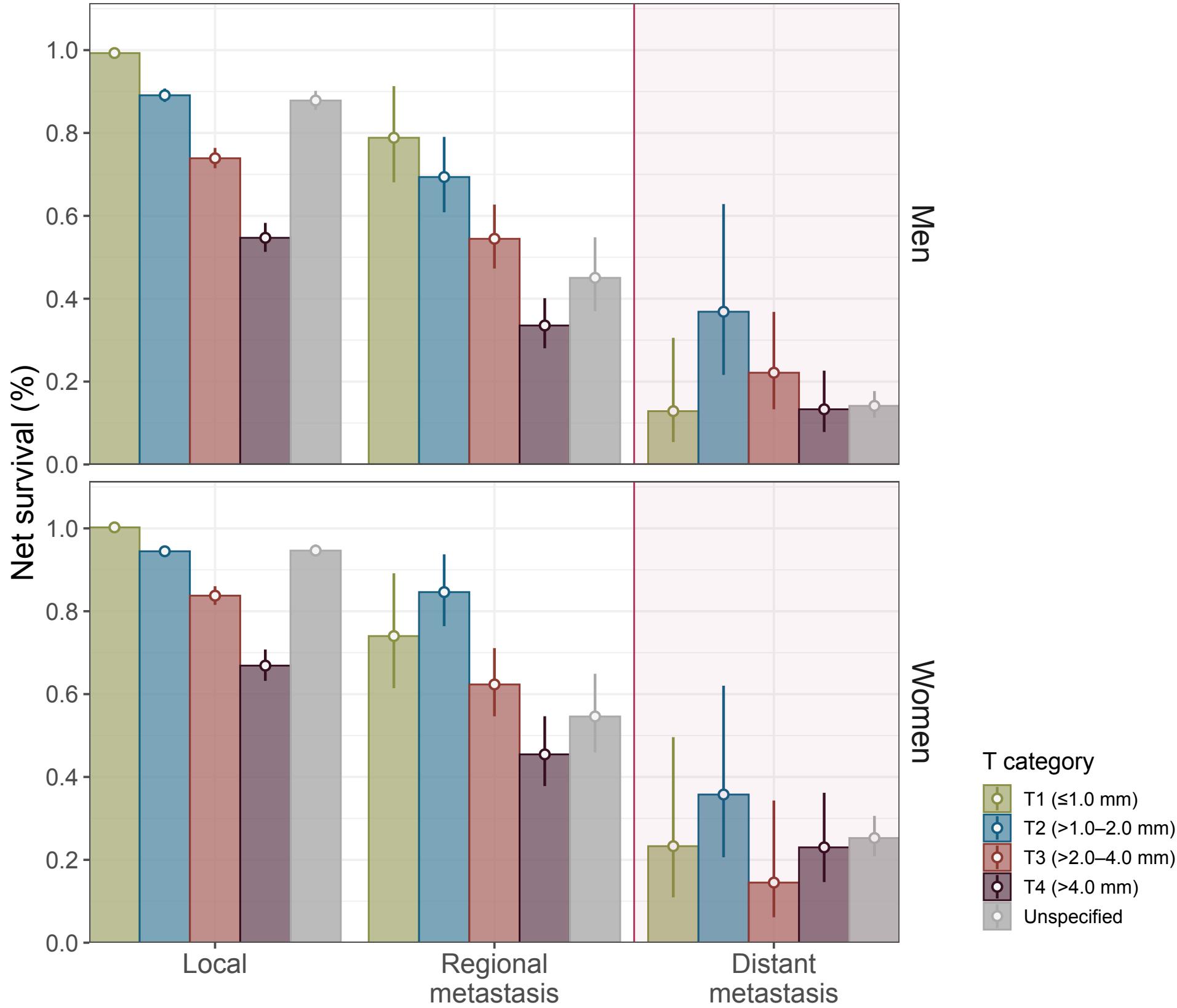
- Patients with thin (T1) localized melanoma have similar survival as general population.



Net survival

By clinical stage

- Patients with thin (T1) localized melanoma have similar survival as general population.
- Distant metastasis cases have low net survival regardless of tumour thickness.



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