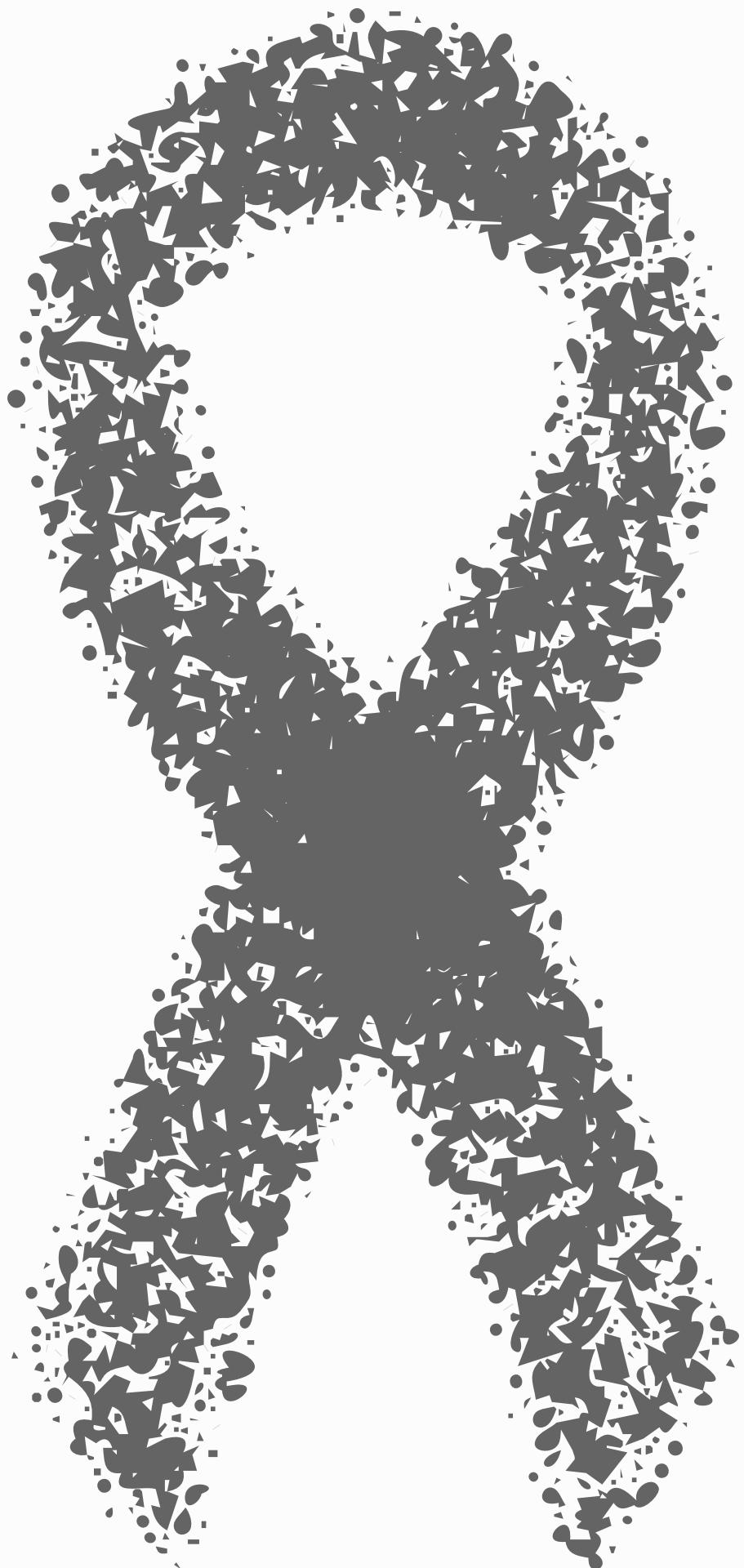


# Trends in Invasive Melanoma Thickness in Norway, 1983–2019



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Department of Biostatistics, UiO

Presented at: [Cancer Registry of Norway](#)

30 October 2024

## ORIGINAL REPORT



# Trends in Invasive Melanoma Thickness in Norway, 1983–2019

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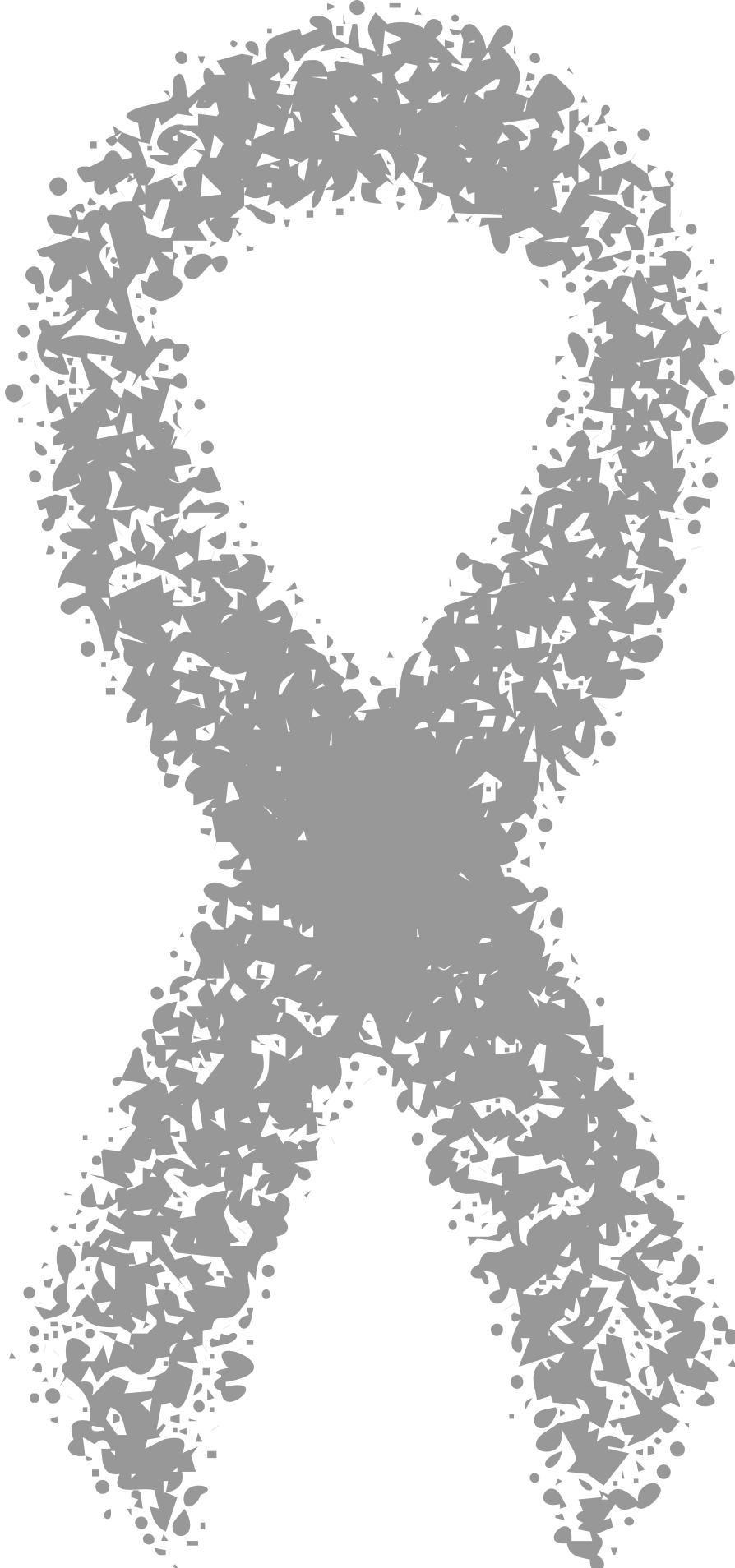
**Citation:** Acta Derm Venereol 2024; 104: adv26110. DOI <https://doi.org/10.2340/actadv.v104.26110>.

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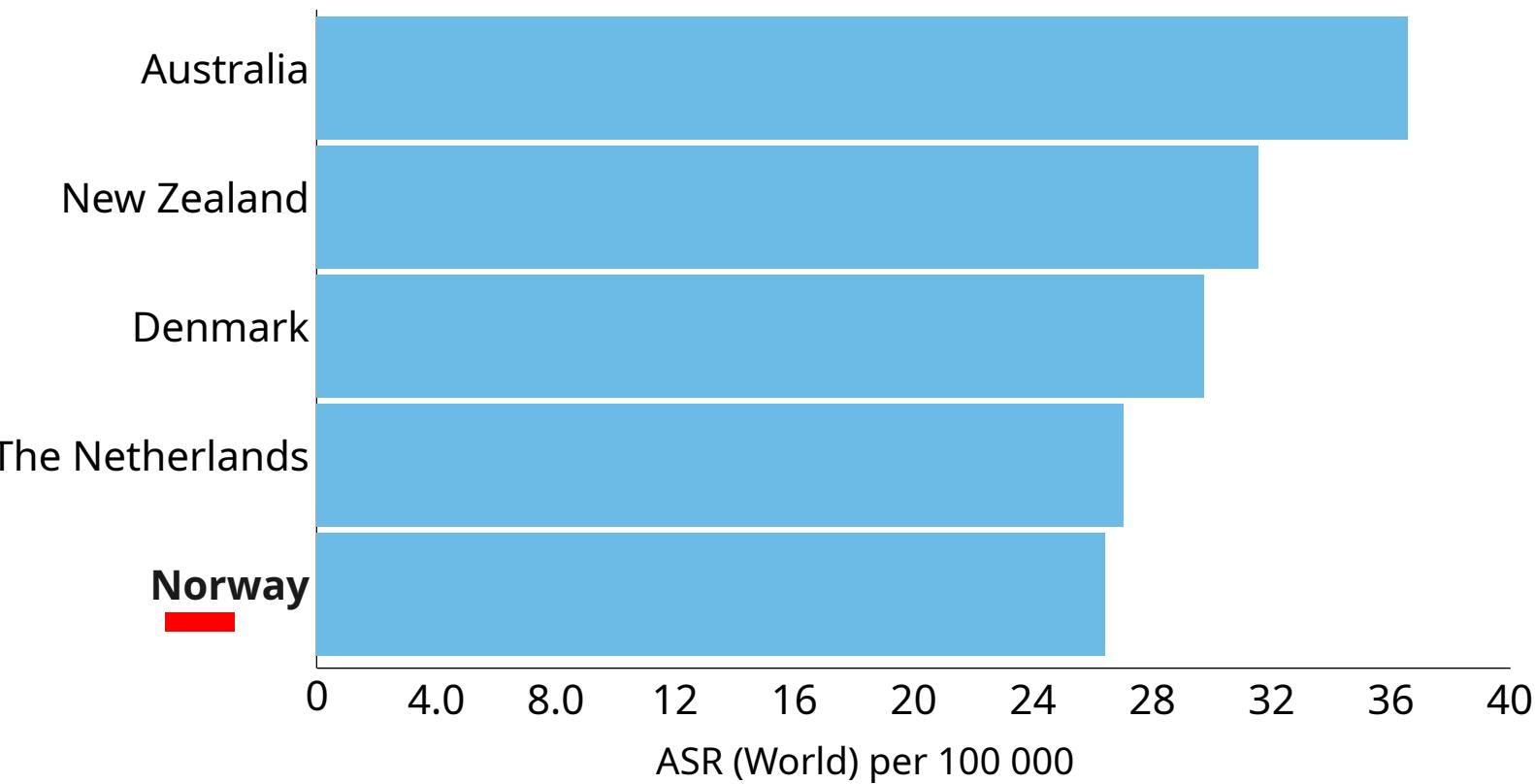
**Submitted:** Nov 20, 2024; **Accepted after revision:** Nov 29, 2024; **Published:** Sep 2, 2024

# BACKGROUND

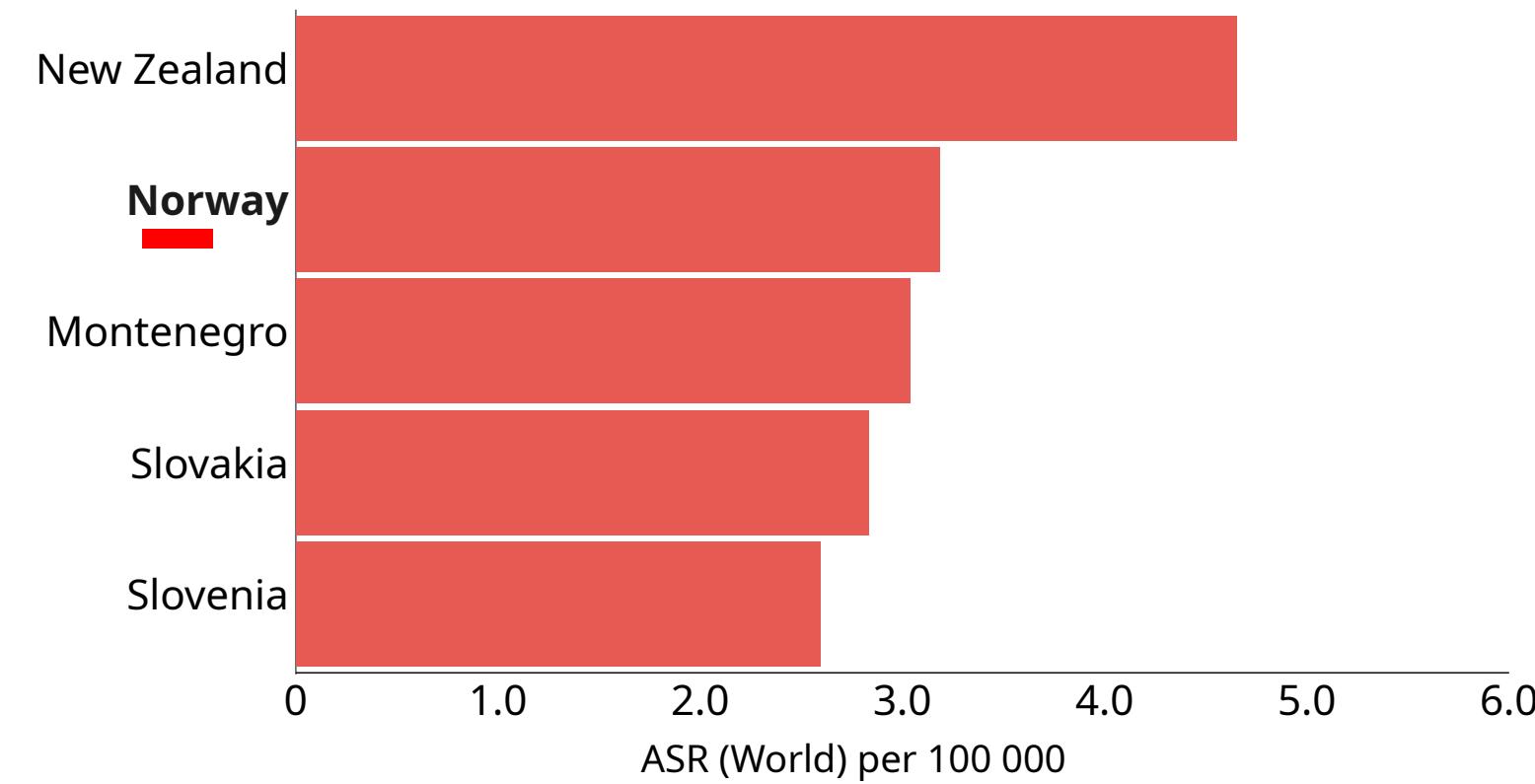




### Age-standardized incidence rates (World) in 2020



### 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

# Why this study and what we know



Understanding melanoma trends is:

- crucial for prevention and treatment strategies
- allocating resources effectively and
- prepare tailored interventions based on recent data



Tumour thickness

- Tumour thickness is the most important prognostic factor
- More thinner tumours are diagnosed than thicker

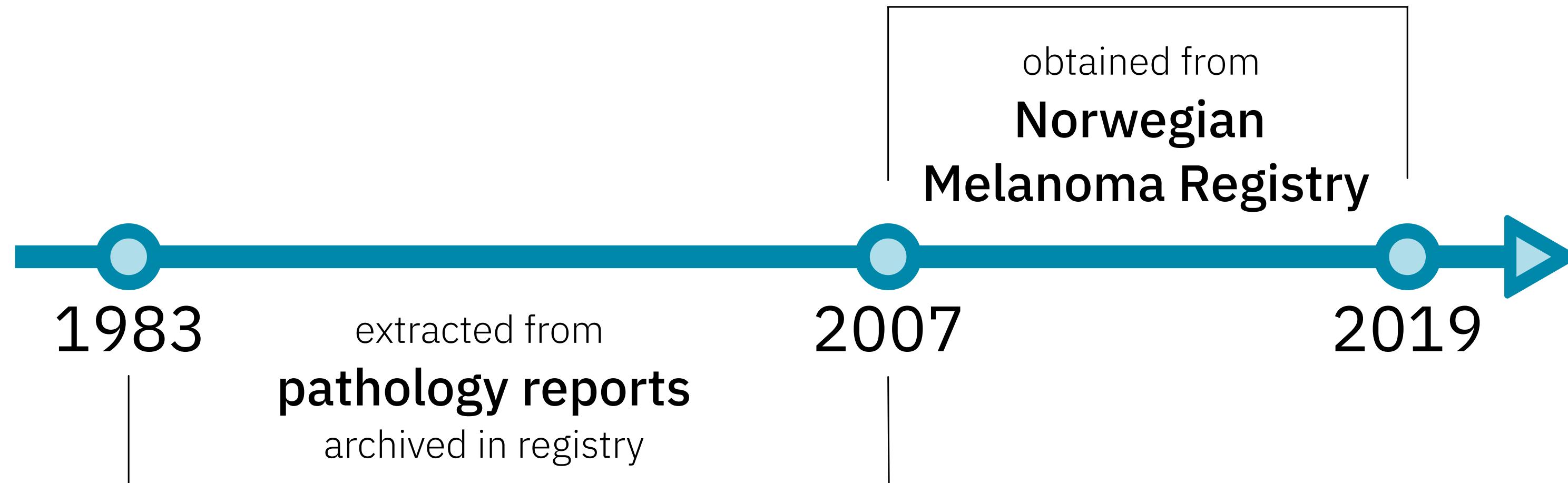
# Research Objective

Describe population-based long-term trends in melanoma incidence and tumour thickness as well as by sex, age, calendar period, residential region, and anatomic site.

# CASE SERIES



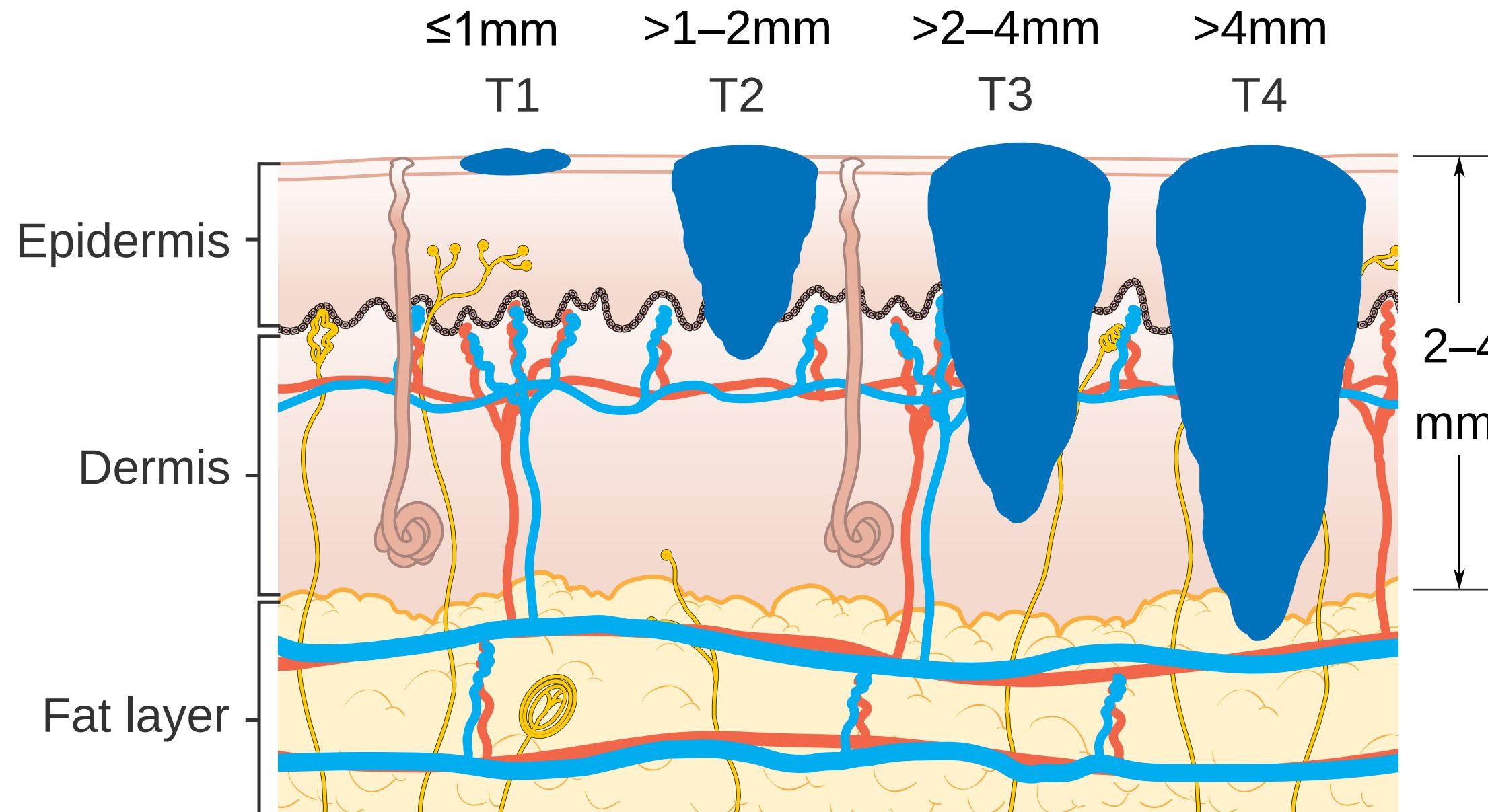
# Data from Cancer Registry of Norway



- All histologically verified first primary invasive melanoma
- **Variables:** tumour thickness, sex, age at diagnosis, vital status, anatomic site, histopathological subtype



# Tumour thickness categories



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

# Basic characteristics of data

## Age and Thickness

	<b>1983-1999</b>	<b>2008-2019</b>
<b>Age at diagnosis, Median (Q1, Q3)</b>		
Women	56 (42, 71)	63 (50, 75)
Men	59 (46, 71)	67 (56, 76)

## Tumour thickness, Median (Q1, Q3)

Women	1 (0.6, 2)	0.9 (0.5, 1.8)
Men	1.3 (0.74, 2.8)	1 (0.6, 2.3)

Missing tumour decreased from 3,714 (26.3%) in 1983–1999 to 1,742 (7.7%)

## Notes

Women: 23,459 (52%) and  
Men: 22,065 (48%)

Increased age at diagnosis

Reduced Tumour thickness at diagnosis

Men were diagnosed at older age and thicker tumour than women

# ANALYSIS & RESULTS



# Methods

- Multiple imputation



# Methods

- Multiple imputation
- Age-adjusted incidence rates



# Methods

- Multiple imputation
- Age-adjusted incidence rates
- Segmented regression



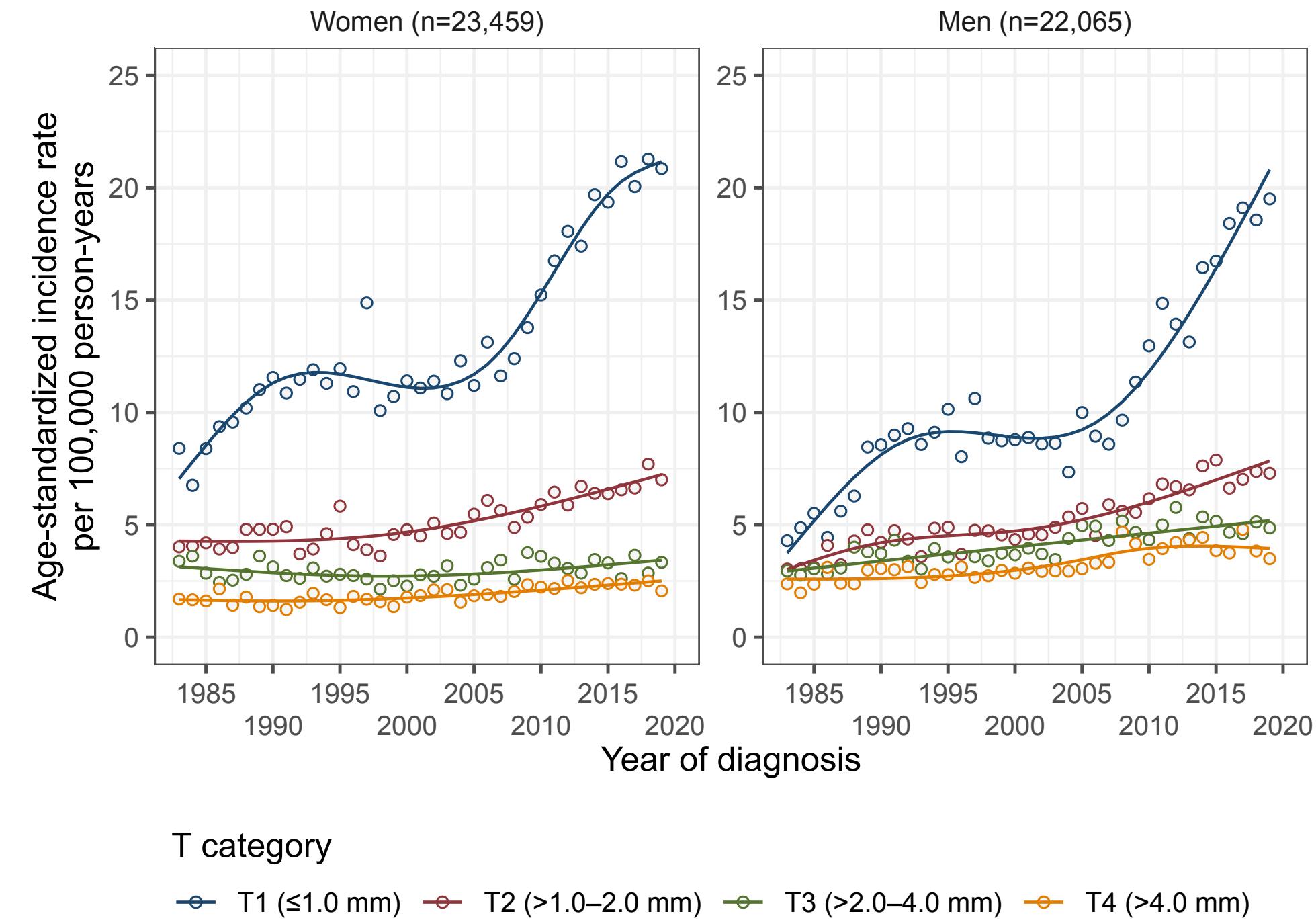
# Melanoma incidence trend

## By sex and T category

Increased incidence rates in all T-categories

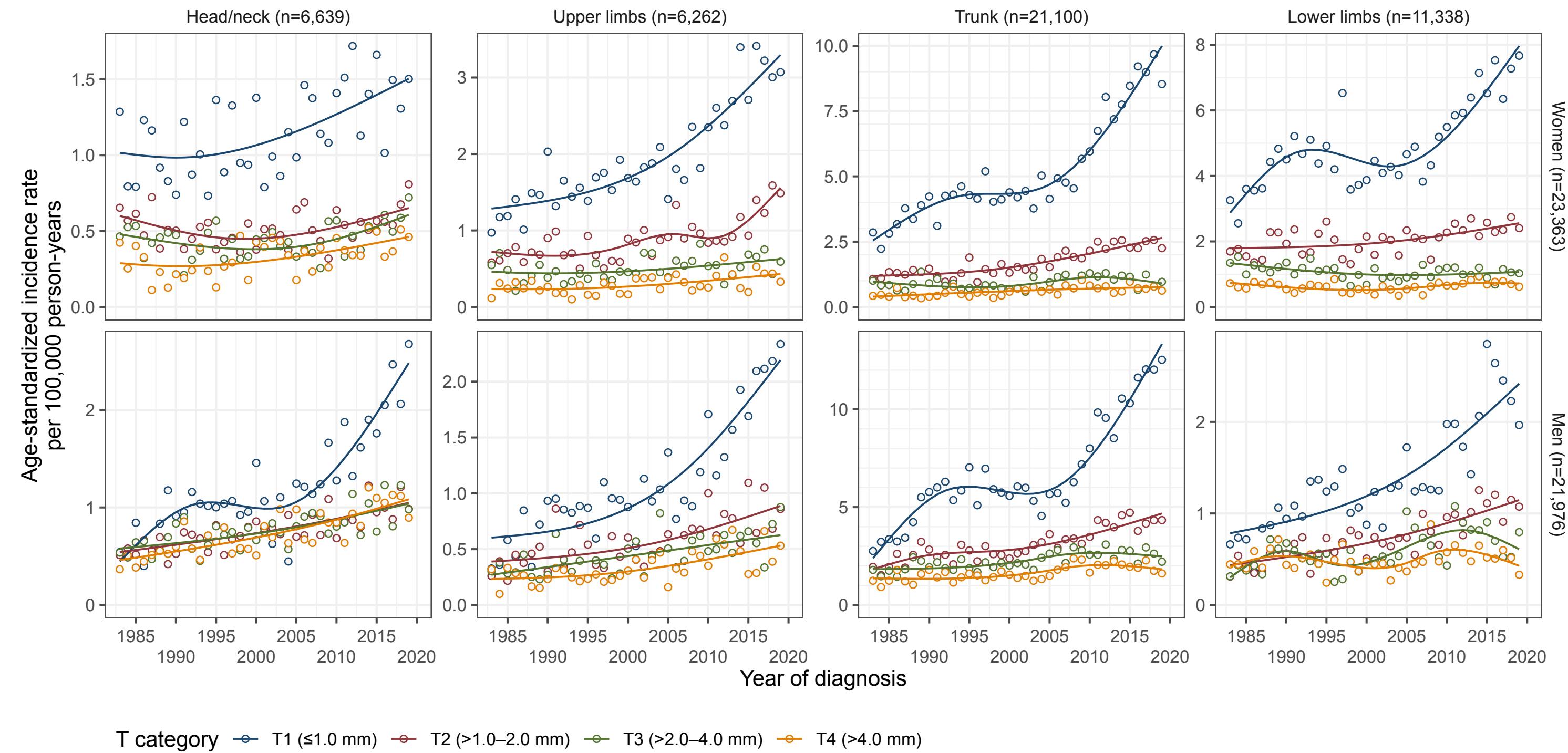
### T1 melanoma trend

- 1983–1989/90: Steep rise
- 1990–2004: Plateau
- 2005–2019: Sharp increase again



# Melanoma incidence trend

## By anatomic site

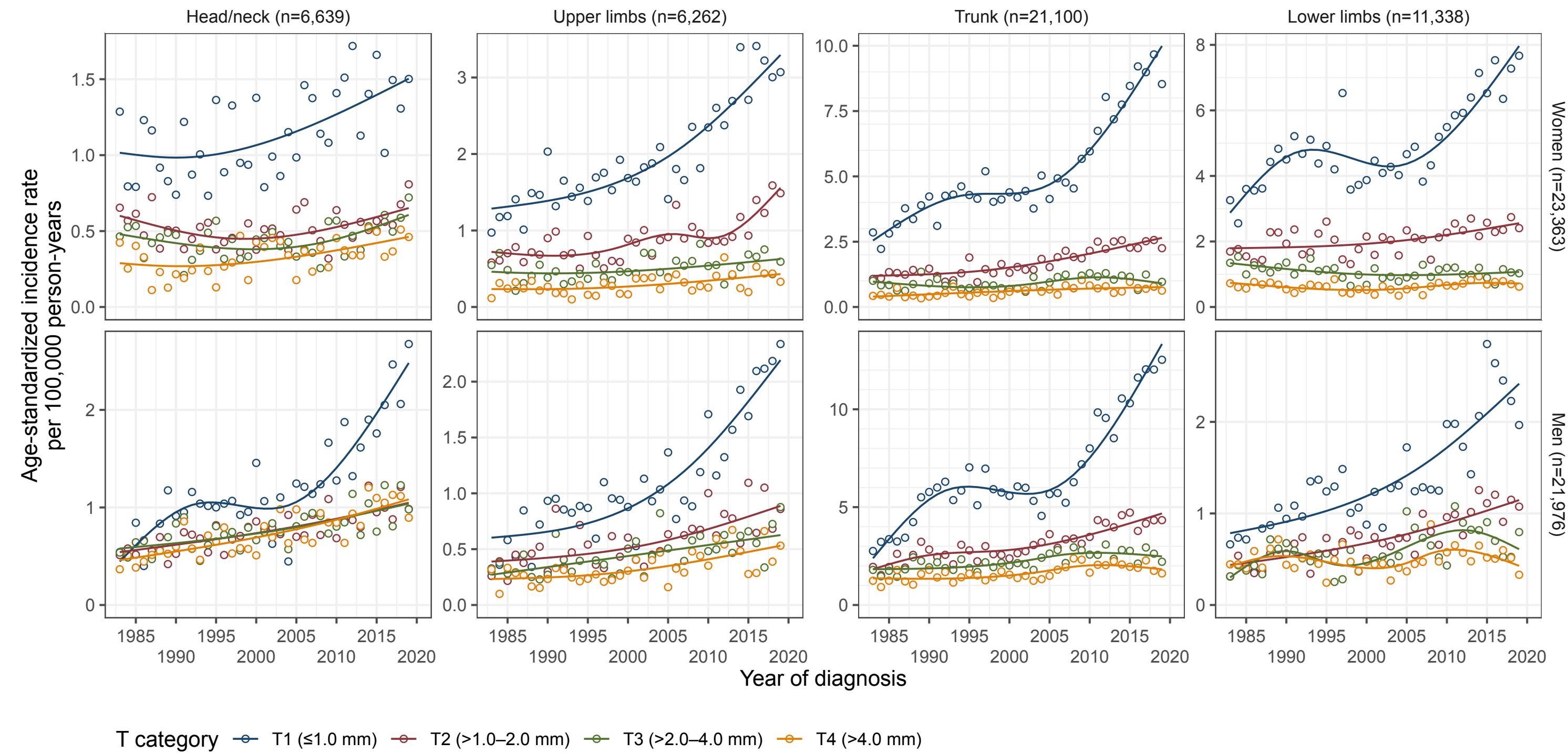


# Melanoma incidence trend

## By anatomic site

Overall:

T1 melanoma had the highest incidence across all sites.

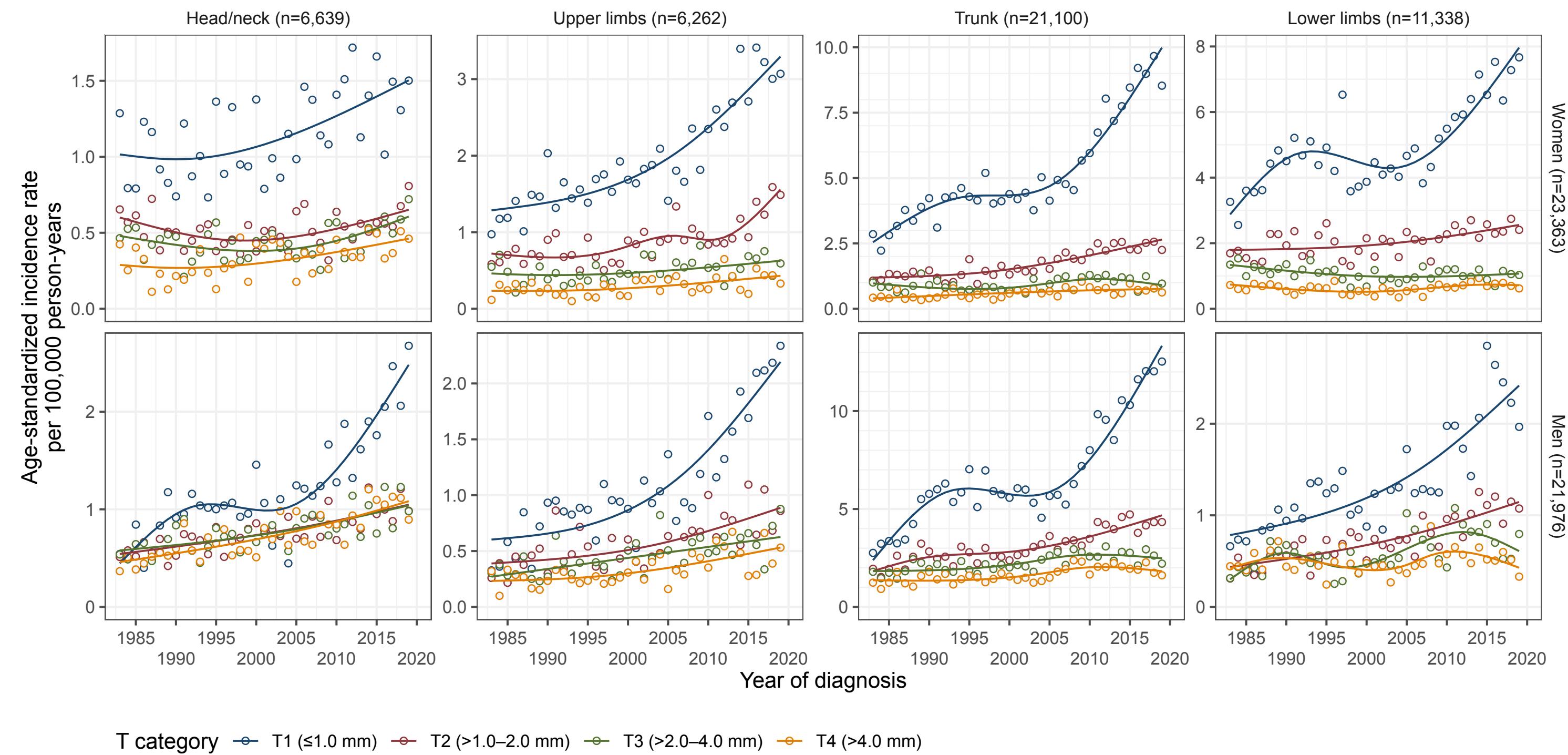


# Melanoma incidence trend

## By anatomic site

Overall:

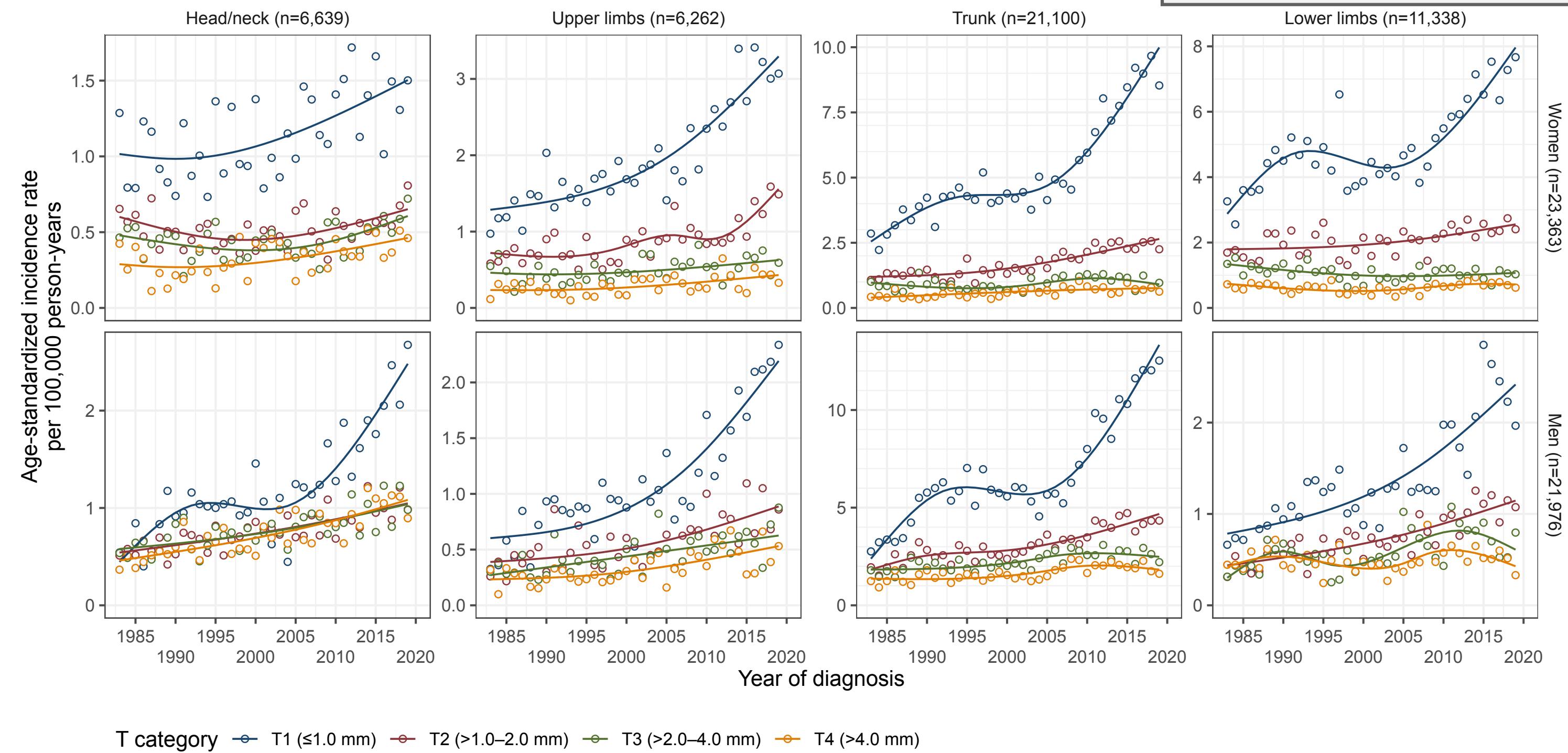
T1 plateau was not seen for all sites.



# Melanoma incidence trend

## By anatomic site

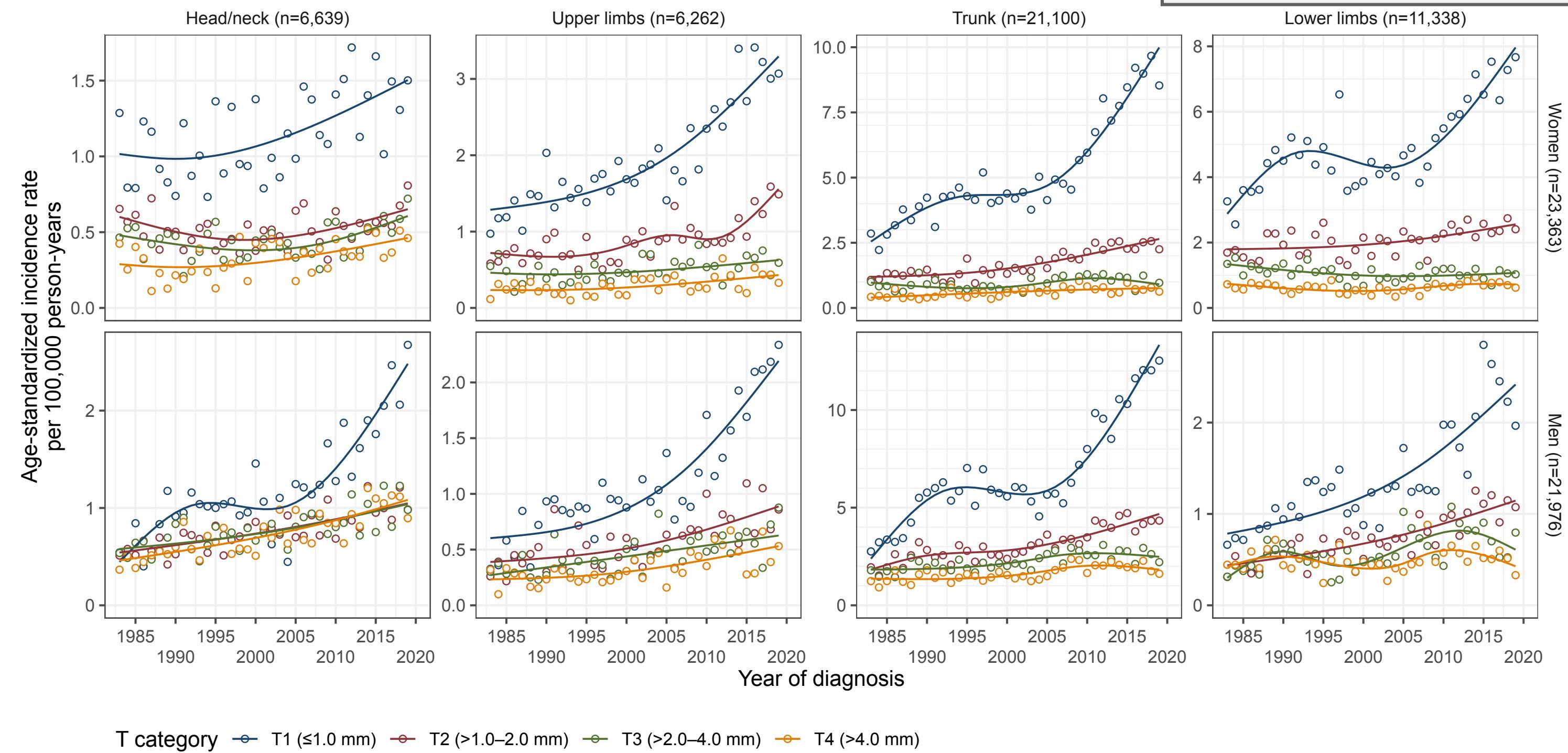
**In women:**  
High and increasing incidence  
on the trunk and lower limbs  
with plateau in T1.



# Melanoma incidence trend

## By anatomic site

In men:  
Highest incidence in trunk but lower incidence in lower limbs than women.

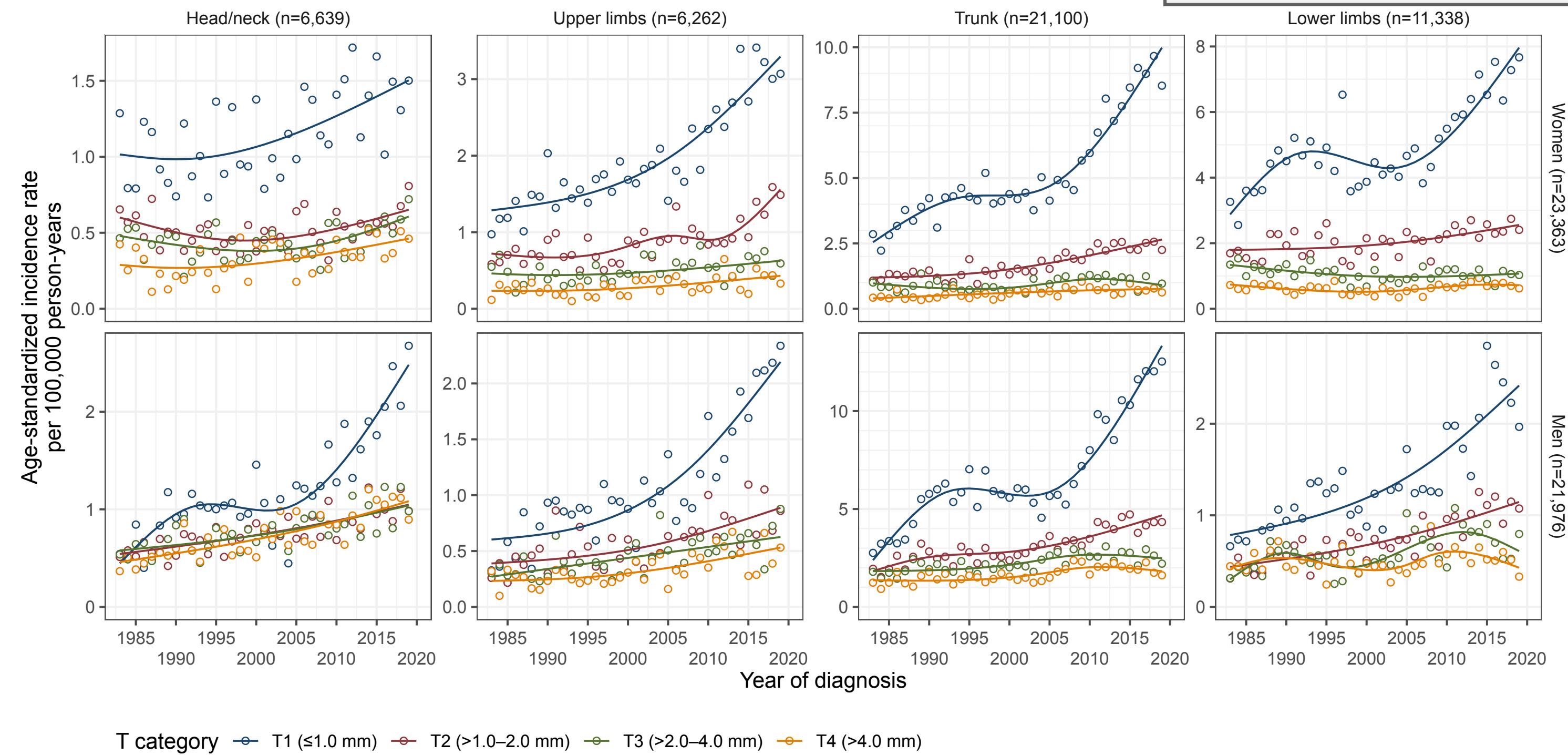


# Melanoma incidence trend

## By anatomic site

In men:

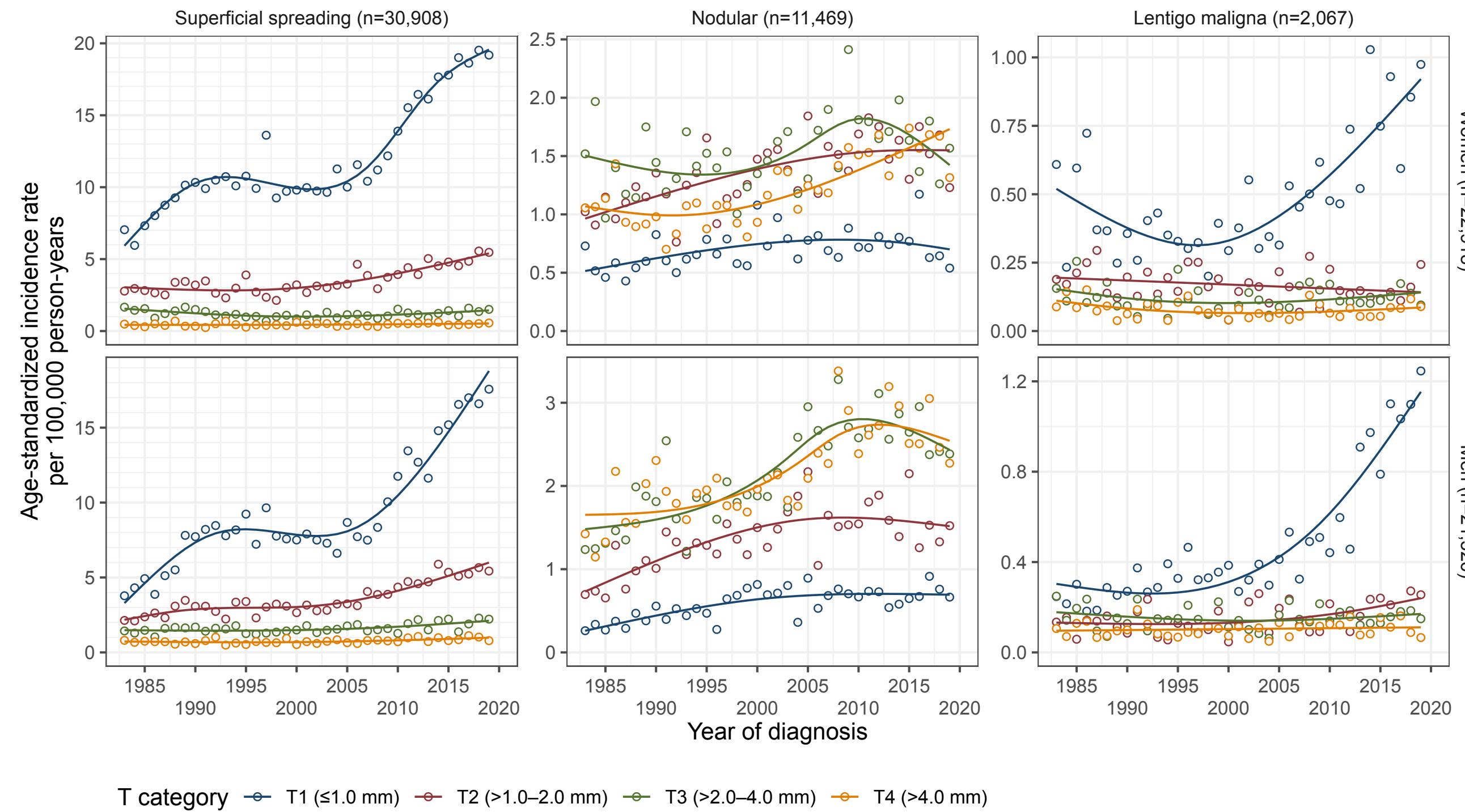
Higher and increasing head/neck incidence compared to women, mainly in thicker melanoma.



T category   —●— T1 ( $\leq 1.0$  mm)   —○— T2 ( $>1.0-2.0$  mm)   —●— T3 ( $>2.0-4.0$  mm)   —○— T4 ( $>4.0$  mm)

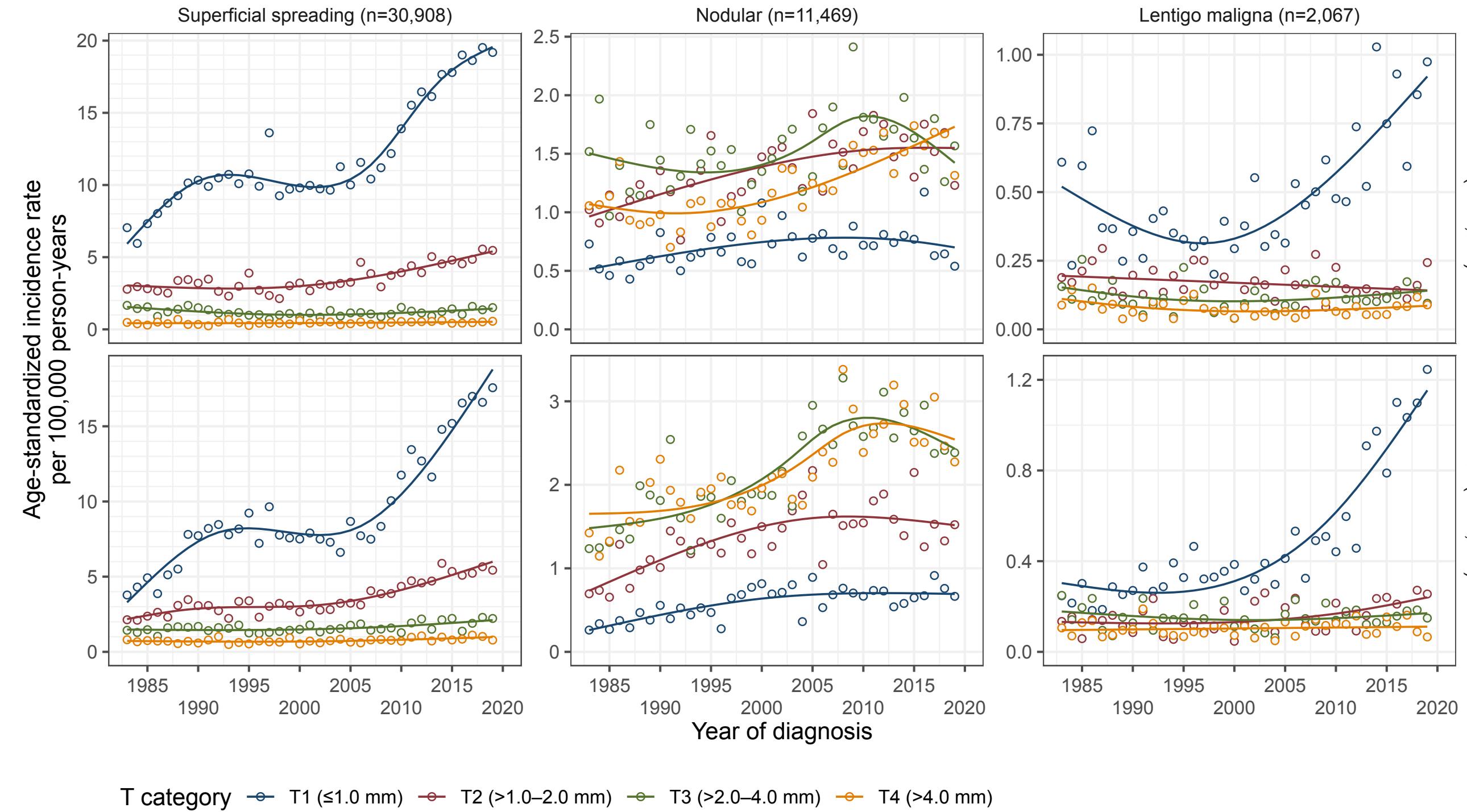
# Melanoma incidence trend

## By histopathological subtype



# Melanoma incidence trend

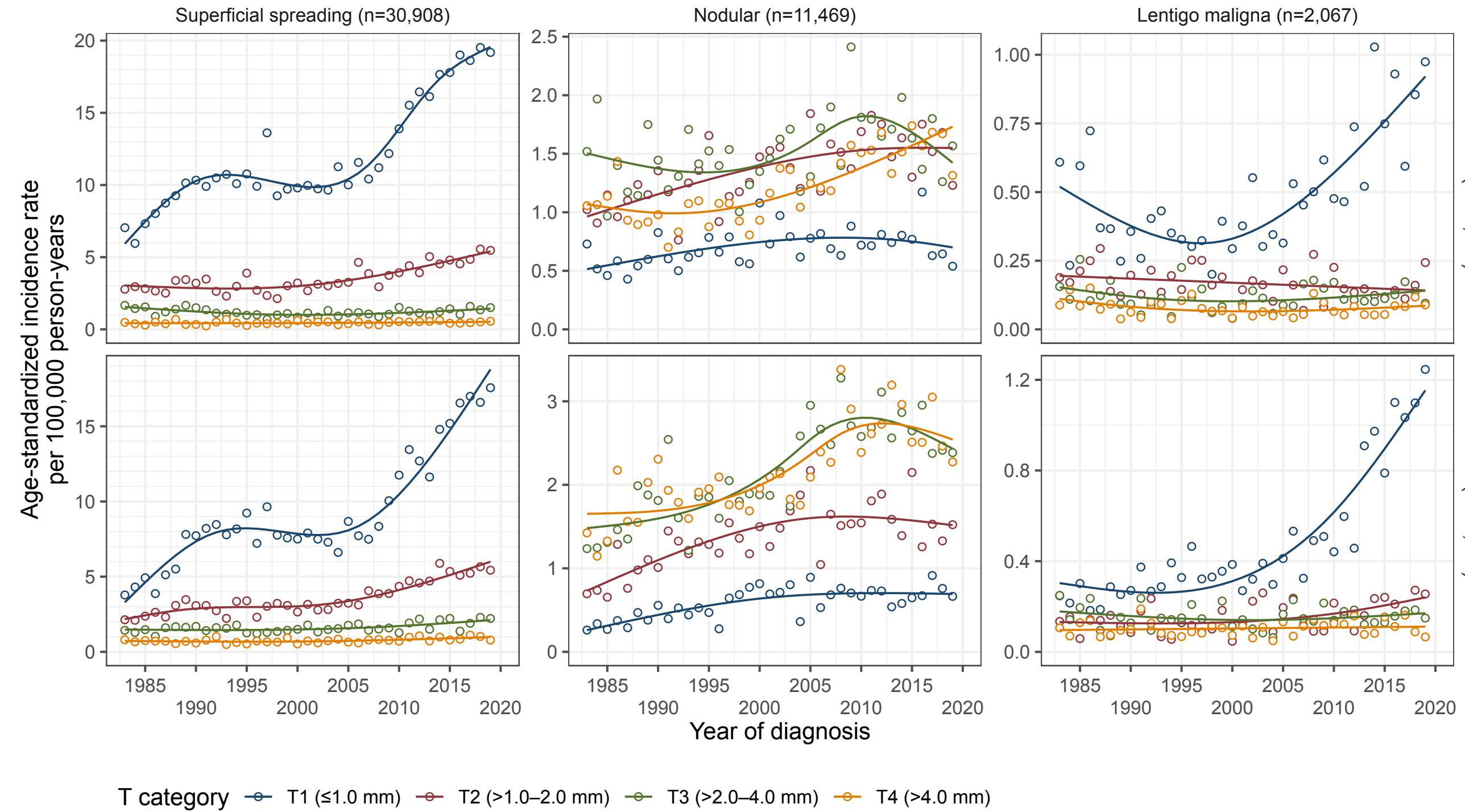
## By histopathological subtype



- Superficial spreading**
- Mirrors overall pattern.
  - Higher in women than men.
  - Stable/decreasing trend in thicker melanoma.
  - Increasing T2 in the recent years.

# Melanoma incidence trend

## By histopathological subtype

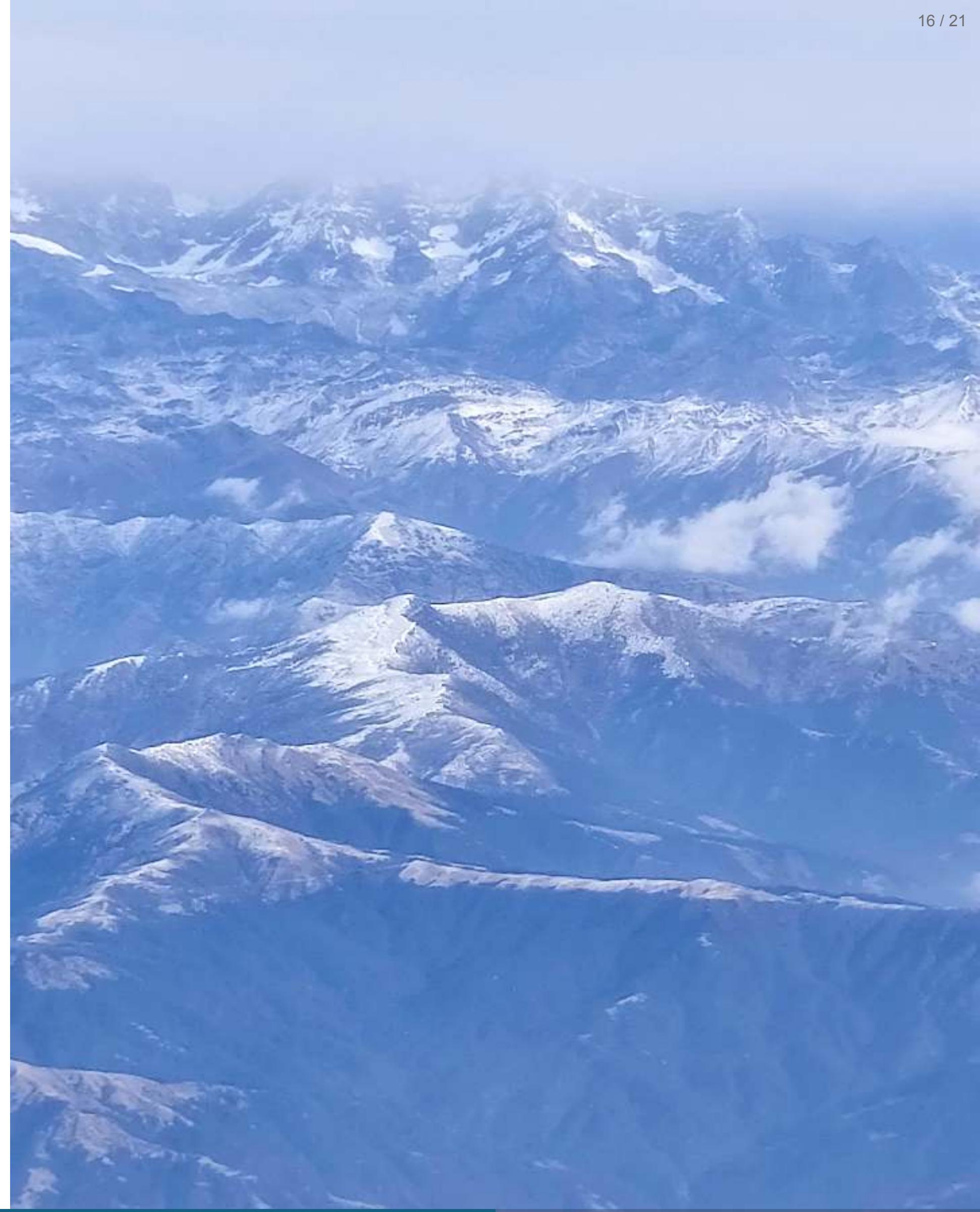


**Nodular**

- Higher incidence of thicker melanoma.
- Higher in men than women.
- Stable/decreasing recent incidence trend.
- Percentage in T3 and T4 was increasing.

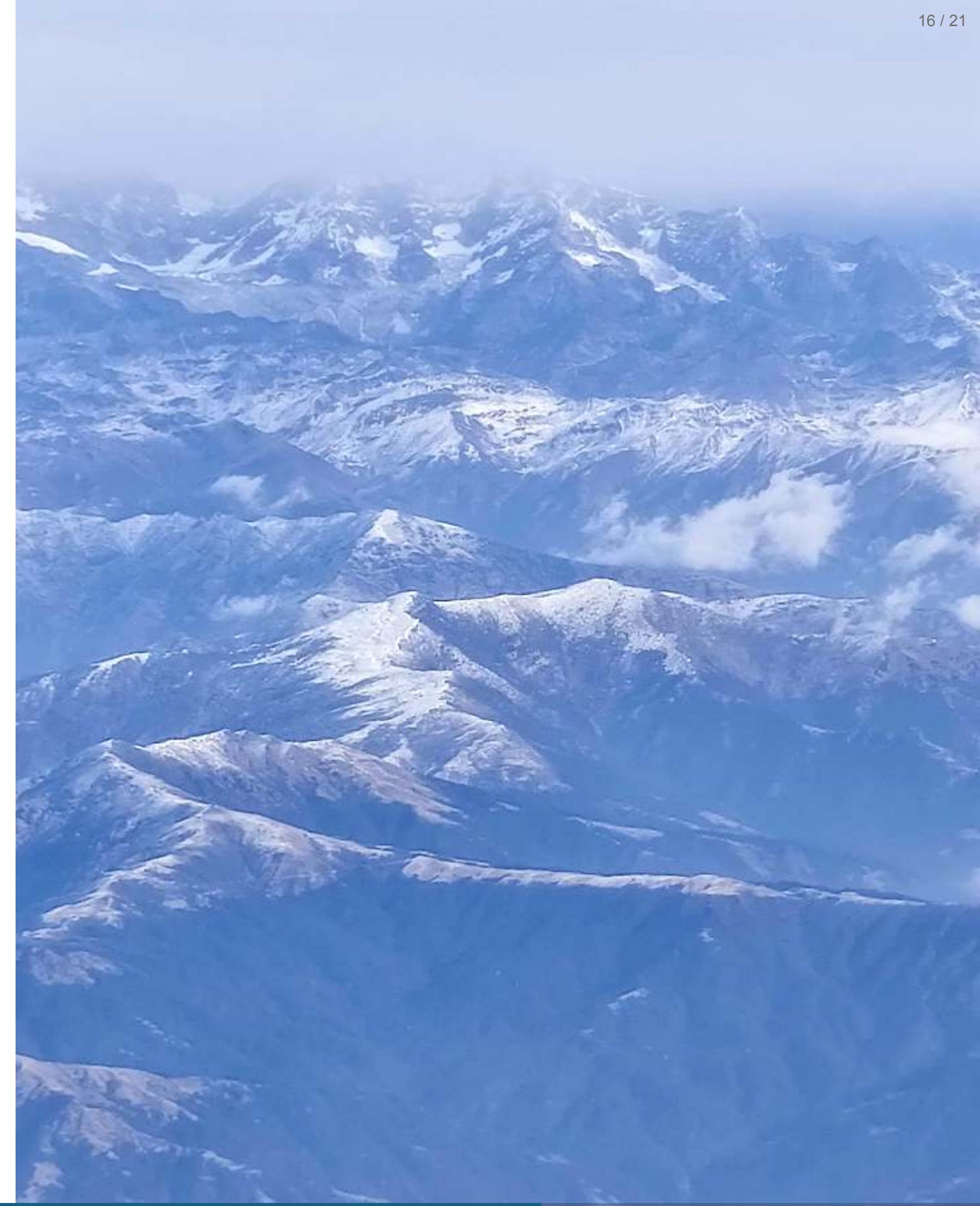
# Summary

- Steep increase in thin melanoma until 1989/90 followed by plateau and steep increase again after 2004/05.



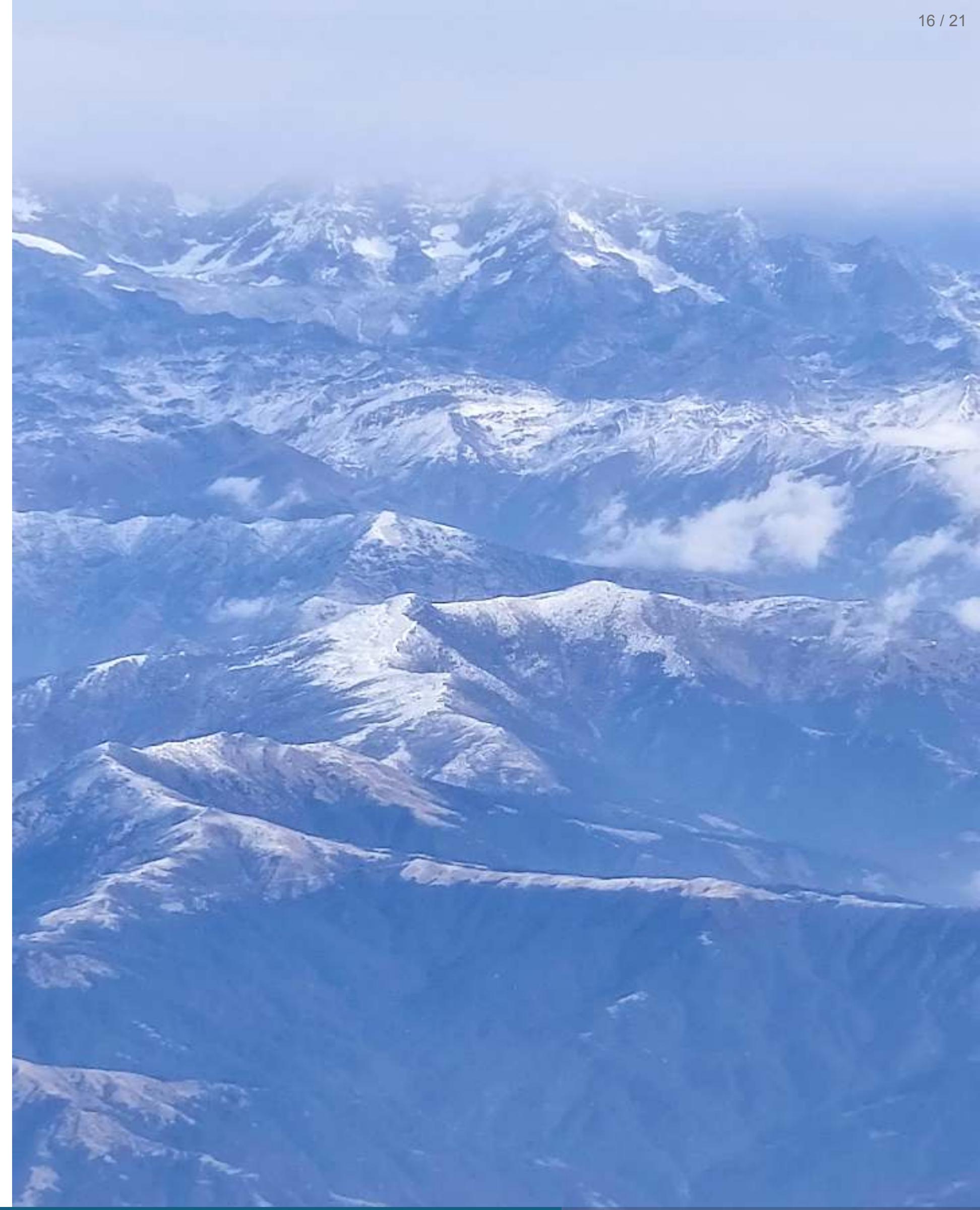
# Summary

- Steep increase in thin melanoma until 1989/90 followed by plateau and steep increase again after 2004/05.
- Higher and more increasing incidence in men than women.



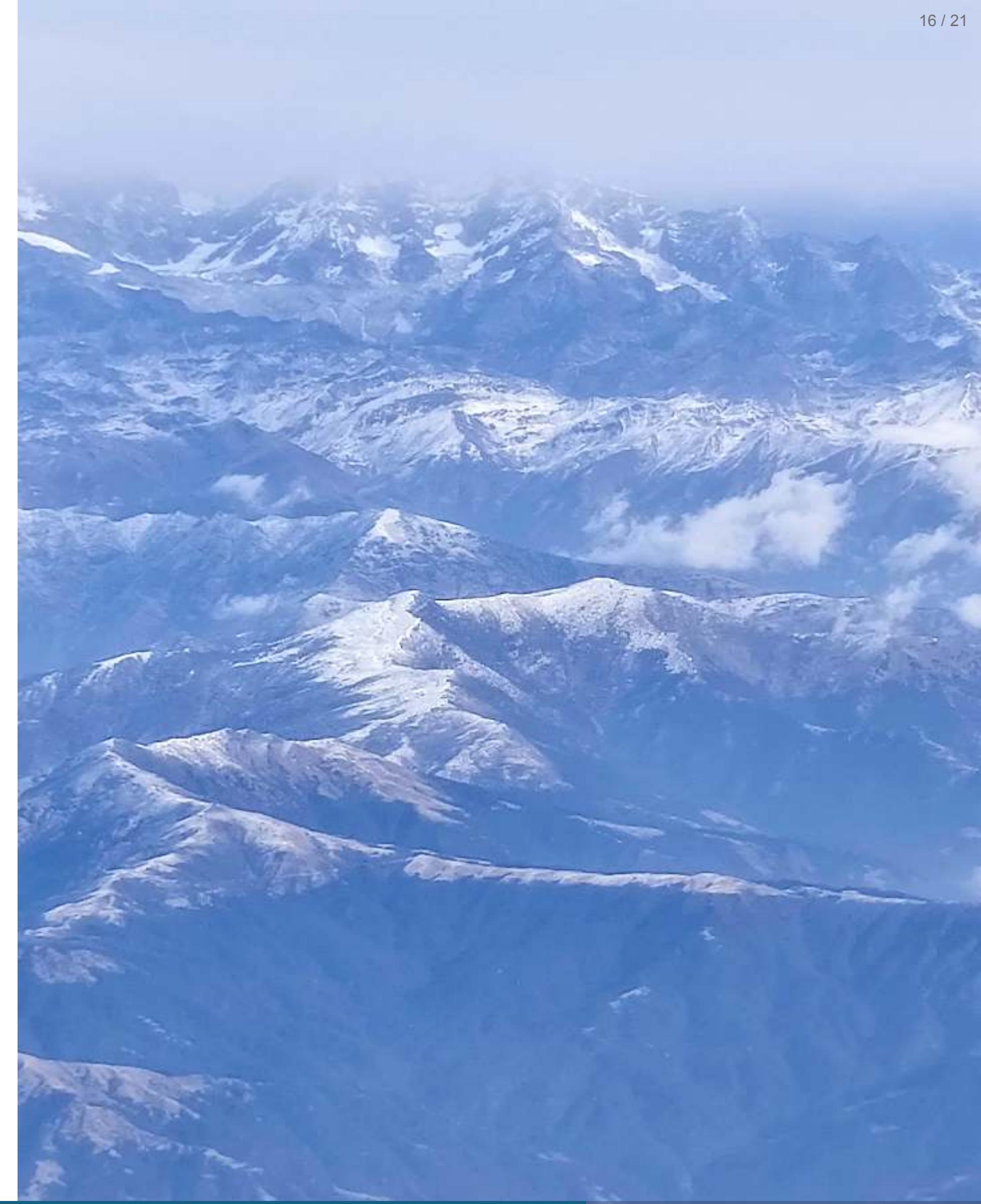
# Summary

- Steep increase in thin melanoma until 1989/90 followed by plateau and steep increase again after 2004/05.
- Higher and more increasing incidence in men than women.
- Nodular melanoma had higher incidence of thicker tumour, more in men compared to women.



# Summary

- Steep increase in thin melanoma until 1989/90 followed by plateau and steep increase again after 2004/05.
- Higher and more increasing incidence in men than women.
- Nodular melanoma had higher incidence of thicker tumour, more in men compared to women.
- Need for increased melanoma awareness in men.
- Need for more awareness of new and rapidly growing pigmented lesions in older people



# Collaborators



UNIVERSITY  
OF OSLO



[International Agency for Research on Cancer](#)



## Funded by:



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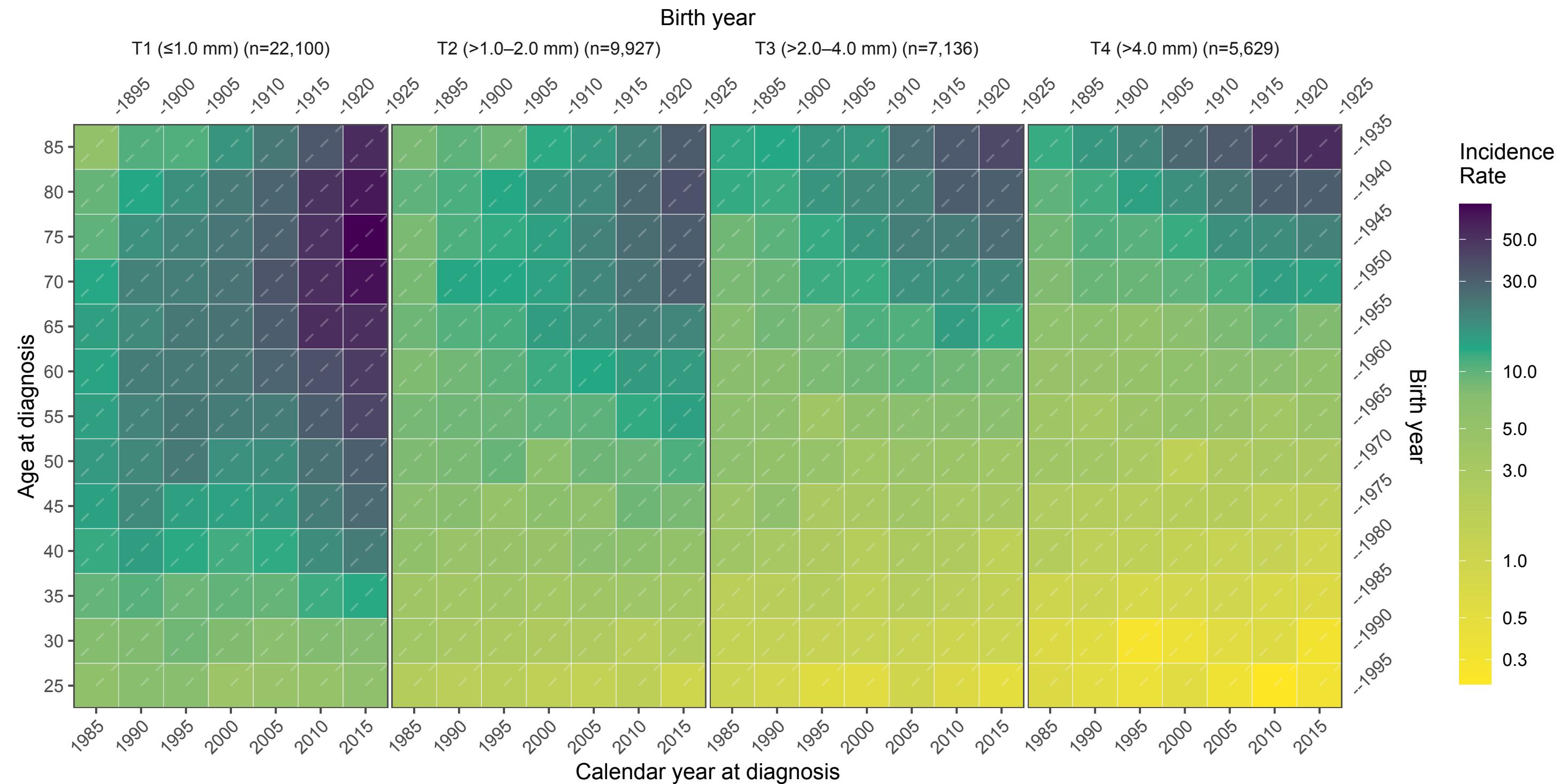
Marit B Veierød

# EXTRA SLIDES



# Melanoma incidence trend

By period and age at diagnosis





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