

Trends in Epidemiology and Mortality of Patients with Melanoma in Germany: A Retrospective Study Using German Claims Data

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Background

Despite progress in the early detection and treatment of malignant melanoma of the skin, it remains a common cancer diagnosis, associated with a substantial mortality rate in advanced stages. This research aims to estimate the incidence/prevalence of melanoma in Germany and to describe trends in mortality in the last ten years.

Methods

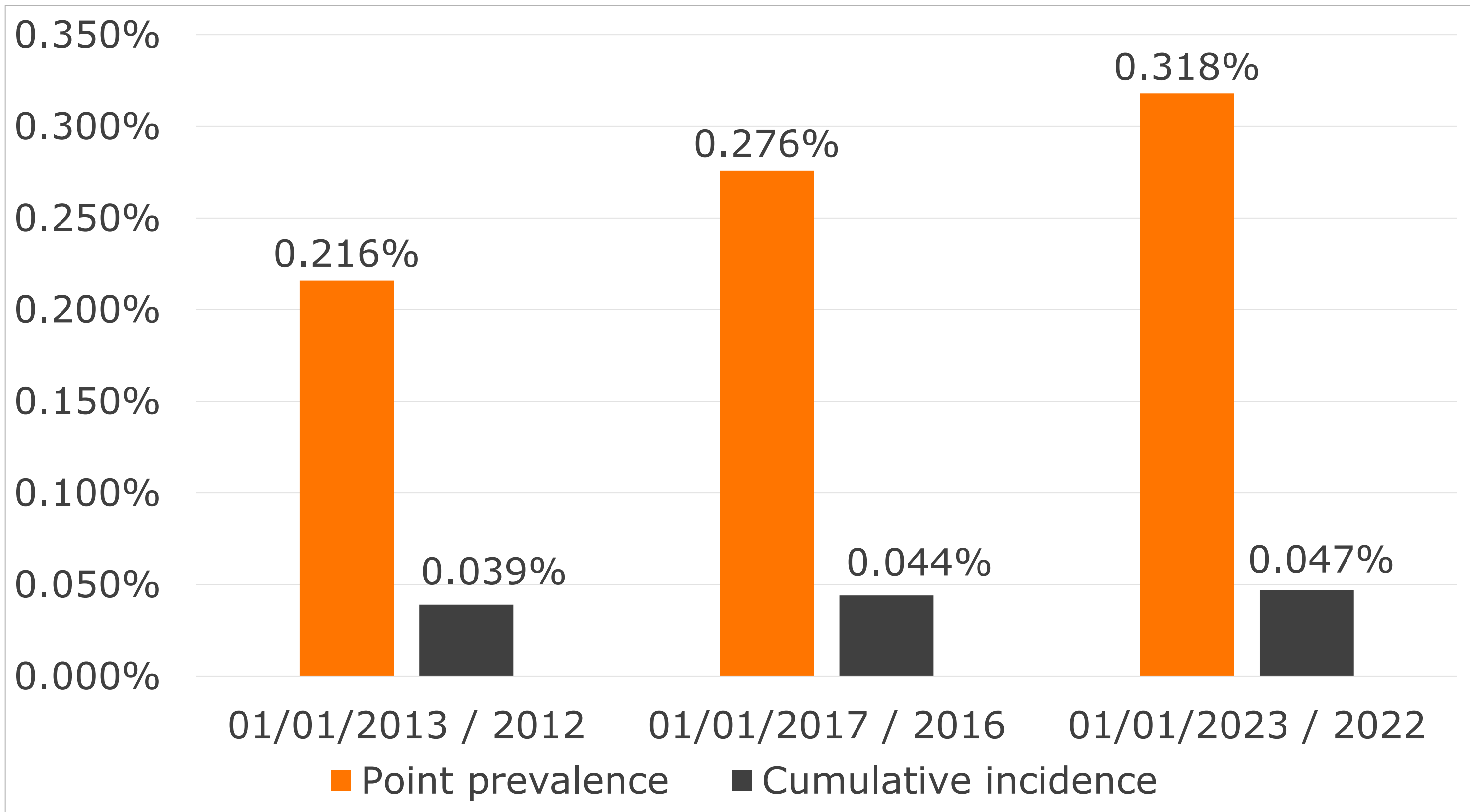
Based on anonymized claims data from the AOK PLUS (a German statutory health insurance fund with 3.5 million individuals), patients with at least two outpatient or one inpatient melanoma diagnosis (ICD-10-GM: C43) were identified as melanoma cases.

Melanoma incidence was defined as newly diagnosed after a 24-month baseline period of continuous insurance and without any melanoma diagnosis. Cumulative melanoma incidences were assessed for the years 2012, 2016, and 2022. Point prevalences were calculated for January 1st, 2013, January 1st, 2017, and January 1st, 2023. Incidence and prevalence were extrapolated (age-standardized) to the overall German population of the respective year. Standardized mortality rates for the years 2012, 2016, and 2022 were evaluated in cross-sectional melanoma samples (melanoma prevalent and alive on January 1st of the respective year). The incidence in 2022 was compared with nationwide registry data from 2020 (Centre for Cancer Registry Data (ZfKD) located at Robert Koch-Institute (RKI)).

Results

Incidence: The cumulative incidence in the observed population was 0.049% in 2012 (0.039% standardized to the German population), 0.052% in 2016 (0.044% standardized), and 0.050% in 2022 (0.047% standardized; **Figure 1**). Based on a German population of 83.3 million persons, this translates into 39,000 incident melanoma cases in the year 2022. The mean age at incident diagnosis decreased from 68.3 years in 2016 to 65.5 years in 2022; the proportion of female patients is 50% (**Table 1**). Data from RKI for 2020 indicated fewer incident cases, with 29.8 cases per thousand males and 26.9 per thousand females [1].

Figure 1: Point prevalence and cumulative incidence of melanoma in the German population



Prevalence: The point prevalence was 0.273% on January 1st, 2013 (0.216% standardized to the German population), 0.319% on January 1st, 2017 (0.276% standardized), and 0.344% on January 1st, 2023 (0.321% standardized; **Figure 1**). Extrapolated to the German population, this corresponds to 265,000 melanoma-prevalent patients on January 1st, 2023.

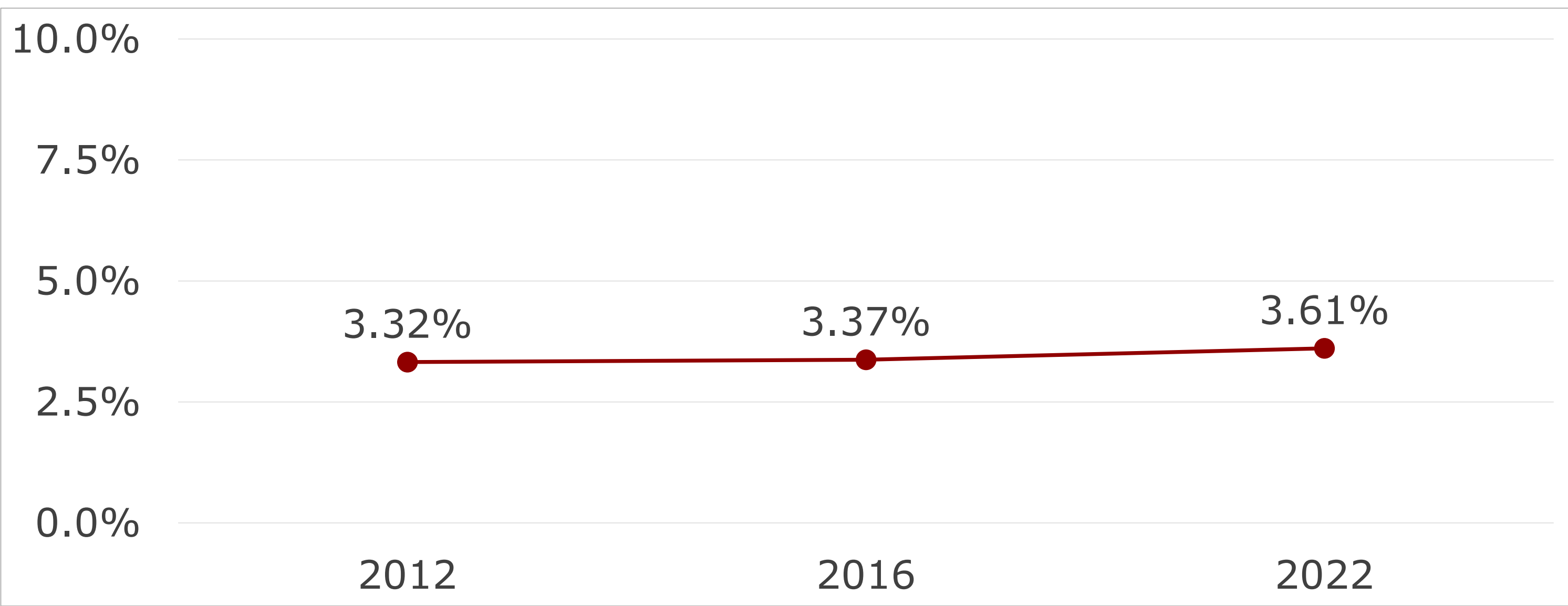
The mean age of the prevalent populations slightly varies between 69.0 years on January 1st, 2017, and 68.0 years on January 1st, 2023. The proportion of female patients remained stable at around 53% (**Table 1**).

Table 1: Characteristics of the identified melanoma populations

	Incident melanoma populations			Prevalent melanoma populations		
	2012	2016	2022	January 1st, 2013	January 1st, 2017	January 1st, 2023
Mean age (SD)	67.9 (15.7)	68.3 (16.0)	65.5 (16.4)	68.6 (15.1)	69.0 (15.2)	68.0 (15.5)
% female	50.4%	50.2%	50.9%	53.6%	52.7%	53.5%

Mortality: The yearly mortality in the population of melanoma prevalent patients was 4.94% in 2012 (3.32% extrapolated to the German population), 5.16% in 2016 (3.37% extrapolated), and 4.86% in 2022 (3.61% extrapolated; **Figure 2**). The mortality rates standardized to the German population were 0.007%, 0.009%, and 0.011%, respectively.

Figure 2: Mortality rates of patients with melanoma, extrapolated to the German population



Conclusion

Melanoma incidence and prevalence estimates based on claims data are much higher than in the official German RKI statistics, probably due to a certain degree of overreporting in claims data, but mainly due to missed cases in the cancer registries resulting from underreporting in outpatient and inpatient practices. Reports from inpatient and outpatient oncology sites form the basis of the RKI statistics [2,3]. Mortality in melanoma-prevalent patients, even if lower compared to other cancer types, has slightly decreased in the last ten years. This along with the increasing incidence and prevalence of melanoma, demonstrates the high burden melanoma places on modern healthcare systems.

Disclosure statement

No disclosures other than those related to the listed affiliations need to be reported.

References

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