

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

Antje Mevius¹, Sabrina Müller², Sabine Dornig³, Thomas Wilke¹

[1] Institut für Pharmakoökonomie und Arzneimittellogistik e.V. (IPAM), Wismar, Germany; [2] GIPAM GmbH, Wismar, Germany; [3] AOK PLUS, Dresden, Germany.



Background

Despite progress in the early detection and treatment of colorectal cancer (CC), it remains one of the most frequent cancer diagnoses. Updated estimates of its epidemiology and mortality are needed to better understand the CC burden in Germany. This research aims to estimate the incidence and prevalence of CC 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 CC diagnosis (ICD-10-GM: C18-C20) were identified as CC cases.

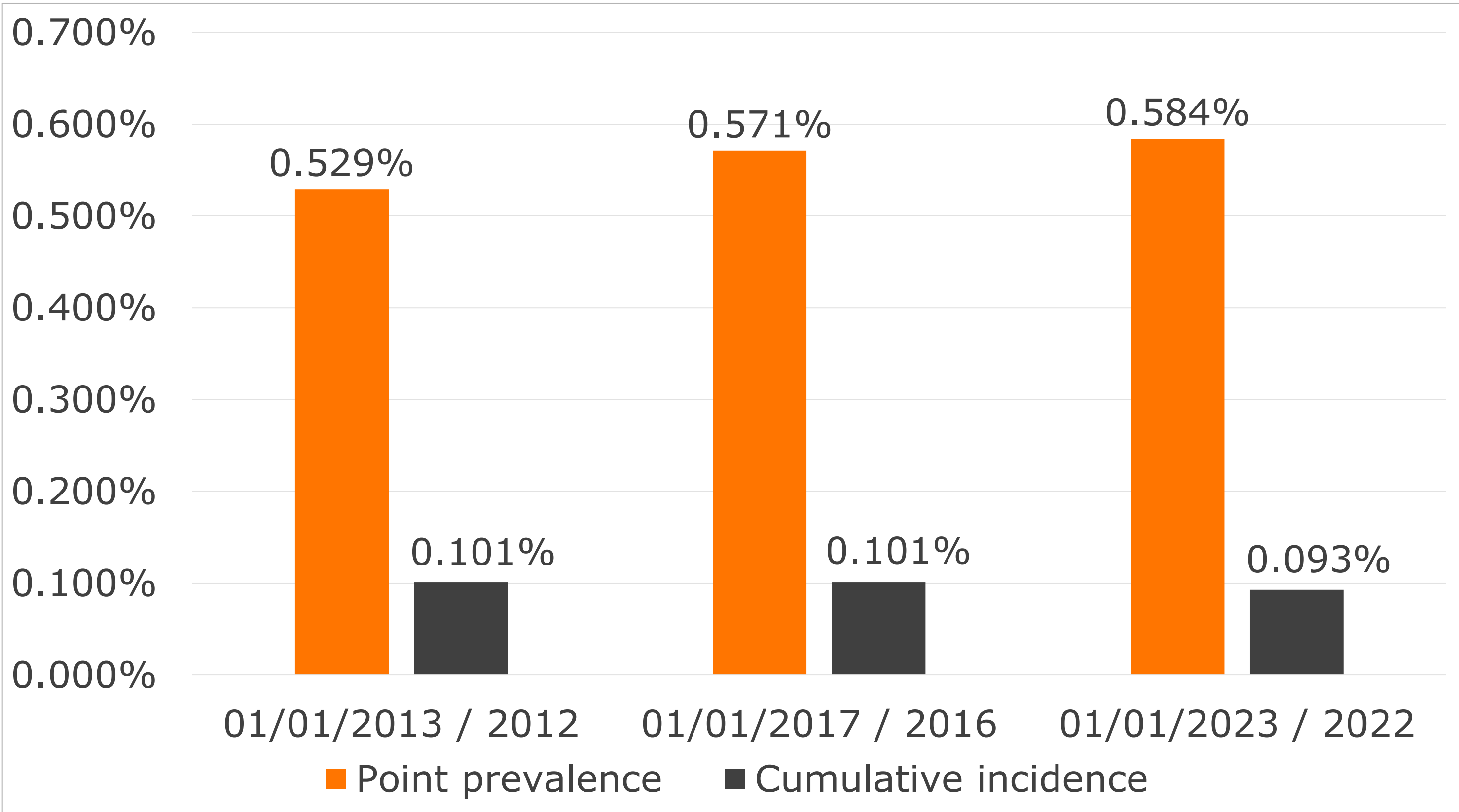
CC incidence was defined as newly diagnosed after a 24-month baseline period of continuous insurance and without any CC diagnosis. Cumulative CC incidences were assessed for the years 2012, 2016, and 2022. Point prevalences were calculated for January 1st, 2013, January 1st, 2017, and January 1st, 2023. Incidence and prevalence were extrapolated (age- and gender-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 CC samples (CC 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 0.145% in 2012 (0.101% standardized to the German population), 0.133% in 2016 (0.101% standardized), and 0.104% in 2022 (0.093% standardized; **Figure 1**). Based on a German population of 83.3 million persons, this translates into 78,302 incident CC cases in the year 2022. The mean age at incident diagnosis decreased slightly from 74.1 in 2012 to 72.4 in 2022; the proportion of female patients also decreased from 48.3% in 2012 to 45.0% in 2022 (**Table 1**).

Data from RKI for 2020 indicated fewer incident cases, with 74.4 cases per thousand in males and 57.5 per thousand in females [1].

Figure 1: Point prevalence and cumulative incidence of colorectal cancer in Germany



Prevalence: The point prevalence was 0.769% on January 1st, 2013 (0.529% standardized to the German population), 0.768% on January 1st, 2017 (0.571% standardized), and 0.664% on January 1st, 2023 (0.584% standardized; **Figure 1**). Extrapolated to the German population, this corresponds to 486,000 CC-prevalent patients on January 1st, 2023.

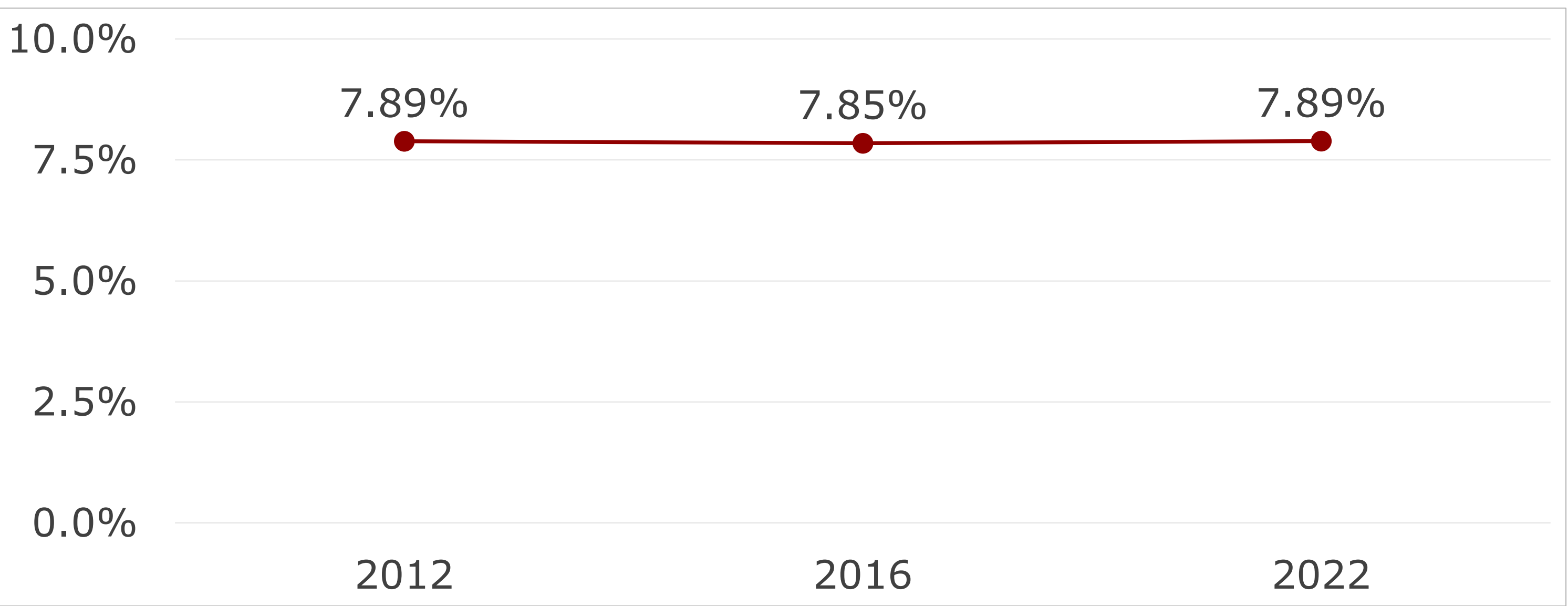
The mean age of the prevalent populations was nearly constant between 74.2 and 75.0 years; the proportion of female CC patients decreased from 49.4% on January 1st, 2013, to 45.5% on January 1st, 2023 (**Table 1**).

Table 1: Characteristics of the identified colorectal cancer populations

	Incident CC populations			Prevalent CC populations		
	2012	2016	2022	January 1 st , 2013	January 1 st , 2017	January 1 st , 2023
Mean age (SD)	74.1 (11.4)	73.8 (12.0)	72.4 (12.6)	74.6 (10.8)	75.0 (11.2)	74.2 (11.9)
% female	48.3%	45.1%	45.0%	49.4%	47.6%	45.5%

Mortality: The mortality in the population of CC prevalent patients was 9.93% in 2012 (7.89% extrapolated to the German population), 9.72% in 2016 (7.85% extrapolated), and 9.34% in 2022 (7.89% extrapolated; **Figure 2**). The mortality rates standardized to the German population were 0.042%, 0.045%, and 0.046%, respectively.

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



Conclusion

CC 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 CC-prevalent patients remained constant in the last ten years, indicating that recent advances in the treatment of CC so far did not translate into lower mortality rates.

Disclosure statement

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

References

- [1] Website of Robert Koch-Institut (https://www.krebsdaten.de/Krebs/DE/Content/Krebsarten/Darmkrebs/darmkrebs_node.html).
- [2] Robert Koch-Institut. Krebs in Deutschland für 2019/2020; Kapitel 1: Bevölkerungsbezogene Krebsregistrierung in Deutschland. Zentrum für Krebsregisterdaten im Robert Koch-Institut, 2023.
- [3] Website of Robert Koch-Institut (https://www.krebsdaten.de/Krebs/DE/Content/Methoden/Vollzaehligkeitsschaetzung/vollzaehligkeitsschaetzung_node.html).

