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

EPH278

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Background

Despite progress in the early detection and treatment of lung cancer (LC), it remains one of the most frequent cancer diagnoses. Updated estimates of its epidemiology and mortality are needed to better understand the LC burden in Germany. This research aims to estimate the incidence and prevalence of LC 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 LC diagnosis (ICD-10-GM: C34) were identified as LC cases.

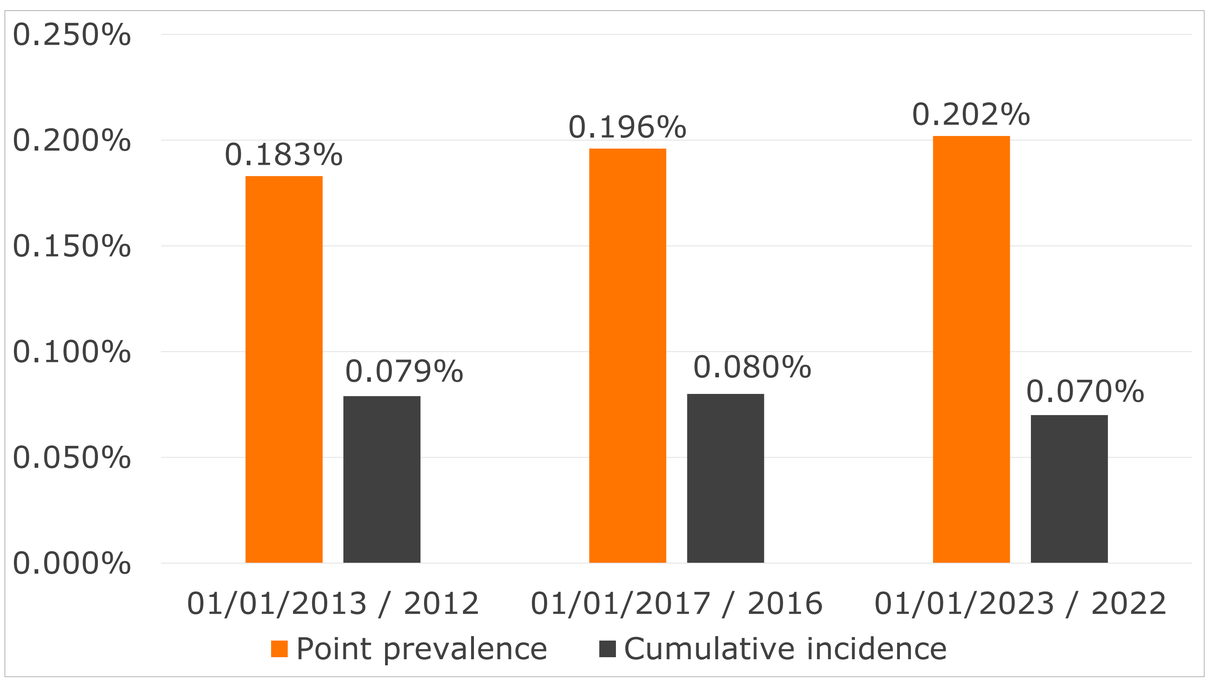
LC incidence was defined as newly diagnosed after a 24-month baseline period of continuous insurance and without any LC diagnosis. Cumulative LC incidences were assessed for the years 2012, 2016, and 2022. Point prevalences were calculated for January 1st, 2013, January 1st, 2017, and January 1st, 2023. 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 LC samples (LC 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 0.102% in 2012 (0.079% standardized to the German population), 0.097% in 2016 (0.080% standardized), and 0.075% in 2022 (0.070% standardized; **Figure 1**). Based on a German population of 83.3 million persons, this translates into 58,000 incident LC cases in the year 2022. The mean age at incident diagnosis remained nearly constant between 70.0 to 70.8 years; the proportion of female patients increased from 28.7% in 2012 to 34.6% in 2022 (**Table 1**).

Data from RKI for 2020 indicated fewer incident cases, with 83.1 cases per thousand males and 53.6 per thousand females [1].

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



Prevalence: The point prevalence was 0.239% on January 1st, 2013 (0.183% standardized to the German population), 0.239% on January 1st, 2017 (0.196% standardized), and 0.217% on January 1st, 2023 (0.202% standardized; **Figure 1**). Extrapolated to the German population, this corresponds to 168,000 LC-prevalent patients on January 1st, 2023.

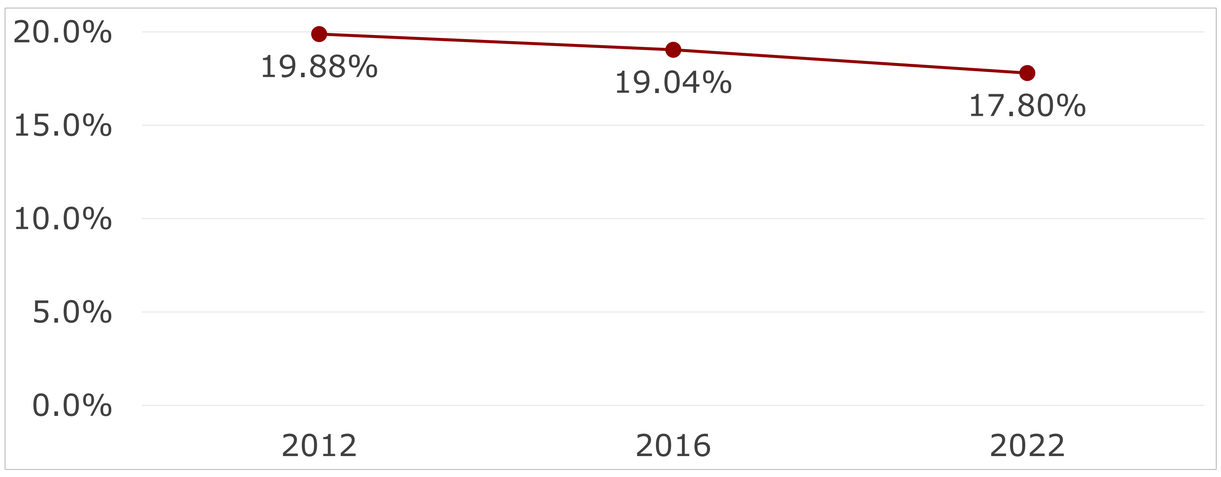
The mean age of the prevalent populations was also constant between 70.2 and 70.8 years; the proportion of female LC patients increased considerably from 31.1% on January 1st, 2013, to 38.3% on January 1st, 2023 (**Table 1**).

Table 1: Characteristics of the identified lung cancer populations

	Incident LC populations			Prevalent LC populations		
	2012	2016	2022	January 1st, 2013	January 1st, 2017	January 1st, 2023
Mean age (SD)	70.6 (11.1)	70.8 (11.3)	70.0 (11.0)	70.8 (10.9)	70.8 (11.2)	70.2 (11.1)
% female	28.7%	31.8%	34.6%	31.1%	34.0%	38.3%

Mortality: The yearly mortality in the population of LC prevalent patients was 26.46% in 2012 (19.88% extrapolated to the German population), 24.82% in 2016 (19.04% extrapolated), and 21.79% in 2022 (17.80% extrapolated; **Figure 2**). The mortality rates standardized to the German population were 0.036%, 0.037%, and 0.036%, respectively.

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



Conclusion

LC incidence and prevalence estimates based on claims data are 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]. Most probably due to recent advances in the treatment of LC, the yearly mortality has decreased by 1.2 percentage points since 2016. However, it still remains high, demonstrating in association with the substantial incidence and prevalence of LC high unmet needs.

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/Lungenkrebs/lungenkrebs_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).

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