

# Trends in Epidemiology and Mortality of Patients with Coronary Heart Disease in Germany: A Retrospective Study Using German Claims Data

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## Background

Despite progress in the early detection and treatment of coronary heart disease (CHD), it remains a common diagnosis in aging populations in Western countries, associated with a substantial cardiovascular event risk. This research aims to estimate the incidence/prevalence of CHD in Germany and to describe trends in mortality in the last ten years.

## Methods

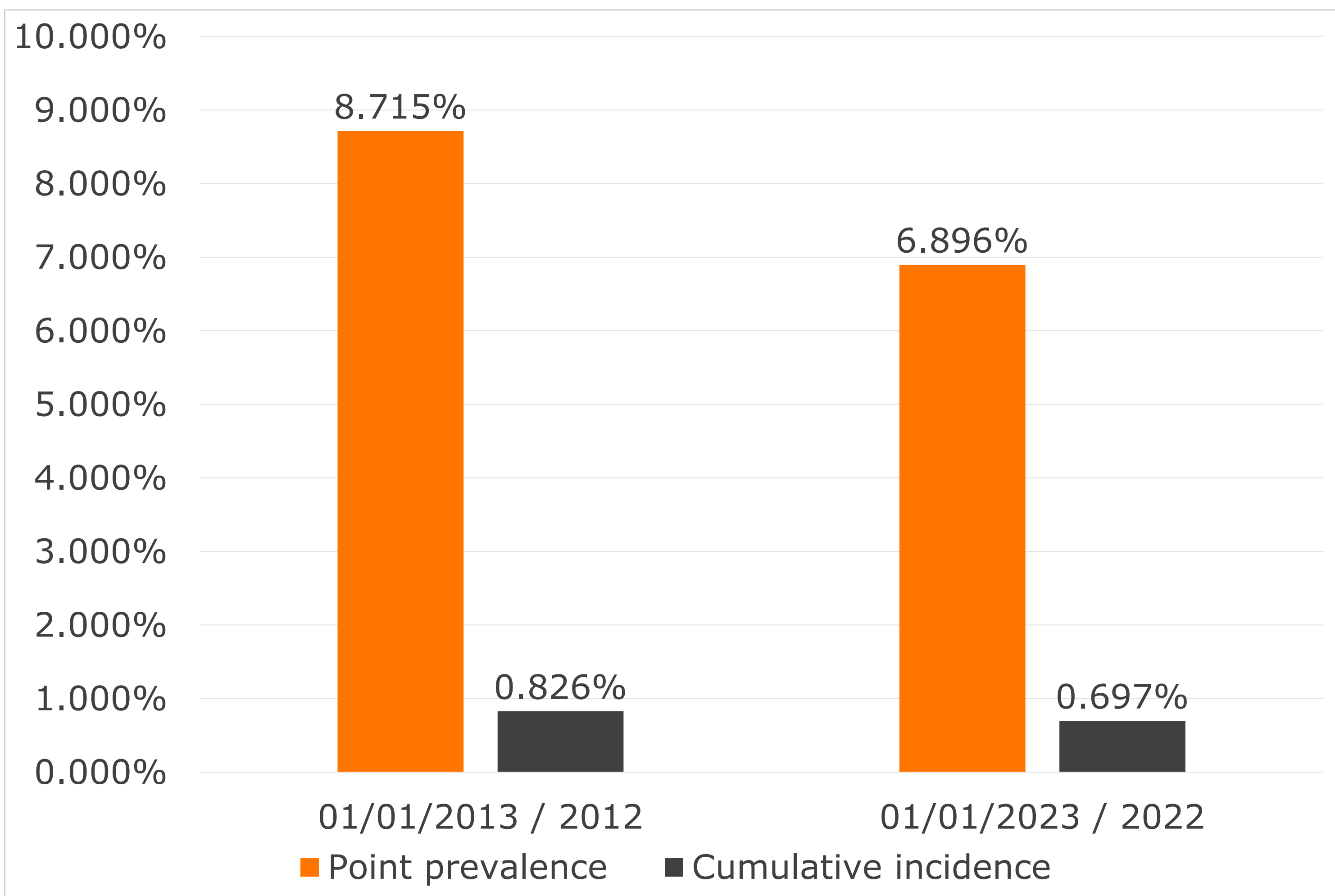
Based on anonymized claims data from the AOK PLUS (a German statutory health insurance fund with 3.5 million individuals), patients with at least two outpatient or one inpatient CHD diagnosis (ICD-10-GM: I25) were identified as CHD cases.

Incidence was defined as newly diagnosed after a 24-month baseline period of continuous insurance and without any CHD diagnosis. Cumulative CHD incidences were assessed for the years 2012, and 2022. Point prevalences were calculated for January 1<sup>st</sup>, 2013, and January 1<sup>st</sup>, 2023. Incidence and prevalence were extrapolated (age-standardized) to the overall German population of the respective year. Standardized mortality rates for the years 2012, and 2022 were evaluated in cross-sectional CHD samples (CHD prevalent and alive on January 1<sup>st</sup> of the respective year).

## Results

**Incidence:** The cumulative incidence in the observed population was 1.158% in 2012 (0.826% standardized to the German population), and 0.771% in 2022 (0.697% standardized; **Figure 1**). Based on a German population of 83.3 million persons, this translates into 0.58 million incident hyperlipidemia cases in the year 2022. The mean age at incident diagnosis decreased from 72.2 years in 2012 to 70.9 years in 2022; the proportion of female patients decreased by 6.5% points to 45.3% in 2022 (**Table 1**).

**Figure 1: Point prevalence and cumulative incidence of coronary heart disease in the German population**



**Prevalence:** The point prevalence was 12.866% on January 1<sup>st</sup>, 2013 (8.715% standardized to the German population), and 7.760% on January 1<sup>st</sup>, 2023 (6.896% standardized; **Figure 1**). Extrapolated to the German population, this corresponds to 7.3 million CHD-prevalent patients on January 1<sup>st</sup>, 2023.

The mean age of the prevalent CHD populations decreased by 1 year to 74.0 years on January 1<sup>st</sup>, 2023. The proportion of female CHD patients decreased by nearly 10% points from 54.9% on January 1<sup>st</sup>, 2013, to 45.7% on January 1<sup>st</sup>, 2023 (**Table 1**).

**Table 1: Characteristics of the identified CHD populations**

	Incident CHD populations		Prevalent CHD populations	
	2012	2022	January 1 <sup>st</sup> , 2013	January 1 <sup>st</sup> , 2023
Mean age (SD)	72.2 (12.5)	70.9 (12.9)	75.0 (10.4)	74.0 (11.8)
% female	51.8%	45.3%	54.9%	45.7%

**Mortality:** The yearly mortality in the population of CHD prevalent patients was 7.22% in 2012 (5.65% extrapolated to the German population) and 7.88% in 2022 (6.57% extrapolated; **Figure 2**). The mortality rates standardized to the German population were 0.492% in 2012 and 0.453% in 2022.

**Figure 2: Mortality rates of patients with coronary heart disease, extrapolated to the German population**



## Conclusion

CHD incidence and prevalence are very high, and estimates based on claims data are slightly higher than in other official statistics. Even if mortality causes are not exactly known, mortality in CHD patients is high and rising and at least twofold compared to other cardiovascular diseases such as hypertension. With almost 7% of the German population suffering from CHD combined with a substantial mortality in this population, the health care burden due to this disease is high.

## Disclosure statement

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