



Trends in incident esophageal cancer by histologic subtypes in Germany 2003-2013

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Objectives

The incidence of esophageal cancer has substantially changed in Western populations in the last few decades, with striking differences between the two main histological subtypes – squamous cell carcinoma (ESCC) and adenocarcinoma (EA). Several studies reported increases in the incidence of EA and stable or decreasing rates of ESCC. This analysis aimed to evaluate trends in the incidence of esophageal cancer by histologic subtype in Germany using national data over an 11-year period.

Methods

We analyzed esophageal cancer incidence using pooled data from 12 population-based cancer registries stratified by sex, age and histologic subtype: squamous cell carcinoma, adenocarcinoma, sarcoma and unspecified carcinoma/neoplasm. Rates were age-standardized using the old European standard population (1976). We calculated incidence rates only among individuals aged 35 years or older for the period from 2003 to 2013. The Average Annual Percentage Change (AAPC) was calculated in a joinpoint regression model using Joinpoint Trend Analysis Software.

Figure 1: Proportion of histologic subtypes on esophageal cancer in men and women, 2003-2013

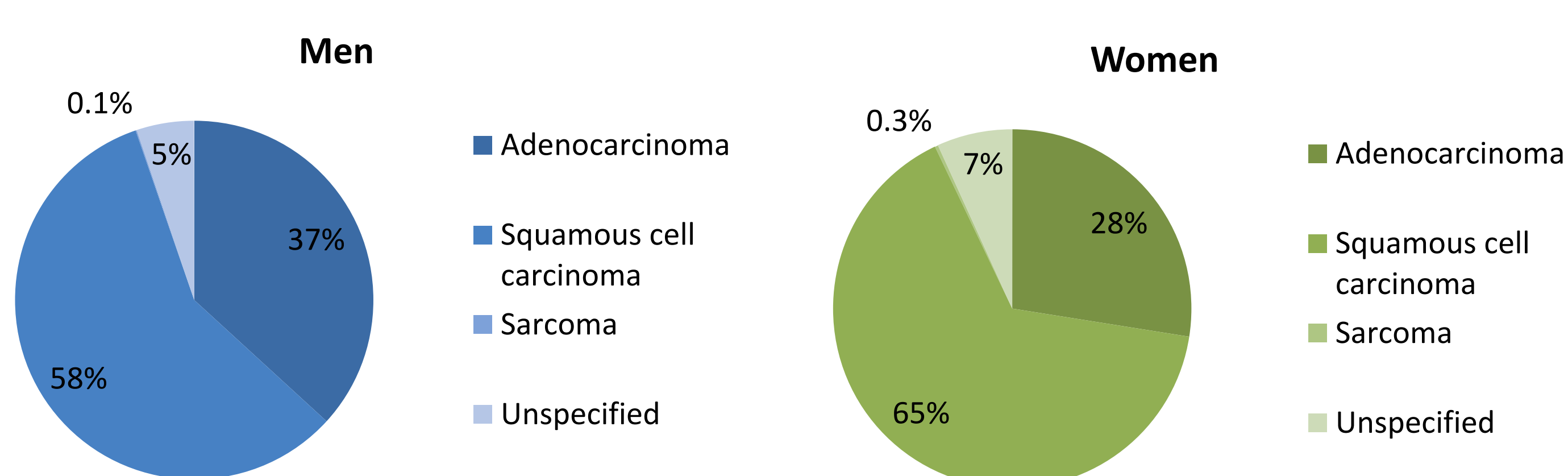
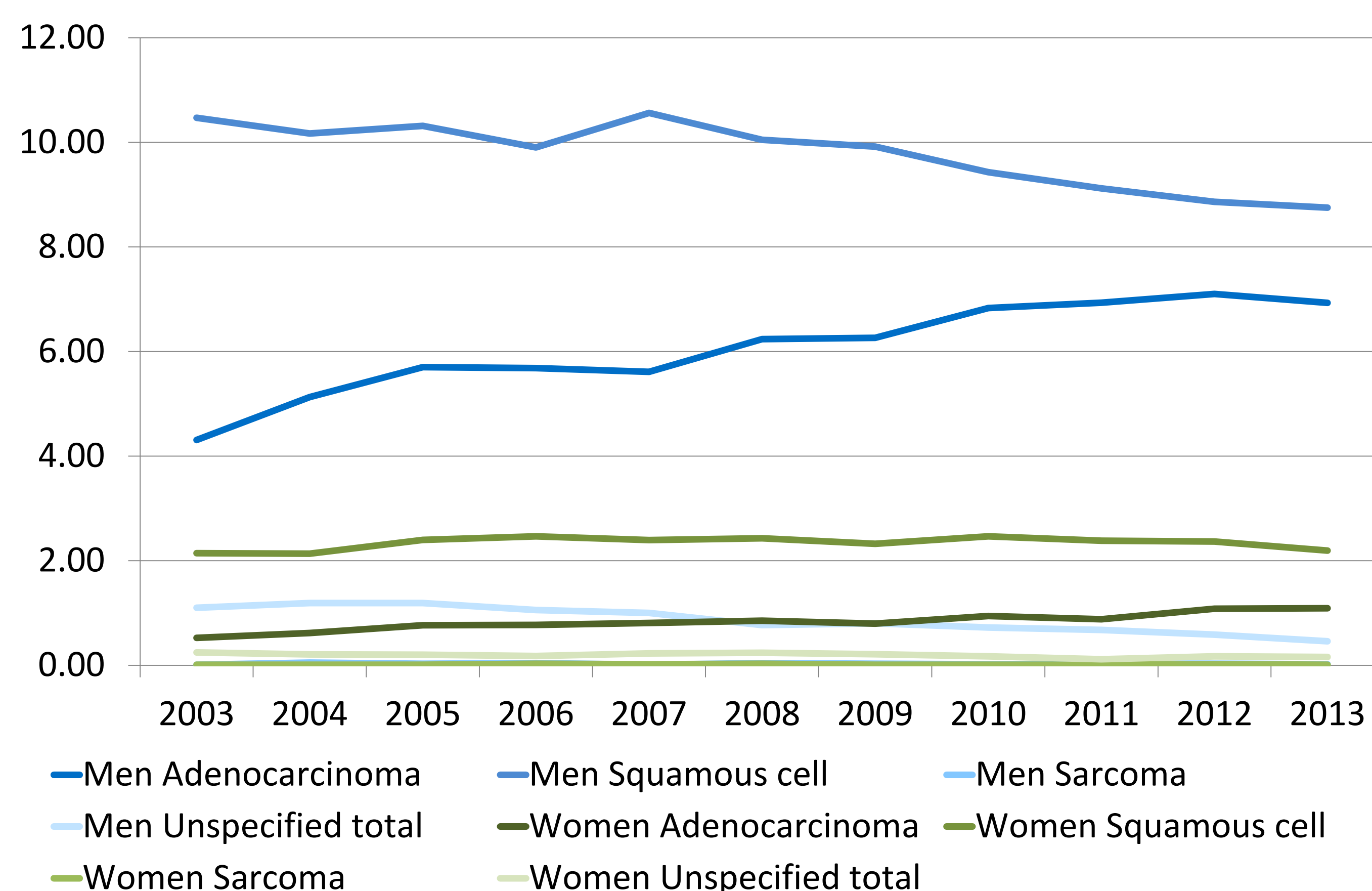


Figure 2: Age-standardized incidence rates per 100 000, ICD10-C15 by histologic subtype and sex



Results

Squamous cell carcinoma account for 60% to 65% of all esophageal cancer cases. The proportion of adenocarcinoma increased to more than one third of cases in recent years.

Table 1: Average annual percentage change (AAPC) for ICD10-C15 by histologic subtype and sex (2003-2013)

	AAPC Men	AAPC Women
Adenocarcinoma	5.1% (CI: 4.2-6.0)	6.0% (CI: 5.5-6.6)
Squamous cell carcinoma	-1.7% (CI: -1.9-(-1.5))	0.9% (CI: 0.2-1.5)
Sarcoma	-4.7% (CI: -7.5-(-1.9))	-3.7% (CI: -7.3-(-0.0))
Unspecified	-7.6% (CI: -8.7-(-6.3))	-3.7% (CI: -4.8-(-2.7))

Age-standardized rates for total esophageal cancer were relatively stable over the last decade for both men and women. The rates for esophageal adenocarcinoma increased from 4.3 to 6.9 per 100 000 among men and from 0.5 to 1.1 per 100 000 among women. This corresponds to an AAPC of 5.1% among men and 6.0% among women. The rates for esophageal squamous cell carcinoma decreased among men from 10.5 to 8.8 per 100 000 but remained stable among women, corresponding to an AAPC of -1.7% among men and 0.9% among women. Esophageal sarcoma as well as unspecified esophageal cancer decreased among men (-4.7% and -7.6%) and women (-3.7% respectively).

The increase in EA can be seen in every age group, but was highest for the youngest age group (35-54 years) in both men and women with an AAPC of 7.1% and 11.9%, respectively. The decrease of ESCC among men was also highest among 35-54 year old persons with an AAPC of -3.5%. In the oldest age group (75+ years) among men, ESCC increased by 1.8% from 2003-2013.

Conclusions

Esophageal adenocarcinoma incidence has increased in Germany as in other Western countries^{1,2}. The rise in this histologic subtype may be caused by increasing trends in obesity and reflux disease, both known risk factors for esophageal adenocarcinoma^{3,4}. Gender differences in trends of EA and ESCC may be due to heterogeneous distribution of these and other risk factors like tobacco and alcohol consumption by sex.

References:

¹ Feller A, Fehr M, Bordoni A et al. Swiss Med Wkly. 2015; 145:w14245
³ Rubenstein JH, Taylor JB. Aliment pharmacol & therap. 2010; 32:1222-7.

² Shao-Hua X, Mattsson F, Lagergren J. Cancer Epidemiology. 2017; 47:114-117
⁴ Turati F, Tamacere I, La Vecchia C, Negri E. Annals of Oncology. 2013; 24: 609-17