

Oropharyngeal cancer incidence-based mortality trends in the United States, 1985-2016

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Background

- Oropharyngeal cancer has dramatically increased in incidence over the last 3 decades, recently surpassing cervical cancer as the leading human papillomavirus (HPV)-associated cancer
- About ¾ of oropharyngeal cancers are HPV-positive
- While HPV-positive oropharyngeal cancer generally portends better survival compared with HPV-negative oropharyngeal cancer, there is a paucity of data describing mortality trends

Objective

- To describe trends in oropharyngeal cancer incidence-based mortality in the United States in the last three decades

Methods

Data Source, Study Population, and Study Design

- Data Source:** Surveillance, Epidemiology, and End Results 9 database
- Study Population:** Patients who died from first primary oropharyngeal squamous cell carcinoma within 10 years of diagnosis from 1985-2016
- Study Design:** Retrospective cohort
- Cohort Size:** 12,102 patients

Study Measures

- Primary Outcome:** Death from oropharyngeal cancer
- Independent Variables:** Sex, race, age at diagnosis

Statistical Analysis

- Rate ratios (RRs) determined which groups had the highest age-adjusted mortality rates (AAMRs)
- Joinpoint regression calculated annual percentage changes (APCs) and average annual percentage changes (AAPCs) to estimate increases/decreases in annual AAMRs

Results

	n (%)	AAMR per 100,000 Persons	RR (95% CI)
Overall	12,102 (100%)	1.16	-
Sex			
Female	3,032 (25.1%)	0.53	Reference
Male	9,070 (74.9%)	1.91	3.58 (3.43, 3.73)
Age at Diagnosis			
65 and older	5,643 (46.6%)	4.49	Reference
40-64	6,336 (52.4%)	1.90	0.42 (0.41, 0.44)
15-39	119 (1.0%)	0.03	0.01 (0.01, 0.01)
Race			
White	9,550 (78.9%)	1.11	Reference
Black	2,164 (17.9%)	2.28	2.06 (1.96, 2.16)
Asian/Pacific Islander/American Indian/Alaska Native	378 (3.1%)	0.42	0.37 (0.34, 0.42)

Main Findings

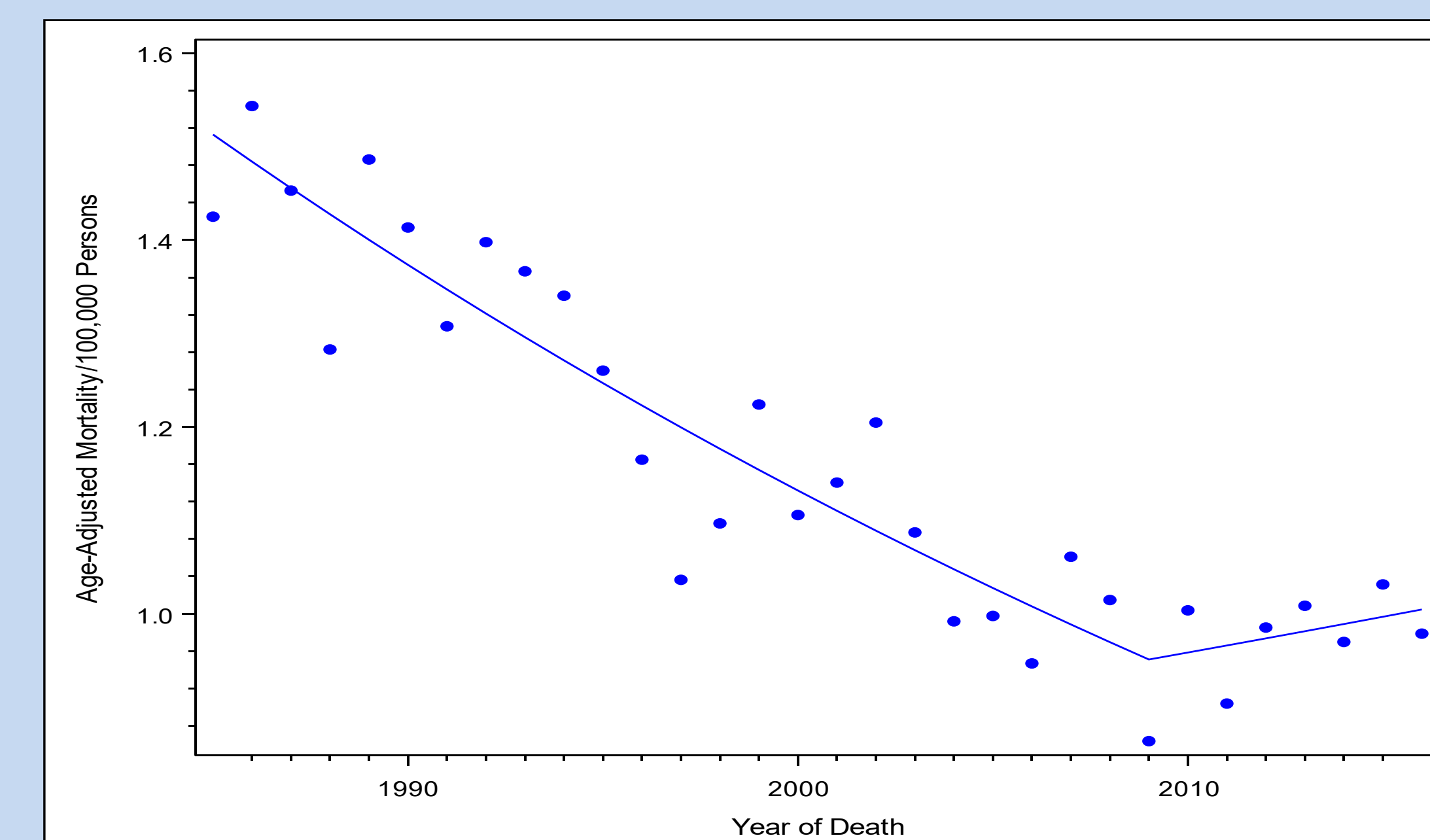
- This study included 12,102 patients who died from first primary OPSCC from 1985-2016 with an AAMR of 1.16 per 100,000 persons
- AAMRs among males were 3.58 times higher than for females (RR = 3.58, 95% CI 3.43, 3.73).
- AAMRs among blacks were about 2 times higher than whites (RR = 2.06, 95% CI 1.96, 2.16) but AAMRs among API/AIANS were 63% lower than whites (RR = 0.37, 95% CI 0.34, 0.42).
- From 1985-2009, AAMRs for first primary oropharyngeal cancer decreased approximately 1.92% annually (APC = -1.92, 95% CI -2.27, -1.56) but remained stable from 2009-2016, which resulted in an average annual decrease of -1.31% from 1985-2016 (AAPC = -1.31, 95% CI -1.84, -0.78).
- When stratified by race or sex, all groups exhibited significant decreases in mortality
 - However, whites experienced significantly more decrease than blacks (white AAPC = -0.76, 95% CI -1.33, -0.17; black AAPC = -3.36; 95% CI -3.85, -2.87)
- AAMRs significantly decreased among ages 65 and older (AAPC = -0.88, 95% CI -1.63, -0.13), while AAMRs for ages 15-39 and 40-64 remained stable.

Implications

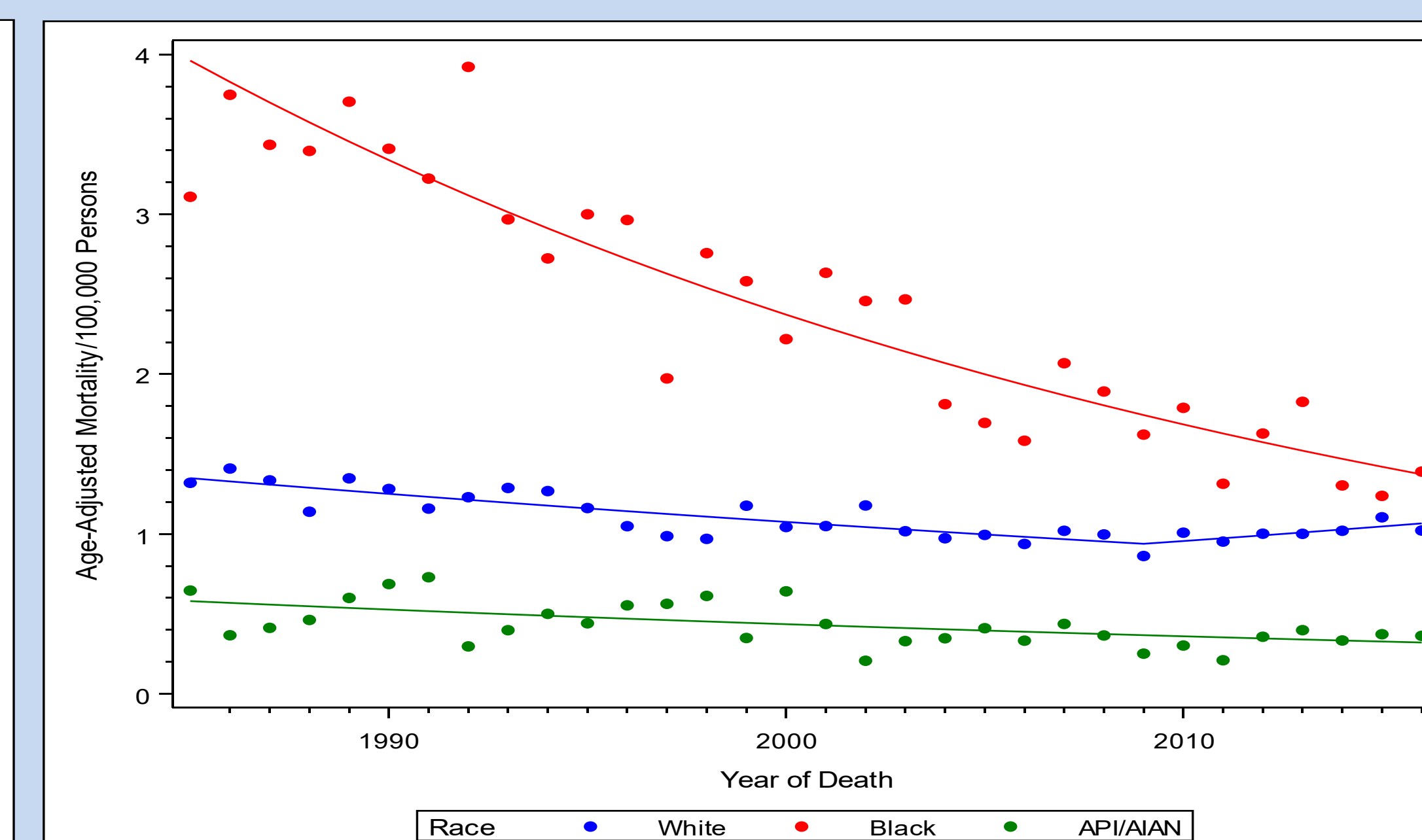
- There have been significant decreases in oropharyngeal cancer mortality in the last three decades in the United States across age groups, race, and sex,
- Although blacks had the strongest decrease in mortality from oropharyngeal cancer, they still had the highest mortality rate in 2016, emphasizing the need for care for smoking-related oropharyngeal cancer.

Limitations

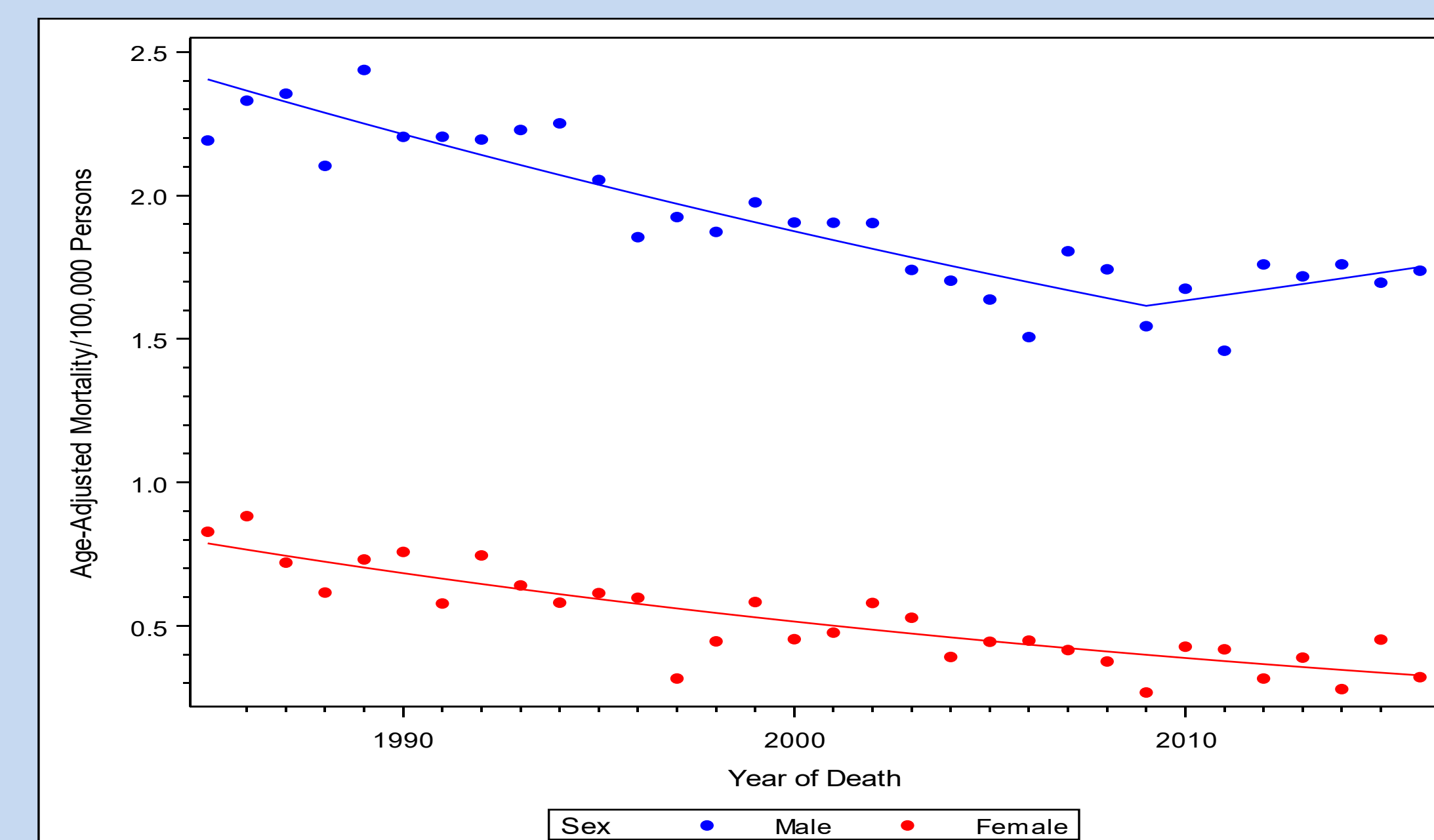
- Retrospective study – cannot establish causality
- Only patients who died from oropharyngeal cancer within 10 years of diagnosis could be included to prevent having a cumulatively larger set of patients diagnosed in previous years



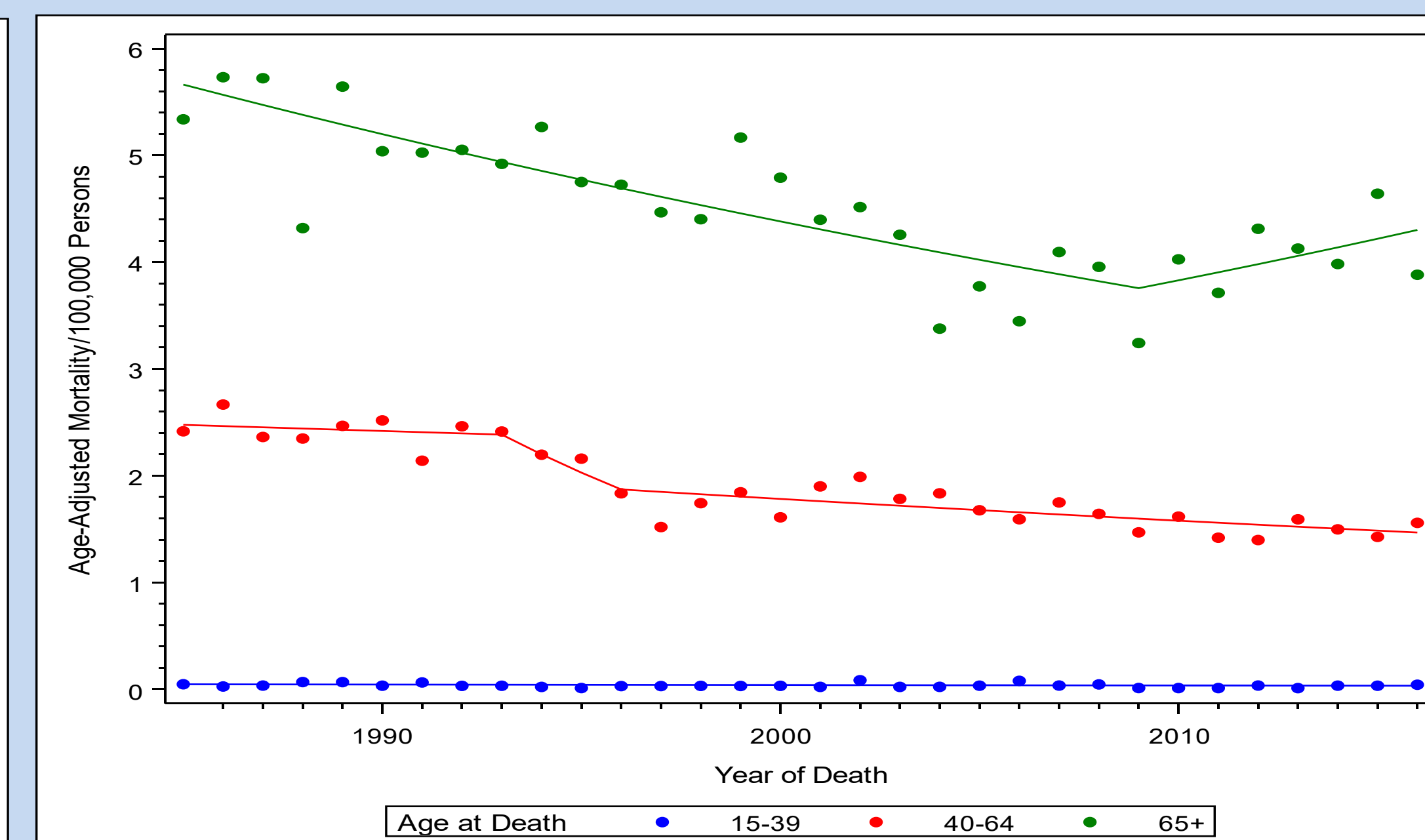
Age-Adjusted Mortality Rates from Oropharyngeal Cancer



Age-Adjusted Mortality Rates from Oropharyngeal Cancer by Race



Age-Adjusted Mortality Rates from Oropharyngeal Cancer by Sex



Age-Adjusted Mortality Rates from Oropharyngeal Cancer by Age

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