

# Global burden of cancer attributable to tobacco smoking: a comparative risk assessment study

Wednesday, 21 September 2022 10:06 (12 minutes)

**Background:** Tobacco smoking is a major cause of disease burden worldwide and can increase the risk of at least 15 different cancer types. To date, the global impact of tobacco smoking on cancer incidence has not been estimated.

**Aims:** To calculate the global, regional, and national burden of cancer in 2020 attributable to tobacco smoking to inform tobacco policy and cancer control globally.

**Methods:** In this comparative-risk assessment, we calculated the fraction of cancer cases attributable to tobacco smoking using two methods: in the first method we calculated the notional prevalence of tobacco smoking by country, sex, and age using lung cancer rates among non-smokers from the American Cancer Prevention Study-II; in the second method we obtained tobacco smoking prevalence by country, sex, and age for 2010 from the Institute of Health Metrics and Evaluation. For both methods we then calculated smoking-attributable cancer cases by applying the prevalence of tobacco smoking to relative risk estimates for tobacco-related cancers and the number of cancer cases in each country, sex, and age from the International Agency for Research on Cancer's GLOBOCAN 2020 estimates.

**Results:** Our preliminary results suggest that 3.2–3.6 million new cases of cancer in 2020 were attributable to tobacco smoking globally, which equated to around 1 in 5 (18–20%) cancer cases. Males represented 72–84% of the world total smoking-attributable cancer cases. The cancer sites which contributed the most smoking-attributable cases were cancers of the lung (1.5–1.7 million cases), oesophagus (310 000–330 000 cases), stomach (210 000–230 000 cases), and liver (190 000–200 000 cases). The largest fractions of cancer attributable to tobacco smoking were in Eastern Asia (25–30% of all cases), Central and Eastern Europe (19–21%), and Northern America (14–21%).

**Conclusion:** Our findings provide an estimate of the huge global burden of cancer attributable to tobacco smoking which should be used to reinforce and accelerate tobacco control efforts worldwide.

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**Session Classification:** Oral Presentation