

Preventable and treatable avoidable cancer deaths in 185 countries for 34 cancer sites

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Introduction: Disparities in cancer-specific incidence, mortality, and survival exist worldwide. Avoidable deaths have recently been used to estimate the burden of disease and as a measure of the inequality between countries.

Methods: Five-year net survival estimates were obtained from the SURVCAN-3 project and from a review of the literature for 34 cancer sites. Survival estimates were then obtained using a regression model versus HDI level for 185 countries. Age-specific survival estimates were estimated using patterns seen in the available individual patient data. Attributable fractions for five major risk factors across all 34 cancer sites were included to estimate preventable avoidable deaths. We then estimated the risk factor preventable and treatable avoidable deaths for 2020 scaled to IARC's GLOBOCAN incidence estimates. Analysis was done by country, region, HDI, cancer site and globally.

Results: In total 3.1 million (34.1%) of cancer deaths are potentially risk factor preventable and 1.3 million (14.5%) treatable avoidable deaths. In total, 4.4 million (48.6%) cancer deaths are avoidable out of an estimated 9.1 million deaths through prevention and treatment improvements. There are large disparities in the number and proportion of avoidable deaths globally. A significant proportion of avoidable deaths can be found across country income levels, but low- and middle-HDI countries are disproportionately affected, having large total proportions of avoidable deaths. The total proportion of avoidable deaths internationally range from 28.9% in Sweden to 70.6% in Uganda.

Discussion/ Conclusion: Our analysis provides a detailed mapping of global avoidable cancer death disparities in treatment and risk factor prevention and can be used to indicate where resources should be allocated. Prevention should be a priority, but as its impact can take decades, global efforts are also needed to address present screening and treatment inequalities.

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