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BACKGROUND

Surveillance bias occurs when variations in cancer incidence are the **result of changes in screening or diagnostic practices** rather than increases in the true occurrence of cancer. This bias can result in the wrong assessment of the true burden of cancer and **can be apprehended using epidemiological signatures**.

AIM

To assess surveillance bias in the incidence of melanoma and lung cancer in Switzerland using epidemiological signatures.

METHODS

- We assessed surveillance bias using epidemiological signatures of melanoma and lung cancer in Switzerland, using data from 1981 to 2020 retrieved from the National Institute for Cancer Epidemiology and Registration.
- These signatures consist of age-standardized incidence and mortality trends. A decoupling between incidence and mortality trends indicates that surveillance bias is probable, as mortality is less influenced by variations in screening and diagnostic practices and is more representative of true cancer occurrence.

RESULTS

- Melanoma exhibits a signature indicating surveillance bias: increasing incidence, which is not followed by an increasing mortality. This suggests that the rise in incidence is likely attributable to a high proportion of overdiagnosed cases due to frequent skin examinations.
- Lung cancer exhibits a signature less influenced by surveillance bias, with parallel changes in incidence and mortality, reflecting changes in the prevalence of risk factors (smoking) rather than screening or diagnostic practices.

Figure 1: Epidemiological signature of melanoma in Switzerland. Panel A: age-standardized incidence and mortality, all ages, 1981-2020; Panel B: incidence and mortality relative to 1981-1985

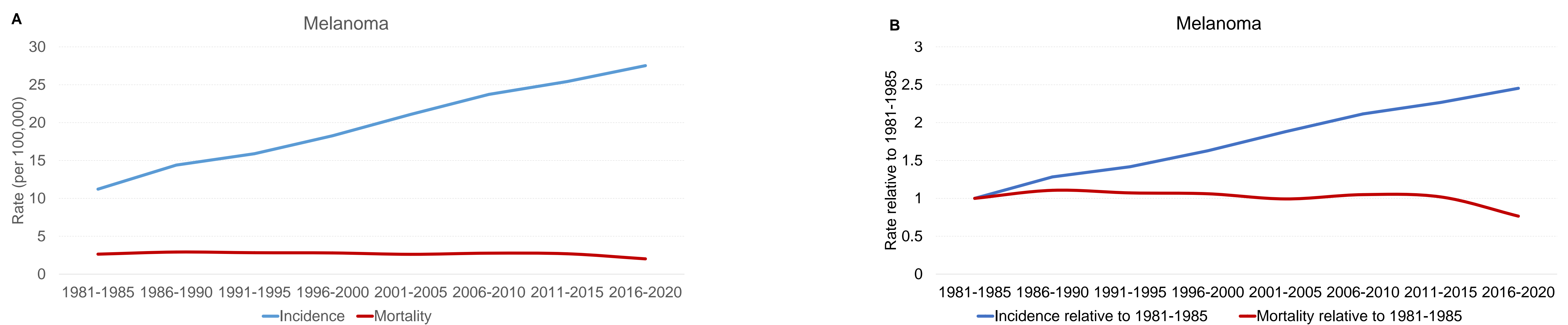
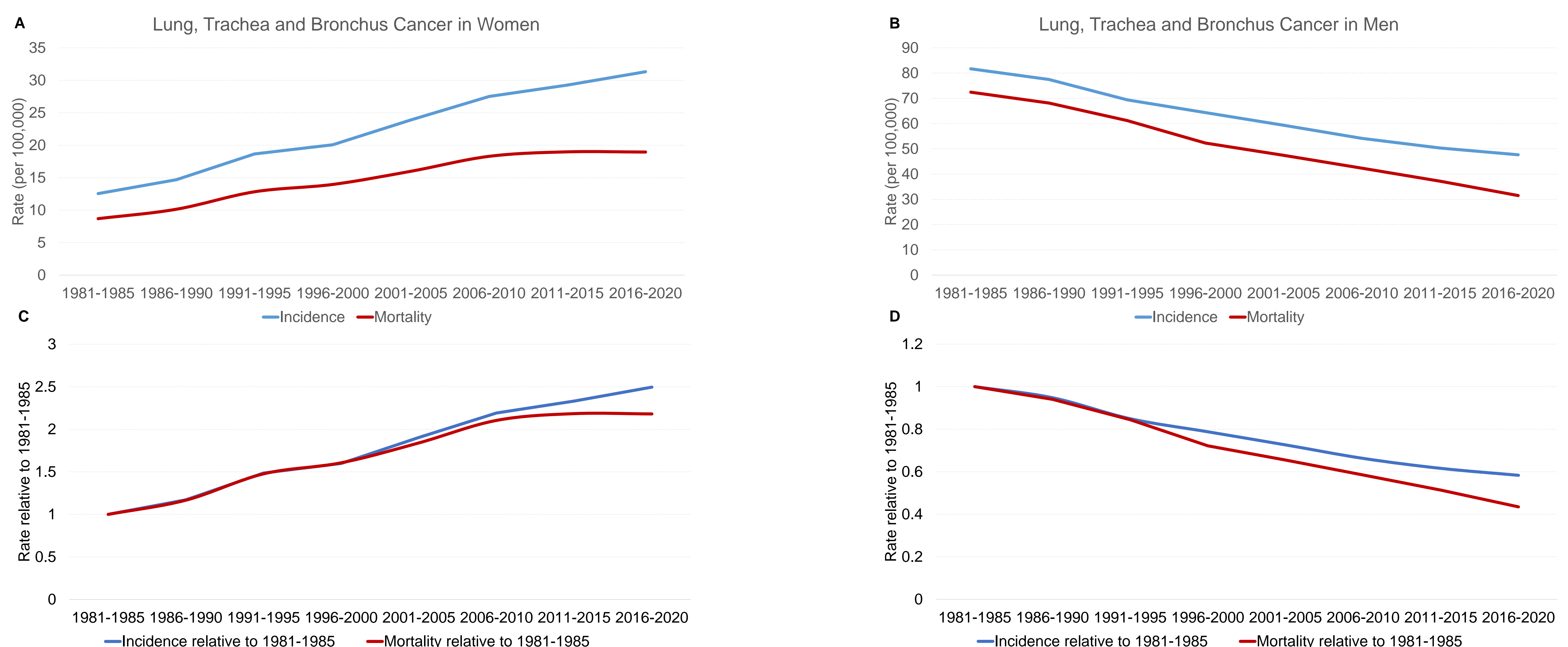


Figure 3: Epidemiological signature of lung, trachea, and bronchus cancer in Switzerland. Panel A and B: age-standardized incidence and mortality in women and men respectively, all ages, 1981-2020; Panel C and D: incidence and mortality relative to 1981-1985 in women and men respectively



KEY MESSAGES

Accounting for surveillance bias is particularly important for assessing the true burden of cancer and interpreting incidence trends. It is also crucial for accurately communicating cancer information to the population and decision-makers. Epidemiological signatures help in the assessment of this bias, easing the understanding of cancer surveillance data.

