The variation in the occurrence of cancer types between different parts of the world gives some indication of the proportion of cancers that could be prevented by modifying specific harmful lifestyle or environmental factors. Removal of HPV infection would substantially reduce the burden of cervical cancer, smoking and indoor and outdoor air pollution explain over two-thirds of lung cancer incidence. Yet, for many cancers, the causes remain largely unknown. Only 5–20% of all prostate, colorectal and breast cancers could be prevented by better diet, increased physical activity, or reduced alcohol consumption.

In addition to differences in risk factors, higher awareness in the population combined with more widespread early detection practices also explain the national and regional variation for some cancers.

Finally, regional differences in incidence will be reflected in mortality. Yet death from cancer is also influenced by early detection and access to adequate treatment. For example, low access to diagnosis and treatment facilities for prostate cancer is partly responsible for the higher mortality observed in low-income settings. On the other hand, for cancers for which treatment does not greatly affect survival, e.g. liver cancer, the regional mortality profile mimics that of incidence.

Across the globe there are striking geographical differences in cancer occurrence, mortality and survival. The relatively high rates of liver, stomach, and cervical cancer in some countries in Asia, South America, and Sub-Saharan Africa are partly due to the high prevalence of chronic infection of hepatitis B, Helicobacter pylori and human papillomavirus (HPV), respectively. In Sub-Saharan Africa, there is a staggeringly high rate of Kaposi sarcoma due to the high prevalence of HPV infection. In contrast, rates of infection-related cancers are very low in Europe and North America, where cancers linked to lifestyle "westernization" such as colorectal and breast dominate the regional profile. These populations are further distinguished by their large burden of risk factors, screening and early detection efforts, and access to adequate treatment.

Across many parts of the world, mortality from prostate cancer generally reflects lower access to diagnosis and treatment facilities.