

One in six cancers worldwide caused by infections that are largely preventable or treatable

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Infectious agents cause around 2 million new cancer cases a year worldwide, of which 80% occur in less developed regions, according to new estimates published Online First in *The Lancet Oncology*. Of the 7.5 million deaths from cancer worldwide in 2008, an estimated 1.5 million were due to potentially preventable or treatable infections.

"Infections with certain viruses, [bacteria](#), and [parasites](#) are one of the biggest and preventable causes of cancer worldwide...Application of existing public-health methods for infection prevention, such as vaccination, safer injection practice, or antimicrobial treatments, could have a substantial effect on future burden of cancer worldwide", explain Catherine de Martel and Martyn Plummer from the International Agency for Research on Cancer, France, lead authors of the study.

In this study, de Martel and colleagues did a systemic analysis to estimate the proportion of cancers that could be attributed to infection globally and in eight regions by calculating the population attributable fractions (PAF)—the proportion of new cancer cases in a population that could have been prevented by an intervention on a specific exposure.

Using data from a number of sources including GLOBOCAN statistics on incidence estimates for 27 cancers in 184 countries, they calculated that around 16% of all cancers worldwide in 2008 were infection-related, with the fraction of cancers related to infection about three

times higher in developing than in developed countries (22.9% vs 7.4%).

The fraction of infection-related cancers varied widely between regions, from 3.3% in Australia and New Zealand to 32.7% in sub-Saharan Africa.

"Many infection-related cancers are preventable, particularly those associated with human papillomaviruses (HPV), *Helicobacter pylori*, and hepatitis B (HBV) and C viruses (HCV)", say the authors, adding that these four main infections are together estimated to be responsible for 1.9 million cases, most of which are gastric, liver, and cervical cancers.

Cervical cancer accounted for around half of the infection-related burden of cancer in women, and in men liver and gastric cancers accounted for more than 80%.

They conclude: "The 2011 UN high-level meeting on non-communicable diseases highlighted the growing global agenda for prevention and control of non-communicable diseases. [But] although cancer is considered a major non-communicable disease, a sizable proportion of its causation is infectious and simple non-communicable disease paradigms will not be sufficient."

In an accompanying Comment, Goodarz Danaei from Harvard School of Public Medicine, Boston, USA says: "Their estimates show the potential for preventive and therapeutic programmes in less developed countries to significantly reduce the global burden of [cancer](#) and the vast disparities across regions and countries."

He adds: "Since effective and relatively low-cost vaccines for HPV and HBV are available, increasing coverage should be a priority for health systems in high-burden countries."

Provided by Lancet

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