Preventing cancer: the only way forward

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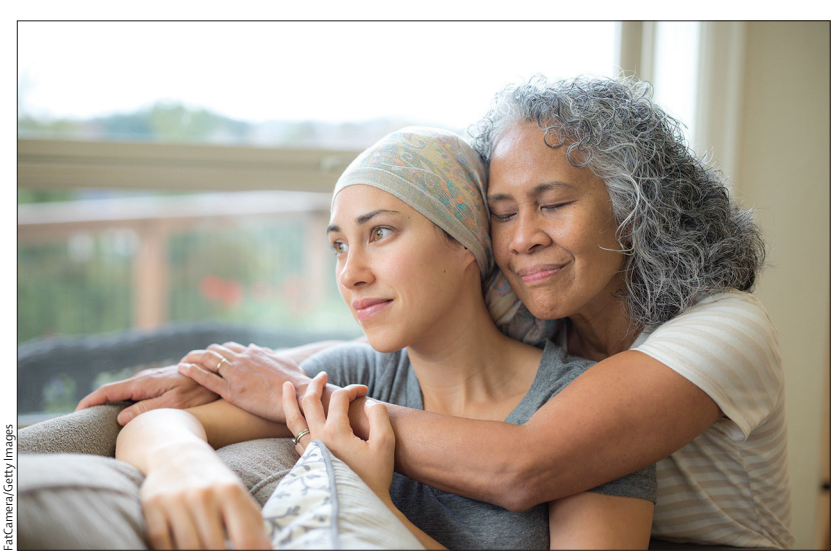
The growing global burden of cancer is rapidly exceeding the current cancer control capacity. More than 19 million new cancer cases were diagnosed in 2020 worldwide, and 10 million people died of cancer.[1] By 2040, that burden is expected to increase to around 30 million new cancer cases annually and 16 million deaths from cancer according to the Global Cancer Observatory.

For more on the **Global Cancer Observatory** see https://gco.iarc.fr/

In *The Lancet*, the Global Burden of Disease Study collaborators[2] report on their effort to examine the relationship between indicators of metabolic, occupational, environmental, and behavioural risk factors, and cancers globally. Using estimates of cancer incidence, mortality, and risk factor data from 204 countries, and covering risk factors from tobacco use to workplace carcinogen exposure, the authors found 4·45 million deaths (95% uncertainty interval 4·01–4·94) and 105 million disability-adjusted life-years (DALYs; 95·0–116) were lost as a result of these risk factors, accounting for 44·4% of cancer deaths (41·3–48·4) and 42·0% of cancer DALYs (39·1–45·6). Tobacco use (36·3% of cancer deaths for males and 12·3% for females), alcohol use (6·9% of cancer deaths for males and 2·3% for females), and high BMI (4·2% of cancer deaths for males and 5·2% for females) accounted for the highest proportion of cancer deaths globally with unsafe sex (6·5% of cancer deaths for females) also being among the top three risk factors in low and low–middle sociodemographic Index (SDI) countries. They also found an alarming 20·4% (12·6–28·4) increase in cancer deaths attributable to these preventable causes between 2010 and 2019.



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Any study that draws together data from various global sources carries inherent methodological challenges. Measurement of lifetime exposures to complex risk factors, such as dietary factors and their relationships with cancer, will inevitably be incomplete, even with the best available data. In a global study, this issue is compounded by substantial variability in availability and completeness of data across countries and regions. In addition to these challenges is the fundamental issue relating to the variable reliability of evidence, particularly that from observational studies, on the putative associations between risk factors, such as dietary factors, and particular cancer types.[3] These risk factors require an estimate of lifetime exposure with the inherent complexity of timing, dose, interactions with other exposures, scarcity of contemporaneously collected data, and residual confounding making causal inference difficult. Even the measurement of cancer incidence itself is highly problematic in many parts of the world because of an absence of routinely collected health data including cancer registration.[4] The Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) team are well experienced in dealing with these complexities and incorporated uncertainty estimates to address this in part. But the degree of mismeasurement is impossible to estimate, and inevitably not all estimates will be accurate.

The GBD study includes an impressive range of risk factors. But some important risk factors for cancer are not included, particularly infectious agents and ultraviolet exposure. The global burden of cancers attributable to infectious disease is substantial and growing.[5] In 2018, more than 2 million new cancer cases—around 10% of all new cancers globally—were attributable to infections, including *Helicobacter pylori*, viral hepatitis, and the human papillomavirus (HPV), with this burden distributed unevenly across global regions.[5]

However, methodological challenges aside, the overriding message of this research is clear: a substantial proportion of cancers, most likely a majority when infectious diseases are considered, is preventable. Inequalities in incidence of cancer both between and within countries are substantial and persistent, and largely driven by preventable cancers.[6] These inequalities

are not inevitable and not static. In low SDI countries, chronic infections, such as hepatitis B and C, HIV, and HPV, are responsible for a higher proportion of cancer deaths.[6] But the importance of cancer associated with dietary and hormone-mediated cancers, including breast and prostate cancer, is increasing.[6] The incidence of cancers associated with tobacco use follows a predictable pattern in the decades following introduction of tobacco, and when policies are put in place to reduce the resulting exposure.[7]

It is no accident that behaviours associated with higher risk of cancer are patterned according to poverty, particularly within countries.[8,9] Poverty influences the environments in which people live, and those environments shape the lifestyle decisions that people are able to make.[8] Action to prevent cancer requires concerted effort within and outside the health sector. This action includes specific policies focused on reducing exposure to cancer-causing risk factors, such as tobacco and alcohol use, and access to vaccinations that prevent cancer-causing infections, including hepatitis B and HPV.[10,11] Preventing cancer is hugely cost-effective, with one estimate that investing US$100 million in prevention could result in savings of US$100 billion in treatment costs.[12] But broader policy initiatives, such as those that focus on education, child health, gender equality, and wealth distribution, have an important role in creating environments that not only prevent cancer, but also support wellbeing and health generally.[8]

The primary prevention of cancer through eradication or mitigation of modifiable risk factors is our best hope of reducing the future burden of cancer. Reducing this burden will improve health and wellbeing, and alleviate the compounding effects on humans and the fiscal resourcing pressure within cancer services and the wider health sector.

We declare no competing interests.

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Antenatal betamethasone regimen for women at risk of preterm birth

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2022 marks the 50th anniversary of the landmark study[1] by Liggins and Howie evaluating the benefit of antenatal corticosteroids in reducing respiratory morbidity.[1] By the early 1990s, obstetrical societies worldwide supported its use in women at risk of preterm birth. However, although the benefit of reduced neonatal mortality and morbidity are striking, recent studies have raised concerns that fetal exposure to antenatal corticosteroids might be associated with physical, mental, and developmental disorders.[2–5]

Two main strategies could be considered to balance the benefits of antenatal corticosteroids with the emerging concerns regarding their potential