to foster research, modify lifestyles and environments, redesign health systems, and reform health policy is urgently required.

Governments, policy makers, and everyone who can help stop these unnecessary deaths must take action to:

Prevent preventable cancers:

1 Wage war on tobacco, by far the biggest cause of cancer death across the globe. Extend to all countries the anti-tobacco measures already found to be effective and tax the profits made from tobacco.
2 Give people the knowledge they need to understand which cancers threaten them most, and how to reduce their risk; develop and implement scientifically sound strategies, including vaccines, to protect against cancers caused by infections.

Treat treatable cancers:

3 Develop early detection programmes tailored to local needs and resources, which target cancers that are the most detectable and treatable and have the greatest social impact.
4 Ensure that every cancer patient has access to a package of indispensable diagnostics and curative and palliative care that has been shown to get the best possible results within the local setting and is delivered by trained health professionals.

Support all those who are living with cancer:

5 Give all patients access to optimal pain control by changing attitudes and removing bureaucratic, legal, and logistical barriers to the medical use of morphine.
6 Involve patients as partners in decisions about their own care and give them a voice in decision making about policies that affect them.

Accelerate finding cures for cancers that are not yet curable:

7 Replace the current broken business model for developing new therapies with more efficient forms of public-private collaboration, geared to accelerating delivery of affordable therapies that are of real benefit to patients across the world.

To achieve all the above:

8 Educate policy makers and the public to counter the entrenched fatalistic myths and misconceptions that undermine efforts to mobilise forces against cancer and deter people who suspect they may have cancer from seeking early medical advice.
9 Promote and strengthen sustainable and universally accessible health systems that are supported by innovative financing mechanisms, and are driven by evidence about cost-effective ways to deliver the best results and not by vested economic interests.
10 Ensure that all countries have a clear cancer control strategy that evolves in the light of needs and experience, and is built on creative ideas, backed by solid evidence, in order to turn back the tide on cancer.

*The World Oncology Forum (WOF) was a gathering of leading cancer researchers, clinicians, policy makers, industry representatives, patient advocates, and journalists. It was convened by the European School of Oncology on the occasion of its 30th anniversary in Lugano, Switzerland, on 26–27 October 2012, in partnership with *The Lancet*. The Stop Cancer Now! statement was developed by the WOF participants. WOF was supported by the European School of Oncology's sustaining foundations, the Swiss Cancer League and the Swiss Cancer Research Foundation, and the City of Lugano and Canton of Ticino authorities. It was totally independent of commercial sponsorship. Further information about the WOF and the Stop Cancer Now! statement is available at http://www.worldoncologyforum.org.

Global cancer burden and sustainable health development

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Managing non-communicable diseases, particularly cancer, forms a central part of the Sustainable Development Goals of Rio+20.[1] Advancing cancer screening, diagnosis, and treatment in high-income countries means cancer-related deaths are likely to remain stable in these nations. By contrast, about 70% of global cancer mortality occurs in low-income countries, and current estimates predict that deaths from cancer in these countries will grow from 5·5 million at present to 8·9 million in 2030.[2] A global strategic plan is required to improve cancer services sustainably in low-income countries and should focus on preventive strategies and innovative service delivery models.

The largest modifiable contributors to cancer are driven by unhealthy behaviours (eg, smoking, unhealthy eating, physical inactivity, and alcohol consumption)

Panel: **Examples of cancer collaborative networks**

National Cancer Institute, US National Institutes of Health
Functions in low-income countries through international partnerships that have resulted in the development of robust cancer registries and increased provision of palliative care and research training support.[8]

WHO and International Atomic Energy Agency Joint Programme on Cancer Control
Provides cancer control assessment and identifies barriers to progress before implemention of comprehensive cancer control programmes.[9]

Partners in Health collaboration with Dana-Farber Cancer Institute and Brigham and Women's Hospital
Provides internet-based support to deliver chemotherapy by non-specialist physicians and nurses.[10]

Inclusion of cancer treatment in national health insurance programmes in Mexico and Colombia
These health insurance programmes have led to comprehensive treatment regimens for breast, cervical, and childhood cancers.[11]

King Hussein Cancer Center in Jordan
The only Joint Commission accredited centre in a developing country; it acts as a regional hub and provides high-quality treatment to patients unable to afford the cost of treatment.[12]

that are inevitable with increasing urbanisation in developing countries. Preventive strategies are key to tackling such behaviour. In 2003, about 10% of funding by the US National Institutes of Health was dedicated to behavioural and social science research;[3] 10 years on, funding for behavioural science research has risen to US$27 million to reflect the importance of this expanding field.[4] Mobile health technology provides a platform on which to monitor behaviour and educate patients and health-care workers in order to drive change.[5] The expansion of digital technology will enable improved monitoring of cancer treatment resources and cancer registration, which are vital before the implementation of appropriate control strategies.

Successful outcomes for breast and cervical cancer screening in developing countries have been reported.[6] The prevention of cervical cancer shows what can be achieved with horizontal integration of HPV vaccination in existing programmes, while the "single visit" approach to cervical cancer has made efficient diagnosis and treatment of precancerous lesions feasible.[7] Cervical cancer prevention is a prime example of sustainable development through strengthening basic health-care services for women, promoting health education, and empowering vulnerable groups in decision-making processes.

Innovative service delivery models are also important. A comprehensive health system in low-income countries involves cross-sectoral collaboration between many stakeholders, including academic institutions, local governments, non-governmental organisations, patients' groups, and industry. The aim of collaborative networks should be to build cancer expertise while taking account of the needs of the local population and the available short-term and long-term resources. Five examples of such collaborative networks are shown in the panel.

It is vital that new innovative strategies to tackle cancer in low-income countries undergo the rigid process of concept screening to assess the feasibility, accessibility, and vulnerability of what is proposed. This should be aided by the evaluation of transparent process models of existing initiatives. Regulatory barriers for existing health systems in high-income countries make the implementation of disruptive health-care models difficult. However, restructuring some of the existing rudimentary and fragmented health-care systems in low-income countries may be a more feasible solution to explore novel models of health care.[13]

Cancer has been in the shadows of communicable disease with regard to global health priorities. There are many initiatives worldwide that are addressing cancer and non-communicable diseases. These efforts should, however, be coordinated centrally to develop a streamlined and targeted approach that will allow rapid scale-up of successful initiatives. Moreover, one of the largest constraints to global cancer care will be finding the capital flow to finance new innovations. There are valuable lessons to be learnt from financing and procurement schemes, which aided the fight against communicable diseases such as HIV/AIDS. Much-needed investment for the development of health systems in low-income countries is likely to flourish by focusing stakeholder support on the ethical dimensions of sustainability. Recipient countries should seek to maximise social benefit (eg, promoting health worker education, maximising vaccination quotas) and guarantee good financial returns to donors. The vast inequality in cancer care across nations shows us that the effects of cancer have wide-ranging social, environmental, and economic consequences, especially among vulnerable populations. Equitable health delivery will depend on efforts that support these pivotal constituents of sustainable development.

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Kinase inhibition in rheumatoid arthritis: a big advance?

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Treatment of rheumatoid arthritis is an active and competitive field. Key milestones have been the extended use of methotrexate since 1980, and introduction of the first biotherapy targeting tumour necrosis factor (TNF) in 2000.[1] There are currently five TNF inhibitors on the market, as well as biotherapies that target B cells and T-cell interactions. This progress comes from the development of monoclonal antibodies, fusion proteins of soluble receptors, and inhibitors. These protein therapeutics are administered systemically, either intravenously or subcutaneously, on a weekly or monthly basis.

Orally administered small molecules that inhibit intracellular signalling are being developed, although previous attempts at development of such therapeutic agents failed because of poor efficacy or safety issues. Tofacitinib (CP-690550) is an oral Janus kinase (JAK) inhibitor.[2] It targets the Janus kinases, a group of enzymes involved in cytokine signalling comprising JAK1, JAK2, JAK3, and TYK2. JAK3 forms a complex with JAK1, so a selective JAK3 inhibitor also affects JAK1. After the interaction between a cytokine and its membrane receptor, intracellular signalling triggers a cascade involving activation of kinases followed by signal transducer and activator of transcription (STAT) proteins. Activation of gene transcription then leads to release of the corresponding protein by the activated cell. As an example, when the cytokine IL-12 binds to its membrane receptor on a T cell, it activates first the JAK pathway, then STAT1 and tBet, the transcription factor characteristic of Th1 cells. Activation of tBet induces the release of interferon gamma (IFNγ).

Tofacitinib was first identified as an inhibitor of JAK3, which binds the common gamma chain of the multichain complex of the type I cytokine receptor family (IL-2R, IL-4R, IL-7R, IL-9R, IL-15R, and IL-21R). These receptors are essential for activation of T cells, and mutations of JAK3 result in severe T cell-mediated combined immunodeficiency. Tofacitinib first showed efficacy in a murine model of heart transplantation, where T cells are crucial in graft rejection.[3] Apart from the T cell associated cytokines, JAK kinases are also associated with the receptors of other cytokines: IL-6, type I interferon, IL-12, IL-23, and others.[2] These cytokines act on various cell types involved in rheumatoid arthritis: either monocyte-derived cells (macrophages, dendritic cells, and osteoclasts), or mesenchymal cell-derived cells (osteoblasts, chondrocytes, and synoviocytes). The combined inhibition of JAK1 and 3 (and to a lesser extent JAK2 and TYK2) with tofacitinib accounts for the anti-inflammatory and bone protective effects seen in animal models of rheumatoid arthritis.[4] Treatment of human monocytes and synoviocytes with tofacitinib reduces the response to TNF with low production of IL-6 and chemokines.[5,6] Human T cells from blood and synovium show reduced expression of STAT1 and STAT3, and reduced production of IFNγ and IL-17, respectively.[7]