

Health matters

Why we must commit
to delivering prevention
in an ageing world



Health and care
Prevention
Immunisation
Inequalities
Diseases and conditions
Life expectancy
International

Acknowledgements

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Executive summary

Last year, ILC-UK launched its flagship report, *Never too late: Prevention in an ageing world*, which highlighted the health and economic costs of failing to invest in prevention in an ageing world, and called for governments to prioritise preventative health interventions throughout people's lives.

We know that prevention works, that it's cost-effective and that it can save lives. However, despite the clear economic and social benefits of investing, action on prevention lags behind, while preventative services are often the first to be cut in times of crisis. As populations around the world grow older, this needs to change. The effects of the COVID-19 pandemic only serve to reinforce this message.

This report is designed as our first statement on why we need bolder spending commitments on prevention.

Looking across the G20 countries, healthy life expectancy (HLE) has increased for all of them; those which had the lowest figures in 2000 have made the biggest improvements since. However, there is still a gulf between the best and the worst figures across different countries. There's also a clear correlation between a country's *per capita* healthcare expenditure and its population's HLE. In other words, we tend to see the highest levels of HLE in countries where the state pays for a greater share of health spending, reducing the cost barriers for individuals.

The G20 countries are spending an ever greater share of GDP on healthcare. But we must make sure that this money doesn't go towards increasing the life spans of those who are already benefiting the most. We must recognise that levelling up the most marginalised people will bring the greatest returns.

While spending more isn't the only solution, it's an important starting point for delivering meaningful prevention strategies. These strategies are needed both to help us recover from the disastrous impacts of the pandemic, and for the long-term, as we adjust to living in an ageing society.

In our *Health equals wealth* report, our key message was for governments to spend at least 6% of their health budgets on prevention. While Canada has already achieved this, most countries are far from reaching this target. But once this has been accomplished, countries should aim for more ambitious targets, such

as the 15% goal called for by the UK's All Party Parliamentary Group (APPG) on Longevity.

Greater spending commitments can form the basis of longer-term prevention strategies that seek to:

- Democratise access to prevention, to alleviate health inequalities
- Inspire and engage policymakers, healthcare professionals and individuals to consider, support and access prevention
- Effectively utilise technology

What do we mean by prevention?

Prevention is a broad-ranging concept referring to policies and behaviours that aim to avoid or reduce the incidence or severity of injury or disease. It includes actions and interventions that don't necessarily fall within health expenditure boundaries, such as measures to reduce air pollution.

Prevention straddles different sectors within the healthcare system. The public health function should take a leading role; this might include activities such as surveillance, health education and promotion, and specific activities such as smoking reduction interventions.

The 2011 system of health accounts jointly published by the World Health Organisation (WHO), Organisation for Economic Co-operation (OECD) and the European Union (EU) defines prevention expenditure as any service designed to enhance the health status of the population, as distinct from curative services which are concerned with treatment.

Source: *A system of health accounts 2011* by the OECD, EU, Eurostat and WHO

Introduction

Our 2020 report, *Never too late: Prevention in an ageing world*, found that in wealthier countries, people lived with disabilities for the equivalent of 27.1 million years in 2017 alone, due to a number of largely preventable age-related diseases. If their governments fail to prioritise life-long preventative health interventions, the average number of years their people will live in poor health is set to increase by 17% over the next 25 years.

We know that prevention works and that it drives an economic return. But for too long, commitments to prevention haven't been followed up with action and concrete spending commitments. In an ageing world, this needs to change.

Success in preventing disease is a delicate balance of many different factors: epidemiological and medical as well as societal. And as the COVID-19 pandemic shows, the progress made so far could even be reversed if policymakers fail to respond urgently. This makes it vital to consider how we prioritise and allocate our resources, and how we can learn from previous efforts.

While there are inarguably many other socioeconomic influences at play, health systems shouldn't pass the buck; they must play their part at all levels. This means everything from investment in the infrastructure and skills needed to prevent and treat disease, to reaching those people in greatest need, as well as implementing preventative services.

Expenditure drives health outcomes

"The Changing Relation between Mortality and Level of Economic Development", the landmark 1975 study by Sam Preston,¹ showed that people born in richer countries can expect to live longer, on average, than those born in poorer countries. However, the link between income and life expectancy (LE) flattens out as wealth increases, leading to diminishing returns. The study showed that at low levels of *per capita* income, further increases in income are associated with large LE gains, but at high levels of income, increasing income has little further effect. Preventive healthcare is most effective when addressing issues that affect poorer populations who have been underserved or left behind – however, high income countries should not dismiss the role of prevention.

Building on Preston's work, we looked for any similar connection between LE and *per capita* expenditure on healthcare: we found a similar pattern. Figure 1 shows the relationship between health expenditure and LE; each data point represents a different country. The curve formed by these data points is known as the Preston curve.

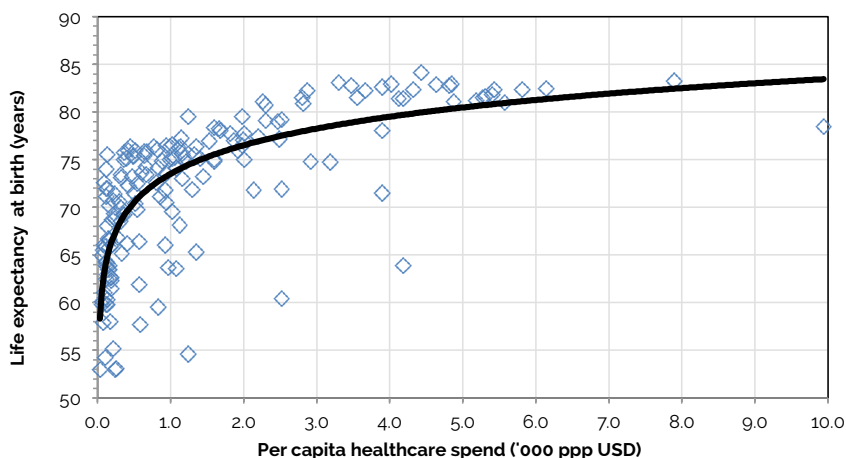
The Preston curve isn't static; research has shown that it can rise or fall. For example, changes in technology that prolong life will tend to shift the curve upwards. As individual countries change and hopefully improve their positions as they become wealthier, this will allow them to invest more in the health economy.

Most countries, even the poorest, have experienced increases in LE over time, but in some LE has declined – especially those in war zones or areas affected by natural catastrophes. Where there have been improvements, Preston and others attribute these not only to technology but also better education, public health services and nutrition.

We've found that the same relationship exists between healthcare expenditure and HLE. This is important, as longer lives are less desirable if they're not also healthier lives.

¹Preston, S. H (1975). "The Changing Relation between Mortality and Level of Economic Development". *Population Studies*. 29 (2): 231–248. doi:10.2307/2173509. JSTOR 2173509. PMC 2572360. Bloom, D., E. Canning, D. (2007). "Commentary: The Preston Curve 30 years on: still sparking fires"

Figure 1: Global relationship between healthcare expenditure per capita and LE (source: WHO) (ppp = purchasing power parity in USD)



Comparing HLE across G20 members

Figure 2 isolates the 19 individual countries of the G20 (the 20th member being the EU). G20 countries are generally above the global average for both LE and healthcare spending, as indicated by the solid lines which reflect the average of all countries. However, there are a few major exceptions: the US spends more than any other country on health, but has low LE and HLE, close in value to countries where health expenditure is only a tenth of that in the US. The countries that stand out as best on these indicators are those which spend about half what the US does; these include Japan and many in Western Europe.

By definition, HLE is always less than LE, but the size of the difference between them, as measured by the vertical distance between the curves, is of interest. The average across all countries is 8.6 years. Countries with the lowest health expenditure can see a difference between LE and HLE as small as seven years, while those with the highest expenditure may see as much as ten. It is traditional to attribute this variance to the greater added value of healthcare services in high income countries (which allows them to keep people alive for longer). However, it also means that people in high income countries tend to spend more years in poor health. This is a potentially avoidable burden on health systems, which could be better managed through effective preventative healthcare policies.

Figure 2: LE and HLE in G20 countries as a function of healthcare spending, compared to global averages (based on Table1) (ppp = purchasing power parity in USD)

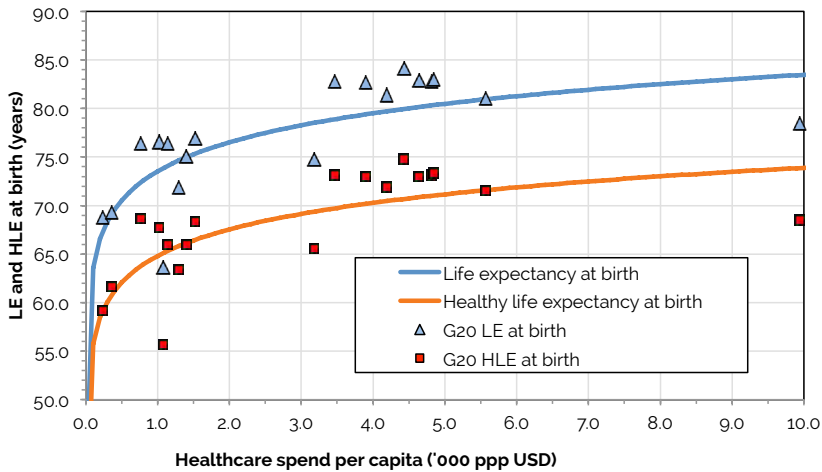


Table 1 shows the actual values for LE, HLE and *per capita* expenditure and ranks each G20 country in terms of all three measures. The EU, a G20 member in its own right, isn't included; figures for the EU are similar to those for EU member countries such as France, Germany and Italy.

The countries can be divided into three groups:

- Group 1: countries which spend least on health, like Brazil, India and Russia, all of which have the lowest LE and HLE
- Group 2: intermediate countries like Japan, France, the UK, and Germany, all of which do better than Group 1 and best overall
- The USA has been allocated its own group, because while it spends most on health, LE and HLE are on a par with Group 1

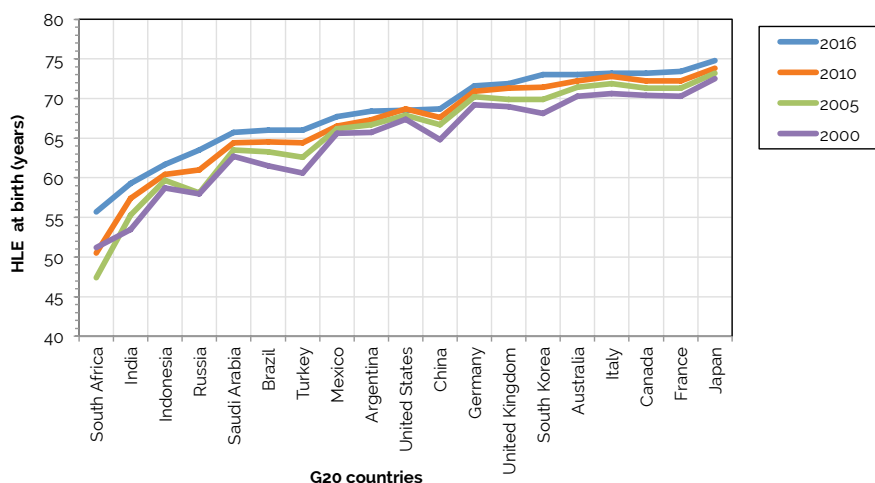
Table 1: G20 countries grouped by HLE and LE at birth, per capita expenditure on health, and G20 ranking (ppp = purchasing power parity in USD)

Group	G 20 countries	LE (years)	HLE (years)	ppp USD/ capita (000s)	Rank LE	Rank HLE	Rank ppp USD/ capita
1	Argentina	77.0	68.4	1.5	10	11	11
	Brazil	75.1	66.0	1.4	14	13	12
	China (People's Republic of)	76.4	68.7	0.8	12	9	17
	India	68.8	59.3	0.2	18	18	19
	Indonesia	69.3	61.7	0.4	17	17	18
	Mexico	76.6	67.7	1.0	11	12	16
	Russia	71.9	63.5	1.3	16	16	13
	South Africa	63.6	55.7	1.1	19	19	15
	Australia	82.9	73.0	4.6	3	6	5
	Canada	82.8	73.2	4.8	4	3	4
	France	83.0	73.4	4.8	2	2	3
	Germany	81.0	71.6	5.6	8	8	2
2	Italy	82.8	73.2	3.5	5	4	9
	Japan	84.2	74.8	4.4	1	1	6
	Korea	82.7	73.0	3.9	6	5	8
	Saudi Arabia	74.8	65.7	3.2	15	15	10
	Turkey	76.4	66.0	1.1	13	14	14
	United Kingdom	81.4	71.9	4.2	7	7	7
3	United States	78.5	68.5	9.9	9	10	1
	Average	77.3	68.2	3.0			

These are static rankings that don't change over time. All the countries have improved their LE and HLE in the last 20 years, but not necessarily at the same rate: in the US, for example, gains have stalled. Although there have been some small changes in rankings, the overall degree of re-shuffling is limited.

Figure 3 shows this clearly. The vertical axis shows HLE at the four points in time for which we have data: 2000, 2005, 2010 and 2016. On the horizontal axis, G20 countries are ranked from lowest to highest HLE in 2016, the latest period for which data are available. We find that countries with the lowest HLE in 2000, such as South Africa, have made the most progress, although there is still a huge disparity. The gap between the highest (Japan) and lowest (South Africa) in 2016 was still 19.1 years.

Figure 3: HLE at birth in G20 countries, 2000 to 2016



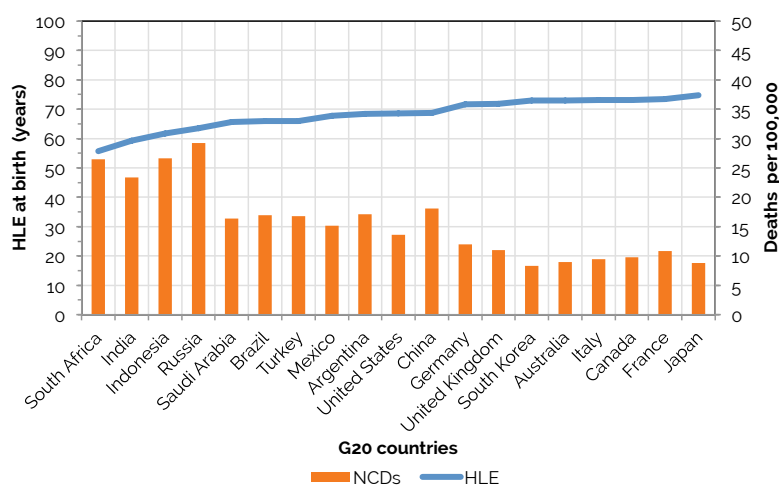
One of the key correlates with HLE is absolute poverty (there are many others, which also correlate with each other and with poverty). Poverty creates conditions where poor health can flourish and is preventable. Absolute poverty, as defined by the World Bank as subsisting on less than USD1.9 a day, is the most pernicious. We can see its effects in not only South Africa but also India and Indonesia, and to a lesser extent in Mexico. Even some of the richer countries like Italy are not immune, which indicates there is work still to be done in democratising access.

The customary assumption is that mortality from infectious diseases is commonest in the poorest countries; this is broadly correct. It is also often assumed that decline in incidence of infectious disease is a sign of economic progress since, it is argued, once infectious disease has been brought under control, mortality is mainly from non-communicable diseases (NCDs). But we can challenge this narrative by comparing HLE with mortality rates from NCDs.

Figure 4 shows that these rates are higher in Group 1 G20 countries than in Group 2 countries. These countries appear to be transitioning away from infectious diseases to NCDs in terms of mortality causes; they may need to redirect their health economy resources accordingly. At the same time it's important not to oversimplify. For example there's some evidence of a relationship between prevalence of flu and an increase in heart attack and stroke among populations. But causation can work both ways, as demonstrated by the evidence that people with long-term health conditions are more vulnerable to the COVID-19 virus.

Tobacco consumption remains the main preventative risk factor in deaths from NCDs; its elimination would significantly increase LE and HLE in most countries. But the second biggest killer after tobacco is now respiratory disease and other NCDs ascribable to air pollution. It's noteworthy that Group 1 countries are more affected in this regard, as with tobacco.² Air pollution typically affects densely populated urban areas and is mainly caused by human activity in origin– sources include traffic, household emissions and the burning of fossil fuels. Additional natural causes include wild fires, such as those in Australia, although those are ascribable to human-induced climate change. So we can see that some health threats are due to individual behaviours, like tobacco, while others have systemic causes, such as climate change.

Figure 4: NCD mortality rates in G20 countries compared with HLE at birth



²WHO (2019) Non-communicable Diseases and Air Pollution. <https://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2019/noncommunicable-diseases-and-air-pollution-2019>

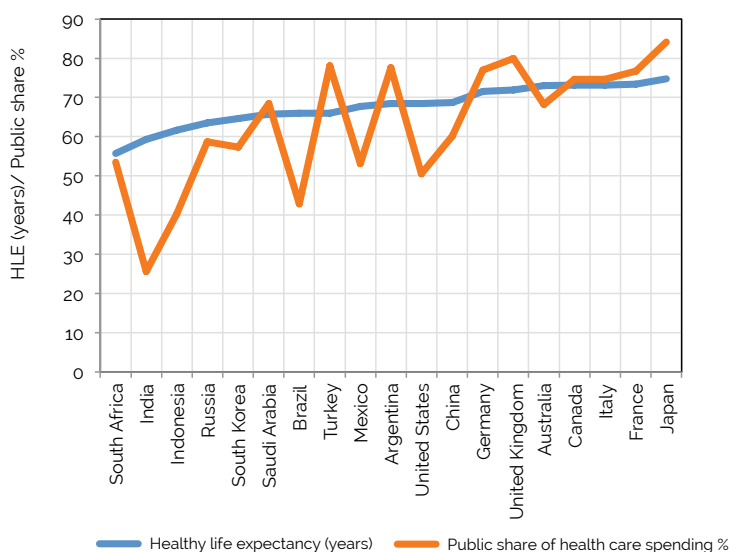
Healthcare systems can't pass the buck

The rate of increase in healthcare expenditure is exceeding the rate of growth in GDP, with the effect that health expenditure takes up an ever greater share of national income over time.³ Some of this is due to populations ageing, but it's also caused by increasing production cost factors like labour and technology.

We believe that the health dividend from healthcare investment should benefit everybody, which is why one of our stated goals in *"Never too late: Prevention in an ageing world"* is to democratise access to prevention.

Figure 5 shows the positive relationship between HLE and the proportion of healthcare expenditure deriving from the state. In the case of Japan this proportion reaches levels of more than 80%. Japan has the best health outcomes of all G20 countries but ranks only sixth for *per capita* spend. The data cover only one moment in time, but they indicate that the proportion of expenditure paid for by the state in Japan is increasing over time. Making access to healthcare less dependent on the ability to pay is clearly good for democratising access to prevention and driving health outcomes.

Figure 5: The relationship between HLE and the proportion of health spending covered by the state



³Mayhew, L. (2000) "Health and Elderly Care Expenditure In an Ageing World". RR-00-21, International Institute for Applied Systems Analysis, Laxenburg, Austria. https://www.researchgate.net/profile/Les-Mayhew/publication/2462709_Health_and_Elderly_Care_Expenditure_in_an_Aging_World/links/561cc2c708aea80367258546/Health-and-Elderly-Care-Expenditure-in-an-Aging-World.pdf

What happens next?

The big story from this short overview is that all G20 countries have improved their health outcomes in the last 20 years, but not at equal rates. Greater spending drives better health outcomes and, most importantly, not just longer but healthier lives. As healthcare spending increases, it is vital that the increase is targeted at those who will benefit most in terms of HLE. It would not be defensible to simply extend life expectancy for the wealthy.

Another early finding is that when the state accounts for a larger share of healthcare expenditure this leads to greater democracy of access and better health outcomes. This is because services are more likely to be free or at least more affordable, opening up to services to a much larger proportion of the population.

A solid commitment to spending on prevention underpins a long-term prevention strategy. In *Health equals wealth: The global longevity dividend*, we argued that the proportion of health budgets devoted to prevention should increase to at least 6%, and preferably higher. But if prevention efforts are to be successful, we need a good understanding of what works. Then we need to be heard by policy makers, healthcare professionals and individuals, so that any commitment to the prevention agenda is matched by action. Our programme *Delivering prevention in an ageing world* seeks to achieve this by looking at how we:

- Democratise access to prevention
- Inspire and engage people around the prevention agenda
- Effectively utilise technology

Understanding how best to deliver prevention is no easy task, particularly at a time when the COVID-19 pandemic has increased risk for many who are already at risk of ill-health, and countries are uncertain of the pandemic's economic impact on public spending.

That said, we know preventative interventions work and that they bring significant societal and economic benefits. Developing our knowledge base and engaging experts from a wide range of sectors throughout our programme will be vital in helping us to achieve our goal.

Throughout the year there will be several opportunities for health, policy, and industry experts to feed into our work. This includes three

upcoming expert roundtables in March and April 2021, on how to deliver prevention across our three pillars: democratising access; inspiring and engaging; and using technology effectively. We will publish a consultation paper to accompany each event, each of which will identify initial prevention delivery solutions, and offer key discussion questions that aim to examine how we can further strengthen those solutions and elicit suggestions for what more might be done.

Following our roundtables a number of international events, aimed at further developing our knowledge and engaging high-level stakeholders, will push forward the prevention agenda. Alongside these events we will publish second drafts of our consultation papers that incorporate our findings, which we will then present to the wider public for final feedback. The consultation process will be crucial in helping us deliver our final toolkits on how to deliver prevention in an ageing world.

About the ILC

The International Longevity Centre UK (ILC) is the UK's specialist think tank on the impact of longevity on society. The ILC was established in 1997, as one of the founder members of the International Longevity Centre Global Alliance, an international network on longevity.

We have unrivalled expertise in demographic change, ageing and longevity. We use this expertise to highlight the impact of ageing on society, working with experts, policy makers and practitioners to provoke conversations and pioneer solutions for a society where everyone can thrive, regardless of age.



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