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**No health, no wealth:
the cost-effectiveness
and socioeconomic
value of life course
immunisation**



Summary

We know that the economy, and society in general, can benefit vastly from improving immunisation uptake across all age groups. There's clear evidence that immunisation is one of the most cost-effective public health interventions we have. We know that every \$1 invested in adult immunisation generates up to \$19 back to the health system and society¹, and that in combination with other preventative interventions it can generate up to \$40 per \$1 spent.

In addition to this, the value of immunisation extends far beyond reducing direct health costs and days of work missed. Demographic change, and its effects on our health systems and economies, means we can't afford to overlook preventable diseases anymore.

Yet, across the G20, many countries still don't have comprehensive life course immunisation programmes; in addition, they continue to invest too little in immunisation at all ages. Countries must invest more in life course immunisation programmes and do so sustainably. We know that immunisation isn't just for children: failing to prioritise immunisation into adulthood has adverse impacts on our health and our economies. Inequalities of vaccination access, both within individual countries and between different ones, must be addressed.

ILC has recommendations for action at the health system and international levels, based on evidence that we've gathered during this programme of work. For instance, health systems must prioritise data collection and knowledge-sharing to identify and rectify inequalities between communities. This will help us to develop immunisation programmes across the world with a clear understanding of our progress so far.

Most importantly, we all have a role to play in changing the culture and attitudes around immunisation, ensuring that uptake remains high throughout our lives, along with engagement with immunisation programmes.

Introduction

We know immunisation works. It's safe and it protects us and our communities from dozens of life-changing conditions. **It has saved more than 3 million lives each year** for the past 50 years.² Childhood immunisations have drastically reduced infant mortality and given the world **over 10 billion additional healthy years of life** in the last 50 years alone. Yet immunisation's cost-effectiveness as a public health intervention is underappreciated; collectively, we have failed to build global consensus that all health and finance stakeholders should advocate for immunisation.

If we can expand on the success of childhood immunisation to extend adult immunisation, we have the opportunity to protect our health and productivity across the rest of our lives.

In 2019, at least 20% of the population were aged over 65 in half of all G20 countries. By 2040, this will be the case for all but four G20 countries. And as the demographic makeup of our societies changes, so will our economies. We know that workers aged over 50 already earn every third dollar across the G20. By 2035 it's projected that this age group will generate nearly 40% of all household income. Governments can choose to invest in unlocking the opportunities presented by longer lives now, or delay action and watch the existing trend of increasingly poor health and low productivity continue.

"We are witnessing a profound demographic and geographic shift, affecting not only job markets but entire economies. The world's population is ageing quickly. Our concern is that poor countries will get older before they have a chance to get rich."

Manuela Francisco, Global Director of Macroeconomics, Trade and Investment, World Bank. Keynote speaker at ILC 'Economics of Longevity' roundtable alongside the World Bank and IMF Spring Meetings in April 2024

Taking steps to keep people in good health and in a position to contribute to society, through their paid work, taxes, caring and volunteering, will be paramount as our demographics change. ILC has used this programme of work to galvanise G20 and G7 leaders into prioritising immunisation across the life course. We held events alongside the meetings of the G7 Finance Ministers in Japan in May 2023, the meetings of the G20 Health Ministers in India in August

2023, and the Finance Ministers Meeting at the IMF/World Bank in Washington, USA, in April 2024.

The evidence from this programme of work is clear: the time for action is now. The World Health Organisation (WHO) has emphasised that the next pandemic is a matter of when, not if.³ Following the COVID-19 pandemic, we have an opportunity to collectively reflect on the limitations of the global response and shift from our current curative healthcare approach to a prevention-first approach and mindset. With improved investment, infrastructure and political will, each country can increase their population's health span to reap the opportunities of demographic change.

“There is no royal road to a healthy life, but nothing is better than prevention. Preventing poor health is hugely important, particularly as we age.”

Dr Haruki Matsumoto, Director-General of the Department of Health and Social Welfare in Japan. Keynote speaker at ILC event alongside the G7 Finance Ministers' meeting in Niigata, Japan in May 2023

Why does it make economic sense to immunise populations across the life course?

Immunising populations against life-changing diseases across our lives leads to:

Improved health outcomes:

- A reduction in the number of cases of disease, death and hospitalisations
- Reduced instances of secondary disease following vaccine-preventable ones, such as cardiovascular disease and stroke
- A reduction in the burden on health and social care services
- Fewer interruptions to health-promoting behaviours, such as exercise and eating well
- Fewer interruptions to social connections
- More time spent in good health for everyone, doing the things that matter to us
- Improved health equity

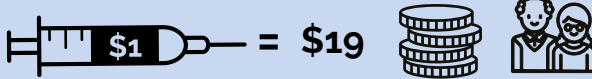
Improved economic outcomes:

- Reduced benefit payments by governments
- Higher tax contributions
 - Cases of flu alone cost Italy's economy **€160 million** in missed tax revenue each year⁴
- More money earned
- More money saved into pensions
- More money spent on things that matter
 - Vaccine-preventable disease in adults costs the US over **\$9 billion** a year through direct costs and productivity losses; **\$7.1 billion** of this loss occurs in unvaccinated populations⁵
- Families and support networks continuing their daily activities as usual, without the need to provide (more) care following preventable diseases

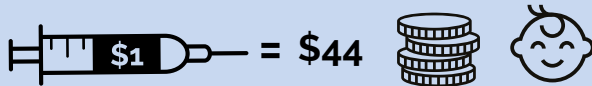
- Fewer working days missed
 - The OECD lost 159 million working days in 2018 due to flu among workers aged 50 to 64, costing £30 billion in lost productivity⁶
- Improved productivity for patients and their families
- Fewer interruptions to career progression
- More time spent caring for others
- More time spent volunteering

What does this mean for health and finance leaders?

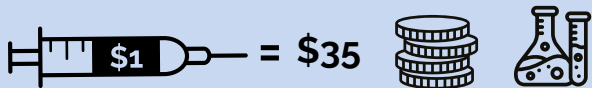
- Every **\$1 spent on adult immunisation** generates a socioeconomic **return of \$19**⁷ that goes beyond healthcare spend, including productivity gains by individuals and their caregivers



- Every **\$1 invested in childhood vaccination** in low- and middle-income countries (LMICs) can deliver a **return of up to \$44**⁸ across the health system and wider economy



- Every **\$1 invested in vaccine production** and development could generate **up to \$35 in socioeconomic returns** (one model predicts a 22% return every year for 30 years)⁹



Data from the ILC [Healthy Ageing and Prevention Index](#) also shows countries with a higher immunisation spend have better life expectancy figures than those that spend less. They also perform better on other Index indicators, including health span and work span.¹⁰ The evidence is clear that immunisation is cost effective and helps to generate improved health and economic outcomes for comparatively little investment.

To future-proof our health services in an ageing world, we must take up all available opportunities to keep people well and ensure our health systems and economies remain sustainable. We know vaccination is a safe, effective and tested way to prevent disease, to reduce the risk of people developing related conditions, and to keep people healthy and contributing to their local and national economies.

“Disease control through vaccination eliminates downstream burdens of secondary disease; which contributes to health system strengthening and health equity. Vaccination also can reduce socioeconomic burdens of the acute stages of the disease, and the potentially catastrophic out-of-pocket expenses for caregivers and families.”

Dr Jane Barratt, Former Secretary General, International Federation on Ageing. Speaker at ILC ‘Leaving no one behind’ immunisation roundtable alongside the World Health Assembly in May 2023

Workforces and economies the world over face stagnation if we don't take decisive action on healthy ageing and workforce participation.¹¹ If we are to adapt to longer lives and unlock the economic and social opportunities presented by demographic change, we need to change course – beginning with a shift from a curative to a preventative model of healthcare.

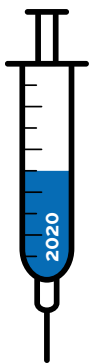
Preventative health interventions are essential for productive and healthy populations who are able to contribute across their lives and do the things that matter to them.

“As people are living longer lives, pensions and retirement systems have not caught up with demographic changes. We came to realise throughout our work on helping individuals with their financial wellness that we had to consider health in our discussions, along with wealth. Going forward, healthy ageing needs to be just as much a part of the conversation as financial resilience when we are trying to keep people resilient in a longer life.”

Haleh Nazeri, Lead - Longevity Economy, World Economic Forum. Keynote speaker at ILC ‘Economics of Longevity’ roundtable alongside the World Bank and IMF Spring Meetings in April 2024

What's happened at the G20 level since COVID-19?

The COVID-19 pandemic was a time of profound change and learning within health systems, as they did their best to grapple with this global health emergency. They all learned crucial lessons on the importance of strong immunisation programmes and infrastructure, to facilitate a swift response to new public health threats and keep people safe as far as possible. COVID-19 placed a substantial burden on ageing populations, since age was the biggest risk factor for COVID-19 mortality.¹² This was clearly a turning point for understanding around the importance of vaccinating adults, particularly older people. But immunisation isn't only useful for ending pandemics; it's a crucial intervention that can help populations to age in good health. By 2050, the G20 will be home to a billion older people – keeping those populations well, productive, and healthy will require action now.



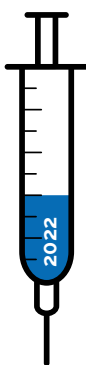
- ← The COVID-19 pandemic disrupts routine immunisation around the world
- ← The first countries approve vaccines against COVID-19
- ← The COVAX programme is set up to finance distribution of COVID-19 vaccines
- ← The WHO Global Vaccine Action Plan 2011-2020 concludes the Decade of Vaccines, which focuses primarily on childhood immunisation



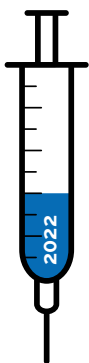
- ← Disruption from the COVID-19 pandemic has now cost the global economy \$12.5 trillion
- ← WHO launches its Immunisation Agenda 2030 (IA2030), including a whole chapter on life course immunisation
- ← WHO launches a strategy to vaccinate 70% of global populations against COVID-19 by June 2022
- ← First joint meeting of G20 Health and Finance Ministers establishes a G20 Joint Finance-Health Task Force, promoting a global understanding of the link between health and the economy



- ← G7 leaders affirm and commit to the '100 Days Mission' to streamline development of Diagnostics, Therapeutics and Vaccines in response to health emergencies^a
- ← The International Pandemic Preparedness Secretariat is set up to support and collaborate with the G7, G20, industry and the WHO
- ← G7 Health Ministers sign up to the G7 Therapeutics and Vaccines Clinical Trials Charter to expedite clinical trials, particularly trials of vaccines

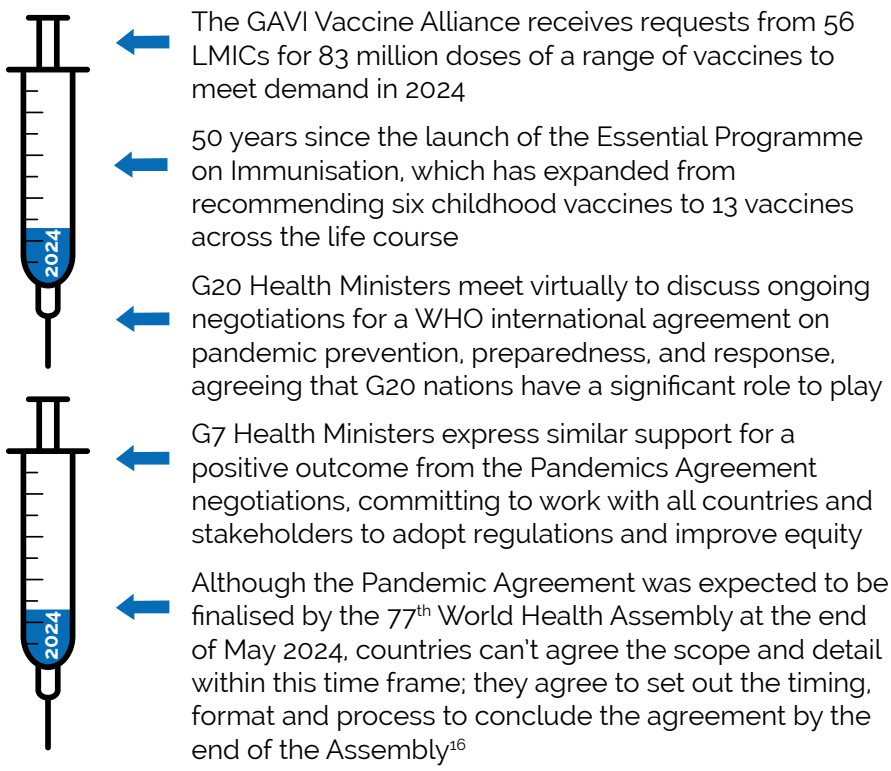
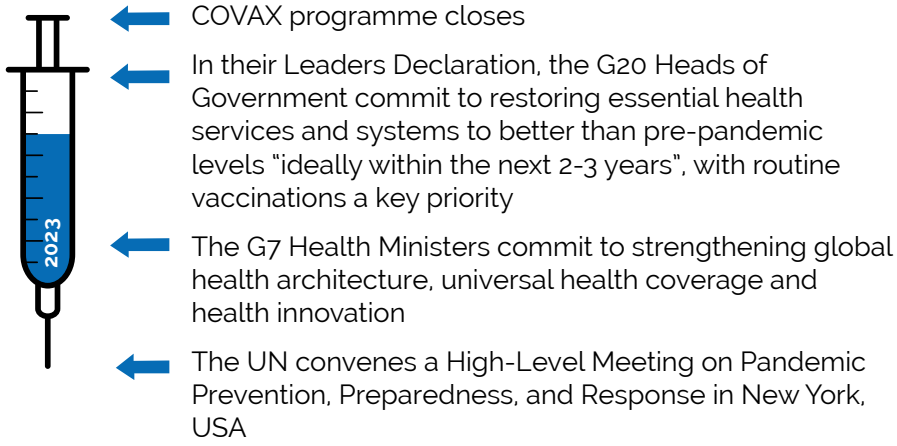


- ← IA2030 reports to the WHO Strategic Advisory Group of Experts on Immunisation (SAGE) that "without an immediate course correction, most...impact goal targets will not be achieved."¹³
- ← The WHO target of vaccinating 70% of global populations against COVID-19 is missed: 57% of populations in low- and lower-middle-income countries had single-dose coverage by the end of 2023 (compared to a global average of 67%)¹⁴
- ← Launch of the Pandemic Fund, with an estimated gap of \$10 billion between what was pledged by high-income countries, and what's needed to meet the Fund's objectives



- ← G7 Ministers and Leaders agree a Pact for Pandemic Readiness, which addresses surveillance, workforce, funding and data-sharing to support future pandemic response
- ← Indonesia's Presidency begins a run of Global South G20 Presidencies (to be followed by India, Brazil and South Africa in 2023, 2024, and 2025 respectively), creating opportunities for greater focus on the needs of LMICs, as well as their progress
- ← EU Health Ministers approve the European Council conclusions¹⁵ on vaccination as one of the most effective tools for improving public health. The conclusions highlight the importance of a life course approach to vaccination and health literacy more broadly

^aThis aims to build on existing initiatives where G7 nations have collaborated on pandemic preparedness objectives.



The vials in these syringes indicate ILC's view of the progress made in each year towards comprehensive life course immunisation. The more full the vial, the more progress made at the global policy level.

What's happened at a country level since COVID-19?

In the first two years of the pandemic, all G20 countries achieved an average of 72.6% uptake for the full initial course of COVID-19 vaccination. This contributes to the WHO global target to vaccinate 70% of people worldwide, as the G20 is home to over 60% of the global population. But they achieved an average of less than 45% uptake for flu vaccination uptake in older populations in 2020, falling short of the WHO target of 75%.

The graphs below compare how well the 19 countries of the G20 (excluding the European Union) have delivered on vaccination programmes for populations at different life stages. In essence, this outlines how well those countries have performed in delivering immunisation to different age groups. We've chosen to look at four specific vaccines (COVID-19, measles, HPV and flu) because they are each recommended for a different age group.

Figure 1 covers vaccine uptake across all four vaccines for each country. It also shows how many people within each life stage received the vaccine relevant to that life stage.

Figure 1: Vaccine coverage as % of target population

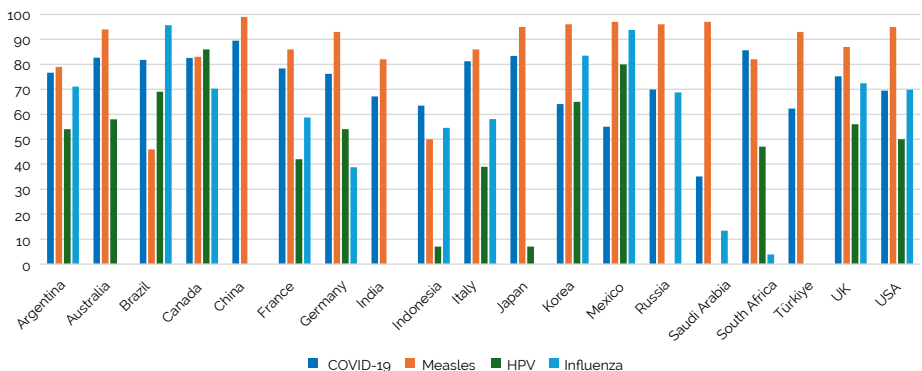
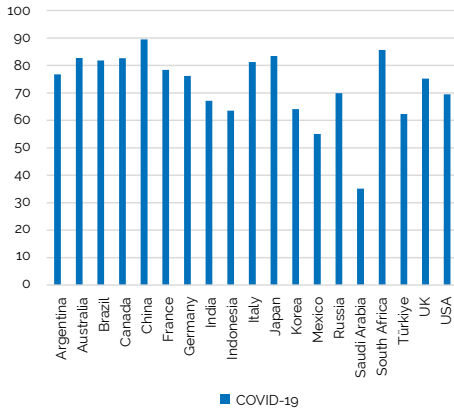


Figure 2: Total population (all ages) who received the initial course of COVID-19 vaccination



**Figure 3: Percentage of infants fully vaccinated against measles in 2021
Percentage of adolescent girls who received the full course of HPV vaccinations in 2022**

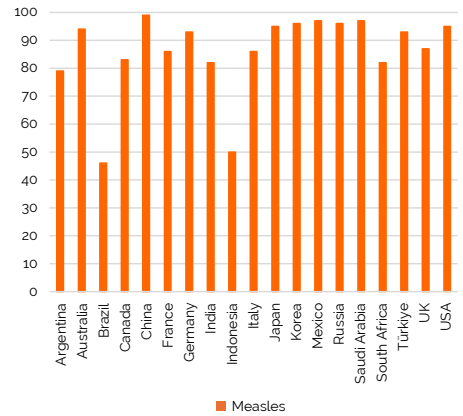


Figure 4: Percentage of adolescent girls who received the full course of HPV vaccinations in 2022

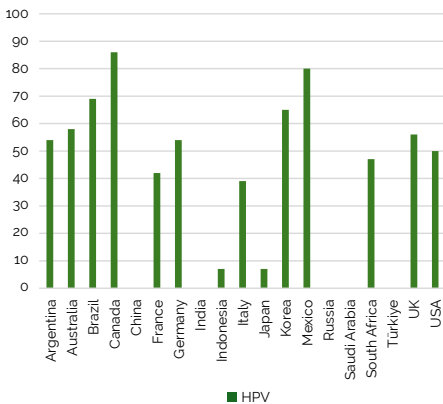
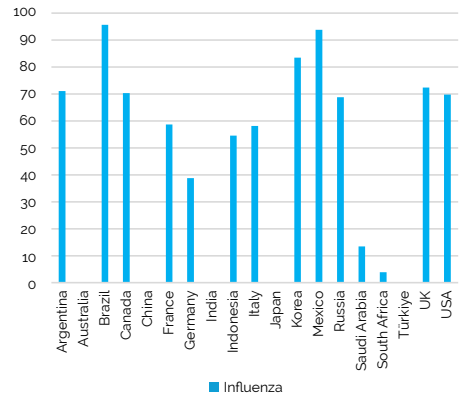


Figure 5: Percentage of those aged 65 and over who received flu vaccinations in 2020



For countries with no uptake value, this is because comparable data is unavailable, not because zero vaccines were delivered. With regards to COVID-19 coverage, we saw very good take-up of the initial course. Subsequent doses alongside seasonal flu have seen significantly lower uptake in many places.

What must happen next?

The expert stakeholders we consulted throughout this programme of work had a range of ideas and solutions for improving immunisation access and uptake, and for shifting from a curative to a preventative model of healthcare that prioritises immunisation across the life course.

There are some key changes needed to help global economies benefit from longer, healthier lives.

1. Invest in systems designed for prevention

Countries must increase their commitments to invest in immunisation and invest consistently and sustainably in life course immunisation programmes.

“There are finance ministers in the room, and we expect you to increase public spending. Commitment to Universal Health Coverage or Health For All, of course, it's ambitious, but it's possible. ... economic status cannot be an issue. You can start with what you have.”

Dr Tedros Adhanom Ghebreyesus, Director General of WHO. Quote from flagship event alongside the World Bank Spring Meetings in April 2024: “Transforming Challenge into Action: Expanding Health Coverage for All”

“It's really troubling to see how some policy makers only look at expenditure when it comes to vaccines, they don't account for what didn't happen as a result of immunisation programmes. Having just gone through a global pandemic, it's so important that decision-makers understand the value of investing in prevention.”

Delegate at ILC 'Economics of Longevity' roundtable alongside the World Bank and IMF Spring Meetings in April 2024

“There is no country in the world that can afford to support their population's increasing health and social protection needs as we age. Not one. We need decisive action from governments now so we can adapt to demographic change.”

Delegate at ILC 'Economics of Longevity' roundtable alongside the World Bank and IMF Spring Meetings in April 2024

2. Take action to democratise access to prevention

Health systems in LMICs need investment and support to build equal access to immunisation.

“Life course immunisation is clearly being seen as a growth area, by science and by the industry. The science and the technology are all moving in the right direction – but what we have is market segmentation into high, middle, and low-income countries. We know there is a need to protect against vaccine-preventable diseases in low-income countries, but the key barrier to this is access to data in these countries.”

Professor David Salisbury, Associate Fellow at the Programme for Global Health, Chatham House. Keynote speaker at ILC immunisation roundtable alongside the World Health Assembly in May 2023

“Where are the vaccines? They are not in low-income countries. It's not clear how vaccines reach poor people in remote areas, with no roads and no electricity; how to store vaccines. We must address these challenges when thinking about vaccination.”

Dr Prosper Hiag, Vice-President of International Pharmaceutical Federation. Delegate at ILC immunisation roundtable alongside the World Health Assembly in May 2023

Make it standard practice that health systems collect routine vaccination uptake data for patients from different demographics.

“While vaccine hesitancy is a real concern, access remains the key barrier to uptake around the world.”

Professor Isabel Oliver Director General of Science and Research & Chief Scientific Officer at the UK Health Security Agency

“We utilise pharmacists and community health workers to get out into the community – but once we get there, we often find that the psyche and attitudes we are expecting to find in communities do not resemble how people actually think. We're not connecting with people at the community level to give information and get needles in arms.”

Delegate at ILC roundtable alongside UN High-Level Meetings in New York, USA, in September 2023

National governments must expand vaccination programmes across the life course, and address any disparities between childhood and adulthood uptake.

“We know that adult immunisation programs are highly cost-effective and one of the best things healthcare systems can do for their populations. We found that in addition, they also provide lots of value beyond the health systems and can return up to 19 times their initial investment back to society.”

Simon Brassel, Senior Principal Economist at the Office of Health Economics.
Delegate at ILC 'Economics of Longevity' roundtable alongside the World Bank and IMF Spring Meetings in April 2024

3. Take action to inspire and engage

All stakeholders must help change the culture and attitude around vaccination.

“One of the things we don't talk about is how binary this conversation can be: is a vaccine good or is it bad; are you taking a risk by getting it or are you protecting your health. We need to be able to hold space for the nuances in between and explore the hesitation rather than shut down the conversation. It's a very different psyche when you're in a prevention role versus when you're in a crisis.”

Professor Vibhuti Arya, at St John's University. Delegate at ILC high-level immunisation roundtable alongside the UN High-Level Meetings on Pandemic Preparedness and UHC in September 2023

“A particular barrier [to comprehensive life course vaccination] is complacency. Even as doctors, we assume that a child who has had their normal vaccines is protected for life. Even doctors think so. They don't take adult vaccination as seriously as paediatricians do.”

Dr Surjit Singh, Director, WHO Collaborating Centre for Paediatric Immunology.
Keynote speaker at ILC G20 side-event in India in August 2024

“We’ve seen in the US and in Europe that way more money, time, and effort is spent on anti-vax voices and messaging; and less on advocating for public health, and positive messaging about vaccination. As a clinician it’s like working against the tide.”

Delegate at ILC roundtable alongside UN High-Level Meetings
in New York, USA, in September 2023

“One of the most effective approaches to promoting COVID-19 vaccine access and uptake in communities in low- and middle-income countries was intergenerational dialogue; this proved an excellent way of sharing information, addressing questions and concerns, and led to increased rates of vaccination among people of all ages.”

Camilla Williamson, Global Healthy Ageing Adviser at HelpAge International.
Delegate at ILC roundtable alongside UN High-Level Meetings in New York,
USA, in September 2023

We know the burden of poor health tends to fall on older groups. To offset current projections of rising sickness amongst older people in the coming years as our demographics shift, we must prevent ill health wherever possible. Doing so is crucial to the sustainability of our economy, and to populations who want to live their lives in good health.

Avoiding vaccine preventable illness is a relatively inexpensive and effective way to secure better health and economic health outcomes for our ageing populations. The costs we will face if we fail to act to secure healthy ageing are far higher than the cost of prevention.

About this project

This [global programme of work](#) brings together the latest evidence on vaccine cost effectiveness, to help health and finance leaders make informed decisions. Health spending at present is treated as a zero-sum exercise: spending on X means not spending on Y. We need a strong rationale and body of evidence to support leaders' decisions to dedicate resources to preventative interventions such as vaccination. This project synthesises that evidence and aims to influence G7, G20, World Health Assembly, UN High-Level Meetings and World Bank/IMF global events, in order to make the case for life course vaccination.

This project is kindly supported by charitable donations from:



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⁸<https://doi.org/10.1377/hlthaff.2015.1086>

⁹<https://pubmed.ncbi.nlm.nih.gov/37185380/>

¹⁰Health span being the number of years a person can expect to live in good health; and work span the number of years spent in the workforce across an adult's life.

¹¹<https://www.worldbank.org/en/topic/pensions/brief/societal-aging>

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About ILC

ILC is the UK's leading authority on the impact of longevity on society. We combine evidence, solutions and networks to make change happen.

We help governments, policy makers, businesses and employers develop and implement solutions to ensure we all live happier, healthier and more fulfilling lives. We want a society where tomorrow is better than today and where future generations are better off.

ILC wants to help forge a new vision for the 100-year life, where everyone has the opportunity to learn throughout life, and where new technology helps us contribute more to society.



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