

ONE SHOT.

One Shot to Prevent Disease and Prepare for Future Pandemics

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A Vision for Global Health

The Covid-19 pandemic has underlined in the starkest possible way the consequences of a lack of preparedness and of inaction to reduce the burden of preventable disease. Without significant further efforts to strengthen the infrastructure, capacity and coverage of health systems for preventative medicine, global public health will not improve. This is why we're setting out a new vision with our One Shot initiative – a roadmap to combat preventable diseases worldwide that draws on innovations in vaccines and preventative injectables and builds on progress made in response to Covid-19.

PREVENTABLE DISEASES

At least 10 million deaths a year are attributable to diseases with existing or forthcoming adult vaccines and preventative injectable therapies.¹ This also includes non-communicable diseases (NCDs) such as cardiovascular and respiratory diseases, cancer and diabetes: they are collectively responsible for 70 per cent of deaths worldwide,² with an estimated 80 per cent of this total deemed preventable or premature.

THE ROLE OF VACCINES

Adult vaccinations and prophylactic injectables will be at the core of a new strategy that bolsters disease prevention and pandemic preparedness in one shot. The International Monetary Fund forecasts economic losses of \$28 trillion by 2025 due to Covid-19,³ and the World Health Organisation (WHO) has estimated excess deaths of close to 15 million⁴ in the first two years of the pandemic alone. Faster delivery of vaccinations at scale in the event of another pandemic could save \$3.4 trillion for the global economy, with at least \$1 trillion of this figure accruing to low- and middle-income countries (LMICs).⁵

BUILDING ON COVID-19

During the pandemic, we witnessed the scaling up of vaccine platforms, manufacturing capabilities and procurement, as well as faster adoption of digital-health technologies across the globe. To maintain momentum, we now have a short window to maximise this infrastructure to improve the resilience of our health systems and our pandemic preparedness. Maintaining and building on investments made in response to the Covid-19 pandemic will help us to prevent infectious diseases and NCDs, both of which have massive health and economic costs, while creating a sustainable and viable health infrastructure at regional level that can mobilise rapidly in response to the next global outbreak.

The One Shot Strategy

The [Global Health Security Consortium](#) (GHSC) – a partnership between scientists at the University of Oxford, the Ellison Institute for Transformative Medicine and the Tony Blair Institute for Global Change – is therefore calling for collective and concerted action under the “One Shot: Making Preventable Disease History” campaign. Bringing together governments, industry and health organisations, our proposal is for a permanent disease-prevention programme that is, as we describe it, “always on”.

Delivering One Shot requires addressing and coordinating the untapped demand for, and supply of, next-generation vaccines to tackle diseases such as tuberculosis, dengue, human papillomavirus, malaria, respiratory syncytial virus (RSV) and tuberculosis, as well as novel injectable prophylactics for conditions including heart disease and HIV.

INFRASTRUCTURE FIT FOR THE 21ST CENTURY

To turn the One Shot vision into reality, the following infrastructure needs to be advanced:

- **Next-generation vaccine technology, including preventative injectables.** While messenger RNA (mRNA) is rightly heralded as a biotech success, it is the tip of the iceberg when it comes to game-changing adult vaccines and preventative injectables. Every effort must be made to scale this range of innovations and ensure the infrastructure is in place to support their delivery. At the same time, multiple platforms are key to creating resilience and so the role of a diversity of vaccine technologies should not be underestimated.

- **Manufacturing capacity that shifts from a centralised model.**
A transition to regionally coordinated manufacturing capabilities is urgent, with special consideration given to the Global South and how to develop the viability of hubs in these parts of the world. There also needs to be an optimisation of supply and distribution networks to support a programme that is “always on” and which can facilitate demand for life-saving vaccines beyond pandemics, while remaining resilient enough to ramp up in response to serious pathogen threats.
- **Digital-health infrastructure to enable vaccine delivery and preventative medicine.** Countries will need 21st-century digital infrastructure to support a global adult-vaccination programme, including registries to monitor rollouts, stocks and supply, digital tools to identify eligible populations and systems to collect real-world impact metrics. These tools must be enabled to the last mile of delivery and underpin the advancement of research and development (R&D).

ONE SHOT, SIX GOALS

A global health infrastructure built on vaccinations and injectables for adults, which complements the existing infrastructure for children, will:

1. **Improve equity of access to vaccines and medicines** around the world.
2. **Re-orientate care towards prevention** and away from treatment of sickness.
3. **Strengthen health-system functions** such as supply chains, service delivery and workforce.
4. **Create standing infrastructure to prevent and respond to outbreaks and pandemics.**
5. **Grow economies and investment** in the life sciences and in the health-care sector.
6. **Accelerate the establishment of a digital-health infrastructure,** which will have lasting utility beyond disease prevention.

A Roadmap to Deliver One Shot

Alongside the physical and material components of the programme, there needs to be accompanying policy and governance to ensure its success. Key recommendations are listed below.

Global and regional health organisations should:

- Provide leadership and advocacy to highlight the link between routine adult prevention, health-system strengthening and pandemic preparedness – preferably championed by the G20 and the WHO.
- Make universal and geography-specific recommendations on vaccine schedules and cohort eligibility – led by the WHO.

Governments should work together with global and regional health organisations to:

- Coordinate demand and generate clear market signals and guarantees through effective forecasting that matches the latest R&D product pipelines to populational health needs on a regional basis and to projected manufacturing supply.
- Align investments and tech transfers into a geographically distributed and diverse manufacturing footprint that is compliant with good manufacturing practice (GMP), for example through initiatives such as the WHO's mRNA vaccine-technology transfer hubs.⁶
- Deploy market shaping, such as resilience payments and pooled procurement, alongside regulatory harmonisation to incentivise sustainable manufacturing in the Global South.
- Ensure walk-in rights for governments to use manufacturing sites and supply chains during emergencies as part of their investment in public-private partnership arrangements.

- Give clear and regular evidence-based guidance for the integration of novel vaccines and injectables into clinical practice while providing technical assistance and expertise to build domestic-talent bases.
- Provide continued support at the global, regional, national and sub-national levels for the monitoring of infectious-disease outbreaks, treatment resistance and assessment of the One Shot campaign's impact.
- Roll out digital tools to support vaccine development and delivery, including investment in immunisation registries and longitudinal health records for patients.

Industry should:

- Put in place co-investment models with LMICs to expand vaccine-manufacturing capacity and capabilities, as seen recently in Rwanda⁷ and Kenya.⁸
- Ensure greater geographic diversity of R&D bases and associated life-sciences capabilities, such as genomic sequencing.
- Invest in vaccine R&D and pipelines to address global health issues, including the products and delivery systems needed to improve access and address major drivers of preventable disease in the Global South.
- Introduce tiered pricing for vaccines and injectables to ensure affordability across geographies.
- Develop novel digital-health tools and business models, alongside support to governments to provide the technical expertise needed to create digital standards, ensure interoperability and enable product implementation.

One Shot aims to transform prevention with innovation. Innovation is no longer a nice-to-have; now more than ever, it is a necessity for the protection and enhancement of lives and livelihoods in *every country*. The consensus and momentum for action are already here; the key question is how to move forward. To answer this question and realise the One Shot vision, we will collaborate with governments, industry and global health organisations to develop practical policy ideas that outline these recommendations in further detail, and document our thinking along the way in a series of articles and papers.

Endnotes

- 1 <https://institute.global/sites/default/files/2022-01/GHSC%2C%20A%20Global%20Opportunity%20to%20Combat%20Preventable%20Disease%2C%20January%202022.pdf>
- 2 <https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases>
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- 6 <https://www.who.int/initiatives/the-mrna-vaccine-technology-transfer-hub>
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- 8 <https://www.fiercepharma.com/manufacturing/moderna-taps-kenya-site-500m-mrna-manufacturing-facility>

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