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The future unmasked
Predicting the future of healthcare and life sciences in 2025

Prediction Two
Better public health drives better productivity

Foreword

Welcome to our second prediction *Better public health drives better productivity* from our report, *The future unmasked: predicting the future of healthcare and life sciences in 2025*. This is the second of ten predictions, all of which have been informed by emerging evidence of the impact of the COVID-19 pandemic on society and the health ecosystem. They have also been shaped by our research insights including our global 2040 Future of Health campaign. This second prediction looks at how in 2025, a more resilient public health infrastructure is helping to protect the public, prevent disease and prolong healthy life expectancy.

The COVID-19 pandemic has highlighted gaps in most countries public health systems and the need for a more robust, effectively funded national public health infrastructure. It has also highlighted the importance of comprehensive national and local epidemiological and population and health data.

In 2025, most countries have established well-funded national statutory public health organisations supported by regionally coordinated public health agencies, a diverse and well-qualified workforce and modern data systems. Non-traditional enterprises work together, to tackle health inequalities. Digital inclusion and equality of access to innovations in health protection and prevention measures have reduced health risks and improved outcomes. The public health system also provides intelligent national screening and vaccination programmes targeted on high-risk populations.

This second prediction is brought to life through a series of portraits of the experience of individuals in 2025, with reference to the evidence today to predict what the future might look like tomorrow.

Stay tuned for the subsequent predictions in our series.

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Better public health drives better productivity

A resilient public health system protects the public, prevents disease and prolongs healthy life expectancy

Prediction: In 2025, public health is an established priority for governments everywhere, with a higher percentage of healthcare funding devoted to public health. National statutory public health organisations are accountable for building and maintaining a robust responsive public health infrastructure, including regionally coordinated public health agencies; a diverse and well-qualified public health workforce; and modern data and information systems. Non-traditional players, including public, non-profit and commercial enterprises, based around smart health communities work together with a focus on intelligent protection, prevention and promotion while prolonging longevity and improving the productivity of the nation. Digital inclusion and acceleration in the adoption of scientific and technological advancements have reduced health risks and improved prevention. The public health system is underpinned by intelligent national screening and vaccination programmes that focus on high – risk populations through better use of technology, genomics and AI. Empowered local authorities enabled by digital technology and behavioural science focus on tackling the social determinants of health.

The world in 2025

- Government investment has led to strong national public health systems using population data, behavioural science and digital technologies to protect the public, prevent disease, promote and prolong good health.

- A robust strategy for handling disease outbreaks is underpinned by real-time access to high quality data and strengthened health protection systems.

- AI and predictive modelling is applied to multiple data points including travel patterns, food habits, environmental parameters and global prevalence data, to detect signals to identify health risks.

- Public health authorities deploy a range of targeted preventative interventions in response to intelligent insights into the health of the population.

- Health promotion strategies have been co-created, based on strong public engagement and nudge interventions.

- Deep knowledge of local communities has reduced health inequalities such as infant mortality and childhood obesity with targeted application of evidence-based intervention strategies and measurable KPIs.

- Preventative public health digital interventions have dramatically lowered smoking rates, improved nutrition and reduced loneliness. They have also reduced premature mortality among people with chronic and mental health conditions.

- There is significant investment in infection control with financial incentives and penalties driving improvements.

- A focus on appropriate use of antibiotics has improved antimicrobial resistance.

Conquered constraints

- **Skills and talent:** Public health professionals have been upskilled to identify and tackle population health and social care needs, and prepare for and respond to emergency health threats, utilising data analytics and targeted evidence-based interventions. Digital inclusion initiatives have improved equity of access to digital technologies and resources targeted at reducing inequalities.

- **Funding:** A greater proportion of healthcare funding is devoted to public health as policymakers acknowledge the shift in focus from sickness and cure to wellness and disease prevention. Stakeholders have implemented payment reforms, including value-based payment models to optimise outcomes at the lowest cost.

- **Regulations:** Regulators across public health have aligned on core expectations, strengthening public health regulations with public health authorities proactively measuring and monitoring compliance using advanced analytics.

- **Data:** The authorities have created a robust public health IT infrastructure to identify and target reductions in health inequalities, with a national body accountable for progress. National and local authorities have established data-sharing agreements for collecting, analysing and sharing multiple sources of data, to address the social determinants of health. Distributed ledgers (such as blockchain) have improved data integrity and transparency over access and use.

Imagine the world in 2025

Gamification supports the mental health of children and young people
Funded as a government initiative, the 'Balance App' has digitalised the use of CBT to assist young people with mild to moderate depression. The app is available on prescription to all 13-19 year-olds and has dramatically improved access and reduced waiting times. The app was co-created alongside young people experiencing depression and anxiety, and applies gamification techniques to a series of proven CBT activities. Liam has struggled with depression and behavioural problems since the death of a close family member, and his therapist has prescribed the smartphone app. Balance uses avatars to explore a 3D world to complete quests, meet new characters, play mini-games and solve puzzles, all designed to help him self-manage his depression. Virtual guides provide him with instructions on how to apply the insights gained to help tackle his problems in real life. The app tracks Liam's progress using a validated mental health assessment questionnaire as he progresses through game levels. Early on in Liam's use of the app, the self-assessment results alerted his therapist to the fact that Liam needed further help and an app prompt encouraged him to seek face-to-face talking therapy. After two sessions Liam felt able to continue with the app, and ongoing assessments provided assurance that the intervention was working.

Smoking health literacy programmes are delivered through smartphone and wearable devices
Will has been smoking on and off for around 20 years. He has tried quitting seven times but generally relapses after a couple of months, usually due to work stress. His local healthcare authority is working alongside a social enterprise to reduce smoking rates across its communities, regardless of income, location, age, gender or ethnicity. He has received a SMS notification promoting an online smoking cessation initiative which includes impressive feedback from other users about the results achieved. Will downloads the app and the first step is to complete a form describing his previous history, motivations and cravings. The app uses an AI algorithm to derive a tailored education and support plan and deploys push notifications to help Will self-manage and modify his behaviours. Will is also monitored through daily questionnaires and data from a connected breath sensor. The app recommends nicotine-based products or facilitates a virtual consultation with a community pharmacist or physician to enable e-prescribing and therapy adherence tracking. Will can also access digital CBT and a virtual coach who supports him in his goal to quit smoking ahead of his 40th birthday. Will has also opted to join a peer support group. He is further incentivised by the app notifying him that he has saved nearly £500 in his first month of being smoke-free.

Introduction of a digital immunisation passport as a record
Mari's twin girls are about to start school and she is alerted to a new government-led initiative to provide people with a digital immunisation passport (DI-passport). Mari applies for a DI-passport for her children and is assured that all the relevant data from their electronic health records will be uploaded safely and securely, based on robust rules, information governance processes and FIHR interoperability standards. Her children's DI-passport is uploaded via the DI-passport app on to Mari's smartphone. Mari also opts to use an antibody test that has been made available to confirm her children's immunity status, which is also recorded in the DI – passport. If there are suboptimal levels of antibodies, an alert is sent to the individual's primary care provider for further intervention. Mari can keep track of her children's vaccinations: this is particularly useful as her children's new school requires proof of their vaccination status before either can start. Mari is also able to use the app to alert their family doctor if there are any adverse reactions to new vaccines. Her children's anonymised 'real world' data is used to help monitor responses to the vaccine and spot trends earlier.

Note: All elements on this page are from a perspective of 2025 and are fictional

Evidence in 2020

Portugal: Health literacy Serviço Nacional de Saúde 24 (SNS 24)

The Directorate General of Health (DGS) launched the Serviço Nacional de Saúde 24 (SNS 24) in 2017, as part of the government's 2020 strategies and healthcare system reforms, with a specific focus on strengthening digital health literacy across the population. The main objective of SNS 24 is to serve as the single access point for health information. It is a free online and telephone service that provides first-hand health information and responds to enquiries 24/7. SNS 24 provides advice and guidance on a range of health behaviours as well as enabling users to book vaccinations. It offers services that allow people to solve health-related issues without having to visit a primary care service or hospital. The platform is accessible across a range of devices and aims to support users in plain and simple language.[33]

Italy: Vaccines are compulsory for children enrolling in state-run schools

In 2017 the Italian government's National Plan for Vaccine Prevention (NPVP), followed by the National Law 119/2017, increased the number of mandatory vaccinations from four to ten (vaccination for polio, diphtheria, tetanus, pertussis, hepatitis B, haemophilus influenzae B, measles, mumps, rubella and chickenpox). The vaccines are compulsory for children enrolling in state-run schools, and fines were introduced for parents/guardians refusing vaccination. Partially or unvaccinated children under the age of 6 years were not permitted to attend pre-school.[34] Data from 2018 shows an increase in vaccine uptake at the national level and in almost all regional and autonomous provinces.[35]

England: The PrescQIPP Antimicrobial Stewardship Hub initiative supports better antibiotic prescribing in primary care

A joint initiative between NHS England and NHS Improvement, the PrescQIPP Hub offers online access to ready-to-use antibiotic prescribing data sets for all Clinical Commissioning Groups and GP practices in England, shares successful practice, and links to other AMR-related resources, including those published by TARGET, Health Education England and the Antibiotic Guardian campaign. Data in the PrescQIPP Hub is offered in multiple formats to allow comparisons across time and organisations.[36]

The US: Grapevine Health – community health literacy project

Grapevine Health is a non-profit start-up in the US that designs culturally appropriate health information campaigns targeted at underserved populations. Grapevine Health leverages storytelling, short educational videos, community-based support and digital communication to improve health literacy and health care engagement. Grapevine Health has joined the Health Equity and Access Leadership (HEAL) Coalition, along with 16 other health tech organisations including Google and Microsoft, to use technology to tackle health disparities exacerbated by COVID-19.[37,38]

Australia's approach to tackling childhood obesity

Approximately 17 per cent of Australian children are overweight, and 7 per cent are obese. The Australian government and Healthy Australia have created *feedAustralia*, an early obesity intervention, childhood nutrition and health education programme. Over 6,000 early childhood education and care (ECEC) services currently use feedAustralia's tools, which include a menu planning tool and app, which connects to existing child care management systems, and includes a nutritional database of more than 200 healthy recipes and snack suggestions with established energy, macronutrient profiles and food group breakdowns. The feedAustralia programme also saves each service an average of $3,500 in groceries every year.[39,40]

The COVID-19 impact

Deloitte view on the impact of COVID-19
The COVID-19 pandemic has highlighted the critical importance of having a robust public health system underpinned by a comprehensive epidemiologically-relevant data infrastructure including demographic and mobility data. A consensus is emerging on the elements of the wider infrastructure needed to protect public health, enable recovery and mitigate subsequent surges in infection. Specifically:
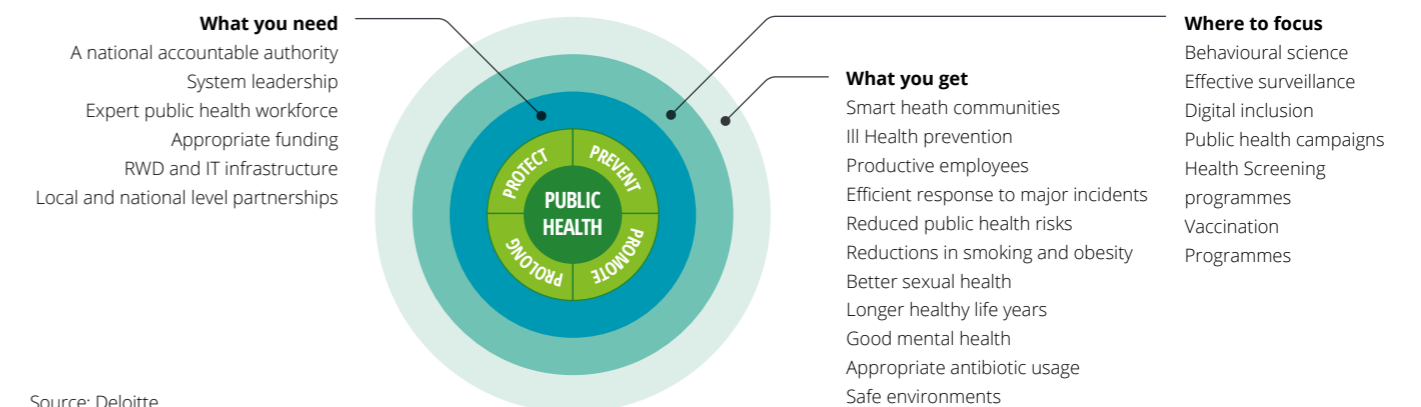
- test, track and trace – for new cases and levels of immunity, to improve the confidence of decision-makers in reducing restrictions without undue risk to health

- evidence-based mitigation strategies (social distancing, face masks, hand and environmental hygiene and good ventilation) together with segmentation based on an understanding of how and where transmission occurs

- consistent and clear communication strategies to encourage compliance with mitigations and address complacency and dissent

- sustained investment in an adequate supply of personal protective equipment (PPE) and other infection control resource requirements including new supply chain solutions.

Digital technologies using disparate data sets to support the public health response to COVID-19
Digital technology can enhance public health education and communication messages. In the United States, the COVID-19 Task Force partnered with Apple, Inc. to develop an app that provides CDC recommendations, including guidance on social distancing and self-isolation, how to monitor symptoms, recommendations on testing, and when to contact a medical provider.

The COVID-19 Mobility Data Network is a network of infectious disease epidemiologists from universities around the world, working with technology companies to use aggregated mobility data to support the COVID-19 response. Their goal is to provide daily updates to decision-makers at the state and local levels on how well social distancing interventions are working, using anonymized, aggregated data sets from mobile devices, along with analytical support for interpretation. The participants in the Network share a deep commitment to personal privacy and data protection.[41]

Better public health drives better productivity

What you need
A national accountable authority
System leadership
Expert public health workforce
Appropriate funding
RWD and IT infrastructure
Local and national level partnerships

What you get
Smart heath communities
Ill Health prevention
Productive employees
Efficient response to major incidents
Reduced public health risks
Reductions in smoking and obesity
Better sexual health
Longer healthy life years
Good mental health
Appropriate antibiotic usage
Safe environments

Where to focus
Behavioural science
Effective surveillance
Digital inclusion
Public health campaigns
Health Screening programmes
Vaccination Programmes

Source: Deloitte

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