



HEALTHIER LIVES, STRONGER ECONOMIES

# HEALTHY HUMANITY *BLUEPRINT*

CEO INTRODUCTION

At FII 9th Edition, we are launching the Healthy Humanity Blueprint as a transformative global program. We invite FII Institute members, strategic partners, and global leaders to be the first to endorse and champion this initiative. Join us to:

- Shape the Healthy Humanity Blueprint into a living execution plan.
- Mobilize investments and partnerships that deliver measurable health and economic impact.
- Position your organizations at the forefront of a movement that links healthier citizens to stronger, more resilient economies.

This is more than a discussion – it is a global roadmap for decisive action. By standing with Healthy Humanity, you will help set the course for healthier lives, stronger societies and shared prosperity.

I would like to thank all FII Institute members, stakeholders and future FII members for their desire to contribute to and engage in Healthy Humanity.

HEALTHIER LIVES, STRONGER ECONOMIES

Healthy Humanity is dedicated to building a global ecosystem where preventive medicine, holistic health and well-being are accessible to every citizen at every stage of life.

VISION

To create a practical, actionable framework – open to governments, NGOs, and corporate stakeholders – that shapes health policy, galvanizes collective action and invests in accessible solutions. Our vision is a world in which everyone enjoys healthier, longer lives within thriving, resilient societies.

MISSION

To deliver a step-by-step plan that leaders and stakeholders can review and adopt, ensuring practical action and targeting measurable results. Healthy Humanity bridges health and prosperity by aligning health outcomes with economic growth.

ACTION

The case is clear: health and longevity are powerful drivers of prosperity, productivity and stability. The challenge is not knowing what to do, but building the mechanisms to act together. Healthy Humanity, one of FII Institute’s key initiatives, provides the coordinated pathway to turn ambition into measurable progress across governments, businesses and civil society.

- **Governments:** Assess current health systems, set priorities and deploy practical implementation guides for meaningful impact on health and economic growth.
- **Private sector:** Seize opportunities to drive shared value through investment, innovation and ESG leadership that strengthens health outcomes while delivering commercial growth.
- **NGOs & civic societies:** Use our blueprint to advocate for inclusive policies, forge partnerships and build tangible progress.

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Healthcare professional continuing education

Social media

Equitable access

Credible content access

PHOTO: MASKOT / GETTY IMAGES



# EXECUTIVE SUMMARY

 **THE FII INSTITUTE IS UNITING A DIVERSE,** global network of over 1,500 leaders and professionals from numerous industries – including AI, robotics, healthcare, sustainability, finance and education – to catalyze transformative, cross-sector collaboration in support of Healthy Humanity. Through joint innovation, investment and advocacy, members can pool resources and expertise to accelerate preventive health solutions, share knowledge and collectively advance health equity worldwide. The Institute's platforms foster high-impact partnerships and community-led initiatives, enabling members to drive scalable improvements in health, well-being and public policy at both the global and grassroots levels.

## STRATEGIC VALUE FOR MEMBERS AND PARTNERS

FII Institute members, by aligning investments with forward-thinking health policies, can generate measurable returns not only for governments, but also for the private sector. Public-private partnerships and policy-driven incentives unlock new funding channels and create sustainable business opportunities, while rigorous impact measurement confirms tangible benefits across economic, health and social dimensions. The Institute's Healthy Humanity Blueprint provides a strategic, evidence-based framework for maximizing impact, reducing duplication and guiding both government and corporate stakeholders toward shared value.

## WHY HEALTHY HUMANITY IS AN ECONOMIC IMPERATIVE

The Institute's research highlights the urgent need for action as nearly 1.5 billion people will be over 65 by 2040, with a widening gap between life expectancy and years spent in good health. Non-communicable diseases (NCDs) such as heart disease, cancer and diabetes already drive more than 75% of health costs and are surging most rapidly in low- and middle-income countries due to lifestyle shifts. Investing in ex-

tending healthspan offers the largest financial returns, potentially trillions in value, by boosting productivity, reducing chronic disease risk, and sustaining workforce engagement across all life stages.

## THE HEALTHY HUMANITY BLUEPRINT: PREVENTION AT THE CORE

At least 70%–80% of chronic diseases stem from modifiable behaviors, highlighting prevention as the strongest lever for increasing healthspan. The Institute's Healthy Humanity Blueprint, now publicly available for global adoption, emphasizes evidence-based strategies like healthy lifestyles, proactive screening, digital health and community support services as cornerstones of health transformation. The Blueprint also promotes innovative funding, such as social impact bonds, cross-border knowledge-sharing and digital solutions to close existing “access gaps” in prevention and care.

## BUILDING SYSTEMS FOR LIFELONG HEALTH AND RESILIENCE

The Institute calls for an ecosystem approach, integrating education, policy, digital transformation and impact assessment across every stage of life, from prenatal support to late

adulthood. Robust, evidence-based public-private collaboration, coupled with lifelong learning, digital inclusion and mental health advocacy, are positioned as essential to building resilient communities and future-proofing societal well-being.

## CALL TO JOIN A GLOBAL MOVEMENT

The FII Institute's Healthy Humanity Blueprint is the most comprehensive, unifying playbook for governments, corporations and communities to jointly deliver healthier, longer lives for all generations. By adopting this framework, stakeholders will amplify impact, unlock economic and social value and help close the  global healthspan-lifespan gap; building a more resilient, equitable and prosperous world.

# THE STAKEHOLDER ECOSYSTEM

## FII INSTITUTE MEMBERS AND FUTURE MEMBERS

→ The FII Institute's membership already spans a comprehensive array of industries and geographies, providing a powerful foundation to drive real, lasting change. With a global network of over 1,500 professionals – executives, researchers, entrepreneurs, investors and policymakers – the Institute brings together expertise from sectors such as artificial intelligence, robotics, healthcare, education, sustainability, finance, logistics, construction and technology:

FII members can collaborate on transformative change for **Healthy Humanity** by leveraging the blueprint we have created and applying their collective strengths to drive initiatives in preventive healthcare, innovation and equity. Members can actively create new commercial initiatives and scale up solutions that promote better health outcomes at a global level. New members are welcome; we have a lot to do.



### AI & ROBOTICS

Technology solutions,  
digital transformation



### HEALTHCARE

Medical innovation,  
longevity, digital health



### FINANCE & INVESTMENT

Banks, investment  
funds, insurance



### REAL ESTATE & URBAN

Urban planning, infra-  
structure, development



### EDUCATION

Next-generation learning,  
knowledge platforms



### SUSTAINABILITY

Environment, ESG,  
green technologies



### ENERGY & UTILITIES

Oil, gas,  
renewables, utilities



### CONSUMER GOODS

Food, beverages,  
retail



### JOINED-UP THINKING FOLLOWED BY COLLABORATION

By uniting as members of the FII Institute, leaders and organizations across industries have the opportunity to transform Healthy Humanity from vision to reality. Through collaborative investment in health innovations, knowledge exchange on global platforms and a shared commitment to advocacy and community-driven solutions, we can deliver meaningful, scalable change for preventive healthcare, global well-being and public health equity.

#### Joint innovation and investment

Members are encouraged to invest in and codevelop technological and digital health solutions to maximize early disease detection and wellness promotion. Pooling resources accelerates the translation of ideas from labs to real-world impact, with membership organizations able to jump-start deployment by working with their employees and

supply chain partners while adapting their existing CSR and ESG initiatives into well-being and health.

#### Knowledge-sharing and partnership

FII offers platforms like THINK and XCHANGE designed for experts, policymakers and business leaders to share research, best practices and success stories. Through high-level summits, networking and formulating partnerships, members can engage in cross-industry collaboration to shape inclusive health policy and practice. The FII website, and in particular, [www.fii-institute.tv](http://www.fii-institute.tv), offers insights from both government and corporate global leaders.

#### Advocacy and public-private action

We want members to collaborate to advocate for stronger public health policies; foster partnerships among governments, corporations and insurers; and prioritize preventive care practices globally. By aligning advocacy, action and capital, members

will help to set new standards and influence policies for a healthier world.

### COLLABORATION FOLLOWED BY ROI FOR GOVERNMENTS AND THE PRIVATE SECTOR

By balancing innovation investment with policy alignment, Institute members can create new, sustainable revenue streams, while maximizing measurable ROI for government clients. This synergy ensures that every innovation not only transforms lives, but also generates clear economic gains and societal value at scale.

#### Harnessing public-private partnerships

Collaboration between members and government entities enables the creation of public-private health programs that unlock access to new funding, contracts, and service opportunities. By jointly rolling out population health management, participants can claim their share in rapidly expanding healthcare markets.

#### Policy-driven innovation incentives

Engaging policymakers in innovation planning allows members to help shape tax incentives, regulatory sandboxes and procurement frameworks that reward investment in health technology and scalable solutions. This environment improves project viability and accelerates payback periods for deployed solutions, leading to attractive ROI for participating companies and direct cost savings for governments.

#### Scalable returns on investment

Through coordinated piloting and international scaling of solutions, members reduce duplication, share successful models and aggregate demand at the national level. This drives operating efficiencies, opens additional revenue channels for participating firms and helps governments achieve broad health impact with optimized innovation expenditure. ■

# THE ECONOMIC CASE FOR HEALTHY HUMANITY

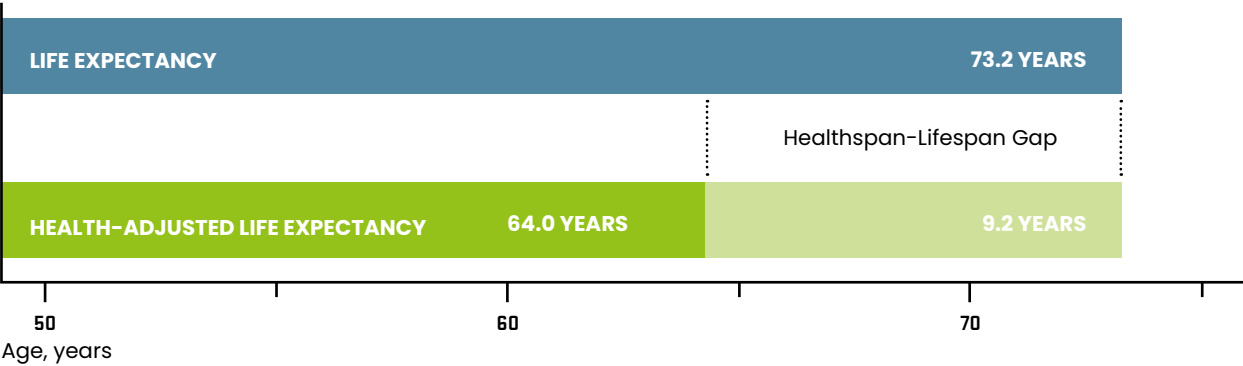
**→ THE FII INSTITUTE HAS CONDUCTED AN** in-depth analysis demonstrating the economic value of investing in healthy longevity, offering strategic evidence to shape global population health efforts. This work is launched alongside the Healthy Humanity Blueprint, ensuring that the latest research and actionable frameworks guide efforts to improve health and well-being for all generations. Through this alignment, the FII Institute is spearheading a global movement for more resilient, equitable and prosperous societies.

**A GLOBAL IMPERATIVE FOR LIFELONG HEALTH**  
As populations worldwide experience seismic demographic shifts with aging societies, declining fertility rates and changing family structures, the imperative to deliver health for all generations grows stronger by the year. By 2040, more than 1.5 billion people will be over 65, but health challenges (and opportunities) extend across every stage of life. Ensuring lifelong health is not merely a social or ethical aspiration, but an economic opportunity for forward-thinking leaders.<sup>1</sup>

| LIFE STAGE                    | KEY HEALTH CONSIDERATIONS                                                                                                                   | RATIONALE AND IMPACT                                                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Prenatal                      | Maternal nutrition; healthy weight; avoid smoking, alcohol and drugs; manage medical conditions; emotional support                          | Supports fetal development; reduces risk of complications; lifelong impact on child's health and well-being                          |
| Early childhood (0–5 years)   | Strong caregiver bonds; physical activity; healthy eating; limited screen time; safety; early emotional support                             | Shapes brain structure; prevents developmental delays; establishes healthy behaviors; crucial for emotion regulation                 |
| Children 5–14 years           | Balanced nutrition; regular exercise; mental health support; good sleep; hygiene; school engagement                                         | Influences academic and social skills; prevents early obesity; supports physical and cognitive development; builds lifelong habits   |
| Young adults 15–21 years      | Prevent risky behaviors; promote mental health; healthy eating; exercise; sexuality education; educational focus                            | Foundations for lifelong habits; mental health resilience; lower risk-taking; crucial for achieving independence and health autonomy |
| Adults 22–36 years            | Weight and stress management; regular activity; work-life balance; preventive screening; relationship stability                             | Prevents chronic disease; maintains peak physical condition; sets work and family life patterns; supports future health stability    |
| Adults 37–54 years            | Disease prevention; screening (heart, cancer); stress control; financial and retirement planning; maintain social ties                      | Key period for preventing disability; maintaining work/family roles; health now predicts quality of later life                       |
| Later life adults 55–70 years | Resistance activity; fall prevention; cognitive and social engagement; regular screenings; retirement adjustment                            | Slows health decline; prevents falls and isolation; supports independence; manages health shift after work life ends                 |
| Elderly adults 71+ years      | Support independence; chronic disease care; stay connected socially; cognitive stimulation; adapted physical activity; end-of-life planning | Focus on quality of life; prevent isolation; address multiple illnesses; promote dignity and autonomy in final years                 |

**INVESTING IN HEALTH: AN ECOSYSTEM APPROACH**  
Strategic investments that extend healthspan ensure high quality of life from youth to late adulthood and can powerfully influence both economic growth and social cohesion. Countries with inclusive health strategies are better placed to leverage the skills, productivity, and social capital across all age cohorts, not just older adults. Investments made today in preventive care, public safety, financial inclusion and social participation yield dividends for every generation.

**POPULATION DECLINE AND THE GROWING IMPERATIVE**  
  
● **The diverging trajectories of lifespan and healthspan**  
Despite remarkable gains in global longevity, the years individuals spend in good health have not increased as rapidly as overall life expectancy. This widening gap between lifespan and healthspan reveals to us a profound challenge: while people are living longer, a growing portion



SOURCE: NATURE, LONGEVITY LEAP: MIND THE HEALTHSPAN GAP<sup>2</sup>

of those years is spent managing chronic disease and disability, rather than enjoying full vitality. The implications are global, cutting across age groups, genders and income levels, and demand urgent attention from policymakers and health leaders alike.

**HEADLINE DATA AND POLICY IMPLICATIONS**  
Global average life expectancy rose by 6.5 years in the past two decades, yet health-adjusted life

expectancy increased by only 5.4 years. In the US,<sup>3</sup> the gap is even starker, now reaching 12.4 years, with people living longer but with more chronic conditions and disabilities. Women exhibit an even greater gap than men, reflected globally and most pronounced in high-income societies.

The expanding healthspan-lifespan gap means added pressure on social services, labor markets and health systems, requiring urgent investments to ensure not just longevity but years of vitality.

THE FUTURE OF POPULATION PYRAMIDS:  
CONVERGING CHALLENGES

As the world’s demographic landscape rapidly transforms, developed and developing nations are each confronting unique but interconnected health challenges. Wealthier countries now see the majority of their populations concentrated in older age groups, intensifying economic, social and healthcare pressures as the proportion of working-age adults declines.

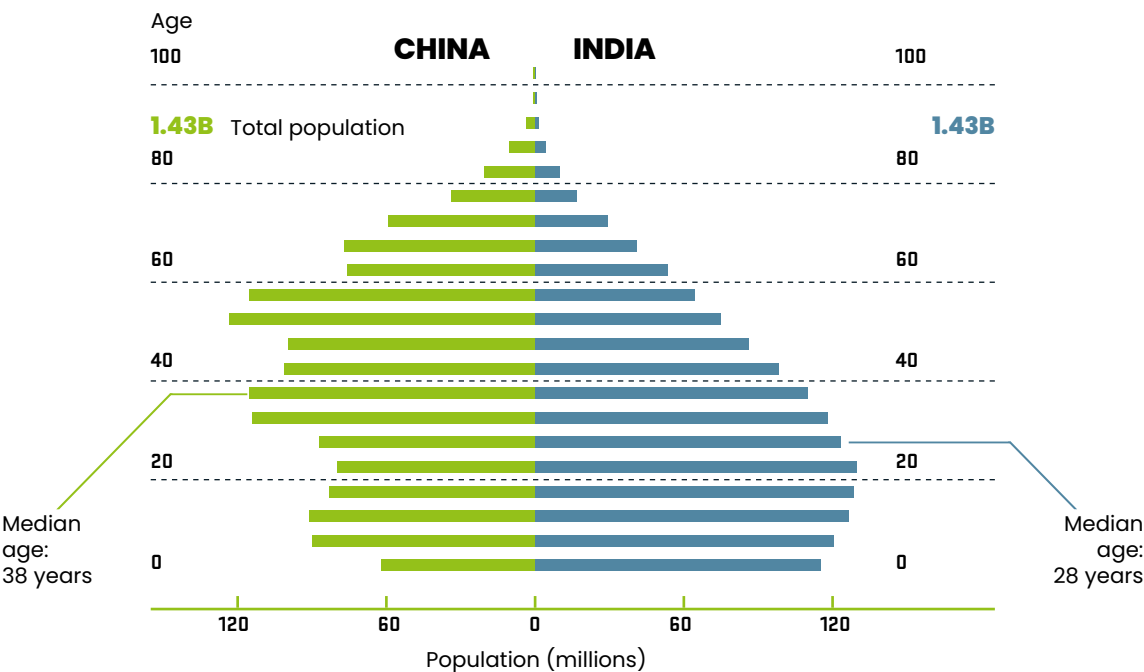
BIG DISEASE AREAS: GROWTH IN  
PATIENTS AND ECONOMIC IMPACT

Chronic disease now defines the global health landscape, reshaping expectations for longevity and quality of life in every part of the world. Once overshadowed by infectious diseases, non-communicable diseases (NCDs) such as heart disease, cancer, diabetes, respiratory disorders and mental health conditions have rapidly

become the primary drivers of death, disability and spiralling healthcare costs across both developed and developing nations. As populations age and lifestyles change, the scale and economic impact of these diseases are projected to surge, presenting an urgent policy challenge and a call for transformative action in prevention, care and health system design. Multimorbidity (people living with several chronic diseases) and neurodegenerative conditions (like Parkinson’s and dementia) will increase sharply as populations age.

The cost of chronic diseases is projected to reach \$47 trillion by 2030, representing 75% of global GDP in 2010 and a huge share of future health system spending.<sup>6</sup>

In low- and middle-income countries, the NCD epidemic will grow fastest, driven by rapid urbanization, processed food, declining activity, and longer lives.

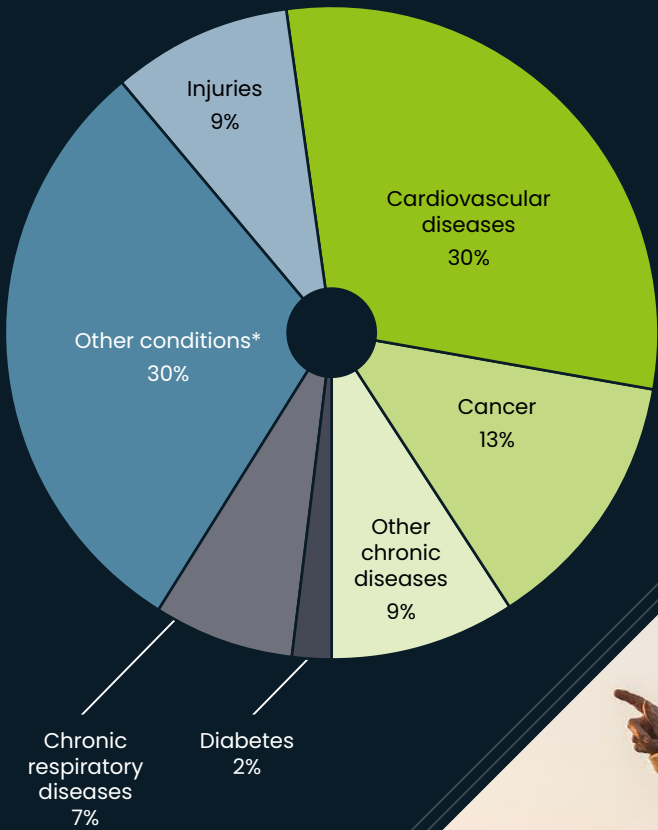


China’s constrictive population pyramid was partly shaped by decades of the one-child policy, which was implemented in 1980 before being loosened to a two-child policy in 2016, and then to a three-child policy in 2021.

SOURCE: VISUAL CAPITALIST 5

A low median age suggest high potential for future growth, but also the need for **substantial investment in education, healthcare and job creation to reach their potential.**

PHOTO: WESTEND61 / GETTY IMAGES



\* “Other conditions” comprises communicable diseases, maternal and perinatal conditions and nutritional deficiencies

SOURCE: WHO 2005A, THE GLOBAL ECONOMIC BURDEN OF NON-COMMUNICABLE DISEASES 5



OPPORTUNITY FOR TRANSFORMATIONAL CHANGE

Emerging economies can capitalize on this demographic transition by designing health systems and cities that support active, healthy lives across generations, from early childhood to advanced age. By preemptively tackling risk factors – physical inactivity, poor diet, tobacco and alcohol use – they can both avoid the spiralling costs of chronic disease and position themselves competitively among the world’s healthiest, most productive nations. The experience of developed nations provides both a caution and a roadmap for what (and what not) to do.

At the same time, many developing countries –characterized by youthful populations today – are urbanizing, seeing fertility rates drop, and adopting lifestyles that increase chronic disease risks. Without forward-looking health strategies, these societies risk replicating the same challenges faced by developed nations, but with fewer resources to absorb the resulting burden. This shared journey underscores the urgent need for globally coordinated and context-adapted health solutions for the future.

THE FINANCIAL BENEFIT OF ADDRESSING HEALTH OVER MANAGING DISEASE

Targeting aging to increase healthspan offers an exceptionally large financial opportunity, far surpassing the economic value of focusing on individual diseases or simply extending lifespan without improving health. The *Nature Aging* paper, “The economic value of targeting aging,” provides compelling quantitative evidence and economic modeling that directly supports the investment case for aging interventions.<sup>7</sup>



PHOTO: KARL TAPALESI / GETTY IMAGES

Enormous aggregate value

Slowing aging to yield a 1-year increase in life expectancy is valued at approximately \$38 trillion, while a 10-year increase is valued at \$367 trillion for the US (for example).

Virtuous circle dynamic

Improvements in healthy aging produce greater economic returns as societies become older, because both the average age and the value placed on further health gains increase, leading to a reinforcing “virtuous circle.”

The *Nature Aging* paper applies a value of statistical life (VSL) model, a widely used public policy tool, to quantify the monetary gains from increasing both longevity and healthspan. Through this approach, the economic benefits of targeting aging arise from enhanced productivity, reduced healthcare and social care expenses due to lower rates of disability and frailty and a more active, contributing population base.

Compared with interventions that eradicate individual diseases or merely extend life without improving years in good health, targeting aging is shown to deliver substantially greater economic returns, owing to synergistic reductions in multiple health risks and positive spillover effects across society.

INVESTMENT IMPLICATIONS

Extending healthy longevity is not only a scientific opportunity but also an economic and social imperative. Investments in aging-targeting interventions carry the potential to reshape healthcare, unlock vast productivity gains and raise important questions of access and equity.

Scale

Investments in aging-targeting interventions have potential for outsized returns at a societal level, with increasing returns as healthy longevity improves.

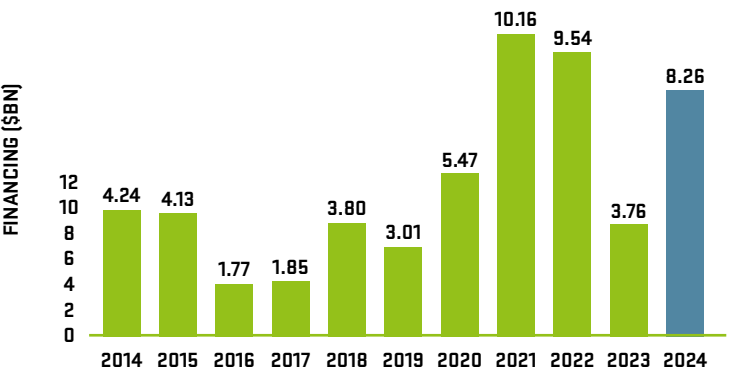
Policy leverage

The magnitude of potential gains justifies major policy, philanthropic and private capital mobilization; much as has occurred for climate technologies.

Access

Equity of access is crucial; if aging-targeting interventions are inexpensive, widespread benefit is possible. High costs may raise health equity and redistribution issues.

Investment activity into longevity companies has bounced back from a peak in 2021, but more capital is required to meet the scale of the opportunity.



Longevity companies financing activity by total financing in 2014–2024 in \$bn. Deal types included in the analysis are: Accelerator/Incubator, Angel, Corporate, Early Stage VC, Later Stage VC, Equity Crowdfunding, IPO, PE Growth/Expansion, PIPE, Public Investment 2nd Offering, and Seed Round. Analysis by Longevity.Technology, according to Pitchbook data as of February 1, 2025, based on 1385 companies.

\$38,000,000,000,000

1-year increase in life expectancy is valued at approximately \$38 trillion

# WHY A BLUEPRINT IS REQUIRED

## GLOBAL EFFORTS ARE FRAGMENTED

Countries across the world are actively deploying their best resources to improve public health outcomes, often guided by

serve both profitable and vulnerable markets.

## CHALLENGE OF DEMOCRATIC AND EQUITABLE ACCESS

Achieving democratic, universal access to health innovation is fraught with economic and political complexities. Countries face budget constraints, entrenched interests, and differing levels of health infrastructure. This often leads to an “access gap,” where cutting-edge prevention, diagnostics and treatments are disproportionately available to a minority of a country’s people. Healthy Humanity Blueprint is essential to guide resource allocation, policy reform and public-private partnerships that close these gaps.

Health crises are increasingly global: chronic diseases, pandemics and demographic shifts affect all nations, but responses are rarely joined up across borders. Without a coherent global strategy, scalable innovation is stifled, investments are duplicated and results are fragmented.

## FII INSTITUTE’S VISION AND THE HEALTHY HUMANITY BLUEPRINT

With our mission of Impact on Humanity, the FII Institute is uniquely positioned to foster this collaborative Healthy Humanity Blueprint to bring together leaders, innovators, governments and investors, supported by research, thought leadership and investment to bring about change. Our Healthy Humanity initiative is explicitly focused on building a society where preventive medicine, holistic well-being and technological equity are attainable for all.

The world is facing a convergence of public health, environmental and economic shocks that single entities cannot solve alone. Without a blueprint, duplication of effort, wasted investment and widening inequality are inevitable, while joined-up action can unlock untapped economic and social returns.

Adopting this blueprint means contributing, learning and scaling solutions with a global community dedicated to a healthier, more resilient humanity. ■

their unique priorities, infrastructure and capacities.

However, these efforts are not consistently aligned or coordinated at the global level, leading to missed opportunities for shared learning, data harmonization and joint responses to transnational threats of chronic disease.

**A unified blueprint provides a framework for connecting these disparate efforts, creating synergy and amplifying impact. FII Institute has created this blueprint, which is now publicly available for corporations and governments to leverage this most comprehensive resource.**

## THE ROLE - AND LIMITS - OF PRIVATE CORPORATIONS

Private companies often possess technological solutions, capital and operational efficiency that can fundamentally transform health outcomes, such as by scaling AI-driven diagnostics or wearable health technologies. Despite this, their actions are usually driven by market forces not always aligned with broader public health objectives or accessible to underserved populations.

FII’s Healthy Humanity Blueprint should promote and structure private sector involvement towards collective social good, ensuring solutions

# HEALTHY HUMANITY BLUEPRINT

High-Level overview  
of the Blueprint



## BLUEPRINT PILLAR I

# PREVENTION

Research shows that 70%–80% of chronic diseases stem from modifiable lifestyle factors, with only 20%–30% linked to genetics.<sup>8,9,10</sup> This underscores prevention as the strongest driver of improved longevity and healthspan, aiming to reduce the years spent in poor health and promote longer, healthier lives.

PHOTO: WESTEND61 / GETTY IMAGES



# LIFE'S ESSENTIAL 8



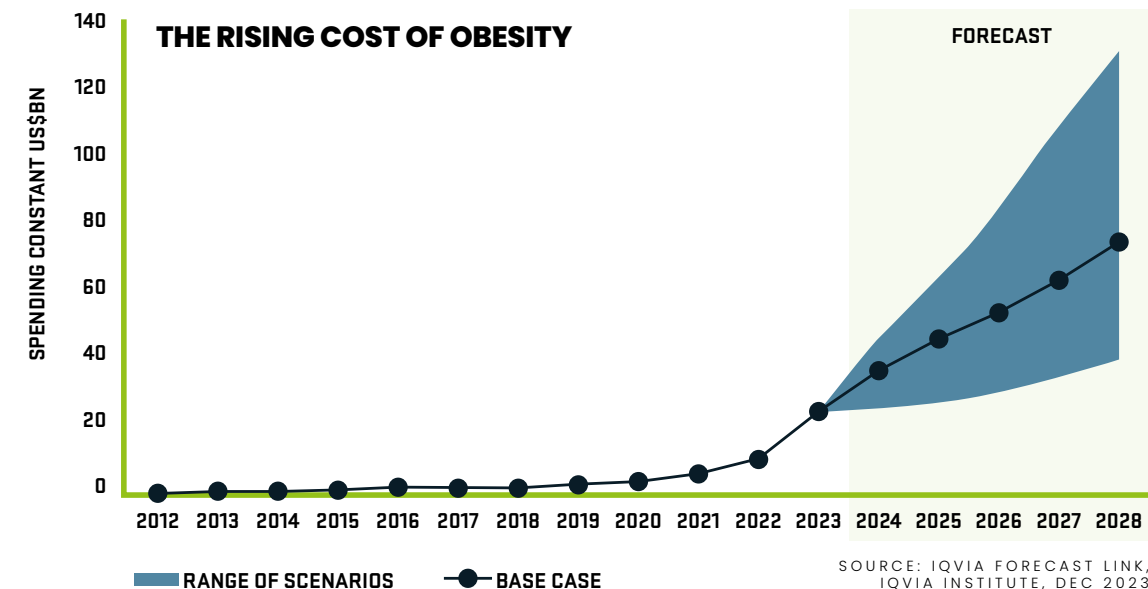
SOURCE:  
AMERICAN HEART  
ASSOCIATION

**EVIDENCE FROM LARGE STUDIES** highlights the impact of lifestyle behaviors. The American Heart Association's Life's Essential 8 shows that a healthy diet, regular exercise, smoking cessation, good sleep and normal metabolic markers can add nearly a decade to life expectancy.<sup>11</sup> Similarly, the Veterans Study (2024), with over 700,000 participants, found those who adopted eight healthy habits from age 40 lived over 20 years longer than those who did not – gains still notable even when changes were made later in life.<sup>12,13</sup>

Despite clear evidence, uptake remains low due to the intention-action gap: while most people want to age healthily, fewer follow through. Only half meet WHO physical activity targets, and dietary change remains limited. Behavioral

strategies such as nudges, which simplify and default healthier choices, may be more effective than education alone.

For the first time, according to 2025 WHO and UNICEF research, there are now more children globally living with obesity than those who are underweight, with around 188 million youths aged 5 to 19 classified as obese – almost one in every ten children worldwide. This alarming trend reflects a dramatic rise in childhood obesity rates, driven primarily by the increasing prevalence of ultra-processed, calorie-dense foods replacing traditional diets. While some regions, like sub-Saharan Africa and South Asia, still report higher rates of underweight children, the global shift signals an urgent need for comprehensive strategies to tackle childhood obesity at scale.<sup>14,15</sup>



**8 EIGHT HEALTHY HABITS**

**40 FROM AGE 40**

**= 20 LIVE 20 YEARS LONGER**

Alongside proven lifestyle measures, new treatments and therapies are being explored for better health and longer life. Pharmaceutical options such as GLP-1 agonists, metformin and rapamycin, and approaches like senolytics, fasting and rejuvenation therapies show promise for extending healthspan, but remain experimental compared with well-established benefits from exercise, healthy diets and smoking cessation. These innovations are best viewed as adjuncts rather than alternatives.

True prevention requires broad collaboration. Health systems can extend beyond clinics through tools like the UK NHS social prescribing, while policymakers, private industry and non-profits can foster healthier environments and invest in wellness initiatives. The rise of digital health is also shifting prevention from patient care to consumer-focused models, reframing healthcare around maintaining health rather than treating disease.

Financially, prevention offers strong returns, with every \$1 invested generating up to \$6 in economic benefit.<sup>16,17</sup> Innovative funding mechanisms such as blended finance and social impact bonds could unlock prevention investment at scale, as highlighted by initiatives like the Milken Institute’s Project Prevent.

In summary, prevention through healthy lifestyles remains the cornerstone for enhancing healthspan and lifespan. Yet, combining evidence-based behaviors with behavioral insights, cross-sector collaboration, digital health and innovative funding creates a roadmap for longer, healthier lives across populations.

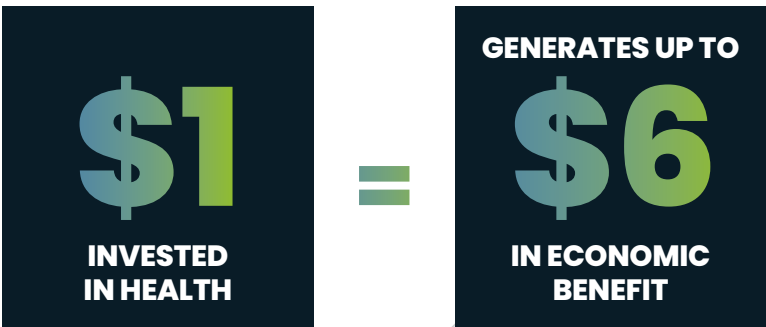


PHOTO: TATSIANA VOLKAVA / GETTY IMAGES; MARIA KORNEVA / GETTY IMAGES; IPPPEI NAOI / GETTY IMAGES; KLAUS VEDFELT / GETTY IMAGES; HALFPOINT IMAGES / GETTY IMAGES

**NUTRITION**

Poor diets are now among the leading global risk factors for chronic disease, comparable in impact to smoking and obesity. The Global Burden of Disease study attributes nearly 8 million annual deaths to low intake of whole grains, fruits, vegetables, nuts and seeds, combined with high consumption of processed meats, sodium and sugary drinks.<sup>18,19</sup> Although most people want to age healthily, adherence to dietary guidelines remains low;<sup>20</sup> fewer than one-third meet fruit and vegetable targets, and few reduce meat intake. This reflects the persistent intention-action gap, emphasizing the need for nutrition policies that balance science with cultural and social realities.

**PHYSICAL ACTIVITY**

Regular physical activity is a cornerstone of chronic disease prevention and longevity, reducing all-cause mortality by 20%–30% regardless of other factors. In contrast, sedentary behavior is an independent risk factor for poor health. The WHO recommends 150 minutes of moderate-intensity aerobic activity weekly, linked to lower risks of cardiovascular disease, cancer, stroke, mental illness and musculo-skeletal decline.<sup>21</sup> Exercise also manages existing conditions, improving glycaemic control in diabetes, reducing hypertension, aiding recovery and treating depression.<sup>22,23</sup> Importantly, even modest activity boosts lifespan: full adherence adds 3–4 years, while as little as 75 minutes of brisk walking weekly extends life by nearly two years.<sup>24,25</sup>

**EMOTIONAL WELL-BEING**

Global emotional well-being is sharply declining, with nearly 1 in 5 adults affected by depression or anxiety, rates rising over 25% during COVID-19.<sup>26</sup> Suicide is now the second leading cause of death among Americans aged 10–24, with youth emergencies linked to mental health surging fivefold.<sup>27,28,29</sup> Key drivers include economic dislocation (“deaths of despair” tied to unstable jobs and opioids), social fragmentation (declining community and religious participation, rising solitary living), and digital displacement (social media, sleep loss).<sup>30,31</sup> Mental health disorders cause greater morbidity than all major non-communicable diseases combined, cluster with chronic illnesses and significantly shorten life expectancy, especially through cardiovascular risks.

**SLEEP**

Sleep is increasingly recognized as a core pillar of longevity, vital for extending both healthspan and lifespan. Poor quality or disrupted sleep is linked to obesity, diabetes, cardiovascular disease, neurodegeneration, and shortened lifespan. Both short and long sleep durations increase mortality risk, highlighting the need for balance. Sleep quality impacts cognitive health, circadian rhythms, glycaemic control, the gut microbiome, immune regulation, and even skin aging.<sup>32,33,34</sup> With aging, sleep disorders become more common, further reducing restorative benefits. Optimizing sleep requires targeted interventions at individual, workplace and policy levels, while businesses in the sleep-longevity sector must leverage science to design effective solutions.

# STAKEHOLDER ENGAGEMENT

Multiple types of companies and entities are needed to deliver transformation:

## FII MEMBERS AND OTHER PRIVATE SECTOR STAKEHOLDER EXAMPLES

| STAKEHOLDER TYPE                | ROLE/HOW TO ENGAGE WITH POLICYMAKERS & OTHER CORPORATIONS                                                                                                                                                             |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Retailers (large & local)       | Offer affordable healthy foods; redesign stores; implement placement/pricing strategies; engage in policy forums; sign up to voluntary or mandatory targets                                                           |
| Manufacturers & food processors | Reformulate products; promote healthy options; transparently label/present nutritional info; join health-focused marketing alliances, public-private partnerships and research initiatives (e.g. through B Corp, ESG) |
| Food service & hospitality      | Redesign menus; train staff; offer healthy events; collaborate with public health for menu standards; host outreach events                                                                                            |
| Technology companies            | Develop fitness apps; wearables; digital interventions; collaborate on public sector campaigns; share data insights for population health planning                                                                    |
| Workplaces/employers            | Implement workplace wellness programs; support active design (standing desks, walking meetings); reduce sedentary behavior; partner with policymakers for health initiatives                                          |
| Sports & recreation sector      | Offer accessible programs and facilities; partner with schools, workplaces, policymakers; use gamification and role modeling to reach diverse groups                                                                  |
| Mobility & transport companies  | Offer/sponsor active transport solutions (bike-sharing, walking routes); partner with governments on transit; incentivize active commuting                                                                            |

## PUBLIC SECTOR STAKEHOLDER EXAMPLES

| STAKEHOLDER TYPE                 | ROLE/HOW TO ENGAGE WITH POLICYMAKERS & OTHER CORPORATIONS                                                                                                                                                                                                                                                 |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Health & education institutions  | Implement healthy food environments, education programs, evidence and evaluation; work with government and local food partnerships; mandate PE; fund after-school/community sports; partner with community and corporate sponsors; monitor school policy compliance                                       |
| Local & national authorities     | Urban planning; zoning; food procurement; regulation and incentives; coordinate interdepartmental/sectoral action; develop policy frameworks; fund active transportation, parks, youth sports; legislate school PE requirements; partner with private sector for infrastructure and workplace initiatives |
| Third sector & food partnerships | Coordinate action across sectors; provide advocacy; deliver community food programs; act as a bridge between government, community and corporates                                                                                                                                                         |
| Urban planning & transport       | Enforce/build cities for active living; coordinate with corporations and community groups for active travel and mixed-use developments                                                                                                                                                                    |
| Public health agencies           | Lead awareness campaigns; leverage partnerships for social media and traditional media advocacy; coordinate multi-sector efforts for health promotion                                                                                                                                                     |

## BLUEPRINT PILLAR II

# SCREENING & DIAGNOSTICS

Screening and diagnostic services have quietly become one of the most transformative forces in healthcare, touching people's lives well before they even realize it. Today, a routine blood pressure check, a simple at-home sample kit, or a quick scan at a local clinic can mean the difference between catching a health problem early, while it's still easy to manage, or letting it develop into something far more serious.

PHOTO: JUNE NG / GETTY IMAGES



**AROUND THE WORLD,** these checks start even before birth: prospecting

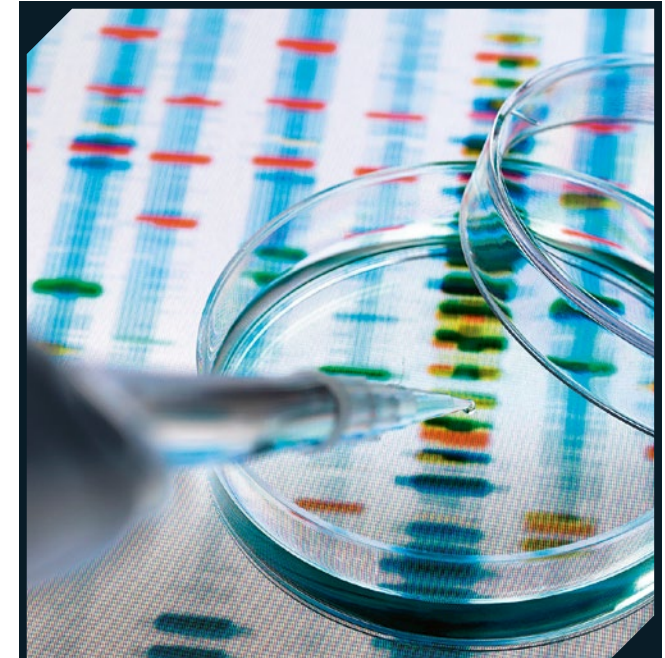
for genetic or physical issues as early as possible not only relieves a family's worry, but sets up entire communities to thrive. In places where newborn screening is the standard, doctors can catch and treat problems within days, often saving lives, and always helping families start off on a stronger, healthier path.

The value of screening doesn't diminish as people get older. As children grow, clinics and schools use simple checks to spot things like poor eyesight, hearing loss or developmental delays. The market is growing and delivers significant investment opportunities,<sup>35</sup> as well as the downstream cost of prevented diseases.

Of course, not everyone experiences the same access to these services. Some communities see too many unnecessary tests, while others – particularly rural or low-income populations – still struggle to get even the basics.

Exciting new technologies are also changing the story. Tools powered by AI are now helping doctors catch cancers and heart conditions earlier, with greater accuracy and fewer missed details. Smart apps and home-based diagnostics turn living rooms into mini-clinics, shrinking the distance between people and healthcare.

If this movement is to benefit all, however, reports and planning will need to put people, patients and their families at the heart of every system. Using powerful yet easy-to-understand graphics in policy and public health communications is an essential step; these images make complex realities visible and actionable.

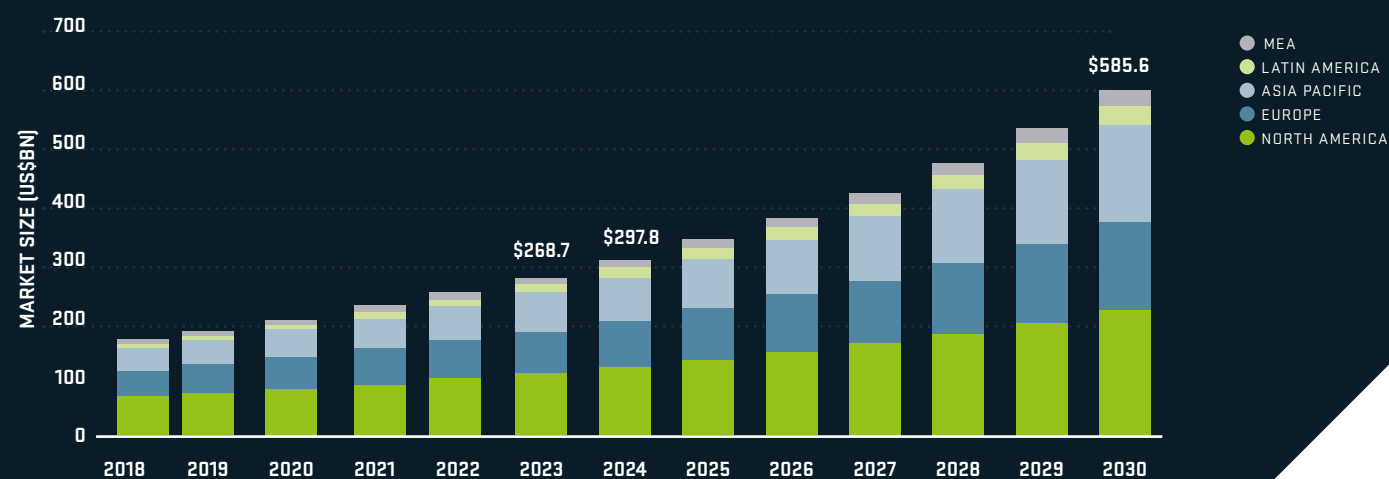


## FROM UNIVERSAL TO PRECISION SCREENING

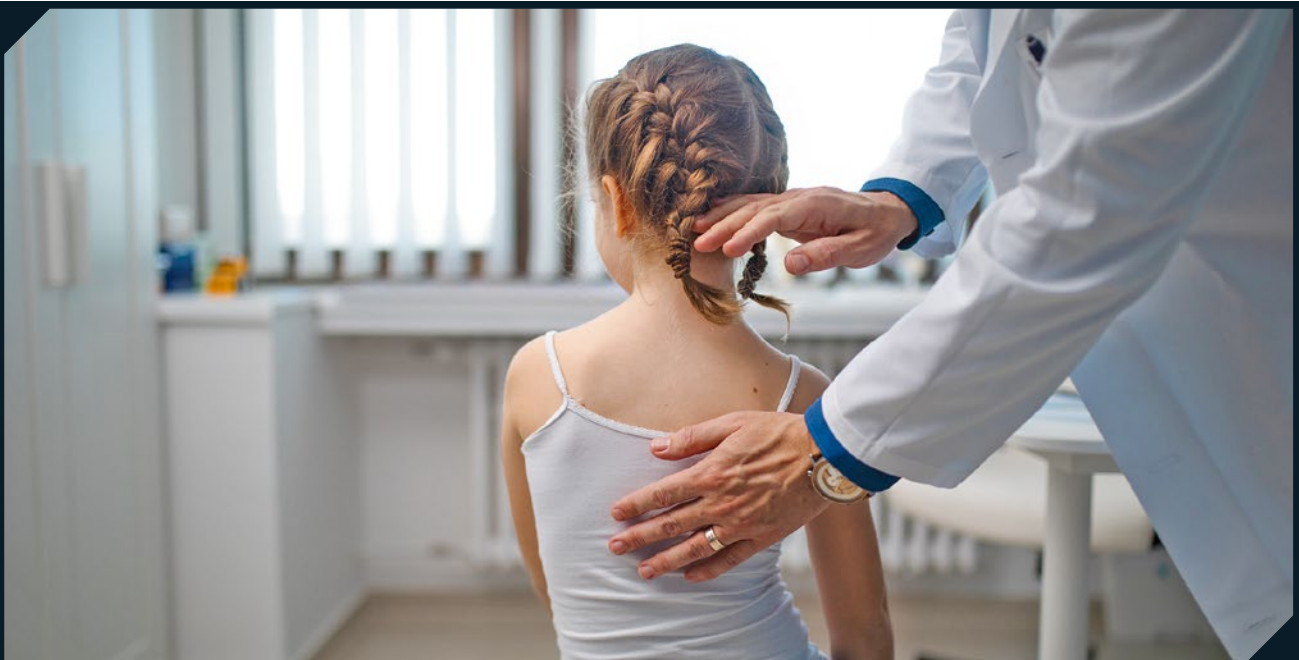
Current screening protocols begin even before birth. Widespread prenatal screening utilizing ultrasound, cell-free DNA and biochemical markers detects chromosomal, genetic and anatomical anomalies, enabling timely intervention and informed decision-making for families. Universal newborn screening has similarly proven extremely effective, identifying treatable metabolic, endocrine and hemoglobin disorders within days of life, and has saved countless lives, especially where follow-through with early treatment is standard.<sup>36</sup>

Provision continues into childhood, with school- and clinic-based programs designed to spot visual or hearing impairments, developmental delays and rising trends like obesity or asthma. These efforts set a proactive tone for lifelong health: identify deficits and risks early, intervene while reversible and establish lifelong prevention habits.<sup>37</sup>

## PREVENTIVE HEALTHCARE TECHNOLOGIES & SERVICES MARKET



SOURCE: GRAND VIEW RESEARCH <sup>35</sup>



DISEASE BURDEN & THE  
POWER OF EARLY DETECTION

In adults, routine health screening is the foundation for slowing the global rise of chronic disease. Annual or periodic assessments of blood pressure, cholesterol, fasting glucose, BMI and mental health are widely recommended by public health organizations and national governments, based on compelling evidence of early identification’s impact on cost and quality of life. These basic clinical screenings are complemented by disease- and population-specific programs.<sup>38</sup>

🕒 **Cardiometabolic screening:** Early detection of hypertension, prediabetes and dyslipidemia is imperative as people age, with most developed countries including and subsidizing these as part of preventive care. Increasingly, risk calculators and digital platforms can stratify individuals for more frequent or advanced workups.

🕒 **Cancer screening:** Routine cancer screening programs, which include mammography for breast cancer, Pap smears and HPV testing for cervical cancer, fecal occult blood tests and colonoscopy for colorectal cancer and low-dose CT for lung cancer, remain vital in reducing mortality. Liquid biopsy cancer screening, using blood tests to detect cancer markers, has been researched and gradually refined for decades. While not new, today’s advances give liquid biopsies the ability to spot more cancer types and pick up disease earlier than many traditional screening methods, adding another tool to the cancer detection toolkit. When programs include strong follow-up and clear next steps for people with positive results, they consistently reduce rates of advanced disease, deaths and overall healthcare costs.<sup>39</sup>

🕒 **Bone health:** Bone density testing (DEXA scans) for osteoporosis, particularly in post-menopausal women and the older population, helps prevent debilitating fractures and manage the global aging challenge.<sup>38</sup>

🕒 **Hormonal and reproductive health:** Regular reproductive hormone and menopause/andropause screening supports early intervention, especially as lifestyles and environmental exposures change.<sup>38</sup>

🕒 **Aging:** Investing in proactive health screening for older adults pays off as people age. Early detection of issues like cognitive decline or fall risk allows health systems to implement timely, cost-effective interventions that can prevent or delay the onset of more severe, expensive conditions. Ultimately, these preventive measures can extend the period of healthy, independent living, and reduce the overall financial strain on both individuals and the healthcare system.

PHOTOS: HALFPPOINT IMAGES / GETTY IMAGES, THE GOOD BRIGADE / GETTY IMAGES

SELF-EXAMINATION &  
POPULATION EMPOWERMENT

Empowering individuals remains just as important as clinical protocols. Self-examinations for breast and testicular cancer, supported by public campaigns and digital tutorials, ensure regular, low-cost, and accessible first lines of defense. At-home sample collection for colorectal and HPV screening helps bridge the clinic-home divide and increase participation, especially among reluctant or underserved groups.<sup>37</sup>



INNOVATIONS  
TRANSFORMING SCREENING

Over the past decade, digital health, artificial intelligence, and personalized diagnostics have grown faster than we could have anticipated. These advances are reshaping traditional screening by making early detection more precise and accessible. Major changes include:

🕒 **AI-driven analytics:** Artificial intelligence is now embedded across diagnostic imaging, pathology, electronic health records and even population-level risk modeling. AI algorithms are outperforming or matching clinicians in identifying cancers on mammography, lung nodules on CT, retinal changes in diabetes, age-related macular degeneration, heart failure (with the use of smart stethoscopes) and early neurodegeneration on MRI, enhancing precision, reducing error and enabling mass scaled screening.<sup>40</sup>

A 2024 study published in JAMA Network Open found that large language model AIs, when working alone, diagnosed simulated medical cases more accurately than physicians using conventional online resources or using AI as an assistant. However, the addition of AI as a diagnostic aid did not significantly boost physician accuracy compared with traditional methods.<sup>41,42,43,44,45</sup> Additionally, the authors emphasized that the results DO NOT indicate that LLMs should be used for autonomous diagnosis without physician oversight. These findings show that while AI models can be highly accurate in controlled scenarios, translating that advantage into clinical practice is not straightforward, as collaboration

between doctors and AI needs further refinement and both can make mistakes.

🕒 **Point-of-care & home testing:** Rapid tests for infectious diseases, cardiometabolic markers and cancer biomarkers, paired with digital interpretation and instant communication, allow high-quality diagnostics outside of traditional clinical settings. This is particularly valuable in remote geographies and for populations with healthcare access barriers.<sup>37</sup>

🕒 **Liquid biopsy & multi-cancer early detection:** Ultra-sensitive blood-based technologies are now able to detect tiny quantities of tumor DNA, permitting the identification of multiple cancers before symptoms arise. These advances are shifting the paradigm from late-stage intervention to early universal risk detection, aiming to improve survival and contain costs via prevention.<sup>45</sup>



PHOTOS: ANDREW BROOKES / GETTY IMAGES (2), EVGENIA SHANKOVSKAIA / GETTY IMAGES

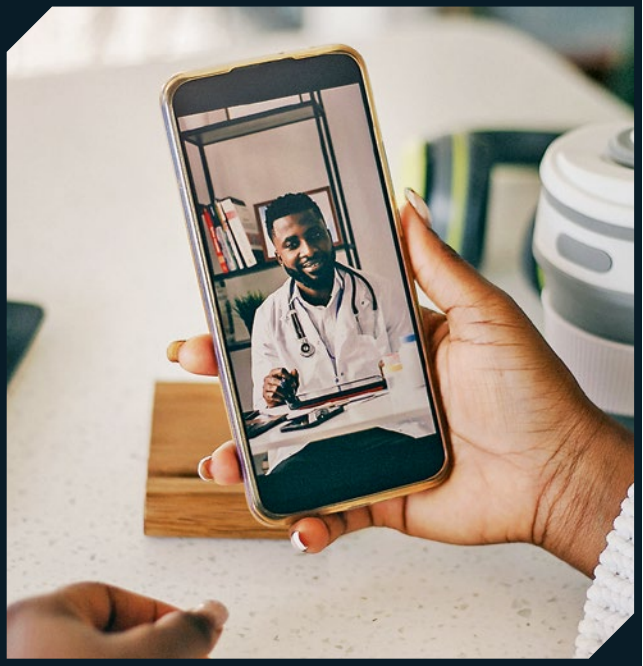
INTEGRATION  
& SYSTEMS

All innovation must be anchored in universal access and population health benefit. This paradigm shift also involves expanding mobile and telemedicine screening in rural and low-resource settings to address disparities, as well as improving current regulatory frameworks to fast-track new diagnostics while ensuring safety, privacy and quality. Equally important is the integration of screening records into national digital health infrastructures, which enables seamless follow-up, advanced analytics and stronger public health surveillance.

These will ensure that tomorrow's diagnostics do not simply remain as niche solutions or accessible only to the elite or fortunate few, and instead become widely adopted standards of care, accessible to everyone regardless of geography or income.<sup>37</sup>

GENOMICS, BIOLOGICAL AGE  
& THE FUTURE

From static population targets to dynamic individualized risk, modern screening is embracing genomics, polygenic risk scores and biological age assessment. Biological age estimation via DNA methylation, telomere analysis and now epigenetic clocks offers powerful risk categorization, identifying individuals aging faster than their chronological peers and eligible for more intensive intervention. Similarly, the "pace of aging" concept supports a future in which reactive care is increasingly replaced by ongoing, evolving risk management models.<sup>37</sup>



# STAKEHOLDER ENGAGEMENT

Multiple types of companies and entities are needed to deliver transformation.

## FII MEMBERS & OTHER PRIVATE SECTOR STAKEHOLDER EXAMPLES

| STAKEHOLDER TYPE          | ROLE/HOW TO ENGAGE WITH POLICYMAKERS & OTHER CORPORATIONS                                                                                                                 |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Health tech companies     | Develop and scale digital and AI-driven diagnostic devices. Share real-world data and collaborate in regulatory sandboxes to prove impact and safety                      |
| Employers & corporates    | Offer on-site screening events, enable regular workplace health checks, incentivize screening through benefits, form coalitions to share success models with policymakers |
| Pharma & diagnostic firms | Invest in advanced tests (liquid biopsy, genetic, AI-based), undertake outcome studies, partner with health authorities for joint public information campaigns            |
| Insurers                  | Lower premiums for policyholders adhering to screening protocols, fund research on cost-effectiveness, advocate for broader reimbursement with regulators                 |
| Hospitals & clinic chains | Pilot integration of new screening modalities within workflows, publish results, support outreach to underserved groups, collaborate on standards creation                |

## PUBLIC SECTOR STAKEHOLDER EXAMPLES

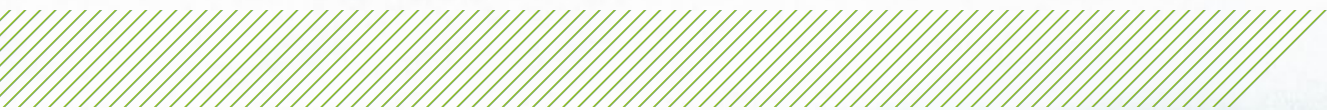
| STAKEHOLDER TYPE             | ROLE/HOW TO ENGAGE WITH POLICYMAKERS & OTHER CORPORATIONS                                                                                                                |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ministries of health         | Mandate national screening protocols, secure funding for universal programs, run public awareness drives, coordinate outcome data collection                             |
| Local & regional governments | Facilitate mobile screening in schools and communities, invest in accessible diagnostic infrastructure, partner with local employers for population targeting            |
| Education sector             | Integrate awareness and early detection into curricula, host school-based screening (vision, hearing, mental health), build partnerships with health companies           |
| Regulators                   | Fast-track regulatory approval for innovative diagnostics, consult with both the private sector and patients, set standards for AI and digital health tools in screening |
| Public insurance providers   | Cover new, cost-effective screening tests; gather and analyze claims data to identify trends; use purchasing power to promote adoption of best practices                 |

## BLUEPRINT PILLAR III

# HEALTH MANAGEMENT

Strong health systems are essential for community well-being, economic strength and societal resilience. The Healthy Humanity Blueprint presents a comprehensive vision where prevention, proactive care, self-management and therapeutics are available to every citizen, at every life stage. Global transformations in health policy, investment and science are enabling a recalibration, from reactive treatment of illness to lifelong health stewardship, integrating preventive care, innovative support services, equity in mental well-being and the latest in therapeutic science.<sup>46</sup>

Across communities, this means everyday actions like prenatal scans, childhood vaccinations and tailored advice for adults. These checks and interventions form a safety net, catching risk factors early and opening the door to better outcomes for everyone.





But health isn't sustained by vaccines and screenings alone. Dedicated support services (community nurses, midwives, mental health counselors) walk beside people and families on their health journey. These professionals offer advice on everything from nutrition to new parenthood to managing medications, in neighborhood clinics, homes or even via video call. At the heart of their work, building trust makes life-changing support possible, far beyond what medicine alone can achieve.



#### ANNUAL IMMUNIZATIONS AND CATCH-UP

campaigns, especially for vulnerable or hard-to-reach groups, save millions of lives each year and spare families the weight of long-term illness. Schools, parents and healthcare teams all play a part in building this shield of protection.

Smart preventive care also knows how to target its efforts. Instead of a one-size-fits-all approach, resources flow toward where they can do the most good – like hepatitis B vaccines for frontline caregivers or catch-up shots during disease outbreaks. In today's interconnected world, this agility is more important than ever, helping close gaps in care and fight the growing threat of drug resistance.



Physical and mental health are treated as equals in a modern vision of healthcare. Schools, offices and clinics are weaving counseling and well-being services into daily life, dissolving stigma and making it okay to ask for help. Early support for anxiety, depression or stress is proven to pay dividends, preventing deeper health problems and helping people thrive in school, at work and at home. In many places, doctors are also prescribing “nature” – walks outside, community volunteering or creative activities – to tackle loneliness and chronic illness; based on real evidence, these methods boost well-being.

For women and adults facing transitions or complex health needs, systems are responding with more targeted, holistic care. Guidance for menopause, hormone therapy, and medication management is increasingly personalized – not just about prescriptions, but about whole-life support, from lifestyle tweaks to peer groups.



PHOTO: DOUGAL WATERS / GETTY IMAGES, LUIS ALVAREZ / GETTY IMAGES, HALFPPOINT IMAGES / GETTY IMAGES



PREVENTIVE CARE

The first pillar of effective health management is prevention; anticipating risk and deploying interventions before disease manifests or escalates. Prenatal checks, including ultrasounds and targeted genetic screenings, allow early detection of developmental risks, enabling parents and providers to intervene for optimal outcomes. International best practice now includes comprehensive schedules of childhood immunization and catch-up campaigns for underserved groups, saving millions of lives annually and drastically reducing long-term healthcare burdens.<sup>47</sup>

Risk-based vaccination strategies, such as targeted hepatitis B immunization for high-risk adults or healthcare workers, reflect precision in public health, allocating resources where they deliver the greatest impact and closing population-level protection gaps. These approaches have become even more crucial amid rising global mobility, emerging disease threats, and the ongoing challenge of antimicrobial resistance.<sup>48</sup>

SUPPORT SERVICES

Active, multidisciplinary support services underpin proactive and integrated health management. Community health visitors and midwives deliver foundational postnatal, early childhood and maternal guidance, building trust and addressing social determinants of health at the household level. Their roles have expanded in many health systems, now extending through digital platforms and home visits to cover broad issues from nutrition to childhood development challenges.<sup>49</sup>

Integration of patient and provider health records advances continuity, safety and efficiency. Digital health records empower individuals, reduce duplication in care and enable targeted outreach, particularly for high-risk and underserved populations. These records are central to care coordination for chronic disease, medication management and transitions between services.<sup>50</sup>



MENTAL HEALTH  
& WELL-BEING

The Healthy Humanity vision treats mental health as equally important as physical well-being. Growing worldwide, schools, universities and workplaces are making counseling and psychological support a standard part of care. Putting these services in everyday settings encourages people to seek help, lowers stigma and allows earlier treatment of anxiety, depression and behavioral disorders that can otherwise erode long-term health and productivity.<sup>51</sup>

Social prescribing, where primary care providers link people to non-medical supports like exercise groups, volunteering or art therapy, is becoming an effective complement for mental health and chronic disease care. Formalizing access to nature, whether through parks, green corridors or nature-based therapy, is now evidence-based practice in several countries, shown to reduce stress and promote resilience.



ADULT &  
WOMEN'S HEALTH



Adults navigating complex health challenges need tailored, lifelong support. Perimenopause and menopause support for women now encompasses both clinical and social services, integrating hormone therapy, lifestyle advice and peer support networks. These interventions not only ease the midlife transition, but also reduce risk for osteoporosis, cardiovascular disease and mental health conditions.<sup>52</sup>

Medication optimization, especially for people managing many prescriptions, is central to safe and effective care. Regular polypharmacy review, ideally coordinated by pharmacists and primary care teams, reduces harm from drug interactions and unnecessary medication, enhancing both quality of life and system-wide safety.<sup>53</sup>

ADVANCED &  
REGENERATIVE THERAPIES

Innovative therapies are redefining what health management can achieve for those with chronic, degenerative or rare diseases. The following regenerative treatment increasingly features in routine and specialist care globally:

- ⦿ **Hyperbaric oxygen therapy (HBOT):** cold and heat exposure, targeted light therapies and stem cell infusions are being explored for recovery, immunity and tissue repair, especially in musculoskeletal and neurologic conditions.<sup>54</sup>
- ⦿ **Gene therapies:** are breaking new ground in correcting hereditary diseases, and early hormone therapies hold promise for both endocrine and neurodegenerative disorders.<sup>55</sup> In a recent breakthrough, a child at high risk for spinal muscular atrophy has become the first person to be treated for a motor-neuron disorder while still in the womb.<sup>56</sup> The mother took the gene-targeting drug Risdiplam late in pregnancy, and the child, now two and a half, shows no signs of the disease, which is an unprecedented result for a condition that often causes death early in life. This outcome suggests that administering gene therapies while in utero may hold new promise for preventing severe hereditary diseases.

Regenerative medicine and artificial intelligence are coming together to speed up personalized care, with AI now helping to select cells, forecast treatment outcomes, and refine how therapies are given.<sup>57</sup> At the same time, these advances bring serious ethical, regulatory and fairness concerns. Policymakers and innovators need to collaborate on strong evidence standards, clear safety rules, equal access and broad benefits for all as the field rapidly advances.



PHOTO: HALFPPOINT IMAGES / GETTY IMAGES, MOMO PRODUCTIONS / GETTY IMAGES, KMATTA / GETTY IMAGES

# STAKEHOLDER ENGAGEMENT

Multiple types of companies and entities are needed to deliver transformation.

## FII MEMBERS & OTHER PRIVATE SECTOR STAKEHOLDER EXAMPLES

| STAKEHOLDER TYPE          | ROLE/HOW TO ENGAGE WITH POLICYMAKERS & OTHER CORPORATIONS                                                                                             |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Health tech companies     | Develop digital record systems, wellness apps and telehealth for preventive care and mental well-being; partner in cross-system data-sharing.         |
| Employers & corporates    | Offer integrated health management (immunization drives, workplace wellness, mental health) as part of employee benefit schemes; share best practices |
| Pharma & diagnostic firms | Invest in vaccine development, advanced regenerative therapies and medication optimization tools; participate in regulatory forums and trials         |
| Insurers                  | Provide incentives for preventive checks, vaccination and well-being program participation; invest in tracking impact and advocating policy reforms   |
| Hospitals & clinic chains | Pilot multidisciplinary models (e.g., midwife teams, pharmacy-led polypharmacy review), publish outcome data, lead in implementation science          |

## PUBLIC SECTOR STAKEHOLDER EXAMPLES

| STAKEHOLDER TYPE             | ROLE/HOW TO ENGAGE WITH POLICYMAKERS & OTHER CORPORATIONS                                                                                  |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Ministries of health         | Mandate and fund preventive care, record integration, counseling access, and therapy pilots; shape national standards                      |
| Local & regional governments | Coordinate delivery of community-based services and health promotion; support data integration and population outreach                     |
| Education sector             | Integrate health education, vaccination promotion, and access to counseling within school systems, partner on digital health pilots        |
| Regulators                   | Update frameworks for advanced therapies, ensure evidence-based standards, monitor access and equity, consult with innovators              |
| Public insurance providers   | Fund preventive, mental health and regenerative therapies; require evaluation and data-sharing for best practice; support outcome research |

## BLUEPRINT PILLAR IV

# EDUCATION & UPSKILLING

Education and skill development are key to realizing the Healthy Humanity vision – they empower people, support thriving communities and shape adaptive economies. The Healthy Humanity Blueprint centers lifelong learning, digital skills and health education throughout life as strategies to close gaps, boost collective well-being and drive sustained economic progress. With rapid demographic change and the digital transformation of work and health, investing in comprehensive education – from early parenting support to advanced professional and technology skills – has become a foundational pillar not just for resilience, but also for global competitiveness.<sup>58</sup>

PHOTO: COMPASSIONATE EYE FOUNDATION/DAVID OXBERRY / GETTY IMAGES





**EDUCATION IS A FOUNDATION THAT** shapes health, resilience and opportunity at every stage of life. It extends far beyond the classroom, supporting families, preparing young people, empowering adults and sustaining older generations. By integrating evidence-based programs into parenting, youth development, skills training, digital literacy and later life, societies can build healthier communities and break cycles of disadvantage.

Supporting parents is the first step. The early years of a child's life are critical, and structured parenting education helps caregivers establish routines around nutrition, sleep, activity and stress management while avoiding harmful substances. Such programs not only improve child development and school readiness, but reduce risky behaviors in later life. When parents are supported, families become more resilient and children are set on a path for long-term success.<sup>58</sup>

For youth, education must address more than academics. Programs that build resilience and combat bullying reduce mental health challenges and strengthen social connections. Relationship and sexual education, taught early and effectively, lowers rates of teenage pregnancy, infections

and interpersonal violence. Digital citizenship awareness equips young people to navigate risks like cyberbullying and misinformation, while career guidance bridges aspiration and achievement, improving attendance, graduation rates and future economic mobility.

#### GLOBAL FINANCIAL LITERACY

As individuals grow, life skills and lifelong learning remain essential. Training in financial literacy, nutrition, civic engagement and entrepreneurship prepares people for the demands of modern society. Adult education in parenting, housing, retirement planning and technology encourages adaptability, reduces social vulnerabilities and promotes inclusion. Lifelong learning empowers citizens to thrive in changing economies and communities while fostering innovation and resilience.

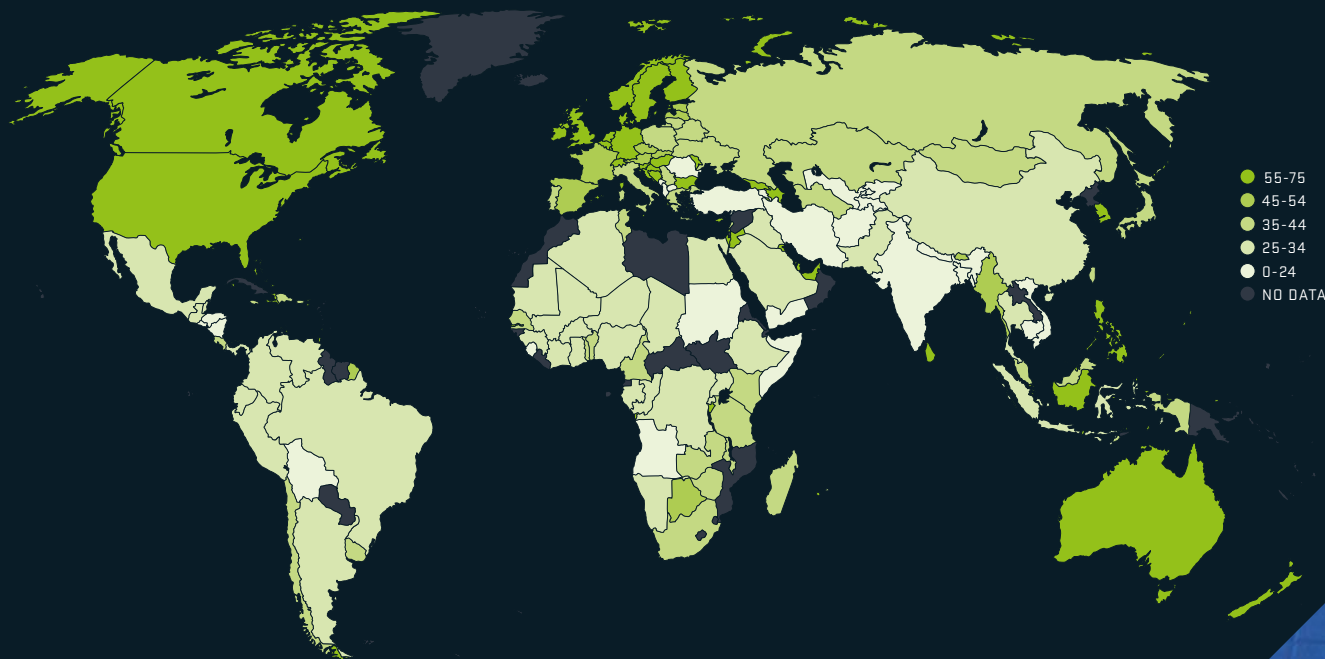
Technology education is now indispensable. From data literacy to digital health tools and media awareness, digital training ensures people can fully participate in work, healthcare and civic life. Public initiatives and partnerships expand access, giving disadvantaged groups the confidence to succeed in a digital world.

PHOTO: HALFPPOINT IMAGES / GETTY IMAGES

Later life learning also plays a vital role. Fall prevention programs improve safety and independence for older adults, while courses in geroscience help professionals better manage aging-related health challenges. Ongoing education combats isolation, sustains cognitive health and supports dignity in older adulthood.

By embracing education across all life stages, societies create not only opportunity but also long-lasting well-being and resilience.

#### GLOBAL FINANCIAL LITERACY



SOURCE: THE STANDARD & POOR'S GLOBAL FINANCIAL LITERACY SURVEY





**PARENTING & FAMILY HEALTH**

Supporting parents and families lays the groundwork for breaking the cycle of poverty and narrowing health gaps. Parenting education and high-quality training programs improve developmental outcomes for children, helping them reach key milestones and succeed in school. Structured efforts include support sessions, practical education on child health and clear guidance on healthy routines – focusing on nutrition, activity, sleep, stress and avoiding harmful substances. Studies show that when caregivers receive this support, children are more likely to develop strong social and academic skills and steer clear of risky behaviors later. Comprehensive family health education not only prepares parents for immediate challenges, but equips entire families to better navigate the health landscape at each stage of life, creating a legacy of well-being.<sup>59</sup>

**YOUTH DEVELOPMENT & EARLY EDUCATION**

Building resilience and emotional well-being for youth is now an international public health priority. Schools increasingly deliver programs in resilience, anti-bullying and peer support, which have been shown to reduce mental health challenges and foster social connectedness. Sexual and relationship education, when integrated early, leads to reduced rates of teenage pregnancy, sexually transmitted infections and interpersonal violence. Social media awareness and digital citizenship classes provide youth with the tools to safely participate in online spaces, helping mitigate risks such as cyberbullying and misinformation. Careers planning support, introduced early and revisited often, helps bridge aspiration and achievement, especially for disadvantaged students, and is associated with improved school attendance, higher graduation rates and greater long-term economic mobility.<sup>60</sup>



PHOTO: KLAUS VEDFELT / GETTY IMAGES (2), JOHNER IMAGES / GETTY IMAGES, TOM WERNER / GETTY IMAGES, XIXINXING / GETTY IMAGES



**LIFE SKILLS & LIFELONG LEARNING**

Universal life skills training is a hallmark of societies that are adaptable and prosperous. Curricula now include financial literacy, food science, entrepreneurship and civic engagement – areas critical for modern life. Lifelong learning opportunities support adult education in areas such as parenting, financial planning, housing and technology, ensuring all citizens can thrive within changing societies and workplace environments. Retirement planning and succession training are increasingly important as populations age, preventing social isolation and supporting healthier, longer working lives. For the older adult population, upskilling supports both economic inclusion and cognitive health.<sup>61</sup>

**TECHNOLOGY & DIGITAL LITERACY**

Mastery of technology and digital tools is no longer optional; it is fundamental to both economic participation and individual agency in the 21st century. Education systems now deliver structured training in data literacy, digital health tools, artificial intelligence and risk awareness from an early stage through to professional development. Media literacy curricula help students and adults alike critically navigate a world saturated with information, equipping them with the ability to discern credible sources, understand algorithms, and protect their privacy. Cross-sector partnerships, including public digital academies and health digital upskilling programs, have shown positive impacts on access to information, health system navigation and employability.<sup>62</sup>



**ADULT & LATER LIFE**

The commitment to education extends to adult and later-life learners. Fall prevention programs in community and workplace settings use evidence-based educational interventions to reduce injuries and costs associated with preventable accidents. The establishment of university-level and advanced courses in geroscience for both generalists and qualified doctors is enabling a workforce that is better equipped to address the health complexities of aging societies. These later-life courses have been shown to improve practitioner competency and support healthy longevity initiatives around the world.<sup>63</sup>

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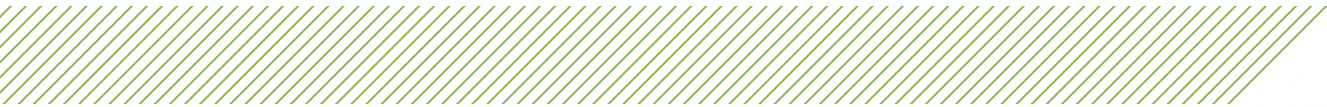
## FII MEMBERS & OTHER PRIVATE SECTOR STAKEHOLDER EXAMPLES

| STAKEHOLDER TYPE     | ROLE/HOW TO ENGAGE WITH POLICYMAKERS & OTHER CORPORATIONS                                                                                                        |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Edtech companies     | Develop and deliver technology, content, and platforms for family health and school-based and adult learning; collaborate in pilot programs; share outcomes data |
| Corporates/employers | Support workplace upskilling, sponsor digital inclusion initiatives, deliver mentorship, fund community-based training centers                                   |
| Media & technology   | Partner on digital literacy, media safety, and anti-bullying campaigns, integrating learning modules into popular media and devices                              |
| Educational networks | Coordinate structured life skills, entrepreneurship and advanced geroscience curricula; exchange best practice and research                                      |
| Health systems       | Integrate digital literacy, resilience and health self-management into patient education, support accredited lifelong learning for providers                     |

## PUBLIC SECTOR STAKEHOLDER EXAMPLES

| STAKEHOLDER TYPE       | ROLE/HOW TO ENGAGE WITH POLICYMAKERS & OTHER CORPORATIONS                                                                          |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Education institutions | Mandate and fund comprehensive parenting, life skills and digital literacy programs; set standards for curricula                   |
| City/local government  | Offer digital skills and geroscience courses via community centers and online platforms; connect vulnerable residents to resources |
| National regulators    | Update standards for workforce upskilling, approve new credentialing pathways, support public-private innovation                   |
| Social services        | Identify at-risk families, refer to parenting education and youth support programs, evaluate long-term social and health impacts   |
| Universities           | Develop mature learner programs and geroscience academies, bridge research and innovation into community upskilling efforts        |

# BLUEPRINT ENABLING FACTORS





In clinics and living rooms, care is becoming continuous, computational and personal. Artificial intelligence accelerates drug discovery, sharpens diagnostics and tailors therapies to the individual, while wearables deliver real-time

signals that extend care far beyond clinic walls. Digital twins build dynamic models of a person's health to test options before acting, and quantum computing brings the power to confront problems once considered intractable. Blockchain safeguards data and strengthens trust across the ecosystem, while large language models (and early steps toward AGI) redefine collaboration with machines. Brain-computer interfaces close the loop, linking mind and machine to restore lost function today and expand human capability tomorrow. Together, these forces shift medicine from episodic visits to a continuous, guided partnership.

# TECHNOLOGY

## AI

Artificial intelligence is starting to touch almost every facet of healthcare, from the earliest stages of drug discovery to the intimate details of personal medical guidance. In research, it has already been accelerating drug trials by analyzing massive data sets of molecules, predicting how compounds may behave and identifying promising targets long before laboratory testing begins. What once required years of exhaustive trial-and-error can now be shortened, as algorithms detect patterns in genomic data, compare trial outcomes across populations and help design more efficient studies with fewer participants. Regulators and researchers rely on AI to sift through enormous amounts of clinical evidence, flag anomalies and suggest adaptive trial designs that make treatments studies more effective.<sup>64</sup>

Inside hospitals and clinics, AI can enhance the way diseases are detected and managed. Imaging tools trained on millions of scans can spot subtle signs of cancer, heart disease or stroke long before symptoms appear. Beyond diagnostics, AI systems can integrate information from labs, electronic health records (EHR) and clinical notes to give physicians a clearer view of a patient's condition. This allows for quicker, more accurate decisions and reduces errors that often result from fragmented information.<sup>65</sup>

Personal guidance is where AI moves closest to people's lives. By combining genetic data with lifestyle and environmental factors, it can guide doctors to therapies tailored to individuals rather than relying on general treatment plans. Wearable devices track heart rate, sleep and activity, feeding data to algorithms that can anticipate problems before they become emergencies. Virtual health assistants extend care into homes, reminding patients to take medication, answering questions and supporting mental health through accessible guidance, thus improving daily well-being and keeping care continuous.<sup>66</sup>

AI may eventually result in a healthcare system that is more predictive, more personalized and more continuous. Instead of encounters limited to occasional doctor visits, patients will experience a form of care that can follow them wherever they are, informed not just by human expertise but by analyses too complex for humans alone. Artificial intelligence is not replacing medical judgment but improving it, weaving together the vast and fragmented pieces of modern medicine into something more coherent and responsive.



WEARABLES

Wearable devices like smartwatches, fitness trackers and medical-grade monitoring devices enable constant, real-time monitoring of vital signs and health indicators for millions of people around the world. These devices, once considered just simple fitness trackers, can now collect and relay important medical data, such as heart rate, glucose levels, blood oxygen and sleep patterns, allowing patients and clinicians to detect problems early; manage chronic conditions more effectively, often with fewer hospital visits; and enable rapid emergency responses, sometimes before a person even recognizes symptoms themselves. Wearables can reduce the need for frequent hospital visits, empower individuals to take control of their own health and give clinicians richer data sets for diagnosis and treatment decisions.<sup>67</sup>

These benefits have proven substantial during the COVID-19 pandemic, where wearables helped detect symptoms, manage chronic conditions and maintain care continuity even as clinics closed.<sup>68</sup> In health systems globally, wearables are used to help triage, screen for early signs of illness and personalize interventions.<sup>69</sup>

The real power of wearable technology, though, lies in how it can make healthcare more accessible for everyone. Wearables are especially impactful in remote, underserved or low-resource settings, where access to healthcare facilities and professionals is limited. By enabling virtual consultations and ongoing remote monitoring, wearables help bridge healthcare gaps, empower patient self-care and democratize access to care.<sup>70,71,72,73</sup>

DIGITAL TWINS

These virtual replicas are built from fine-grained medical data, personal histories and countless signals from wearables, forming a high-fidelity mirror of each individual's biology and daily life. Unlike any tool before, digital twins promise to serve as the nexus for personalized information and guidance, anchoring every medical decision, intervention or lifestyle change to a person's unique journey.

Through continuous simulation and adaptation, a digital twin can model how disease might progress, predict how treatments will work and guide preventive steps based on real-time data. Already, several companies have begun integrating digital twin technology into their healthcare platforms, bringing what was once just theory into practice. These systematic approaches guide treatment pathways in chronic conditions, such as diabetes and hypertension, using real-time data streams and simulations to improve outcomes and streamline therapies.

Physicians, empowered by these evolving models, can move beyond generalized protocols and into direct, data-driven decisions. Whether adjusting chemotherapy regimens, managing diabetes or monitoring heart health, every choice becomes tailored; a kind of virtual rehearsal before any risk touches the actual patient. For patients, this may mean more precise interventions and fewer side effects, but also deeper involvement and understanding, as digital twins can help visualize and manage health with unprecedented clarity. In the future, personal guidance will no longer rely on memory or sporadic clinic visits, but will be informed by the cumulative, evolving story captured by a digital twin.<sup>74</sup>



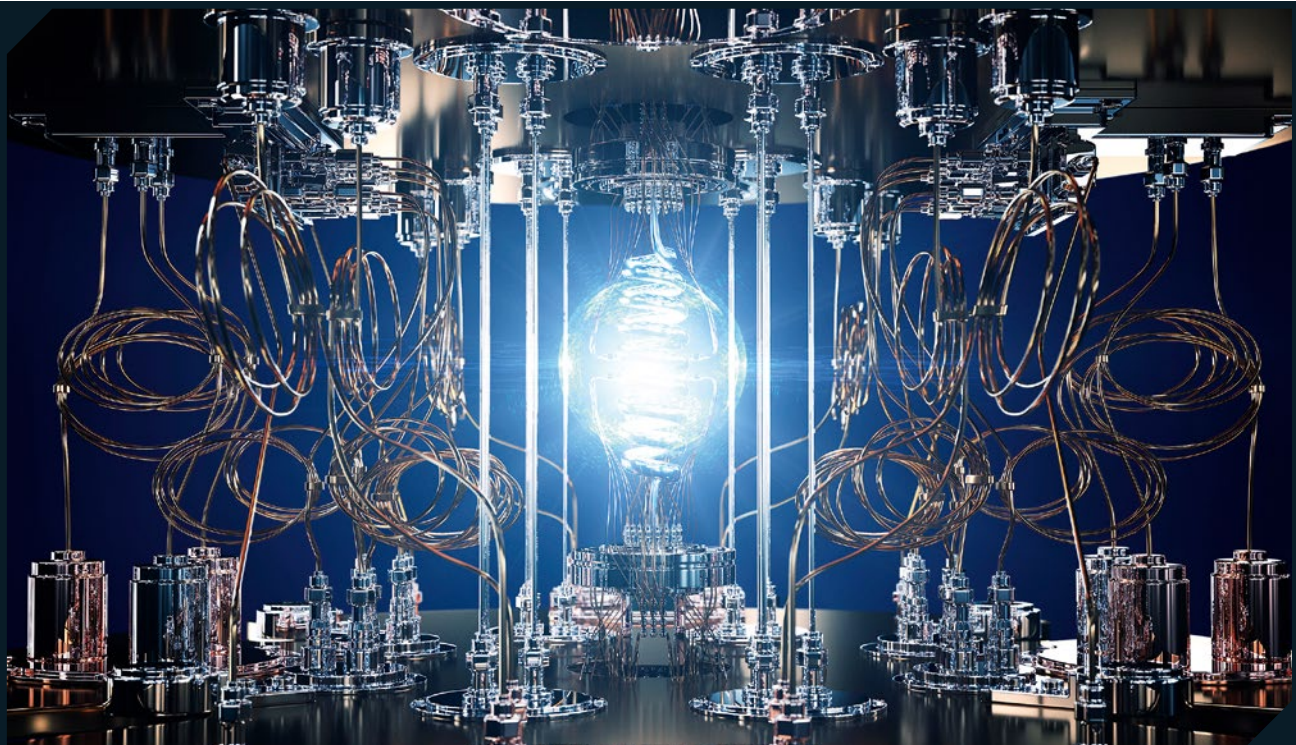
BRAIN COMPUTER INTERFACES



Brain-computer interfaces (BCIs) can address clinical unmet needs and serve as a foundation for human hyper intelligence and integration with AI. With our current technology, BCIs have the capacity to provide a direct line for communication and control that circumvents damaged pathways, giving disabled individuals greater independence and the ability to interact with their environments. Clinically, BCIs restore functions lost to neurological injuries or diseases by enabling direct communication, movement control, and neurorehabilitation, empowering patients with paralysis, stroke, or neurodegenerative conditions to regain autonomy and participate more fully in daily life. BCIs also accelerate neuroplasticity, helping patients recover by training brain circuits through adaptive feedback <sup>75, 76</sup>.

Beyond clinical needs, BCIs, when combined with AI, can open pathways to enhanced cognitive capabilities, adaptive interfaces, and seamless brain-to-digital interactions. AI algorithms decode complex neural signals, personalize systems to individual needs, and allow real-time collaboration between mind and machine, laying the groundwork for heightened cognition and direct thought-to-AI communication. This synergy may one day enable "hyper intelligence," collective problem-solving, and even shared cognitive experiences, fundamentally transforming how humans interact with technology and information.

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QUANTUM COMPUTING

Quantum computing will be able to dramatically accelerate the speed and scope of technologies in healthcare by solving challenges currently impossible for classical computers. Its vast computational power will enable rapid analysis of complex data sets, including genomics, proteomics and real-time patient information, enhancing diagnostics, drug discovery and personalized medicine. Processes that once took years, such as molecular simulations for new pharmaceuticals or interpreting massive imaging files, could be reduced to hours or even minutes, thereby shortening the time from research to clinical application.

With quantum algorithms, researchers will be able to simulate the intricate folding of proteins, model complex chemical reactions for drug discovery and analyze genomic sequences with astonishing speed. Diagnostic imaging can also be made faster and more accurate, unlocking earlier detection of disease

and enabling more effective intervention. Quantum-based AI and machine learning models can refine treatment plans, support early disease detection and transform the development of innovative therapies.

Unfortunately, a notable downside to quantum computing includes significant environmental and energy challenges.<sup>77</sup> However, recent breakthroughs have enabled certain quantum processors to run accurately at lower temperatures, making the cooling process less demanding and offering hope for energy efficiency improvements. Still, as quantum systems grow larger and more complex, researchers and engineers must address the environmental footprint continually, balancing the promise of massive computational advances with responsible climate stewardship. Despite these barriers, quantum computing's integration will undoubtedly unlock efficiency and precision in healthcare innovations.<sup>78</sup>

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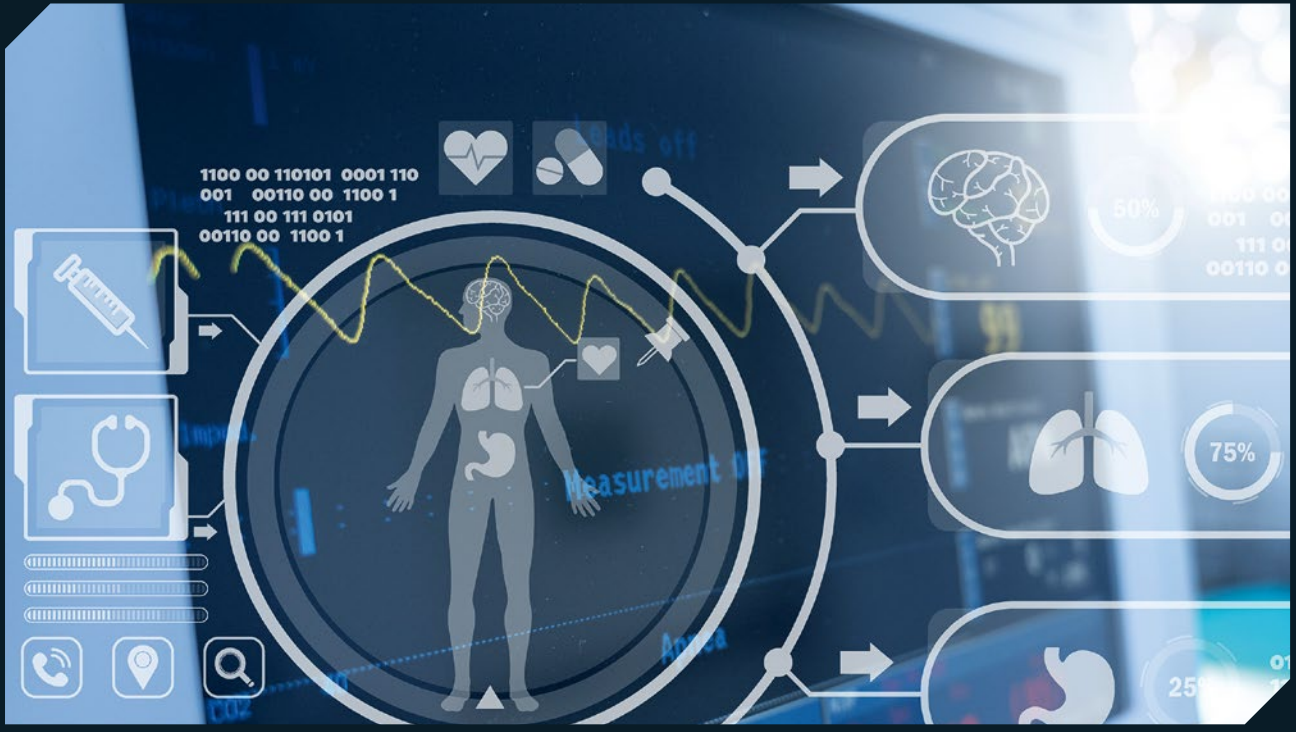
DATA SYSTEMS & BLOCKCHAIN

Modern frameworks stress the importance of citizens' consent, transparent data usage and robust privacy controls, ensuring that people feel secure and informed when managing and sharing health information.<sup>79,80</sup> To make this vision a reality, health data must be connected in a more dynamic and secure way, giving every citizen true digital autonomy over their personal information. Individuals deserve the ability to control, update and share their health data with medical professionals as easily as managing daily transactions, with the assurance that privacy and security are protected at every step.

Integrated health systems achieve this by communicating seamlessly across devices, electronic health records, apps and care teams, creating a coordinated, data-driven and patient-centered approach.<sup>81,82,83,84</sup> Real-time sharing of records, wearable outputs and genomics empowered by new standards and APIs supports more accurate diagnoses and timely interventions, improving both individual care and population health management,

driving innovation and building resilience in health crises. These levels of interoperability are possible through open standards and shared data frameworks, allowing information to flow across boundaries regardless of system origin or technology

Blockchains and decentralized data platforms offer solutions for secure data storage, tamper-proof records, and transparent audit trails. With blockchain, each interaction – sharing data or granting consent – creates an immutable record and smart contracts automate permissions so people can control exactly who sees their data and for what purpose. Blockchain also enables resilient systems that resist failure and intrusion, making health records universally accessible but protected by cryptographic safeguards. These advances foster trust in digital systems, encourage broader data sharing and drive innovation in both treatment and research, ensuring healthcare is more responsive to every person's needs and choices.



**LARGE LANGUAGE MODELS**

Large language models (LLMs) are fundamentally transforming human-AI relationships and what individuals, businesses and entire societies can achieve with digital collaboration. These systems enhance human capabilities through personalized learning, real-time assistance and augmented decision-making, effectively acting as cognitive amplifiers that extend rather than replace human intelligence. However, this transformation demands comprehensive preparation across all societal levels; education systems must evolve to develop AI literacy, workforces need reskilling for AI-augmented roles, and governance frameworks require updating to address ethical implications and potential risks.<sup>85</sup>

The integration challenges of LLMs can both enhance collective intelligence and create new vulnerabilities through misinformation or overdependence. Our society needs to adapt through three-step cycles of anticipation, implementation and evaluation to harness benefits while mitigating harms. This includes developing new educational paradigms, regulatory frameworks and social contracts that preserve human agency while maximizing AI's transformative potential for creativity, problem-solving, and knowledge creation.<sup>86</sup>

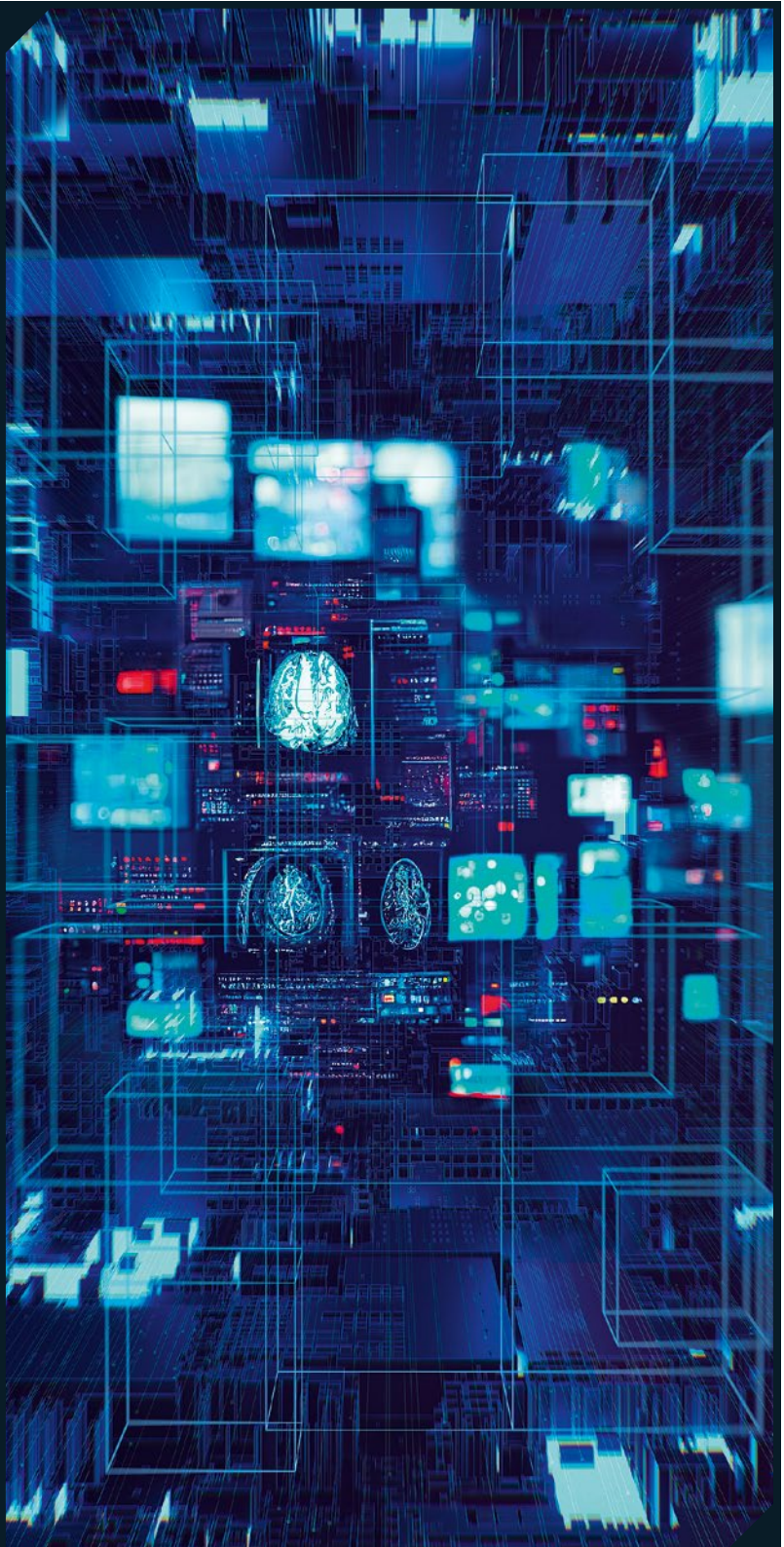
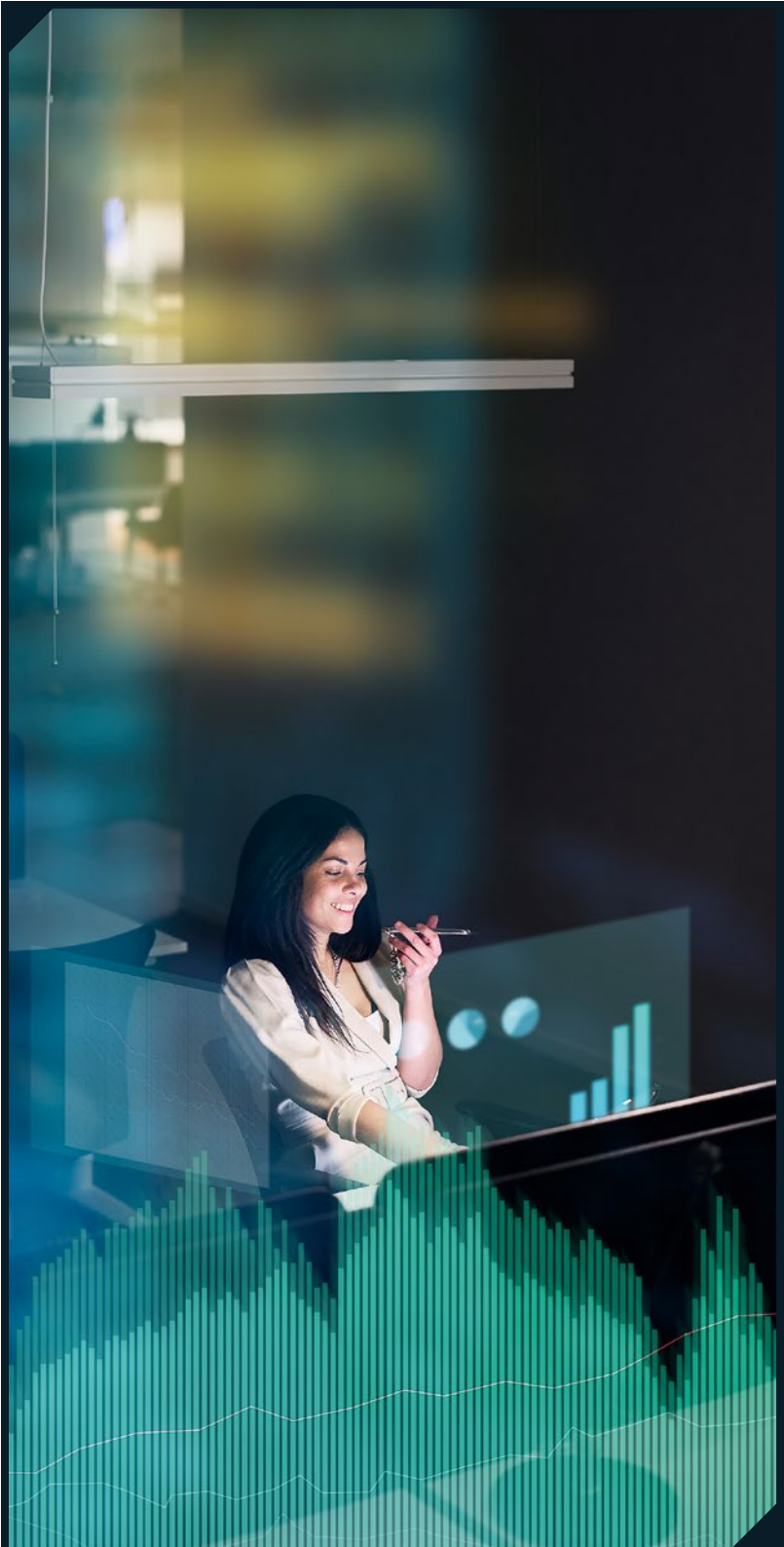


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**AGI**

Artificial general intelligence (AGI) has the potential to transform life as we know it by enabling machines to autonomously understand, reason and solve problems at or beyond human levels across diverse fields. AGI could accelerate breakthroughs in healthcare, science, education and creative industries by optimizing processes, personalizing education and medicine and solving complex global challenges like climate change or pandemics. AGI-driven systems promise to change how people interact with technology, creating more natural, adaptive and intuitive human-computer collaboration. Machines could anticipate needs, tailor experiences and undertake sophisticated tasks once considered exclusive to human intelligence. With this, society could witness enormous gains in productivity, automation and equitable access to knowledge and services. However, the use of AGI will undoubtedly bring about and require the formulation of ethical guidelines, governance and social adaptation so that we could utilize its capabilities responsibly.<sup>87,88,89</sup>



Pharmaceuticals, biotech and medicine have started moving beyond managing illness toward reshaping health itself. Breakthroughs in weight loss therapies, particularly GLP-1 receptor agonists, are transforming obesity care and

reducing risks of heart, kidney and metabolic disease, all while healthcare starts pivoting into a more prevention-first approach. Pharmaceutical pipelines now target the root of chronic illnesses, aiming not only to delay onset but to reverse disease processes through cellular reprogramming and epigenetic repair. Alongside drug innovation, regenerative technologies such as stem cells and energy-based therapies promise to restore youthful function, ushering a future focused on rejuvenation and renewal.

# PHARMACOLOGY

## WEIGHT LOSS & OBESITY

Originally developed for diabetes, GLP-1 receptor agonists have produced major reductions in obesity rates and risk factors for chronic diseases such as heart and kidney disease within populations. Meta-analyses demonstrate these drugs cut the risk of major adverse cardiovascular events by up to 13%, all-cause mortality by 12% and kidney failure by 16% in people with type 2 diabetes. Their benefits now extend beyond weight reduction, showing promise in slowing chronic kidney disease, improving heart health and even targeting neurodegenerative and inflammatory diseases. Additionally, GLP-1s have also been shown to have protective effects against oxidative stress, cellular senescence and

chronic inflammation.<sup>90</sup> However, their impact is hampered by high discontinuation rates; recent data indicates 50%–75% of users cease therapy within a year, often due to side effects, costs or perceptions that lifelong use isn't necessary.<sup>91</sup> Future derivatives are under development to reduce adverse effects, offer longer dosing intervals and target new indications such as liver disease and sleep apnea, aiming to produce durable health improvements. Ensuring access, affordability and ongoing patient support is vital if GLP-1 drugs are to drive meaningful improvements in public health.<sup>92</sup>



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**DISEASE PREVENTION**

The pharmaceutical sector is moving from primarily managing diseases to actively prioritizing prevention, a trend accelerated by the success and societal impact of GLP-1 receptor agonists. GLP-1s' demonstrated ability to reduce obesity, cardiovascular risk and progression of chronic kidney disease has catalyzed a mindset change, proving pharmaceuticals can target root causes of chronic illnesses instead of simply managing late-stage complications. As a result, pharmaceutical pipelines are now filled with investigational therapies addressing metabolic dysfunction, inflammation and early disease pathways, aiming to delay or prevent disease onset altogether.<sup>93</sup>

The movement towards preventive healthcare is further accelerated by increasing healthcare costs, patient demand for wellness and favorable regulatory dynamics, but achieving broad adoption requires continued innovation, multi-sectoral integration and accessibility to ensure prevention becomes the cornerstone of healthcare rather than an exception. The industry's adoption of prevention-first strategies is transforming pharmaceutical research and development priorities.<sup>94</sup>

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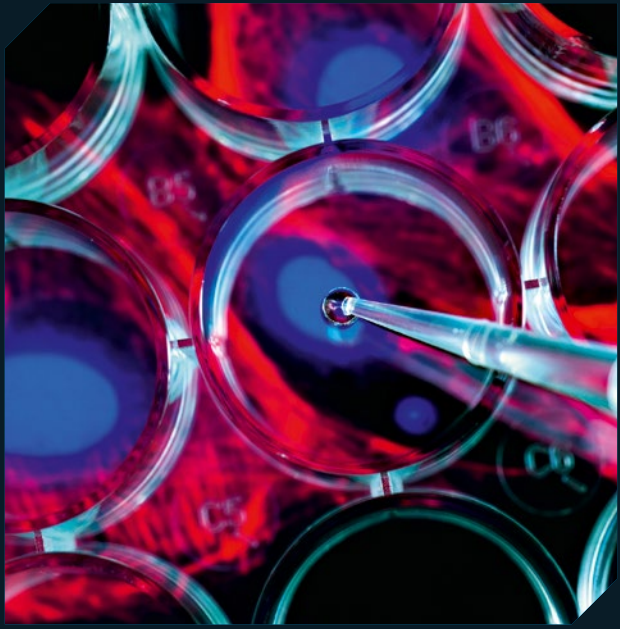
**DISEASE REVERSAL**

The next generation of pharmacology is focused on designing therapies that move beyond simply managing symptoms to actively reversing chronic disease and preventing long-term health consequences by targeting root cellular mechanisms. One cutting-edge approach is partial cellular reprogramming, which uses cocktails of small molecules to reverse age-related cellular and molecular changes without fully de-differentiating cells, thus rejuvenating tissues while preserving cellular identity. Studies in animal models show this method reduces markers of biological aging, restores mitochondrial function and improves tissue regeneration, all of which may slow or even reverse chronic disease processes.<sup>95</sup> Epigenetic reprogramming, on the other hand, allows drugs to be designed to reset gene expression patterns altered in chronic conditions or aging. Early evidence suggests that modifying epigenetic marks can restore tissue function and even delay or reverse disease progression in neurodegenerative, fibrotic and age-related disorders.

Supported by multiomics research, these advances may reengineer chronic disease at its roots, offering hope for true reversal rather than lifelong management.<sup>96</sup>

**REJUVENATION & REGENERATION**

Several innovative technologies are advancing the systemic rejuvenation of humans and organ regeneration, eliminating the need for pharmacology or surgery. Chief among these is induced pluripotent stem cell (iPSC) technology, which can reprogram adult cells into a more youthful state, restoring regenerative capacity at the tissue and organ level. Laboratory and animal studies show that transient induction of reprogramming factors can rejuvenate tissues such as muscle and pancreas, leading to enhanced regeneration and functional improvement in older organisms. Stem cell-based therapies, including the use of mesenchymal and adipose-derived stem cells, are also demonstrating significant effects in stimulating endogenous repair, angiogenesis and restoring biological markers of youthfulness.<sup>96</sup> Non-invasive energy-based therapies such as radiofrequency, focused ultrasound (e.g., Ultherapy), and laser skin tightening stimulate natural collagen production and promote mild tissue remodeling, helping to rejuvenate skin and superficial tissues. Although these methods are currently used for cosmetic purposes, they can lay the ground for future systemic rejuvenation approaches. Together, these cell-based and stimulation methods open new possibilities for organ regeneration without the use of drugs or performing highly invasive surgeries.<sup>97</sup>





Cities of the future will be able to actively support human health and sustainability. Smart cities harness AI, IoT and data-driven planning to reduce pollution, expand green spaces and create accessible transport networks that promote

exercise and well-being. Emerging synthetic food production and vertical farming approaches deliver affordable proteins and fresh produce with minimal environmental impact. Robotics and automation relieve people of repetitive, hazardous work, opening pathways to healthier, more meaningful roles. Meanwhile, climate-driven migration, if managed with foresight, can rejuvenate aging societies, strengthen workforces and ensure resilience, allowing population health to be at the center of global adaptation.

# ENVIRONMENT



## SMART CITIES

Smart cities can be purposefully designed to optimize transport, promote exercise and ensure clean environments, enhancing health for people of all ages. By taking advantage of data-driven urban planning, smart cities expand green spaces and build extensive networks of walking and cycling paths, encouraging routine physical activity while reducing vehicle dependency and pollution. Intelligent transportation systems use AI and IoT to control traffic flow, deliver efficient, low-emissions public transport and guarantee accessible routes for older adults and those with disabilities. Environmental sensors monitor air and water quality in real time, allowing rapid intervention

to maintain non-pollutive conditions and support a universally healthy environment.<sup>98</sup> Such cities integrate universal access to parks, health services and amenities, often within a 5–10 minute walk, expanding opportunities for intergenerational socialization and outdoor activity. These measures, supported by digital health tools, are proven to reduce disease risks, improve well-being and foster equitable access for all generations.<sup>99</sup> Singapore's smart city initiatives exemplify these principles, with data-driven health policies, an extensive network of public parks and walking paths, and cutting-edge telehealth programs.

## FOOD PRODUCTION

Vertical farming and synthetic food production are improving access to high-quality proteins and nutritious ingredients for all. Precision fermentation and cellular agriculture produce animal-free proteins, like casein, whey, egg whites and even meat, using engineered microbes and cultured cells, supplying nutrient-rich foods with a minimal environmental impact. These synthetic proteins can be designed for optimal nutrition, digestibility and allergy-free profiles, and are increasingly deployed at scales that reduce cost and increase accessibility across urban and rural environments.<sup>100</sup>

Vertical farming complements these advances by enabling the year-round, local production of high-value plants, microgreens and edible fungi under controlled conditions. These farms often incorporate renewable energy and hydroponic or aeroponic systems, using fewer resources while supplying urban populations with fresh, pesticide-free ingredients.<sup>101</sup>

Together, vertical farming and synthetic food production help build sustainable and low-carbon food systems. Policy investment, public education and integration into city infrastructure are key to ensuring all citizens can benefit from consistent access to healthy proteins and ingredients, nourishing population health and sustainability.



## ROBOTICS & AUTOMATION

Automation via robotics, AI and smart systems is replacing many repetitive and physically demanding roles, freeing people to engage in more health-positive activities. By delegating routine tasks in sectors such as healthcare, logistics and manufacturing, automation reduces physical strain and occupational hazards, improving worker well-being and public health. For example, hospitals can make use of service robots and digital process automation to redirect thousands of hours from administrative chores to direct care or patient engagement, increasing job satisfaction and enhancing public health delivery.<sup>102,103</sup>

Workforces previously engaged in labor-intensive jobs are now offered opportunities for reskilling or upskilling, enabling participation in creative, caregiving or community-centered roles that contribute to physical, mental and social well-being. Automation's transition potential is amplified when supplemented by training and equitable access to new roles, allowing citizens more time for lifelong learning, active living and community connection, which are all proven to foster population health.<sup>104</sup>



## MIGRATION

Global warming is projected to displace populations from regions most affected by climate change, such as low-lying or drought-prone areas, often redirecting migration towards more temperate, developed nations with declining birth rates. As developed countries struggle with workforce shortages due to aging and reduced fertility, climate-driven migration offers a valuable opportunity to rejuvenate their labor pools, address demographic imbalances, and sustain economic growth.<sup>105</sup>

Evidence suggests the majority of climate migrants are of working age, making their relocation a strategic answer for countries facing a shrinking workforce and the socioeconomic challenges of an aging population. If managed well, with planning for housing, infrastructure and social inclusion, this influx can help fill crucial roles in healthcare and green industries. For governments, proactively embracing climate migration is a positive adaptation strategy that supports both humanitarian goals and long-term economic stability in the face of demographic decline.<sup>106</sup>



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Due to societal aging and the continued rise of living costs, the way we live, age and care for one another will also undergo significant change. Multi-generational households are becoming more common, blending cultural traditions with

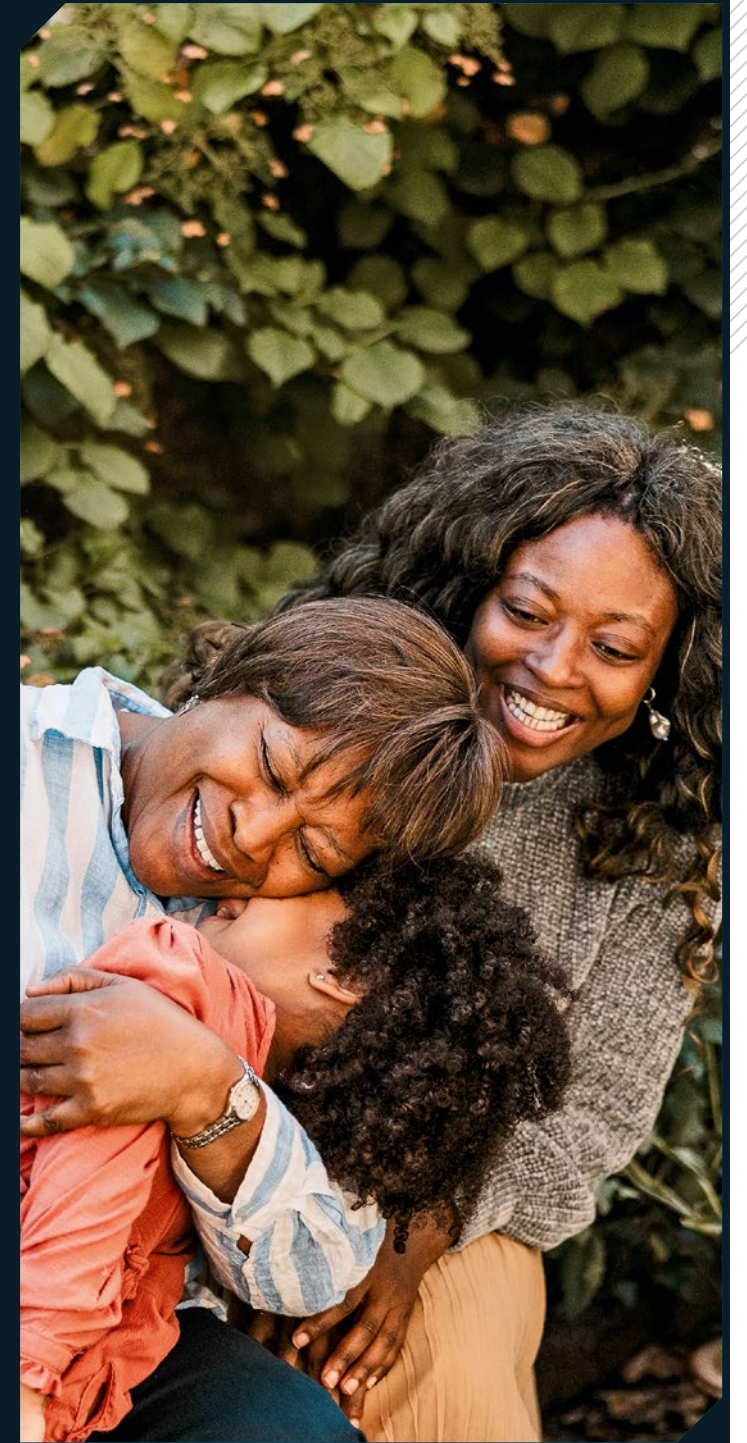
practical benefits by uniting grandparents, parents and children under one roof. At the urban level, multi-generational cities are being purposefully designed to support inclusion, well-being and interaction across all ages, with accessible spaces and services that strengthen social cohesion. At the individual scale, assisted living innovations such as smart homes, telehealth and digital companions, are enabling people to live independently, safely, and with dignity, extending quality of life well into older age.

## LIVING ENVIRONMENT

### MULTI-GENERATIONAL LIVING

Pew Research Center data<sup>107</sup> shows that in the United States, the number of people living in multi-generational households quadrupled from 1971 to 2021, reaching nearly 60 million. Similar growth has been observed in Canada, where the number of multi-generational households increased by 21.2% from 2011 to 2021, far outpacing overall household growth.<sup>108</sup> In the UK, research published in 2020 also shows a notable recent increase in multi-generational households.<sup>109</sup> These trends have been driven by factors led by elevated property prices and cost-of-living pressures, as well as economic uncertainty, caregiving needs and shifting cultural norms drawing from cultures that deeply value elders.<sup>110</sup> By sharing homes, families can distribute financial burdens, afford larger spaces, and ensure practical and emotional support for both younger and older members.<sup>111</sup> In these households, elders provide essential childcare, pass on family traditions and offer wisdom, enriching the upbringing and resilience of younger generations through daily interaction.<sup>112</sup>

Examples from cultures where elders play a central role in family life demonstrate health, educational and social advantages, including upward educational mobility and inter-generational learning. Multi-generational living thus becomes more than a response to economic constraints; it is a model that fosters solidarity, maximizes inter-generational support and offers developed societies lessons in well-being and lifelong learning as populations age.<sup>113</sup>





## MULTI-GENERATIONAL CITIES

Multi-generational cities are intentionally designed to enable the peaceful and productive coexistence of all age groups, ensuring urban environments foster inclusion, well-being and social cohesion. Local authorities play a critical role by creating accessible public spaces, integrating mixed-use housing and supporting services that address the distinct needs of children, working adults and elders. Age-friendly urban planning includes barrier-free transport, safe walking and cycling paths, and ample green areas where residents of all generations can interact, exercise and relax.<sup>114</sup>

Policies that encourage inter-generational programs, such as shared community centers, cross-generational housing and educational initiatives, promote mutual understanding, break down age-related isolation and support learning and care across lifespans. Successful multi-generational cities build positive, peaceful environments that strengthen social ties, enhance resilience and offer everyone opportunities for participation and well-being, setting a model for harmonious urban living as populations become more age-diverse.<sup>115</sup>

## ASSISTED LIVING

With the help of new technology, assisted living is empowering people to remain in their own homes safely and comfortably for as long as possible; this is what we call “aging in place.”<sup>116</sup> Aging in place allows older adults to maintain independence and comfort without frequent or unwanted transitions to institutional care. In many societies, this approach reflects the preferences of a large majority of older people; surveys in the United States and other countries confirm that most adults would rather remain in their current home as they age.

Technologies supporting aging in place are evolving quickly to meet these goals. Smart home systems integrating sensors, voice assistants and medical monitoring enable remote health tracking, medication reminders, fall detection and

emergency response, all while respecting privacy and independence. Telehealth services and wearable devices offer continuous communication with healthcare professionals, reducing unnecessary hospital visits and enabling early intervention in health issues.<sup>117</sup> Automated lighting, climate control and adaptive home designs help individuals with mobility or cognitive challenges manage daily activities and navigate their environment easily. Social robots, virtual companions and digital engagement platforms address loneliness and support mental well-being by maintaining social connections and cognitive stimulation. All these technologies, when successfully integrated with supportive care networks and accessible design, help ensure that more people can remain home as long as possible.<sup>118</sup>



PHOTO: KATE WIESER / GETTY IMAGES, MASKOT / GETTY IMAGES

Medicine is being improved, not just by new technology, but by how clinicians learn to master and use it. From the outset, medical schools are embedding digital literacy, simulation-based learning and tools like virtual reality, artificial intelligence

and telemedicine into their curricula, preparing graduates for a healthcare system in rapid transition. At the same time, practicing clinicians are supported through ongoing education programs, workshops and simulation centers that ensure they remain confident and competent with emerging tools. These shifts create a culture of lifelong learning that safeguards patient care while driving innovation across healthcare systems.

## HEALTHCARE TRAINING

### MEDICAL SCHOOL EDUCATION

Medical institutions have to prepare students to adapt to new technologies and breakthroughs. Curricula are now incorporating technology-enhanced and simulation-based learning, using tools such as virtual reality (VR), artificial intelligence (AI) and telemedicine to provide immersive, experiential training. High-fidelity simulation, virtual and augmented reality allow students to practice clinical skills, complex procedures, and teamwork in safe, realistic environments before they are immersed in actual clinical scenarios, improving confidence and competence.<sup>119</sup>

AI-driven platforms are being used for personalized learning, adaptive assessments and diagnostic reasoning, ensuring graduates are familiar with the digital tools shaping modern medicine. E-learning platforms and electronic health records are integrated to support flexible, self-paced study and documentation skills essential in practice.<sup>120</sup>

Strategic emphasis on digital literacy, infrastructure investment and educator training ensures these technologies enhance, not replace, core clinical skills and humanistic values, making sure medical graduates are ready for real-world challenges.<sup>119</sup>

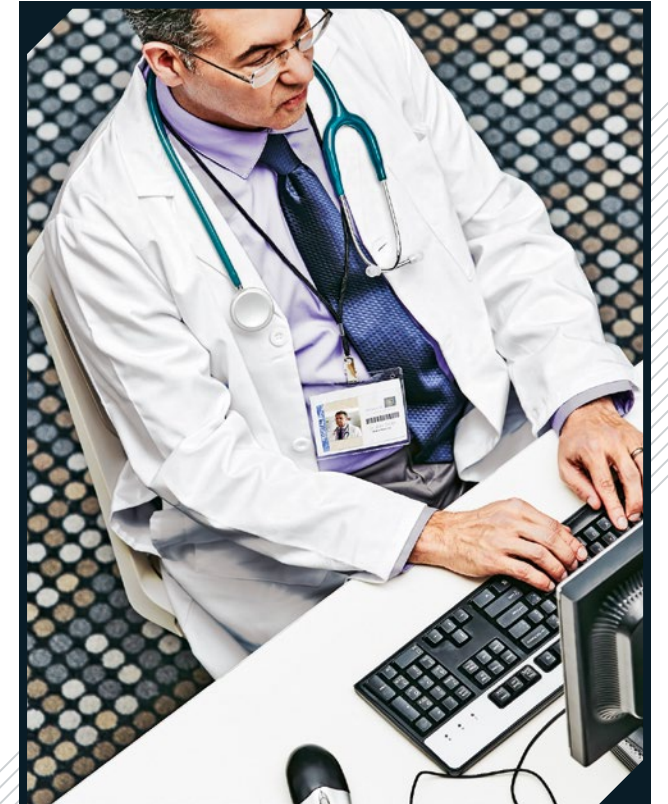


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### HEALTHCARE PROFESSIONAL CONTINUING EDUCATION

Ensuring that existing healthcare professionals are upskilled and empowered to adopt new technologies is important for the safe and effective modernization of healthcare. Hospitals and health systems are investing in continuous professional development programs, offering hands-on training with digital tools, electronic health records, AI-powered diagnostics and telemedicine platforms. Simulation centers, workshops and online courses help clinicians practice new procedures and keep pace with the latest developments.<sup>117</sup>

AI literacy and digital competencies are starting to become essential skills, so many organizations provide structured pathways for practitioners to engage with the latest research evidence and deploy advanced technologies in patient care. Leadership support, protected time for learning and interprofessional collaboration foster a culture of lifelong learning and adaptability. Prioritizing upskilling and supporting workforce confidence result in healthcare systems ensuring quality care, patient safety and maximizing medical innovations.<sup>121</sup>



# SOCIAL MEDIA

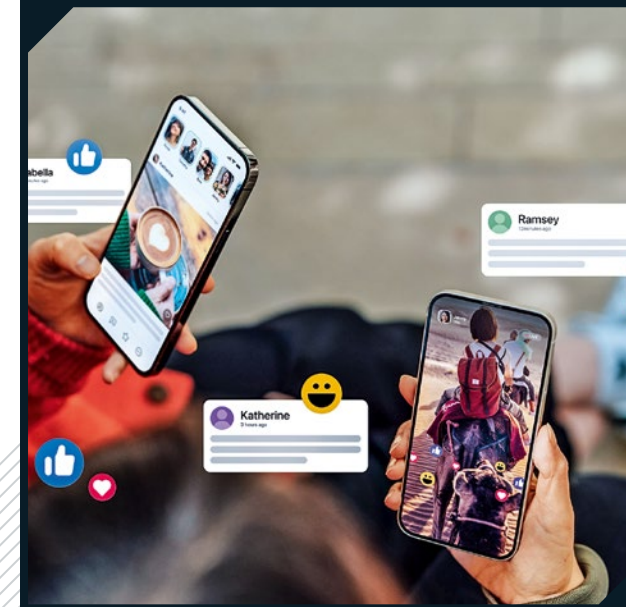
Social media's rapid expansion has made it an influential force shaping connections, information and behaviors around the world, with its having billions of users globally. Its networks allow for the instant sharing of knowledge, habits, and support, making it a powerful tool for public health initiatives. Access to

digital platforms can now shape education, health and social participation worldwide, yet barriers in affordability, connectivity and digital literacy still exist. Closing this divide calls for investment in infrastructure, inclusive design and programs that empower everyone to engage meaningfully online. Equally vital is ensuring the content people encounter is credible and trustworthy, particularly in health, where misinformation can have serious consequences. There should be a prioritization in verified sources, AI moderation and collaboration between platforms and health authorities. Digital media can become both a dangerous weapon and a helpful tool, but we must always choose for it to be the latter.

## EQUITABLE ACCESS

It is important to make sure there is equitable access to social media so people everywhere at any time can participate in global dialogue, access information and are well aware of world events. In developed societies, high-speed internet, widespread device ownership and digital literacy enable most citizens to use advanced media platforms for education, health and civic engagement. For example, in the United States and other high-income nations, nearly all students have regular access to tablets or laptops provided by schools, substantially supporting their ability to learn online and stay informed.<sup>122</sup> In contrast, students in many developing countries face barriers; without a personal device, they may need to borrow, rent from computer shops or are shut out entirely due to cost or lack of access.<sup>123</sup> To add to this, emerging societies often face other systemic barriers such as limited connectivity, language gaps and lower digital skills, which can widen disparities in access and opportunity.<sup>124</sup>

Closing the digital divide means building strong infrastructure, offering affordable access and teaching digital skills so everyone can connect and use technology. By working together across countries, companies and communities, it's possible to make sure even those at risk of being left behind can use digital media safely and effectively. When everyone can participate online, every society has a chance to share ideas and help shape a stronger, more connected future.<sup>125</sup>



## CREDIBLE CONTENT ACCESS

Sharing accurate, evidence-based health information on social media is central to protecting public trust and well-being. Making sure users see verified medical posts, and can tell them apart from misleading content or unqualified influencer content, matters more than ever.<sup>126</sup>

Professional health organizations, governments and platforms are collaborating to flag misinformation, prioritize posts from licensed professionals and highlight scientific evidence and conflicts of interest. Fact-checking systems, AI moderation and user education are increasingly used to counteract misleading or financially motivated posts. Research shows that posts by medical professionals and those citing evidence are more balanced and trustworthy than influencer content, which is often promotional and lacking in scientific substantiation.<sup>127</sup>

Building strong systems to help people quickly find safe and accurate health guidance will support public health for everyone, no matter where they live.

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**FII-I XCHANGE**  
Create platforms for live  
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Share knowledge, stories  
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