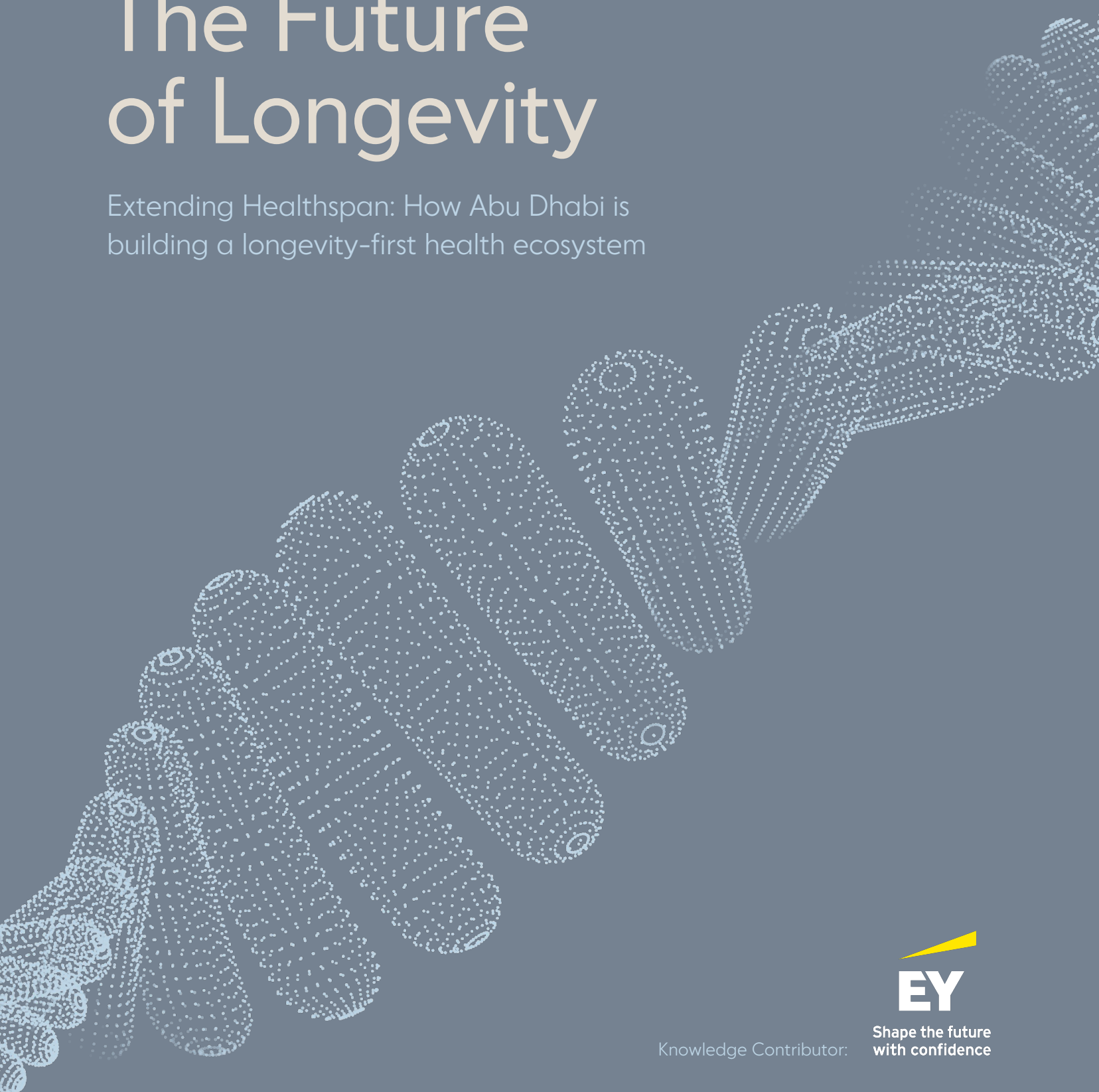


FUTURE HEALTH | A GLOBAL INITIATIVE BY ABU DHABI

The Future of Longevity

Extending Healthspan: How Abu Dhabi is building a longevity-first health ecosystem



Knowledge Contributor:



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Acronyms

ADIO	Abu Dhabi Investment Office
AI	Artificial Intelligence
CAR-T	Chimeric antigen receptor T-cell
cGMP	Current Good Manufacturing Practice
DoH - AD	Department of Health – Abu Dhabi
EGP	Emirati Genome Programme
GCC	Gulf Cooperation Council
GDP	Gross domestic product
HELM	Health, Endurance, Longevity, and Medicine
HLMS	Healthy Longevity Medicine Society
IHLAD	Institute for Healthier Living Abu Dhabi
MENA	Middle East and North Africa
MoHAP	Ministry of Health and Prevention - UAE
NCD	Non-communicable disease
NYUAD	New York University Abu Dhabi
R&D	Research and development
TRE	Trusted Research Environment
UAE	United Arab Emirates
WHO	World Health Organization

Executive Summary

The global population is ageing at an unprecedented rate. By 2050, the number of people aged 60 and over will double to 2.1 billion,¹ and non-communicable diseases (NCDs) will account for nearly 80% of the total years lost to ill health, disability, and premature death.² Together, these trends mean the central challenge facing our future health systems is not extending lifespan but ensuring that additional years of life are lived in good health.

This growing gap between longer and healthier lives is bringing longevity science to the forefront of global health strategy. Breakthroughs in genomics, biomarker monitoring, and Artificial Intelligence (AI)-driven precision medicine are converging to address the underlying drivers of ageing, making it increasingly possible to extend not just how long people live, but how well they live. From the perspective of the Department of Health - Abu Dhabi, longevity should be understood not as a luxury health service, but as a public health strategy focused on reducing NCD burden and reducing the healthspan-lifespan gap through prevention, early detection, predictive analytics, and sustained behaviour change.

Abu Dhabi is uniquely positioned to lead this transformation. Its integrated governance model and strong commitment to innovation provide the foundations to build a world-class longevity ecosystem – one that can serve as a model for global scientific collaboration. This leadership is further reinforced by strategic partnerships with leading academic institutions, healthcare providers, and industry pioneers, enabling Abu Dhabi to accelerate innovation through collaboration rather than isolated development.

This white paper, produced by Future Health - A Global Initiative by Abu Dhabi and its Partners, in collaboration with EY, sets out the evidence base for a longevity-first healthcare approach and maps four key areas through which Abu Dhabi is realising this vision, and next steps:

1. Precision approaches to optimise longevity outcomes
2. Regenerative and advanced therapeutics targeting the biology of ageing
3. Citizen empowerment and behavioural interventions shaping health trajectories
4. Ecosystem and innovation infrastructure enabling science and delivery

Redefining Longevity: From Lifespan to Healthspan

Healthspan: The critical distinction

Individuals want more years of life spent in good health, and physicians seek to help them achieve this goal. Yet across the globe, health systems have struggled to transition towards care models that prioritise prediction and wellness. This challenge exposes a clear imbalance: that healthcare today continues to place greater emphasis on lifespan (the total number of years a person lives) than on healthspan (the years lived in good health, free from serious disease, disability, or functional impairment).

In many high-income countries, significant gains in lifespan have not been matched by equivalent gains in healthspan.³ The result is a growing period of years spent with chronic conditions, functional decline, cognitive impairment, and dependency.⁴ Global burden of disease data, which includes United Arab Emirates (UAE) data, have shown increases in life expectancy have outpaced gains in healthy life expectancy, with analyses indicating that up to 27% of additional years of life are lived in poor health.⁵

Closing this gap requires a fundamental shift in how healthcare systems define success: from treating illness once it appears to preserving health earlier and for longer. "Longevity medicine is the next evolution of healthcare: a proactive, precision-driven approach focused on extending healthspan – the years a person spends living well, not simply living longer. It is not a niche offering or a premium add-on; it is the direction healthcare must move in if we are serious about improving the quality of life of entire populations," notes Rashed Saif Al Qubaisi, Group Chief Operating Officer, PureHealth.

This shift from lifespan to healthspan is also redefining the role of the wider healthcare and life sciences ecosystem, from discovery and manufacturing to access, delivery, and adoption. "The shift from lifespan to healthspan is redefining how we think about longevity. At Mubadala Bio, our role is to ensure that the products and innovations that support healthier ageing are accessible to more people, helping them live longer, healthier, and more fulfilling lives. This means strengthening the capabilities needed to bring high-quality healthcare solutions closer to the region and supporting a system where advancements in science can more effectively translate into real-world impact across every stage of life," says Hamad Almarzooqi, Group Deputy Chief Executive Officer, Mubadala Bio.

Translating this ambition into practice requires more than individual products or interventions. It calls for a connected healthcare ecosystem capable of integrating biological, clinical, genomic, and lifestyle data into models of care that can identify risk earlier, personalise prevention, and support healthspan at scale.

"We don't look at it as a good-to-have; it is a must," says Albarah El-khani, Chief Operating Officer, M42 Health. "For us, longevity is really the integration of multi-omic and clinical data to support healthspan rather than lifespan for the masses."

Closing this gap requires a longevity-first approach to healthcare. "Longevity medicine is the discipline of targeting the fundamental biology of ageing to extend healthspan, not simply lifespan, but the years of life spent in genuine good health, with vitality, cognitive clarity, and physical resilience," explains Dr. Nicole Sirotin, Chief Executive Officer, Institute for Healthier Living Abu Dhabi (IHLAD). "Our aim is not only to help people live longer, but to help them remain more vital, more resilient, and more functionally independent for longer." Critically, this approach is not reserved for the individual. The ambition is to apply longevity science at a population level, using precision, predictive, and preventative models of care to reduce, and potentially eliminate, the burden of disease.

Longevity as an emerging medical discipline

This shift from reactive care to proactive health optimisation reflects a global movement in which longevity is evolving into a full line of medicine.⁶ At the institutional level, the Healthy Longevity Medicine Society (HLMS), established in 2022 under the founding presidency of Prof. Andrea Maier, who served as its inaugural President, is building the clinical standards and educational infrastructure the field requires to mature as a recognised specialty.⁷ She stated "Every medical specialty grew out of normal teaching capacities... Right now, we are just exposing ourselves to physicians who are not properly trained... That's what we have to solve now".⁸

As longevity rises in public visibility, the term is increasingly used across private clinics, consumer health products, and wellness marketing. Yet its scientific and policy meaning is more specific. From a public health perspective, longevity is about reducing avoidable disease burden, compressing morbidity, and enabling more people to live longer lives in good health. In practice, this means identifying the interventions, environments, and policies that can narrow the healthspan-lifespan gap. "People don't remember the extra years. They remember the moments. Longevity is about helping people stay healthy enough to experience those moments," states Dr. Shahrukh Hashmi, Director of Research at the Department of Health - Abu Dhabi (DoH - AD).

The momentum is now being formalised with accredited longevity medicine courses, clinical guideline development, and national medical board recognition.⁹ However, as longevity medicine becomes more mainstream, clinical governance will be essential to protect trust and separate evidence-based care from unvalidated claims. "In a market increasingly exposed to longevity tests and therapies, clinical governance is essential to distinguish what is proven, what is promising, and what is not yet actionable", notes Mediclinic Middle East.

The UAE and Abu Dhabi context

The UAE faces an epidemiological profile that makes the transition to a longevity-oriented healthcare system necessary. NCDs including cancer, diabetes, cardiovascular disease, and chronic respiratory conditions, account for approximately 55% of all deaths in the UAE.¹⁰ NCDs impose an estimated annual cost of AED 39.9 billion (US \$10.9 billion), equivalent to 2.7% of the UAE's 2019 gross domestic product (GDP).⁷ The World Health Organization (WHO) estimates that implementing NCD prevention and early detection measures in cancer within the UAE could save 290,000 lives and yield economic benefits of US \$49 billion, with a return on investment of up to US \$4.9 for every \$1 spent.¹¹ As a result, reducing the duration of ill health is both a moral and economic imperative of longevity medicine in the UAE.

As a first step Abu Dhabi is spearheading the groundbreaking Declaration on Longevity and Precision Medicine and convening leading partners across government, industry, and academia, including M42, Masdar City, PureHealth, Illumina, New York University Abu Dhabi (NYUAD), and the University of Pennsylvania. Through collaboration with institutions such as Children's National Hospital, Burjeel, the Children's Hospital of Philadelphia, Aldar, and IHLAD, the emirate is driving innovation in precision medicine, AI-powered diagnostics, and personalised care to extend healthspan.¹²

Abu Dhabi's integrated health governance model, in which the emirate's DoH - AD serves simultaneously as both regulator and strategic planner, creates policy coherence. Unlike health systems where payer, provider, and regulator function with fragmented priorities, the DoH - AD aligns population health strategy, financing mechanisms, clinical standards, and innovation policy toward a single, defined vision of longevity.

This policy coherence is already translating into action. Abu Dhabi's health ecosystem is shifting from reactive, episodic models of care toward a proactive, data-driven approach. As Albarah El-khani from M42 Health describes: "The biggest success we have had here in Abu Dhabi is really bringing complex genomic data into routine clinical practice, upskilling the healthcare ecosystem to use this data, and democratising it into the hands of individuals."

The next step is ensuring that this system-level intelligence reaches the clinical front line. Data, genomics, AI-enabled tools, and population health insights only improve healthspan when they are interpreted by clinicians, connected to care pathways, and followed over time. Burjeel Holdings frames this as the clinical translation layer: "Abu Dhabi's health-intelligence infrastructure can become most impactful when translated into clinically governed longevity pathways – from prediction and prevention to intervention, follow-up, and measurable healthspan outcomes".

For providers, this requires more than isolated screening, diagnostics, or digital tools. It requires longitudinal models of care that can connect assessment, intervention, monitoring, rehabilitation, and ongoing engagement across the patient journey. "For longevity to scale responsibly, it must move beyond isolated products and become a clinically governed ecosystem of assessment, intervention, monitoring, and long-term engagement," outlines Mediclinic Middle East.



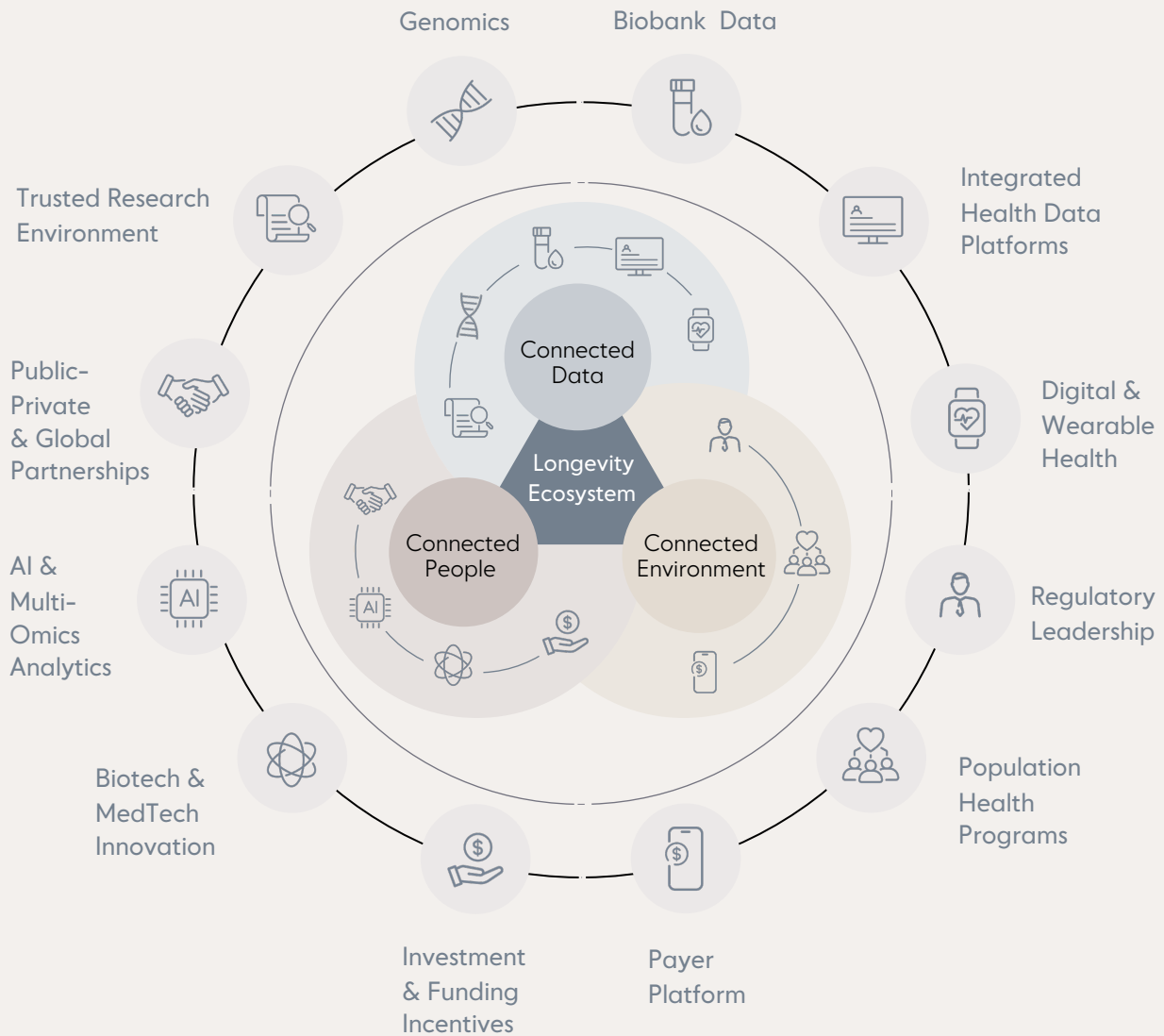


Figure 1. EY Conceptual model of a longevity-first health ecosystem in Abu Dhabi. A system-wide view of a longevity-first health ecosystem integrating Connected Data (genomics, biobank data, integrated health data platforms, trusted research environments, and digital and wearable health), Connected Environment (regulatory leadership, payer platforms, and population health programs), and Connected People (AI and multi-omics analytics, investment and funding incentives, biotech and medtech innovation, and public-private and global partnerships) Source: Image created by EY.

PILLAR 1: Precision Longevity Medicine

Longevity biomarkers

The convergence of epigenomic, transcriptomic, proteomic, and metabolomic data with Artificial Intelligence (AI) is making it possible, for the first time, to characterise an individual's biological age with clinical precision.¹³ Yet, the real clinical potential lies in combining these multi-omic layers such as genomic risk profiles, proteomic signals, wearable data streams, and longitudinal health records, to move from static snapshots of health to continuous, predictive risk stratification. Abu Dhabi is building the infrastructure to do exactly this.

The Emirati Genome Programme

The Emirati Genome Programme (EGP), represents one of the most ambitious national genomics initiatives in the world. With the goal of sequencing the genomes of 1 million UAE nationals, the EGP is generating a population-scale genetic reference dataset that can power precision medicine across multiple domains, from pharmacogenomics and rare disease diagnosis to polygenic risk stratification for common age-related conditions.¹⁴

For longevity medicine specifically, the EGP offers the potential to identify individuals at elevated genetic risk for conditions such as cardiovascular disease, diabetes, and other recessive inherited diseases, and to enrol them in targeted prevention programmes.^{15, 16} The Gulf Arab population's distinct genetic architecture, which has been comparatively underrepresented in global genomics databases, makes the EGP particularly valuable.¹⁵

A key translational outcome of the EGP is its integration into national population health initiatives, including the premarital genetic screening program. The UAE has introduced comprehensive genetic testing as a core component of premarital screening for Emirati couples, aiming to identify those who are carriers of the same autosomal recessive conditions and therefore at risk of having affected offspring. Early pilot programs have shown that approximately 8% of screened couples are at risk of transmitting genetic disorders and can benefit from targeted counselling and intervention.^{16, 17}

Data infrastructure

Precision longevity medicine is, at its core, a data-driven discipline. The generation of multi-omic profiles, continuous wearable data streams, electronic health records, social determinants data, and lifestyle metrics creates an information architecture of enormous potential. However, this can only be activated if the underlying data infrastructure is capable of integrating, governing and activating these diverse data types at scale.

Abu Dhabi's Malaffi platform, the UAE's first Health Information Exchange, represents a foundational achievement in health data integration, connecting over 2,700 healthcare providers and enabling real-time clinical data sharing across the emirate.¹⁸ Building on this, the integration of Riayati, Malaffi, and Nabidh (national and emirate-level health data registries from across the UAE) extends this capability into a unified, nationwide network, creating a powerful foundation for longevity research by enabling seamless longitudinal patient insights and unlocking large-scale, data-driven understanding of healthspan and disease prevention.¹⁹

For longevity research, the value of this infrastructure lies in its ability to move beyond isolated data points toward longitudinal outcome measurement. "Unified medical records are one of Abu Dhabi's strategic advantages because they make it possible to assess whether preventive interventions are changing health trajectories, not only improving isolated biomarkers", says Mediclinic Middle East.

This longitudinal view also strengthens the connection between research and care delivery. By linking patient histories, risk factors, interventions, and outcomes over time, unified records can support earlier risk identification, real-world evidence generation, and the development of more effective care pathways. "Unified medical records allow Abu Dhabi to move from episodic healthcare to longitudinal healthspan intelligence, the foundation for risk-factor discovery, real-world evidence, and new care pathways", explains Burjeel Holdings.

Precision prevention at a local level

Genomic initiatives provide deep insight into individual risk profiles, while platforms such as Malaffi enable continuous, longitudinal tracking of clinical outcomes. When combined, these data layers allow a real-world model in which predictive, preventive, and personalised care can be delivered systematically.

At the clinical interface, this shift [to a longevity-first model] requires translating complex biological data into meaningful action. "The goal is not to hand a patient a 300-page data report," notes Dr. Nicole Sirotin, Chief Executive Officer, IHLAD. "Data matters, but only when it helps people make better decisions about their health." Clinicians play a critical role in interpreting multi-omic signals and converting them into personalized, sustainable care pathways that individuals can realistically follow.

Alongside these data platforms, the DoH - AD is advancing the use of Trusted Research Environments (TRE) to enable secure, governed access to health data for researchers. By establishing a controlled and collaborative framework that protects patient privacy while facilitating interdisciplinary research, the TRE is designed to accelerate innovation and unlock the full value of Abu Dhabi's integrated health datasets.²⁰

Importantly, TREs reinforce a core principle of Abu Dhabi's approach to longevity: that data is only valuable when it can be translated into better outcomes. By enabling secure, integrated, and outcome-linked analysis, "TREs help bridge the gap between data generation and public health impact. In this sense, TREs are a strategic enabler of the entire longevity ecosystem," explains Dr. Shahrukh Hashmi, Director of Research, DoH - AD. They allow Abu Dhabi to move beyond fragmented data silos toward a model where research, clinical care, and policy are connected through a shared evidence base.

Recent large-scale analyses leveraging EGP data have identified approximately 100 genetic factors associated with vision loss in the Emirati population, demonstrating the power of population genomics to uncover disease drivers that were previously under-characterised.²¹ This use case illustrates how the data can support a transition toward anticipatory healthcare, identifying disease risk before symptom onset and enabling earlier, more effective intervention, aligned with the goals of longevity medicine.



PILLAR 2: Regenerative and Advanced Therapeutics R&D / Innovation

The science of ageing

Historically, ageing has been viewed as an irreversible biological process, defined by the body's progressive decline over time. In recent years, a growing body of evidence has supported the view that ageing is a dynamic process that may be modifiable.²²

The landmark "Hallmarks of Ageing" framework, first articulated in 2013 and significantly expanded in 2023 to include twelve distinct molecular and cellular mechanisms, has provided researchers with a comprehensive map of the pathways driving age-related functional decline.^{23, 24} While these hallmarks drive the exponential increase in disease risk that characterises ageing, they also represent potential therapeutic targets for intervention.²⁴

Gene and cell therapies

Advances in gene and cell therapies are translating the biology of ageing into clinically actionable interventions. By targeting core hallmarks of ageing, including genomic instability and stem cell exhaustion, these therapies aim to restore regenerative capacity, delay functional decline, and extend healthspan.²⁴

Genetic sequencing is also rapidly becoming a foundational tool in preventative longevity medicine, enabling early detection of inherited mutations that may influence disease risk across the lifespan. As Dr. Robert Green of Harvard has highlighted, "Many diseases that we consider rare are not rare in the aggregate. Many metabolic conditions, many biochemical conditions, many early cancers are hereditary in the sense that they're driven by a known mutation. And we're not looking for them. At the time a child is born you can get the whole blueprint."²⁵

In Abu Dhabi, this scientific progress is being embedded within a broader, data-driven longevity strategy. The EGP, combined with longitudinal clinical records, and biobanking infrastructure, provides a foundation for identifying genetically driven diseases and matching patients with targeted gene and cell therapies. Together, genomics and epigenetic data can reshape cell and gene therapy approaches by enabling more precise targeting of age-related biological pathways. Together these enable earlier diagnosis, more precise risk stratification, and the potential to enrol patients into advanced therapeutic clinical trials at scale.²⁶ Human clinical trials for gene therapies targeting age-associated conditions are advancing, with progress in cardiovascular disease and age-related macular degeneration.^{27, 28}

At the same time, national investment in regenerative medicine infrastructure is strengthening Abu Dhabi's role across the full therapy lifecycle. This includes the establishment of specialised research centers, including stem cell research facilities, growing capabilities in clinical trials, and translational medicine.²⁹ The launch of a Stem Cells Research Centre at United Arab Emirates University reflects growing national investment in regenerative medicine and the development of advanced therapies for age-related diseases. While many of these modalities remain in early stages of clinical development, their integration within Abu Dhabi's unified health data ecosystem creates opportunities for rapid validation and scaled implementation.

Cell-based approaches are emerging as a complementary component of this strategy. Stem cell approaches aim to restore depleted regenerative capacity,³⁰ while engineered immune cell therapies, such as chimeric antigen receptor T-cell (CAR-T) therapy adaptations, are being explored to improve immune function in ageing populations.³¹ These developments reflect a shift from viewing advanced therapeutics as isolated innovations to embedding them within a coordinated, longevity-first health system. In this model, regenerative medicine is integrated with early risk detection, clinical decision-making, and population health strategy.

"Regenerative medicine is a key focus moving forward, and we play a role there as well, including through stem cells and genetic medicine" says Albarah El-khani, Chief Operating Officer, M42 Health. "We have the genetic information, we can identify these disorders very quickly, map them against globally available cell and gene therapies, and bring them in as clinical trials."

The next challenge is to ensure that these advanced modalities do not remain isolated research or trial assets, but are integrated into clinical pathways that connect diagnostics, specialist care, rehabilitation, and long-term monitoring. Abu Dhabi continues to invest in clinical trials in longevity, including targeted studies in nutrition and behavioural science, to generate robust evidence on how environmental and behavioural factors interact with genomic and epigenomic data over time. The aim is to translate these insights into validated, scalable interventions that can improve healthspan and reduce disease risk at a population level. "Regenerative medicine, cell and gene therapy, precision diagnostics, and rehabilitation are among the clinical building blocks through which longevity medicine becomes real care delivery," outlines Burjeel Holdings.

Longevity science into clinical practice

A defining feature of Abu Dhabi's longevity ecosystem is the emergence of organisations that bridge the gap between scientific discovery and real-world clinical application. IHLAD is a licensed Healthy Longevity Medicine Centre and innovation platform, designed to translate advances in ageing science into clinically actionable care and population-level insight.

IHLAD operates as a regulated translation layer, the point at which geroscience becomes clinical practice, and individual data is transformed into scalable, population-level intelligence. At a clinical level, it is the world's first centre operating under a dedicated regulatory framework for longevity medicine, co-developed with the DoH – AD and the Healthy Longevity Medicine Society. "This represents a significant step in establishing longevity medicine as a governed clinical discipline, rather than an extension of the wellness market" notes Sasa Dujmovic, Director of Strategy & Marketing, IHLAD.

At an innovation level, dedicated infrastructure is enabling the translation of discovery into application. IHLAD's 1500 square meter Innovation Lab (including 500 square meters of current Good Manufacturing Practice (cGMP)-compliant cell culture and bioproduction facilities) is actively building translational capability through initiatives such as AD-Omics, a joint venture with Singleron Biotechnologies that has introduced single-cell multi-omics to the region for the first time, as well as through its partnership with CoreX, which has established the UAE's first population-specific bio-intelligence engine.

At a research level, this capability is reinforced through large-scale, real-world evidence generation. Collaborative programs with international partners, including Harvard Medical School and Mass General Brigham, are generating new insights into how behavioural, environmental, and biological factors interact within specific population contexts. These studies deepen scientific understanding, inform clinical pathways and, over time, influence health policy.

PILLAR 3: Citizen Empowerment and Behavioural Architecture

The evidence base for lifestyle longevity

The scientific evidence linking lifestyle factors to healthspan extension is extensive and growing. However, even the most advanced longevity health systems can fail to deliver population-level impact if they do not equip and motivate citizens to invest in their own healthspan. The behavioural determinants of ageing such as physical activity, nutrition, sleep quality, stress regulation, social connection and cognitive engagement, are important influencers of biological ageing rates.³² Modifying these behaviours is one of the most important and challenging tasks facing a longevity-first health system.

Physical activity is the single most robustly evidenced longevity intervention available, associated with biological age reductions, reduced all-cause mortality, and incidence of cardiovascular disease, type 2 diabetes, multiple cancers and more.³³ Sleep is also an underappreciated longevity lever.³⁴ The advent of consumer-grade wearables capable of tracking lifestyle factors like exercise and sleep with reasonable accuracy has created new possibilities for improving longevity.

Mubadala's US \$75 million partnership with WHOOP will bring wearable-based health tracking, biomarker testing, Arabic localisation, and longitudinal research on sleep, recovery, cardiovascular health, and behavioural performance into the UAE ecosystem. This shift shows how Abu Dhabi is transitioning longevity as a clinical aspiration to longevity as a daily, data-enabled behaviour system. Wearables make previously invisible ageing-related behaviours visible, providing individuals with continuous feedback on the lifestyle factors most closely linked to healthspan, while offering the health system a scalable platform for prevention, personalisation, and behavioural reinforcement.³⁵



Designing behavioural architecture for longevity

The challenge isn't knowledge, it's translation. Despite decades of public health messaging about the importance of exercise, nutrition and sleep, population-level behaviour remains far from optimal. This points to the need for a broader behavioural science approach, one that considers not just individual motivation, but the social, environmental, and cultural conditions that shape daily habits over time. EY's Global Consumer Health Survey 2025 found that only:³⁶

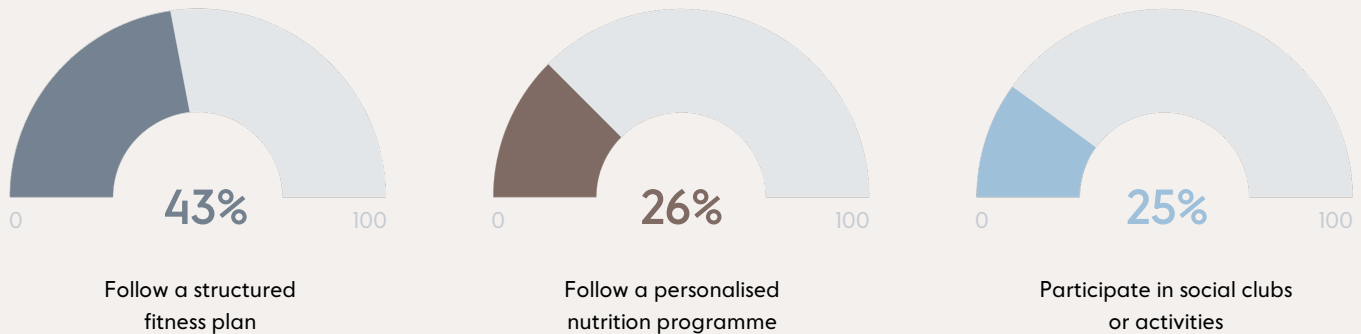


Figure 2. Engagement in selected health-related behaviours. Proportion of individuals reporting: 43% follow a structured fitness plan, 26% follow a personalised nutrition program, and 25% participate in social clubs or activities. Source: EY Global Consumer Health Survey 2025.³⁶

These figures are surprisingly low considering survey respondents were adults with access to digital health tools and above-average health literacy. Engagement with longevity behaviours in the broader population is likely substantially lower. The translation gap reflects a healthcare system designed around treating disease rather than prevention and wellness.

"A longevity-first health system does not intervene at the point of decline – it is embedded from the beginning, designing systems that continuously shape health through data, behaviour, and early intervention" Fadi Smeirat, Health and Life Sciences MENA Lead, EY.

Social learning theory offers one useful lens. Health behaviours are influenced by the people and systems around us: families, schools, workplaces, communities, digital networks, and social media environments. This suggests that behaviour change interventions should be designed for social settings where healthier norms can spread and reinforce one another. A longevity-oriented health system designs the environments, systems, and incentive structures that make these behaviours the path of least resistance. This means reshaping everyday decision-making; from urban environments that encourage physical activity, to digital health platforms that provide real-time feedback, to incentive models that reward prevention rather than treatment. Small changes in how choices are presented can have a meaningful impact on behaviour, making healthier actions easier, more visible, and more likely to be sustained over time.³⁷

Population empowerment

A growing segment of the global population is actively investing in their own longevity using consumer health technology, functional medicine practices, preventive diagnostics and targeted supplementation to optimise their biological age. New EY Global Consumer survey data from 2025/26 suggests that participants from the Gulf Cooperation Council (GCC) population are highly open to the digital tools that could support enhancing longevity.³⁸

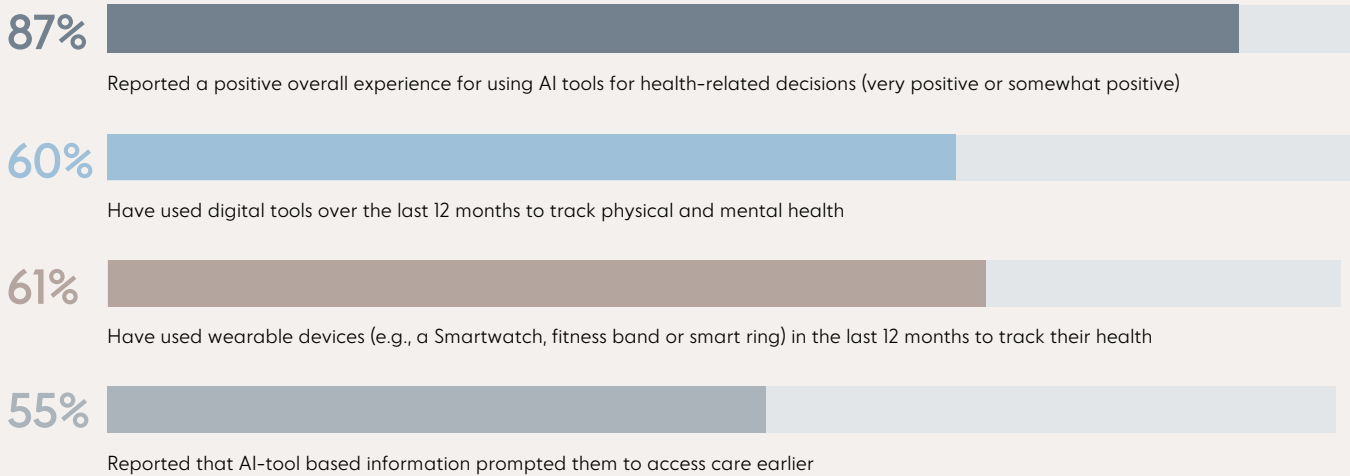


Figure 3. Adoption of digital and AI-enabled health tools. 87% reported a somewhat or very positive overall experience using AI tools for health-related decisions. Over the last 12 months, 60% of individuals reported using digital tools to track their physical and mental health, while 61% reported using wearable devices such as smartwatches, fitness bands, or smart rings to monitor their health. In addition, 55% said that AI-based information prompted them to seek care earlier. (n = 999; GCC-based participants). Source: EY Global consumer data 2025/26 – GCC cohort.³⁸

However, openness alone does not translate into sustained behaviour change. “The barriers are less about interest than about translation,” explains Dr. Erik Koornneef, Executive Director of Research at IHLAD. “A wearable on its own is not a care model. The real opportunity is to connect digital tools to clinical judgment, coaching, and continuity.” Health systems must channel this openness into structured, evidence-based longevity programmes rather than allowing it to flow toward the unregulated wellness industry.

Furthermore, as new tools such as consumer wearables, remote monitoring devices, AI-enabled decision support, and predictive analytics expand rapidly, a longevity-first system must apply a consistent evidence threshold. Innovation alone is not sufficient. The relevant question is whether a tool, intervention, or model produces measurable clinical or public health benefits. This places clinical validation, real-world evidence, and outcomes measurement at the centre of adoption decisions. “Research means very little until it can demonstrate an impact on clinical outcomes,” notes Dr. Shahrukh Hashmi, Director of Research, DoH - AD.

This clinical integration will be central to sustaining engagement beyond initial adoption. “Digital health should extend clinical care, not replace it. Patients are more likely to engage when metrics are meaningful, explained by trusted clinicians, and linked to a practical care plan”, says Mediclinic Middle East.

PILLAR 4: Ecosystem and Innovation Infrastructure

Abu Dhabi's innovation assets

The four pillars of Abu Dhabi's longevity-first approach are interdependent: precision diagnostics require data infrastructure; advanced therapeutics require regulatory science; citizen empowerment requires enabling systems; and all of these require sustained investment, world-class research capacity and the ability to attract and retain the global scientific talent that is driving longevity medicine forward. The fourth pillar, ecosystem and innovation infrastructure, is the enabling layer that makes the other three possible.

Partnerships are a defining characteristic of Abu Dhabi's ecosystem, enabling the emirate to integrate global expertise across research, clinical care, and innovation. Rather than building capacity in isolation, Abu Dhabi is leveraging a networked model that connects local infrastructure with international institutions, accelerating knowledge transfer and reducing time to impact.

At a systems level, a distinctive feature of Abu Dhabi's model is that research is not treated as an isolated academic function. Evidence generation, policy design, implementation, and outcomes measurement can occur within the same system, under the DoH - AD. This creates a shorter pathway from discovery to public health impact, allowing validated insights from clinical trials, real-world evidence, and longitudinal datasets to inform prevention strategy, service redesign, and population-level intervention. "Advancing longevity at a population level requires global collaboration. We are actively engaging partners across all continents and across all disciplines, including AI, biotechnology, healthcare, anthropologic and social science organisations, to generate evidence, scale innovation, and deliver real public health impact." states Dr. Shahrukh Hashmi, Director of Research, DoH - AD. Taking a coordinated, collaborative approach by aligning partners across the ecosystem, from research design and strategic review through to clinical implementation, DoH - AD is ensuring innovation is translated efficiently into measurable public health impact.

At the operational level, Abu Dhabi has a set of assets that, when combined, form a platform for longevity innovation.

1. Organisations such as M42 bring together genomics, AI, and clinical care delivery.
2. Institutions such as IHLAD act as a regulated translation layer, bridging geroscience, clinical practice, and research through integrated care delivery, innovation labs, and evidence generation programs
3. Integrated healthcare providers such as Mediclinic Middle East contribute scalable, clinically governed longevity models, supported by specialist care, digital tools, remote monitoring, health coaching, and multidisciplinary pathways.
4. Clinical and research providers such as Burjeel Holdings help translate system-level health intelligence into physician-led care pathways, supported by specialty care, advanced diagnostics, clinical trials, rehabilitation, and outcomes measurement.
5. Partnerships with global institutions, including Cleveland Clinic Abu Dhabi and NYUAD, provide access to international research expertise and clinical trial infrastructure.³⁹
6. Entities such as Sandoq Al Watan and Abu Dhabi Investment Office (ADIO) create pathways for investment, supporting both community-level wellbeing initiatives and the scaling of life sciences innovation.⁴⁰

Building the longevity research engine

A world-class longevity ecosystem requires a research engine capable of driving original evidence generation. For the UAE, this means leveraging the specific EGP and multi-omic data available in the context of the Gulf Arab population; a population that is underrepresented in global literature and for whom extrapolation from Western or East Asian study populations may be unreliable.¹⁵

Population-specific insights, such as variation in disease prevalence, earlier onset patterns, and unique genetic risk profiles, have direct implications for screening, prevention, and treatment pathways. The growing body of regional research, including work on genetic drivers of conditions such as breast cancer, demonstrates the importance of locally generated evidence in shaping more effective, precision-based care models. Building on work from the EGP, the integration of monogenic, polygenic, and familial data in breast cancer establishes a national framework for genomic risk stratification, allowing region-specific BRCA pathways and precision oncology.⁴¹

Healthcare providers will be critical to turning this research ambition into real-world evidence. Mediclinic Middle East notes that clinical implementation sites can support pragmatic trials, longitudinal registries and real-world evidence studies focused on outcomes such as diabetes prevention, obesity management, cardiovascular risk reduction, frailty prevention, cognitive health and sustained behavioural change.

This clinical validation capacity is also what makes Abu Dhabi's ecosystem attractive to innovators: solutions can be tested not only in datasets or laboratories, but within governed care pathways linked to measurable outcomes. "For innovators, Abu Dhabi's advantage is not only data or ambition; it is the ability to validate solutions through clinical pathways, specialist expertise, IRB-reviewed trials, ethics governance, and measurable outcomes", explains Burjeel Holdings.

Another strength of Abu Dhabi's model lies in its ability to translate innovation into system-wide impact. The HELM (Health, Endurance, Longevity, and Medicine) cluster aims to position the emirate as a global hub for biotech, medical technology, digital health, precision medicine, and AI diagnostics, with projected contributions of AED 94 billion to GDP, AED 42 billion in investment, and 30,000 jobs by 2045.⁴² In parallel, ADIO, the DoH - AD, and Hub71 are partnering to attract venture capital and accelerate health technology startups through co-investment, tailored support, and streamlined regulation.⁴³ These efforts provide the infrastructure needed to turn data into scalable longevity interventions.

The investment case

The economic case for investing in longevity medicine is overwhelmingly positive. In the UAE, the primary value driver for longevity medicine is the reduction of the economic burden of age-related chronic disease. The UAE National Health and Nutrition Survey 2024–2025 from MoHAP (Ministry of Health and Prevention) reported that up to 60% of adults had insufficient physical activity, 22% were living with obesity, 25% had high blood pressure, and 54% had high cholesterol.⁴⁴

Addressing ageing itself, rather than individual diseases, has been shown to deliver significant economic value, with estimates suggesting that even a one-year increase in healthy life expectancy could generate US \$38 trillion in global economic benefit, rising to \$367 trillion over a decade. Crucially, this value is driven not only by reduced healthcare costs but by improved productivity and workforce participation, reflecting the economic impact of compressing morbidity and maintaining population health for longer.⁴⁵ These findings emphasise how longevity medicine is a high-return investment in both economic resilience and population health.

To realise this economic potential, healthcare incentives will also need to evolve. "The single most important shift is moving from activity-based reimbursement to models that genuinely reward outcomes, prevention, and long-term health value. The most successful health systems of the future will be those that reward the preservation of health, not simply the treatment of illness," states Rashed Saif Al Qubaisi, Group Chief Operating Officer, PureHealth.

Creating a longevity-first health ecosystem

The science of longevity is no longer speculative. The biological mechanisms of ageing are being mapped with increasing precision.²⁴ Technologies that can measure, slow and in some cases reverse aspects of biological ageing are moving through clinical development,^{27, 28} and the economic case for investing in healthspan extension is compelling.⁴³ Beyond this, Abu Dhabi's progressive policy and regulatory environment actively enables innovation by creating clear, end-to-end pathways that allow emerging therapies, data-driven solutions, and novel care models to be tested, evaluated, and scaled within a governed environment.

Abu Dhabi has assembled, over the past decade, a remarkable set of assets – genomic data, clinical infrastructure, AI capability, sovereign investment capacity, and international institutional relationships, that are potentially transformative. Crucially, the integrated regulatory model aligns data governance, research enablement, and clinical application within a single system, reducing fragmentation and accelerating time from discovery to implementation.

By providing predictable, innovation-friendly pathways and enabling access to high-quality population-scale data, Abu Dhabi is advancing a globally relevant, policy-led blueprint for how governments can responsibly unlock health data, enable cross-border collaboration, and drive scientific and economic value in longevity medicine.

"If it wasn't for the robust regulations, and the proactiveness of regulators in pushing these initiatives, the ecosystem would not be able to operate at this pace or scale" explains Albarah El-khani, Chief Operating Officer, M42 Health.

Abu Dhabi now stands at an inflection point. The convergence of scientific capability, regulatory leadership, and system-wide integration creates a unique window to accelerate the transition from reactive healthcare to proactive healthspan management. Through Future Health, Abu Dhabi invites governments, healthcare systems, regulators, research institutions, investors, and industry partners to join a shared longevity agenda: one focused on building trusted evidence standards, enabling responsible data collaboration, accelerating translational research, and piloting clinically governed healthspan pathways that can be scaled across populations and adapted globally.

"We are at a pivotal moment for the future of health. Advances in science, data, and technology are opening new possibilities to help people live longer lives in better health. But health systems must be ready to translate these advances into meaningful outcomes. Abu Dhabi's strength lies in the way it connects policy, data, genomics, clinical innovation, and investment within one health ecosystem. Future Health is sharing our approach with the world, and contributing practical insights that can help shape the next generation of health systems," said Her Excellency Dr. Noura Khamis Al Ghaithi, Undersecretary of the Department of Health – Abu Dhabi.



Authors

The Future Health Impact Initiative team co-authored this report together with:

Dr. Mohamed Al-Bitar

Advisor – Health Life Sciences Sector, Department of Health – Abu Dhabi

Fadi Smeirat

Partner, MENA Healthcare & Life Sciences Sector Leader - Business Consulting, EY

Eyad Al-Musa

Partner, Healthcare & Life Sciences Sector - Digital Health, EY

Ahmed Banna

Director, Healthcare & Life Sciences - Strategy & Transformation, EY

Georgia Attfield

Manager, Healthcare & Life Sciences - Strategy & Transformation, EY

Contributors

Future Health – A Global Initiative by Abu Dhabi and EY thank the following contributors, whose insights and expertise helped inform the development of this publication.

Her Excellency Dr. Noura Khamis Al Ghaithi

Undersecretary of the Department of Health – Abu Dhabi

Dr. Nicole Sirotin

Chief Executive Officer, Institute for Healthier Living Abu Dhabi

Albarah El-khani

Chief Operating Officer, M42 Health

Hamad Almarzooqi

Group Deputy Chief Executive Officer, Mubadala Bio

Rashed Saif Al Qubaisi

Group Chief Operating Officer, PureHealth

Dr. Erik Koornneef

Executive Director of Research, Institute for Healthier Living Abu Dhabi

Dr. Shahrukh Hashmi

Director of Research, Department of Health - Abu Dhabi

Sasa Dujmovic

Director – Strategy & Marketing, Institute for Healthier Living Abu Dhabi

Kindah H Abdulhamid

Senior Consultant, Healthcare & Life Sciences Sector - Digital Health, EY

Mediclinic Middle East

Burjeel Holdings

About Future Health – A Global Initiative by Abu Dhabi

Future Health is a year-round platform for global collaboration and transformative health innovation, held under the patronage of His Highness Sheikh Khaled bin Mohamed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Chairman of the Abu Dhabi Executive Council.

Bringing together health researchers, policymakers, business leaders, investors and entrepreneurs from across disciplines and geographies, Future Health drives collective action to strengthen health systems and unlock longer, healthier lives for all.

Through a year-round programme of research insights, publications, impact initiatives, Challenges, R&D funding, and cross-sector convenings, Future Health advances progress across four focus areas: longevity and precision medicine, health systems and sustainability, digital health and AI, and investment in life sciences.

Future Health is curated and convened by the Department of Health – Abu Dhabi and its Founding Partners M42, PureHealth, the Institute for Healthier Living Abu Dhabi and Mubadala Bio. Mediclinic Middle East serves as Strategic Partner and Burjeel Holdings as Associate Partner.

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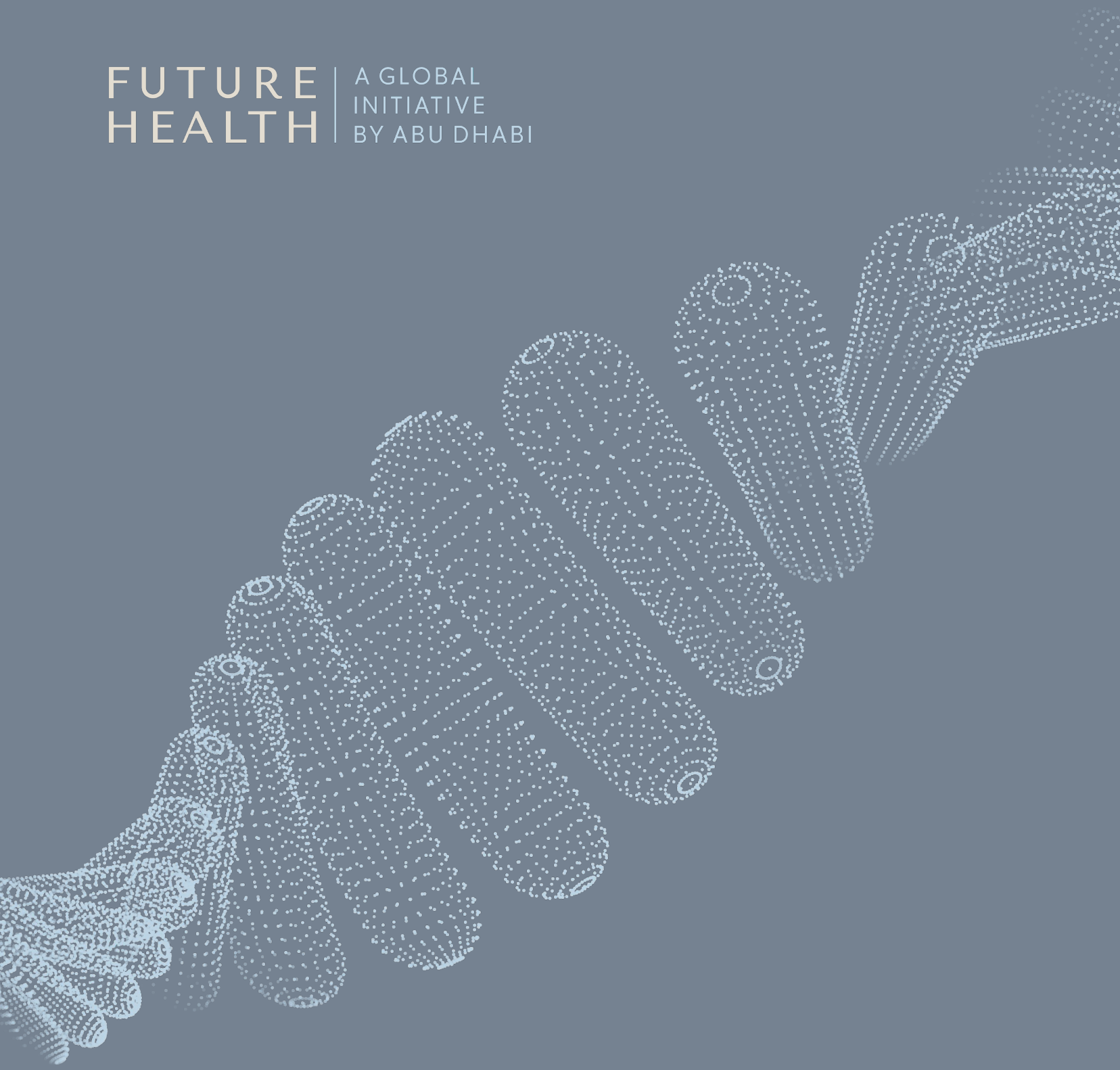
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