



Achieving better patient outcomes with personalized experiences and shared decision-making

Life sciences and medtech organizations are increasingly focused on achieving better patient outcomes, not only through more rigorous science, but through better patient experiences.¹ Life sciences executives surveyed by Deloitte US believe that the leading action their organizations need to take in 2024 is “improving the patient experience, engagement, and trust”—and the trend is now a higher priority for more companies than it was in 2023.²

Personalized care and treatments support better experiences, and there are many opportunities for life sciences and medtech companies to improve touchpoints throughout the patient journey.³ However, effectively and positively influencing a patient’s journey requires a thorough and specific understanding of that patient’s journey in order to be proactive and predictive about what patients may need.⁴ As the process becomes more digitally enabled and personalized, it is also expected to become more “straightforward” and seamless.

Every patient’s experience is different, and a patient’s lived experience in a fragmented health care ecosystem may cause frustration.⁵ The process of shared decision-making (SDM) can better illuminate what patients may prefer. According to the UK’s National Health Service (NHS), SDM is a process that involves selecting tests and treatments based on evidence, while also considering the person’s individual preferences, beliefs, and values.⁶

Studies show that there is continued need for improvement between the theory and practice of SDM.⁷ Practicing SDM can improve patient-reported outcomes⁸ and is also a possible link between the best of patient-centered care and evidence-based medicine.⁹ The process is ripe for more personalization to deliver the right solution at the right time.¹⁰

Personalization through technology

In 2024, life sciences and medtech organizations are considering novel ways to make experiences across the patient journey more customized for patients through technology.¹¹ Many are experimenting with advancements in artificial intelligence (AI) all across the patient journey—from prevention to diagnosis, treatment, and monitoring.¹²

A patient's journey may start even before a patient contacts the provider.¹³ For example, by identifying which patient types are more likely to have a certain disease, AI can raise awareness of the clinical journey that undiagnosed patients may undergo and potentially expedite progress in the journey.¹⁴

Early interventions are also being made possible through wearables, predictive and propensity modeling (using past data to predict the next action),¹⁵ health assessment tools, and new types of biomarkers and screenings. With more data, health care providers (HCPs) can have a more granular view of the patient.¹⁶

Growing focus on the patient journey

New patient and provider needs are emerging

In medtech, successful organizations are embracing a more holistic view of the patient care journey beyond the physical device.¹⁷ More patients are taking an active role in their health care journey and turning to health solutions and services tailored to their prevention and wellness preferences over treatment alone.¹⁸ Patients are also demanding customized and convenient care adapted to personal behaviors and routines, with greater ownership of their secure health data.¹⁹

This engaged patient persona creates a powerful market segment of active consumers with distinct health demands, willing to consider solutions that may better meet their specific needs.²⁰

Changing role of chief patient experience officers

Some health care companies have added a chief patient experience officer to their C-suite, and their focus is evolving from the inpatient experience to improving the patient's entire health care journey.²¹ Lisa Allen, Ph.D., chief patient experience officer at Johns Hopkins Medicine says she came from the world of quality, statistics, and research, but her passion was really being patient- and family-centered.²² "A lot of people were just studying the disease process, and I was asking how it was affecting people's lives," she says.²³ Patricia Rosello, M.S.N., R.N., chief patient experience officer at Baptist Health South Florida, says it is crucial to have a passion to see things from a patient's perspective and look at the whole patient journey.²⁴

"Your ability to influence and be very collaborative is going to be key because it takes all these different relationships to make any journey a better journey for a patient. You have to have that broad perspective and a high level of empathy and understanding."

—**Patricia Rosello**, M.S.N., R.N., Chief Patient Experience Officer, Baptist Health South Florida²⁵

With more focus on the patient journey, the role for chief patient experience officers is evolving and becoming increasingly strategic.²⁶

Integrating patient preferences and values in decision-making

Care collaboration, where patients feel respectfully engaged in the evaluation of their health, is inconsistent.²⁷ While it is expected that patients should be informed and understand any risks, benefits, and possible consequences of different options through discussion and information sharing,²⁸ it is less understood how to integrate an individual patient's values and preferences in the process of SDM.²⁹

Making SDM “collaborative”

Making SDM collaborative means there is a bidirectional exchange of information between patients and providers that helps patients make individualized, informed decisions about their care.³⁰ The process should consider a patient's desired level of involvement and autonomy³¹ as well as an individual patient's values, goals, concerns, and desired quality of life (QoL).³² But the path to values integration is not well defined.³³

While SDM practiced collaboratively can improve informed consent and patient trust, as well as benefit many stakeholders,³⁴ its application in daily practice is still limited—even in the Western world, where collaborative SDM is championed as an ideal.³⁵

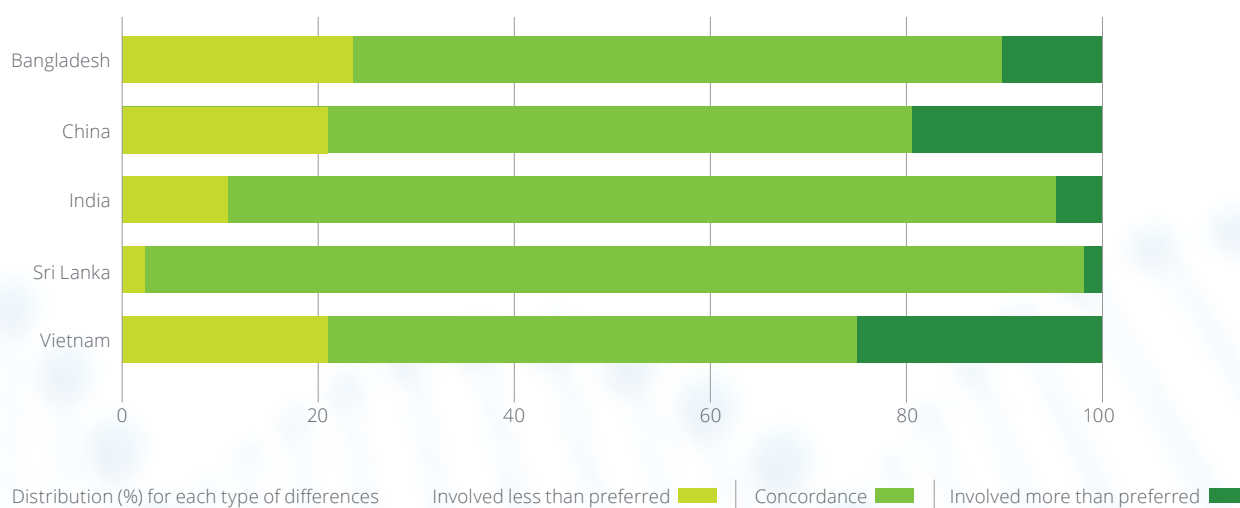
Researchers say that providers should not make assumptions about a patient's desired role in decision-making and stress the importance of clarifying patients' desires.³⁶ Even characteristics such as age, education, and health literacy skills may not be consistent indicators for how involved a patient wants to be,³⁷ and cultural and generational preferences vary.³⁸

Balancing views for patient-led vs. provider-led care

On one end of the spectrum, some patients want a more active, or “patient-led” form of decision-making, researching their conditions and treatments available.³⁹ On the other end, patients may prefer a more traditional “physician-led” style, assuming the doctor knows best.⁴⁰ But how providers can balance these needs also depends on the providers' own views, which are equally as varied.⁴¹

In Ethiopia, researchers identified a gap between patients' expectations and providers' perception of the patient's role,⁴² showing that providers also exist somewhere on a spectrum between person-centered care and paternalistic care.⁴³ A multi-country study in Asia found varying degrees of “concordance” between countries over the amount of involvement patients prefer (figure 1).⁴⁴ Researchers found this to be the first study to examine the associations of perceived roles in decision-making and patient outcomes among advanced cancer patients in low- and middle-income countries. Joint decision-making was associated with higher well-being and perceived quality of care.⁴⁵

Figure 1. Distribution of discordance/concordance between perceived and preferred roles in decision-making in five Asian countries



Source: Semra Ozdemir, et al., “Patient-Reported Roles in Decision-Making Among Asian Patients With Advanced Cancer: A Multicountry Study,” 18 November 2021.

Opportunity for education in a new paradigm of care

One step forward may be gaining a better understanding of various providers' perceptions of patient involvement in SDM.⁴⁶ A small study of medical residents in the Netherlands found that young doctors preferred more traditional, physician-led, decision-making.⁴⁷ Their decision-making appeared to be affected by contextual factors—their medical knowledge and knowledge about SDM—and by their beliefs and convictions about their professional responsibilities as a doctor.⁴⁸ While trying to provide patients with the best possible evidence-based treatment, these residents confused SDM with acquiring informed consent for their recommendations.⁴⁹

Education can be an important part of a new paradigm of care, and the international coproduction health network (ICoHN) is an initiative supporting learning in different communities of practice with patients, practitioners, students, and researchers to explore coproduction in SDM.⁵⁰

Bigger opportunities for life sciences in SDM

Life sciences companies are increasingly focused on “informed” decision-making to support SDM.⁵¹ A well-informed patient is more likely to actively participate in the decision-making process and better understand the potential outcomes and risks of any treatments.⁵² In addition, informed decision-making may help build trust, as even patients who ultimately opt to defer a final treatment decision to a provider are still interested in quality information.⁵³ There is an opportunity to increase awareness about the role of SDM,⁵⁴ and evidence shows that SDM can promote appropriate care, decrease overtreatment, meliorate health outcomes, and thereby, may reduce health care costs.⁵⁵

The use of patient decision aids (PDAs) can help patients participate in decisions to improve both the quality of the decision-making process and satisfaction

with their choices.⁵⁶ Life sciences companies that develop PDAs with information on treatment alternatives, potential risks, and benefits might consider how a patient's preferences and values could be addressed.⁵⁷

By championing SDM and facilitating collaborative PDA development with clinicians and decision-makers, patient advocacy groups, and patients, life science companies have an opportunity to show support for strategies that further respect patient rights and responsibilities in the decision-making process.⁵⁸

Some AI tools may prove beneficial to increasing the practice of SDM—but the design and use of these tools should also incorporate patient preferences.⁵⁹ McGill University in Canada, which has been a leader in AI and machine learning (ML) research globally,⁶⁰ conducted a scoping review of AI interventions that were used to facilitate SDM across several countries.⁶¹ Researchers observed a lack of emphasis on patients' values and preferences in the studies.⁶²

McGill researchers found none of the studies on SDM included health care providers or patients in the design and development of the AI interventions. They suggest further research should be conducted to strengthen and standardize the use of AI in different steps of SDM and to evaluate its impact.⁶³

While AI in SDM is in its infancy, there are multiple advances in AI and Generative AI (GenAI) that focus on improving patient journeys across multiple disease areas—from better diagnostics and use of visualization and characterization functionality to support HCPs, faster reimbursement, and more. See the GenAI section of the Outlook for further elaboration on the power and growth of GenAI/AI.

Optimizing touchpoints in the patient experience

A patient experience touchpoint is any point at which a patient interacts with the health care ecosystem as they manage a given condition/affliction, whether through an in-person service or online, through a website, platform, or app.⁶⁴ The sum of all these touchpoints influences a patient's perception of the care they receive and the patient journey.⁶⁵

Strategies to optimize the patient journey should integrate the patients' perspective at each touchpoint.⁶⁶ Specifically and accurately mapping the patient journey can also help identify new opportunities to improve a patient's quality of life (QoL), not limiting actions to acute needs.⁶⁷

Every patient journey can have several stages that are considered inherent to a specific disease.⁶⁸ For example, cancer can present suddenly and decisions regarding treatment can be time sensitive, causing a patient's emotions to run high.⁶⁹ Chronic diseases, like diabetes, typically progress gradually and may often be preventable or mitigated with lifestyle changes.⁷⁰ Every patient's individual journey can also differ within their disease, and care should be holistic and able to adapt to needs as they change over time.⁷¹

In 2024, as person-centered care continues to be a priority, strategic leaders should be looking at possibilities for their organization to improve patient experiences⁷²—even one touchpoint improvement may make a difference in someone's life.

What can't be measured, can't be improved

The health care industry generates a tremendous amount of real-world data (RWD) that provides valuable insights on patients, their diseases, and their patient journeys and care.⁷³ But up to 80% of health outcomes can be driven by nonclinical factors, such as access to transportation, education, job opportunities, nutritious food, and safe housing.⁷⁴

This nonclinical data—referred to as social determinants of health (SDoH)—aren't typically captured in traditional RWD.⁷⁵ SDoH are the environmental conditions where people live, learn, work, play, and worship that affect a wide range of health and quality-of-life outcomes and risks.⁷⁶

These factors need to be better understood to more effectively enhance a patient's journey, which is why, for example, Deloitte has invested in combining Komodo's Healthcare Map with its HealthPrism SDoH data set—one of the largest SDoH data sets in the US—to develop a more comprehensive view of patients, their care journeys, and their outcomes.⁷⁷

For example, digital health technologies and the widespread use of mobile phones can enable, those in low- and middle-income countries, and other disadvantaged patients, to actively participate in their care, despite transportation challenges, through home monitoring devices, health care apps, wearable technology, and telehealth services.⁷⁸

Finding opportunities for digital touchpoints

Because patients have individualized needs and concerns, life science organizations should respond to patients with a personalized engagement approach that put them at the center of care and connects them digitally.⁷⁹

Digitally powered personalized health care plays a part in helping improve access to treatments.⁸⁰ Deloitte's ConvergeHEALTH Connect™ creates enhanced digital touchpoints across patient journeys.⁸¹ In a stylized manner, you can observe the differences in patient journeys for cancer and chronic disease (figure 2)⁸²

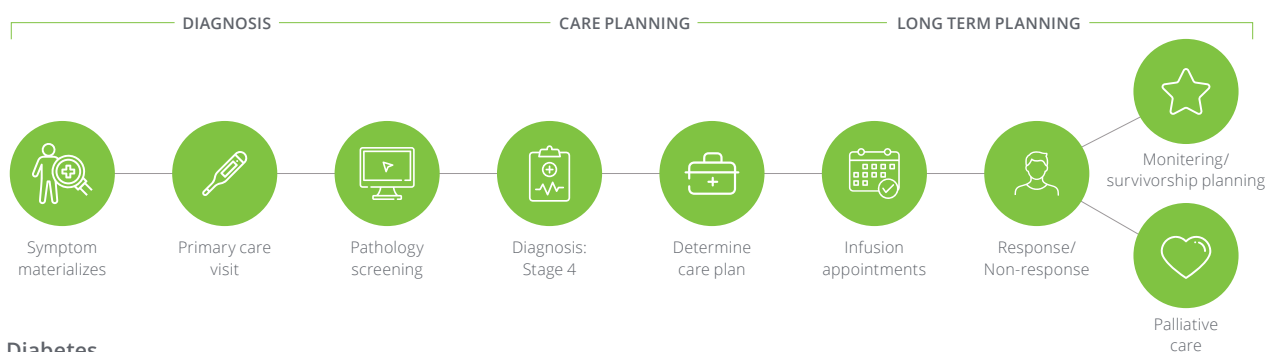
Touchpoints in the patient journey for rare disease

In rare diseases, patients may endure challenging diagnostic journeys and often require multifaceted treatment plans.⁸³ The process typically requires a patient navigate a convoluted system of specialists, testing restrictions, and reimbursement hassles before they're even diagnosed, much less treated.⁸⁴ Some companies are working to make a difference by mitigating the burden and personalizing the experience. For example:

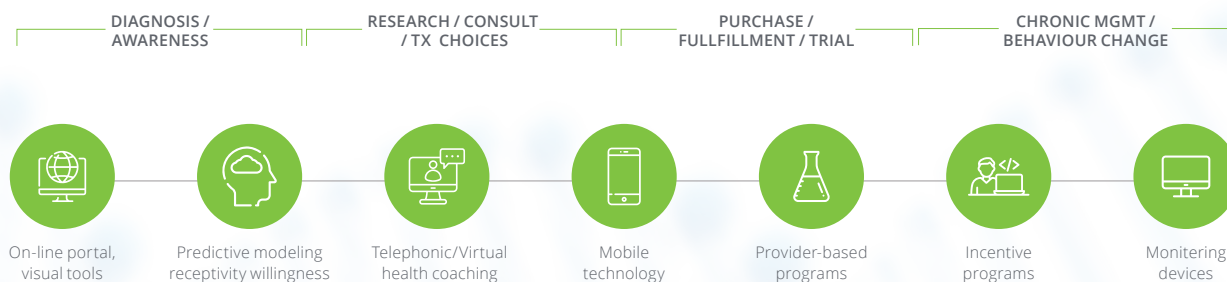
- **PANTHERx** streamlines the process associated with getting rare disease medications to patients and incorporates patient education and adherence plans. RxARECARE teams specialize in unique disease states and the select medications patients will receive. Personalized care teams work to ease a patient's burden by taking care of the billing process from start to finish and handling contingencies, like getting a damaged refrigerator replaced, and getting costs reimbursed so a patient won't miss a treatment due to improper storage.⁸⁵
- **MMIT** provides patient access data and analytics to pharmaceutical and health care companies. Carolyn Zele is a rare disease survivor that now works as a market access specialist for the company. She says that she advocates daily for manufacturers to understand the plight of patients. "When patients are at their weakest and most vulnerable, they shouldn't have to fight for a diagnosis or help coordinating their own care. They shouldn't have to file multiple appeals to a payer or manufacturer to help pay for their treatment," she says. Zele advises manufacturers to map the twists and turns of the patient journey to become deeply familiar with the existing access barriers. Pharmaceutical companies may improve access to treatments with a deeper understanding of the patient journey.⁸⁶

Figure 2. Comparison of patient connect across oncology and diabetes patient journeys

Oncology



Diabetes



Source: ConvergeHEALTH by Deloitte

Touchpoints in the patient journey in oncology

Amidst a mounting need for care services, the cancer burden is growing globally. For 2022, the World Health Organization reports that an estimated 20 million new cancer cases were diagnosed, and it projects 35 million new cases will be diagnosed in 2050.⁸⁷

Approximately one in five people develop cancer in their lifetime, but people are living longer after cancer.⁸⁸ Data shows an estimated 53.5 million are still alive five years following a diagnosis,⁸⁹ but many aren't getting the follow-up care they need and face continued health challenges.⁹⁰ Of those that die from the disease, about one in nine are men, and one in 12 are women.⁹¹ Lung, breast, and colorectal cancer are the most prevalent cancers.⁹²

Improving early diagnosis in cancer

To improve the lived experiences of cancer patients, person-centered care should be more than a “nice to have.”⁹³ Patients want to be able to navigate all stages of their cancer care easily and efficiently, and personalized patient journeys should include a needs-based approach for the patient as well as their loved ones.⁹⁴

Early symptoms and indications of cancer with prompt presentation are key to early diagnosis.⁹⁵ When cancer care is delayed or inaccessible, chances of survival are lower, more problems are associated with treatment, and costs are higher.⁹⁶

In the UK, the majority of cancers are diagnosed in an emergency room.⁹⁷ Only breast and cervical cancer, and to a lesser degree, colon cancer, are found during routine screenings.⁹⁸ Macmillan Cancer Support, a leading UK charity organization,⁹⁹ is introducing the electronic risk assessment for cancer (ERICA) trial.¹⁰⁰ ERICA is testing six tools as part of Skyline software for clinical effectiveness in improving referral rates particularly in early stages of diagnosis.¹⁰¹

Improving the lived experience with cancer

In a national survey of cancer patient experiences in the UK (figure 3), the NHS fell below 54% in meeting patients' needs for emotional support during hospital care and subsequent treatment (figure 3).¹⁰² Less than half of the patients surveyed felt they had the care and support needed after treatment, including only one-third saying they were given a care plan. An opportunity appears to exist to discuss participation in cancer research as less than 30% say this was discussed with them at any time following diagnosis.¹⁰³

As many people are living longer with cancer, a future vision relies upon ongoing support for people living with cancer during treatment and beyond.¹⁰⁴ People with cancer should always be able to live life fully—in a way that is meaningful for them.¹⁰⁵

Deloitte UK and Macmillan Cancer Support conducted research in the UK on shaping the future health care experience for people with cancer.¹⁰⁶ One forecast of the January 2023 report was the future ambition related to the lived experience of cancer patients, including where the system is failing and where action is needed (figure 4).¹⁰⁷ Organizations may want to engage this vision for scenario planning to help make a better future of health for cancer patients a reality.¹⁰⁸

Figure 3. Patient experience survey, National Health Service (NHS) England cancer care



Source: Picker, National cancer patient experience survey, 2021. Data and tables: 2018

Figure 4. The future of health and the lived experience in cancer, strategies for action



Source: Deloitte UK and Macmillan Cancer Support, "Shaping the future of cancer care," January 2023.

Navigating cancer care, including after treatment

Cancer care navigation is growing in importance and is a strategy for helping cancer patients overcome barriers across the cancer care continuum.¹⁰⁹

Emerging evidence suggests that providing patients with navigation services improves quality of life and patient satisfaction for care in the survivorship phase and reduces hospital readmission in both the active treatment and survivorship care phases.¹¹⁰ Palliative care data is limited.¹¹¹

Other programs help to address the significant racial, ethnic, and socioeconomic disparities in cancer, including access to screenings.¹¹² After treatment, survivorship programs also help improve quality of life and help patients find resources and a community.¹¹³ Examples of these programs include:

- **Patient navigation services:** In the US, the Biden Cancer Moonshot program is prioritizing supportive services for people affected by cancer, including championing the importance of expanding patient navigation services.¹¹⁴ The program is providing personalized assistance to patients, caregivers, and families to help identify and resolve barriers to high-quality and timely cancer care through care coordination and advocacy, even after treatment.¹¹⁵
- The first patient navigation program in the US was launched in 1990 by Dr. Harold Freeman to improve health outcomes in marginalized communities in New York.¹¹⁶ In late 2023, the US Centers for Medicare & Medicaid Services (CMS) finalized codes for Principal Illness Navigation (PIN) services so providers can receive payment for navigation services. In early 2024, seven large private health insurance companies also agreed to cover the cost of cancer navigators.¹¹⁷
- **Collaborating for health equity:** The American Cancer Society (ACS) and Pfizer launched a three-year initiative targeting improvement in health outcomes in medically underrepresented communities across the US. Efforts are underway to enhance awareness of and access to cancer screenings, clinical trial opportunities, patient support, and comprehensive cancer navigation.¹¹⁸

- **Collaborating for health equity with non-clinical support:**

In late 2023, the ACS launched ACS CARES (Community Access to Resources, Education, and Support), a new multi-channel, customizable program to deliver non-clinical patient navigation support to cancer patients and caregivers. For those not as comfortable with digital tools, the program also places trained college and graduate student volunteers in oncology clinics to help patients and caregivers receive non-clinical, individualized in-person support. A US\$1 million commitment from the [Deloitte Health Equity Institute \(DHEI\)](#) is helping to expand the program.

- **Cancer survivorship program:** Physical activity is an important part of cancer recovery.¹¹⁹ In the US, the “LIVESTRONG at the YMCA” cancer survivorship program organizes small groups of people living with, through or beyond cancer to improve their strength and fitness, while also gaining emotional support from peers.¹²⁰ According to research from the Yale Cancer Center and Dana-Farber/Harvard Cancer Institute, participants in the specialized program experience improved fitness and quality of life, as well as significant decreases in cancer-related fatigue.¹²¹ The 12-week program is offered at over 790 YMCAs and serves 400 communities around the country.¹²²

Life sciences and medtech companies might consider creating, sponsoring, or otherwise getting involved with these types of programs to gain a better understanding of the cancer survivor’s journey and ongoing needs. For example, some opportunities might include engaging wearables as part of activities in the fitness program, providing transportation to and from facilities for cancer survivors, and hosting events that raise awareness of mental health support resources or answer questions about clinical trial participation.

Growing demand in diagnostics for early detection, rehabilitation, and prevention

More younger people getting cancer

Survival rates for some cancers have improved dramatically since 1975, rising to 68% from 49%.¹²³ For example, people with non-Hodgkin lymphoma now have a 74% survival rate compared to 47%, 50 years ago.¹²⁴ Improved screening has also led to detection and diagnosis of cancers at earlier stages, when treatment has a higher chance of producing a positive outcome.¹²⁵

But cancer is starting to affect more adults younger than 50 years of age, with an 80% rise in the cancer rate from three decades ago.¹²⁶ One US oncologist started noticing the trend 10 years ago. She was asked to treat a teenager that flew in for treatment from China for a gastrointestinal disease typically found in people 65 years or older, but the cancer was too advanced to treat.¹²⁷

Oncologists around the world are seeing more younger patients with cancers uncommon for young people.¹²⁸ Worldwide, the most common cancer for young adults under 40 is breast cancer,¹²⁹ and more than 90% of women under 40 in the US are diagnosed between 30 and 39.¹³⁰ More than a dozen types of cancers are rising in multiple countries.¹³¹ In the US, colorectal cancer has become the leading cause of death for men under 50.¹³² There is a growing need for better screening, awareness, and treatments.¹³³

Patients with certain cancers, like ovarian cancer and leukemia, also often experience ongoing recurrence and remission,¹³⁴ and these diseases may be managed like a chronic illness.¹³⁵ As people live longer with various cancers, and the number of people with chronic disease increases, reevaluating the role of patient autonomy in chronic disease and cancer may prove beneficial in rebuilding trust and advancing patient-centered care.¹³⁶

New biomarker research underway for earlier diagnosis of Alzheimer's disease

China has become the country with the largest number of Alzheimer's patients with nearly 10 million cases.¹³⁷

However, more than 21% are under the age of 60 and are working age, creating a demand for earlier screening and diagnosis.¹³⁸ Currently, Alzheimer's disease (AD) affects nearly 7 million people in the US and approximately 32 million people worldwide.¹³⁹

The development of more biomarkers offers one of the most promising paths to early diagnosis for AD.¹⁴⁰ Beyond imaging and cerebrospinal fluid (CSF) tests, an urgent need exists for simple, inexpensive, noninvasive, and easily available diagnostic tools such as blood tests to diagnose the disease.¹⁴¹

"The biomarker space right now is advancing rapidly. Plasma and blood biomarkers are moving beyond what we've seen—more highly correlated with stage of disease and presence of pathology and will contribute to improved and earlier detection and the possibility of tailoring treatments for patients."

—**Dan O'Connell**, CEO, Acumen Pharmaceuticals¹⁴²

Acumen's sabirnetug program (ACU193) is developing a deeper understanding of key biomarkers related to AD.¹⁴³ A humanized monoclonal antibody (mAb), sabirnetug (ACU193) was discovered and developed based on its selectivity for soluble amyloid- β oligomers (A β Os).¹⁴⁴ By selectively targeting toxic soluble A β Os, sabirnetug aims to directly address a growing body of evidence indicating that soluble A β Os are a primary underlying cause of the neurodegenerative process in Alzheimer's disease. One of its distinguishing factors is the potential for cognitive improvement, in addition to slowing the disease progression.¹⁴⁵ Acumen recently announced the first patient dosed in the company's ALTITUDE-AD study a Phase 2 trial evaluating sabirnetug in early AD patients.¹⁴⁶

Other emerging biomarkers include retinal imaging and skin and saliva tests. Tests with these types of biomarkers are exploratory.¹⁴⁷

Smart devices for more personalized care and rehabilitation

Smart devices are being used for quicker diagnosis and rehabilitation by enabling remote collection of user data and providing health-related feedback for faster, more personalized, and more accurate health care conclusions.¹⁴⁸

- **Smart implants:** Persona IQ “The Smart Knee” by Zimmer Biomet is being used to detect if a patient is progressing as expected through rehabilitation by remotely tracking range of motion, gait disturbance, function, pain, etc.¹⁴⁹ The goal is to reduce readmissions and revisions. The software provides personalized post-operative smart metrics that connect patients through a care management platform and automated data flow.¹⁵⁰
- **Computer vision:** Senseye’s novel diagnostic platform for mental health uses digital biomarkers for mental health expressed by eye physiology.¹⁵¹ The brain-based methodology uses computer vision and a proprietary machine learning algorithm that works on any smartphone.¹⁵² The company’s first target is post-traumatic stress disorder (PTSD). The device was designed to help clinicians personalize care and diagnose PTSD with a 15-minute ocular test, rather than over months using other forms of evaluation.¹⁵³

Preventative care and direct-to-consumer diagnostic services

As some patients strive for more autonomy, life sciences companies are exploring new channels and partners to engage directly with patients rather than relying solely on HCPs.¹⁵⁴ More direct-to-consumer (DTC) health services are launching to address patient concerns and preferences more expeditiously.¹⁵⁵ As these services become more prevalent, effective, safe, and cost effective, it’s likely that they will grow in popularity.

There are blood tests and screening procedures that many feel are informative and preventative, but they may not be covered by insurance, or alternatively, consumers may not want to wait, or pay, for a doctor’s appointment to get access.¹⁵⁶ Patients may be told that a test is not necessary, when it might prove lifesaving,¹⁵⁷ and others may be a waste of time.¹⁵⁸

- **DTC MRI:** On **Prenuvo’s** website, consumers are called to “put their health in their own hands,” so they can catch conditions before they are a crisis.¹⁵⁹ Prenuvo offers AI-assisted scans, including a Whole-Body MRI scan, that screens for 500 conditions.¹⁶⁰

Actress and television host Maria Menounos is now one of the rare pancreatic cancer survivors after her cancer was detected early—at stage 2—with a Prenuvo scan.¹⁶¹ With US Food and Drug Administration (FDA)-approved scans and other screenings, most pancreatic cancer is not typically discovered until stage 4, and diseases discovered at this stage commonly have a prognosis of a 1% survival rate at five years after discovery.¹⁶² However, at USD\$2500 and up, the access to such scans are extremely limited and there’s some debate about the risks of these scans, including false positives which may lead to unnecessary procedures and costs.

- **DTC lab testing:** Direct access testing (DAT) or DTC lab testing enables individuals to order their own medical tests directly from a clinical laboratory, which assigns their own HCP to the order.¹⁶³ DAT is subject to a fragmented regulatory landscape and may not be available in some jurisdictions.¹⁶⁴ The DTC lab testing market is projected to reach a hefty US\$1.59 billion by 2030, signifying a paradigm shift in health care dynamics due to personalized diagnostics.¹⁶⁵ Forecasts for the period, 2023 to 2030 show a Compound Annual Growth Rate (CAGR) of 10.8%.¹⁶⁶ Some drivers include the rising incidence of chronic as well as sexually transmitted diseases and the increasing penetration of pharmacogenomic testing within the DTC laboratory testing realm.¹⁶⁷ Challenges include genetic data privacy, the potential for misinterpretation of test results, and the need for professional medical counseling.¹⁶⁸ Other issues—like sample integrity, regulatory concerns, limited test portfolios compared to conventional laboratory testing, and the lack of reimbursement schemes—are likely to be headwinds to growth.¹⁶⁹

Managing the chronic disease journey in Type 2 diabetes

Diabetes is a worldwide epidemic and an expensive chronic condition that continues to increase faster than many HCPs can manage.¹⁷⁰ Healthy eating and physical activity are critical to diabetes management, and while some interventions have proven effective at changing certain behaviors, there are still challenges in achieving sustainable long-term results.¹⁷¹

The patient journey in diabetes has changed over the last decade and is now part of digitally powered personalized health care. Many digital solutions include combinations of remote patient monitoring, behavior and lifestyle modification, coaching support, and nutritional ketosis.¹⁷²

The growth of the GLP-1 class of medications for the treatment of obesity and pre-diabetes will also play a disruptive role in the management of Type 2 diabetes. For further insights on the growth of GLP-1 diabetes drugs, see the Value Creation section of the Outlook.

More evidence-based research needed for diabetes digital management tools

Recent research is calling into question the effectiveness of digital management tools used to track and manage patients' Type 2 diabetes.¹⁷³ Peterson Health Technology Institute (PHTI) conducted research that asserts that the leading tools evaluated do not deliver meaningful clinical benefits and increase health care spending relative to usual care.¹⁷⁴ PHTI says users of these tools achieve only small reductions in hemoglobin A1c (HbA1c) compared to those who do not use the tools.¹⁷⁵

PHTI hopes to raise the bar on expectations and evidence, and some agree that there needs to be a more rigorous assessment of solutions.¹⁷⁶ But many, including the Digital Therapeutics Alliance, pushed back on conclusions drawn or the methodology used for the study.¹⁷⁷

Initial data in the research showed that one "promising solution," Virta Health, might be more likely to deliver clinically meaningful benefits.¹⁷⁸ The digital health care company aims to reverse Type 2 diabetes through personalized nutrition therapy and remote medical care, including telehealth, while also controlling prescription costs for patients.¹⁷⁹ PHTI affirmed that glycemic control and remission are more likely with Virta Health if patients can maintain the rigorous dietary requirements of the intervention.¹⁸⁰

In addition, Virta Health recently published its own research on its nutritional therapy in Diabetes Therapy showing it to be a potential off-ramp to GLP-1 drugs.¹⁸¹ Many face the prospect of regaining weight after stopping GLP-1 medications, and Virta Health's results potentially have major implications for employers and plans looking to improve members' health outcomes.¹⁸²

Supporting patient autonomy in chronic disease

An important part of managing a chronic disease is patient autonomy.¹⁸³ Diabetes self-management often requires personal autonomy and a supportive social environment to influence outcomes.¹⁸⁴ Researchers in China found that supporting patient autonomy in Type 2 diabetes could help patients achieve glycemic control—not only at the end of intervention but up to six months after.¹⁸⁵

Patients' personal experiences concerning everyday life with disease or disability shape their knowledge and understanding.¹⁸⁶ Respecting and supporting patient autonomy may not mean providers agree with or confirm a patient's different beliefs and perceptions, but it may be necessary to inform or develop that patient's understanding. Being respectful and seeing the patient view as an expression of their autonomy helps to build trust.¹⁸⁷

Regulators heightened interest in measuring what matters most to patients

Because patients often live with their disease or condition for long periods of time, and clearly understand the intricacies of their symptoms, the US FDA is increasingly looking to understand how patients describe their health status and assess their outcomes without interpretation from others.¹⁸⁸ Input from patient-reported outcome measures (PROs) and clinical outcome assessments (COAs) can then be used to help select or develop tools to measure what matters most to patients as well as shape future policy.¹⁸⁹

To date, health-related quality of life (HRQoL) is assessed inconsistently and there is no validated method to integrate HRQoL data into the assessment of therapeutic agents.¹⁹⁰ Including HRQoL as an endpoint may offer crucial information on functional abilities and treatment side effects from the patient's perspective.¹⁹¹

Utilizing PROs and HRQoL as standard practice in the clinical trial setting could provide a more comprehensive, patient-centered assessment of therapies under development and help guide patient-provider discussions around treatment options in clinical care.¹⁹² Leading pharma companies like Gilead, Sanofi, AstraZeneca, Biogen and Eisai are starting to include newer methods to assess HRQoL for clinical trials in HIV, COPD, diabetic neuropathy, and Alzheimer's disease.¹⁹³

Advancing the future of health with quality of life in longevity

The importance of quality of life is expected to expand as more people live longer,¹⁹⁴ and people's preferences for quality of life versus longer life as they age may influence their longevity.¹⁹⁵ Breakthroughs in the study of longevity—why humans age, how they age, and interventions to slow the aging process—suggest the possibility of some humans significantly surpassing current life expectancies.¹⁹⁶

Extending health span, not just life span

A paradigm shift is underway—from disease-focused treatments to those that address the underlying mechanisms of aging, biological systems, and wellness.¹⁹⁷ The goal is to extend health span, not just life span.¹⁹⁸

The number of aging adults is on an increasing trajectory.¹⁹⁹ Some people may be living longer, but they are doing so with less physical function and a reduced quality of life.²⁰⁰ Also, a digital life has led many to a sedentary life resulting in an increased risk of disease.²⁰¹

Can longevity-focused concepts help improve the current status quo? Deloitte US analyzed 10 therapeutic areas to uncover two extreme scenarios—disease areas that are deteriorating and those that are improving (figure 5).²⁰²

In tracking life span over a period of 15 years, deteriorating therapeutic areas saw reduced health span and life span, signifying more years of life with a disability as well as premature death, driven by worsening lifestyle behavior (obesity, Type 2 diabetes) and the growing elderly population.²⁰³ Aging is the leading risk factor for neurological and musculoskeletal disorders. Treatment advances for cancer and cardiovascular disease have been the primary contributors to life span improvement.²⁰⁴

Emerging longevity ecosystem

A growing ecosystem of life sciences, health care, and health tech companies is emerging focused on solutions that address underlying drivers of disease and aging (figure 6).²⁰⁵ Globally, venture capital funding is increasing support for the immense potential of innovative solutions aimed at extending human life and improving health during aging.²⁰⁶ For example, LEAPS by Bayer, headquartered in Leverkusen, Germany, has invested about US\$1.5 billion as of 2023 in various biotech and health-related companies and is dedicated to propelling advancements in aging and age-related diseases.²⁰⁷

Figure 5. Longevity disease matrix



Source: Deloitte US, "Living a 140-year long and healthy life," 2021.

Analysis explained

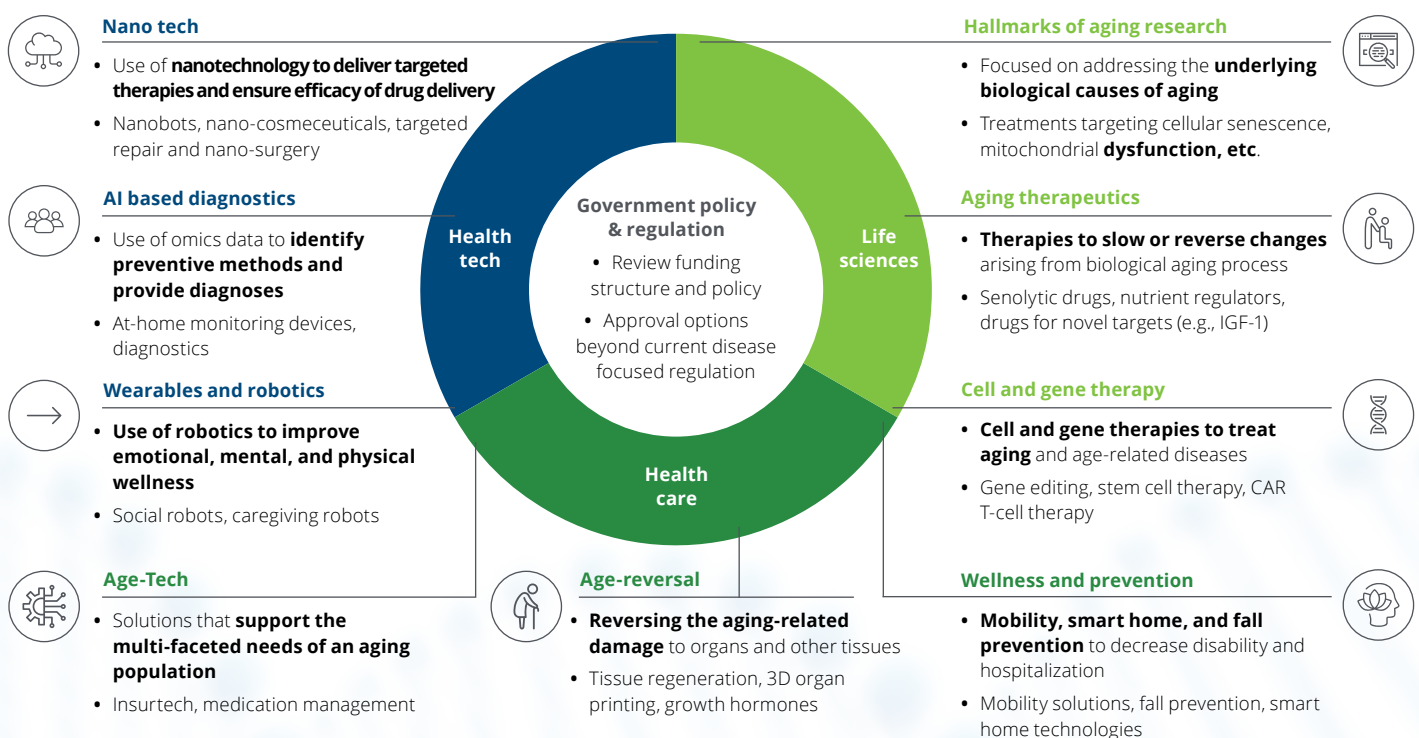
Health and life span

- Chart illustrates the difference of a patient with a disease in 2000 vs. 2015 and whether they experience a better health or life span in the latter.
- For example, the average cancer patient experienced a materially longer health and life span in 2015 (vs. 2000).

Drug approvals

- Number of drug approvals was used as an analogue for the life sciences industry's concentration on a given therapy area.
- No statistical correlation exists between disease area concentration and improvement in health and life spans.

Figure 6. The longevity ecosystem



Source: Deloitte US, "Living a 140-year long and healthy life," 2021.

Life sciences

We expect the convergence between technology, life sciences, and health care to continue supporting a growing ecosystem in pursuit of extending human longevity. Longevity research is poised to revolutionize the therapeutics market, and life sciences companies that opt to embrace a forward-thinking longevity mindset recognize that the future of health is one where therapeutics enable prevention and well-being over treatment-based reactionary care.

Health care

Health care providers should prioritize patient wellness and create hyper-personalized preventative solutions. Because personalized medicine enables a patient-centric approach to well-being and care delivery that has the potential to improve outcomes and reduce cost, personalized medicine is highly likely to continue gaining traction as a prominent feature of the future of health care.

Insurers

Public and private insurance payers should reexamine their offerings and consider adding services and products that also support populations with longer, healthier life spans.

Health Tech

Health tech is rapidly advancing as companies leverage real-world evidence and data and capitalize on the shift to well-being and personalized medicine. Emerging technologies and data-driven decisions are starting to accelerate rapid diagnosis, treatment selection, and delivery. The many benefits of these technologies on the aging population, especially, should not be underestimated.

Patient

Healthy aging varies according to social systems, education, and knowledge about lifestyle behaviors and health care.²⁰⁸ Few studies have recognized the potential of self-care behaviors among older adults to prolong independence later in life, and the role of motivation has largely been ignored with regard to longevity.²⁰⁹ Research from Cardiff University in Wales finds that choiceful behavior, self-reflection, and supported autonomy helped to predict who would live longer.²¹⁰ As companies invest in longevity research, they might also more deeply consider the role of patient autonomy in healthy aging.²¹¹

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Endnotes

Achieving better patient outcomes with personalized experiences and shared decision-making

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