

FEATURE

Six assumptions for measuring health disruption

The future of health is further along than some might think

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THE DELOITTE CENTER FOR HEALTH SOLUTIONS

The future of health, where well-being will replace treatment and the customer will be at the center of health care, seems far away, but here's evidence that change is already underway.



BY 2040, WE expect fundamental changes to the health care industry, driven by consumerism, data availability and use, and scientific innovation. In *Forces of change*, we discussed how the future of health will likely revolve around sustaining well-being rather than responding to illness, with the consumer at the center. The year 2040 is 21 years away, and as we share this vision for this future, we are often asked—how do we expect to get there? This article takes a step toward answering that question by looking at the evidence and identifying metrics that show that these forces already are in motion and by mapping their possible progression over time. This will help stakeholders begin to make strategic choices for the more immediate future.

Believing in the future of health—A starting point

Six broad assumptions—aligned with critical trends in our industry—underlie our vision of the future of health (see figure 1). These are the jumping-off points in measuring progress.

To support our assertion that we're already making progress toward our vision, we looked at evidence

and measures that support our assumptions, and project how they might change over three seven-year periods ending in 2040. We call these three periods *initiation*, *proliferation*, and *transformation*. Together with the measures, we highlight current and expected activity in the marketplace that illustrates how change might unfold.

Measuring progress toward future of health

DATA-SHARING: MANY CONSUMERS ARE WILLING TO SHARE THEIR DATA WITH TRUSTED ENTITIES

Initial evidence toward progress

New York–based Northwell Health is working to integrate the health data generated by patients from their devices, wearables, and apps into their electronic medical records. Gathering this rich, and often real-time, data, can allow physicians to tailor experiences to individual patient needs and preferences. To ensure increased patient data-sharing, Northwell is working with them to allay any concerns they may have over privacy,

FIGURE 1

There are six broad assumptions we need to believe to achieve the future of health

DCHS is using this framework to measure progress toward the future of health



Data-sharing

Consumers are **willing to share data**, which is captured and owned by a large number of players in the market. Transparency in data use and collection is standard practice, increasing **consumer trust and willingness to share additional information**. Financial incentives are used to ensure institutions and individuals participate in data-sharing.



Interoperable data

Large aggregated data sets provide a **real-time and holistic view of the consumer** and their environment. These data sets **enable advanced analytics** to generate novel insights in real time. Incoming data from various sources will be standardized, aggregated, stored, and continuously updated.



Access

Traditional barriers to health care access, like geography and lack of resources, are significantly reduced thanks to a **radically transformed health system**. The **cost of wellness and care has plummeted** thanks to interoperable data and data-sharing. More patients have more access so they have the tools to achieve wellness and health.



Empowered consumer

Consumers are driving the pace of change as they are no longer passive participants. **They demand transparency, convenience, and access**. These demands require the market to respond with a fundamentally: patient-centric approach that benefits all consumers, ensuring access across socioeconomic groups.



Behavior change

Diseases of today can often be modified by behavior, but many patients do not feel empowered or do not have the ability to be responsible for their health. The introduction of **AI, VR, AR, remote care, and sensors** that are tailored to consumer interests and health status can empower patients to **take control of their holistic well-being**.



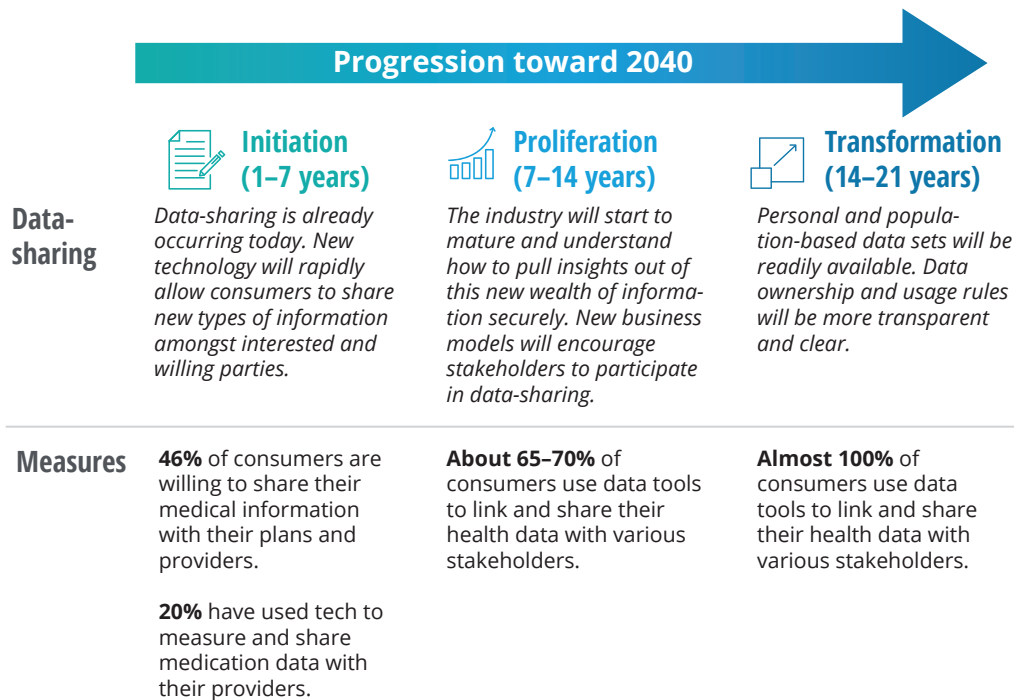
Scientific breakthrough

Scientific breakthroughs, like stem cells, nanobots, biome sensors, and others, will **occur at an exponential pace**, building on the insights derived from **radically interoperable data**, orthogonal players that disrupt the market, transformed clinical trial structure/timing, and increased participation from the crowd.

Source: Deloitte Center for Health Solutions.

FIGURE 2

Data-sharing: Measures toward progress



Note: Measures under proliferation and transformation reflect Deloitte assumptions about the pace of change and are intended as illustrative.

Source: Deloitte Health Care Consumer Survey, 2018.

security, and data ownership. In addition, it is also working with physicians to ensure they do not feel it as disruptive to their workflow and is helpful in keeping patients healthy.¹

Centers for Medicare & Medicaid Services (CMS) rolled out the Blue Button 2.0 service in 2018. It allows 53 million Medicare beneficiaries to access health information collected over the last four years on their mobile phones or other personal devices. The goal of the program is to give patients access to their own data including prescriptions, coverage, and costs, and be able to share this data with health care organizations to support decision-making.²

Apple Inc. recently announced that its Apple Health records feature is open to all US health care organizations with compatible electronic health records (EHRs).³ This will allow over 100 million Apple iPhone® mobile device consumers to link

their data on conditions, medications, claims and utilization, genomics, and wellness from several different sources and share it with their health care providers to understand and improve their well-being.⁴

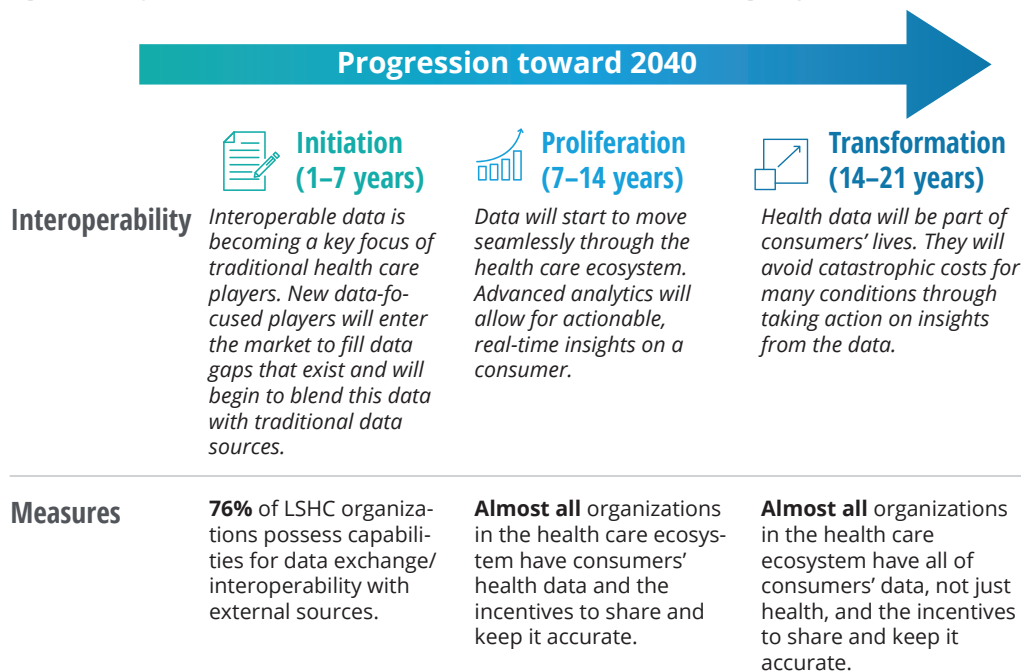
INTEROPERABLE DATA: DATA ARCHITECTURE WILL TRANSFORM RADICALLY, ENABLING DEEP, ACTIONABLE, AND REAL-TIME ANALYSIS

Initial evidence toward progress

Proposed rules from **CMS and the Office of the National Coordinator for Health Information Technology (ONC)**, published in February this year, are likely to drive the US health care system toward greater interoperability. These rules are intended to push the industry to adopt data-sharing standards and prohibit data blocking by providers and payers. They show the

FIGURE 3

Interoperability—Measures and initial evidence toward the progress



Note: Measures under proliferation and transformation reflect Deloitte assumptions about the pace of change and are intended as illustrative.

Source: Deloitte Health Care Interoperability Survey, 2019.

administration's continued commitment to make health care information more accessible, improve the quality and efficiency of health care, and help patients make informed decisions.⁵

Medtronic is working on an interoperable, automated insulin-pump system called "MiniMed." This device will work with an open-source, automated insulin-delivery phone app called "Loop" and any continuous glucose monitoring (CGM) device using Bluetooth. Pulling all three components together (a first) can help patients understand and act upon their glucose levels in real time to avoid high and low blood glucose.⁶

In 2019, **Pfizer** partnered with New Orleans-based **Ochsner Health System** to create an interoperability solution for clinical trials. The organizations will use the fast health interoperability resources (FHIR) standard to quickly transmit data from Ochsner's EHR system into Pfizer's

clinical trial databases. This can help Pfizer recruit for clinical trials, reduce the burden of manual data entry, decrease costs, and accelerate clinical trials, according to the organizations. This is among the first use cases of data interoperability using FHIR for clinical research, according to the organizations' executives.⁷

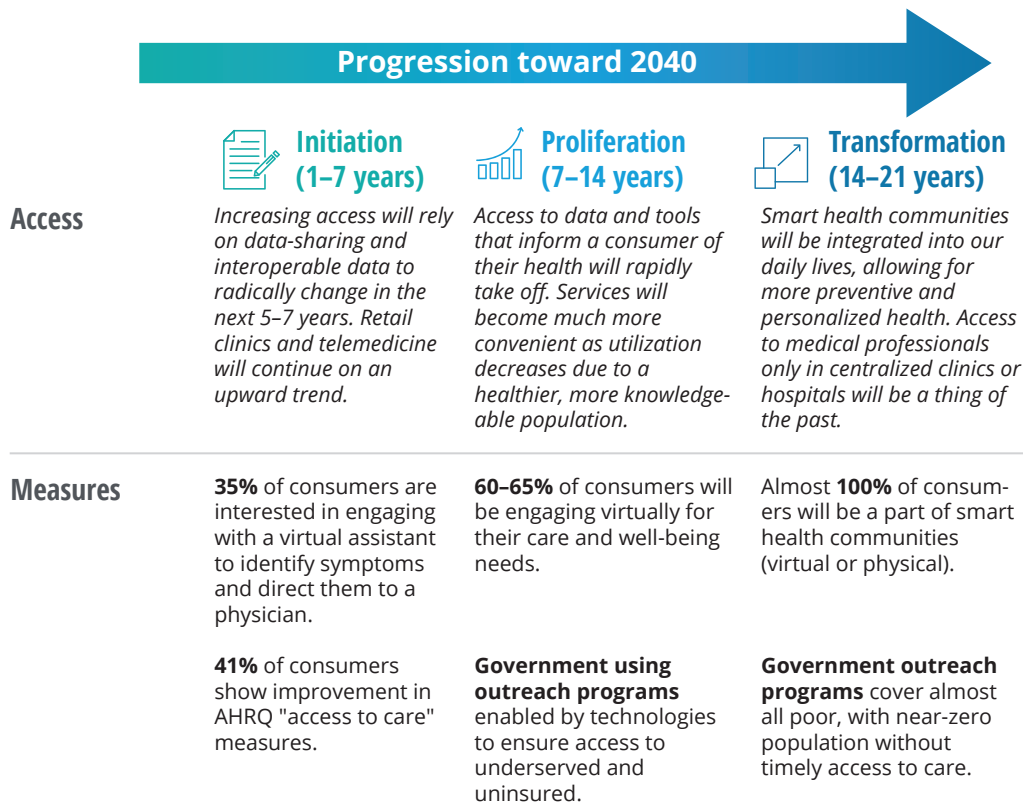
ACCESS: SOCIOECONOMICS WILL NOT DICTATE ACCESS AS HEALTH IMPROVES AND HEALTH CARE BECOMES MORE AFFORDABLE

Initial evidence toward progress

Walmart, the largest employer in the United States, has implemented several health care-focused programs in the last decade to improve the well-being of its associates, especially for those at the lower end of the income spectrum. In the past few years, it has broadened the horizon beyond just

FIGURE 4

Access–Measures and initial evidence toward the progress



Note: Measures under proliferation and transformation reflect Deloitte assumptions about the pace of change and are intended as illustrative.

Sources: Deloitte Health Care Consumer Survey, 2019; AHRQ, *National healthcare quality and disparities report*, 2017.

its associates, to focus on health care access and affordability to millions of its customers and the population in general. Leveraging its extensive network of stores, Walmart has partnered with several health care organizations to open retail clinics, behavioral health centers, diagnostic centers, and more recently a state-of-the-art health center. Through these programs, they aim to address cost, convenience, and access, according to Walmart executives.⁸

Cardiac rehab programs offered by health systems can reduce heart-related readmissions by up to 50 percent. However, only 20 percent of cardiac patients enroll in these programs and just 5 percent complete them due to inconvenience and cost. **Moving Analytics** improves adoption of cardiac rehab programs through its mobile

platform. Services are digital, so patients can be rehabilitated at home. The program’s adoption rate is three times higher than conventional approaches, and it costs a fourth of traditional models.⁹

The **University of Florida Family Data Center** worked with a variety of **government agencies** and community partners to create geospatial “hotspot” density maps. These maps show critical data to understand access to health care such as Medicaid births, low birth weight, domestic violence incidents, child maltreatment reports, and unexcused school absences. The insights gleaned from the density maps resulted in the system building a family resource center in the neighborhood of greatest need, as well as a mobile clinic staffed by clinicians and volunteers.¹⁰

EMPOWERED CONSUMER: CONSUMERS DEMAND CONVENIENCE AND TRANSPARENCY

Initial evidence toward progress

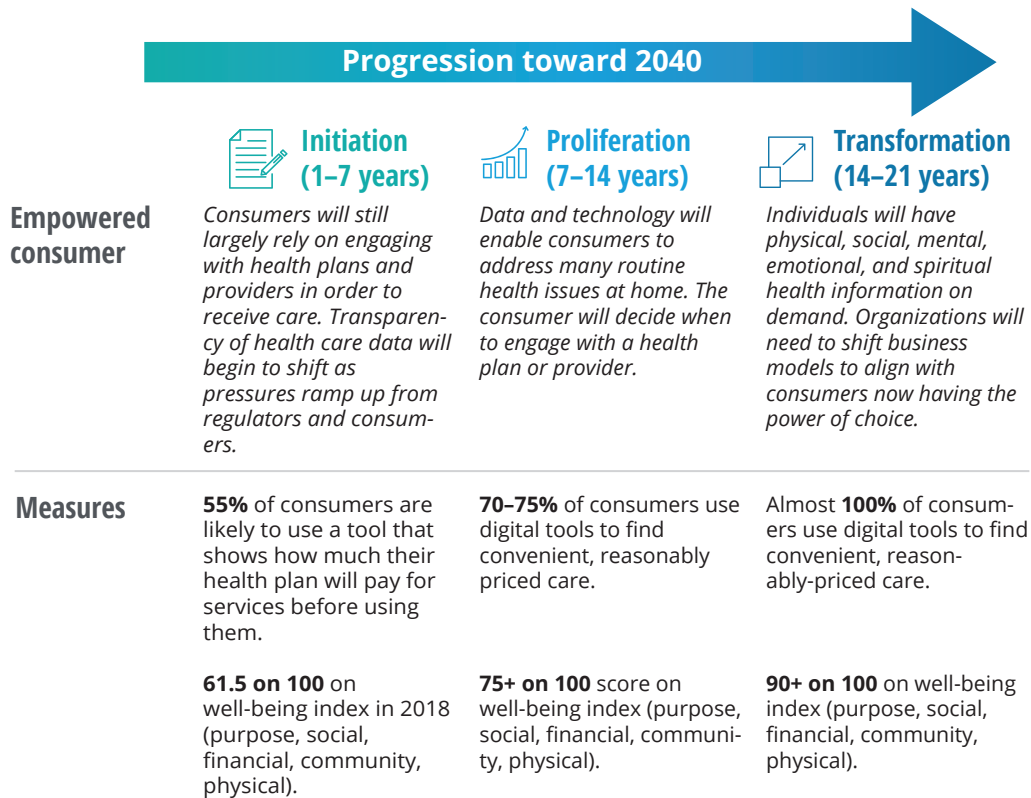
Amino, a digital health company, helps consumers search and make appointments with physicians. Users can filter lists of physicians based on the services they provide, location, and availability. With experiences and an information database of more than 188 million patients, the platform also helps users with whether the physicians accept particular health plans and the approximate costs of a visit based on historical analysis of insurance claims.¹¹

Oscar Health lets customers tailor their coverage based on their individual needs, and provides personalized recommendations, if requested, in jargon-free language. Members can search for anything they want using an AI-powered search bar—from information on cost to conditions to physicians. In addition, Oscar’s digitally enabled concierge and wellness programs—doctor on call, free annual screenings, members-only wellness events, financial incentives to track health activity—are all aimed at keeping members healthy. As a result, 41 percent of Oscar’s members turn to their Web and mobile apps every month.¹²

Iora Health is a digitally enabled primary care and behavioral care provider focusing on the Medicare population. Iora provides all its patients

FIGURE 5

Empowered consumer—Measures and initial evidence toward the progress



Note: Measures under proliferation and transformation reflect Deloitte assumptions about the pace of change and are intended as illustrative.

Sources: Deloitte Health Care Consumer Survey, 2019; Gallup-Sharecare US well-being index, 2018.

a care coordination team, including a health coach. Patients, especially those with chronic conditions, feel at ease to have frequent ongoing conversations virtually with their health coaches. A majority of these conversations are enabled by their digital platform, with all patient data in a single place. Iora has more than doubled its customers in the past three years, and has helped achieve a 40 percent decrease in hospitalizations and a 20 percent reduction in emergency room visits.¹³

BEHAVIOR CHANGE: CONSUMERS USE DIGITAL TOOLS TO SUPPORT BETTER HEALTH AND ACCESS

Initial evidence toward progress

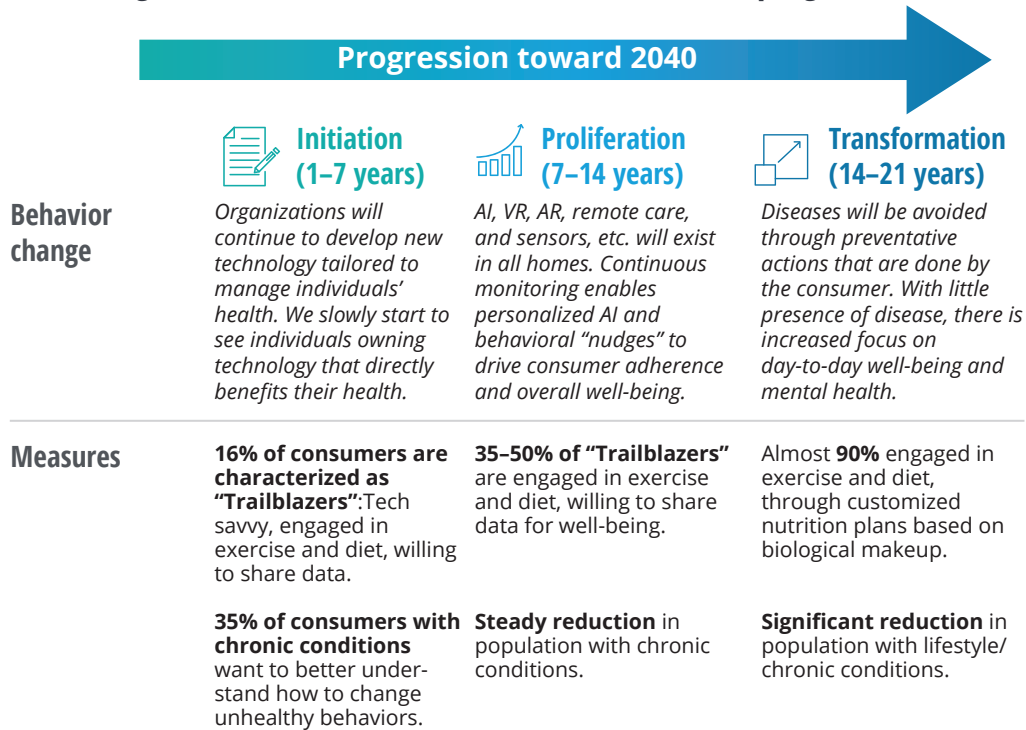
About 600 Deloitte employees (from 40 states) recently participated in a 36-week randomized clinical trial, **STEP UP**, to determine if a wearable

activity-tracker—combined with gamification—can increase physical activity among overweight and obese adults. The STEP UP study was led by the Perelman School of Medicine at the University of Pennsylvania. Participants were divided into a control group and a set of three intervention groups. For the intervention groups, several incentives were at play, including collaboration (motivating each other), competition (rankings), and support (family nudges). Results show that participants in the intervention groups had higher activity levels than the control group. The findings demonstrate—scientifically—that engagement programs, if designed correctly, can move people toward healthy behaviors.¹⁴

Mango Health is a patient-adherence platform that uses gamification and rewards to improve drug adherence, especially among those under chronic care. Users earn points for taking

FIGURE 6

Behavior change—Measures and initial evidence toward the progress



Note: Measures under proliferation and transformation reflect Deloitte assumptions about the pace of change and are intended as illustrative.

Sources: Deloitte Health Care Consumer Survey, 2019; West Corporation, Chronic disease management survey, 2017.

medication on time and improving adherence, which can be redeemed against coupons and gift cards. Gamification has helped—a one-year clinical study showed strong adherence by participants using Mango Health, with a 20 percent increase in on-time prescription refills by members most at risk.¹⁵

Livongo is a digital health company that uses smart, connected devices and personalized digital guidance for people with chronic conditions such as diabetes and hypertension to modify their behavior in managing their conditions. For instance, patients use a blood glucose meter to check their blood glucose levels. Based on the results, they receive “health nudges” in the form of personalized feedback or lifestyle change recommendations. This has helped Livongo members with diabetes with HbA1c levels above 7.5, on average, to get them under 7 by the second year.¹⁶

SCIENTIFIC BREAKTHROUGH: BREAKTHROUGHS WILL HAPPEN AT AN EXPONENTIAL PACE

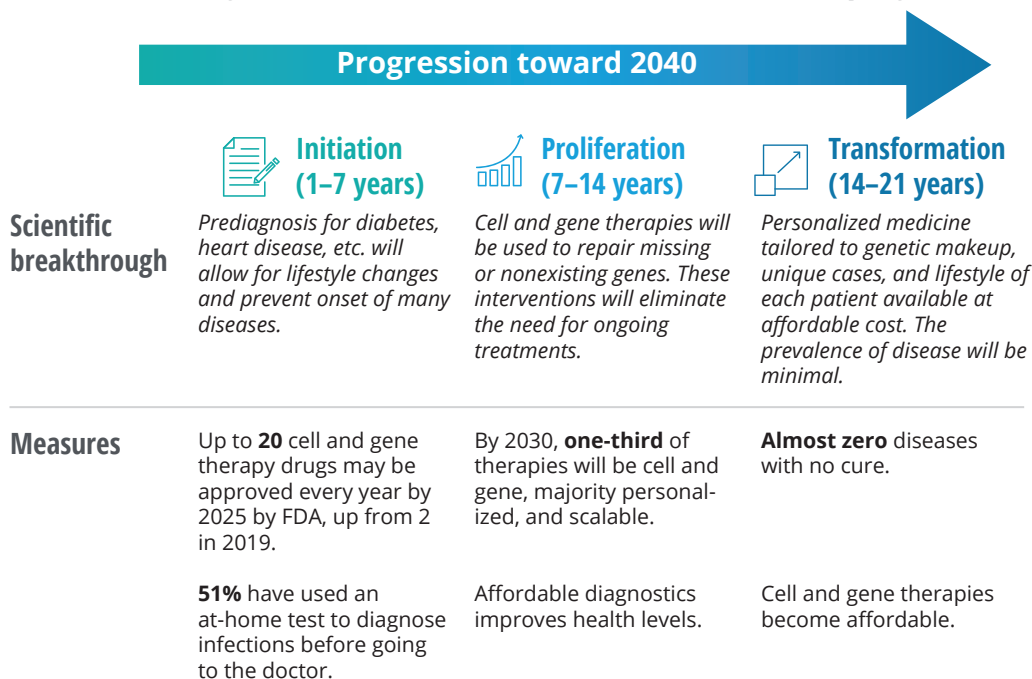
Initial evidence toward progress

Exscientia automates drug discovery and design, surpassing conventional approaches to drug discovery. It helps pharma companies reduce time and money to turn a concept into a clinical drug candidate, using an AI algorithm-driven design-build-test model for drug discovery. Exscientia currently has collaborations with seven pharma companies including Roche and Sanofi, with more than US\$1 billion in potential milestone payments and royalties.¹⁷

Allogene Therapeutics is a biotechnology company focused on the breakthrough chimeric antigen receptor (CAR-T) therapy to treat cancer by

FIGURE 7

Scientific breakthrough—Measures and initial evidence toward the progress



Note: Measures under proliferation and transformation periods are aspirational, and are likely indicators of progress toward the Future of Health.

Sources: Deloitte Health Care Consumer Survey, 2019; FDA, Statement on new policies to advance development of safe and effective cell and gene therapies, 2019.

tweaking cancer patients' immune cells to make them better cancer fighters. However, CAR-T therapy can be highly expensive and out of reach for several patients. Allogene is trying to overcome the limitations of traditional CAR-T therapy by using "allogeneic" T-cells from healthy donors instead of cells from the patients. This makes the therapy cheaper, off-the-shelf, and easy to administer to patients.¹⁸

Immortagen is a cancer diagnostics company that combines proprietary tumor-processing with AI to identify true driver mutations in each patient's tumor. Immortagen is developing bioinformatics analysis software programs that use AI to rank mutations by their order of influence on the disease. This ranking can inform oncologists and pharmaceutical companies in treating patients and developing drugs that are truly personalized and targeted.¹⁹

Preparing for the future of health

The year 2040 may seem far in the future, but initial evidence demonstrates how some organizations have already taken a lead, and how these measures are likely waypoints toward the future. However, several health care incumbents are still running their business as usual or are slowly following the lead taken by disrupters. These organizations may be challenged to survive and may have little choice but to transform their business models to converge

on the waypoints for each period we discussed. Organizations seeking to transform should consider:

- **Building new businesses.** The incidence and prevalence of major chronic diseases (for example, Type 2 diabetes, hypertension, chronic obstructive pulmonary disease [COPD]) will likely decline dramatically. In response, health organizations should adjust their business models to stay competitive.
- **Forging partnerships.** Technology giants, start-ups, and other disrupters are new to the health care landscape but are incentivized to drive change. What they lack is health care and regulatory expertise, a targeted consumer base, and partnerships with other incumbents. As such, they will likely be willing to partner with incumbents that are seen as driving innovation.
- **Appealing to the newly empowered health consumer.** Stakeholders should develop tactics to engage effectively with consumers. They should also work to earn their trust and demonstrate value. Consumer attitudes and behaviors are malleable in the future of health. Interoperable data, machine and deep learning capabilities, always-on biosensors, and behavioral research can enable personalized and real-time AI-driven behavioral interventions that shape consumer beliefs and actions.

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The health industry is on the cusp of a major transformation that will affect all stakeholders. Incumbent players can either lead this transformation as innovative and well-connected market leaders, or they can try to resist this inevitable change. A wide range of companies—from inside and outside of the health care sector—are already making strategic investments that could form the foundation for a future of health that is defined by radically interoperable data, open and secure platforms, and consumer-driven care. For more on Deloitte's perspective on the future of health, visit Deloitte.com.

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