



## Patient centricity

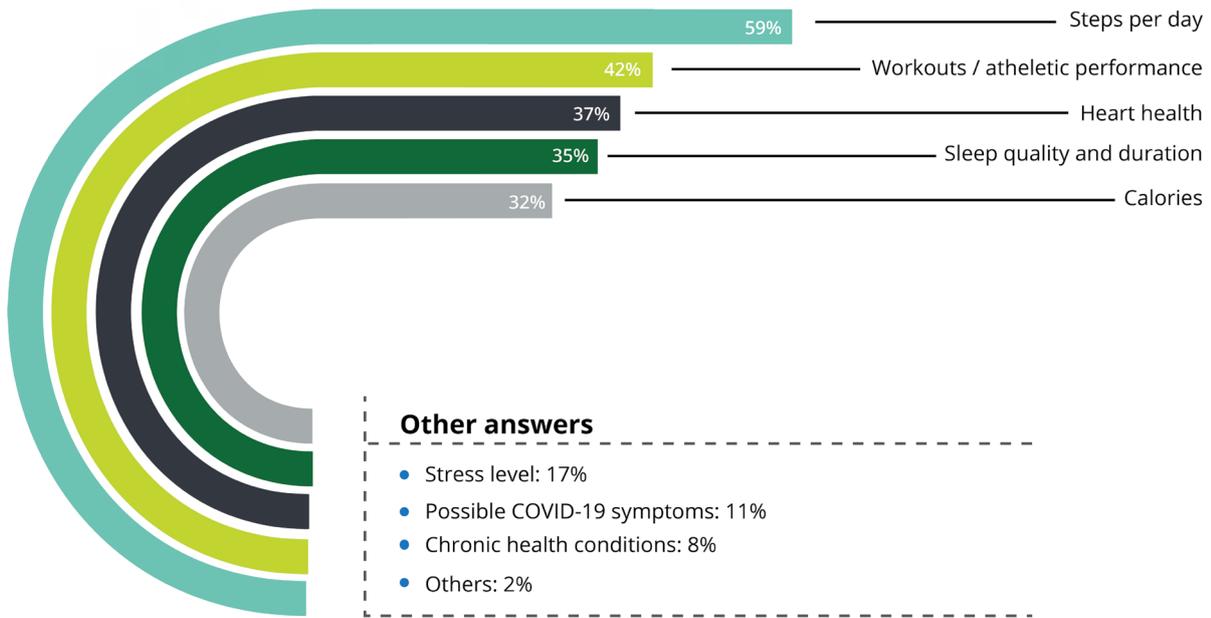
Habits, capabilities, and data have all changed significantly in the last year. Three-fourths of people around the world now have experience with at-home tests for a global virus, and companies are increasingly able to access, interpret, and act on the billions of patient data points. And patient expectations and their ability to voice them have risen. The conditions for true(r) patient centricity are here.

On a given day, people actively participate in their own medical plans, treatment, and disease research across millions of touchpoints in the patient journey. There are more than 435,000 active clinical trials underway across the globe, and more than two million different types of devices spanning more than 7,000 groups of instruments, machines, and software used for medical purposes.<sup>1,2</sup> To help capture the increasing amount of data from these inputs, devices such as fitness trackers provide around-the-clock monitoring (Figure 1). Together, these insights are propelling life sciences enterprises toward the next frontier of patient-centricity: the deployment of decentralized diagnostics and direct-to-consumer channels and solutions, the gathering of real-world information from wearables and sensors, and the creation of new digital alliances to achieve optimal patient outcomes.

**Figure 1. Using health and fitness trackers to count steps, calories and more**

Which of the following do you use your smartwatch/health and fitness tracker to measure?

Respondents selected all that applied.

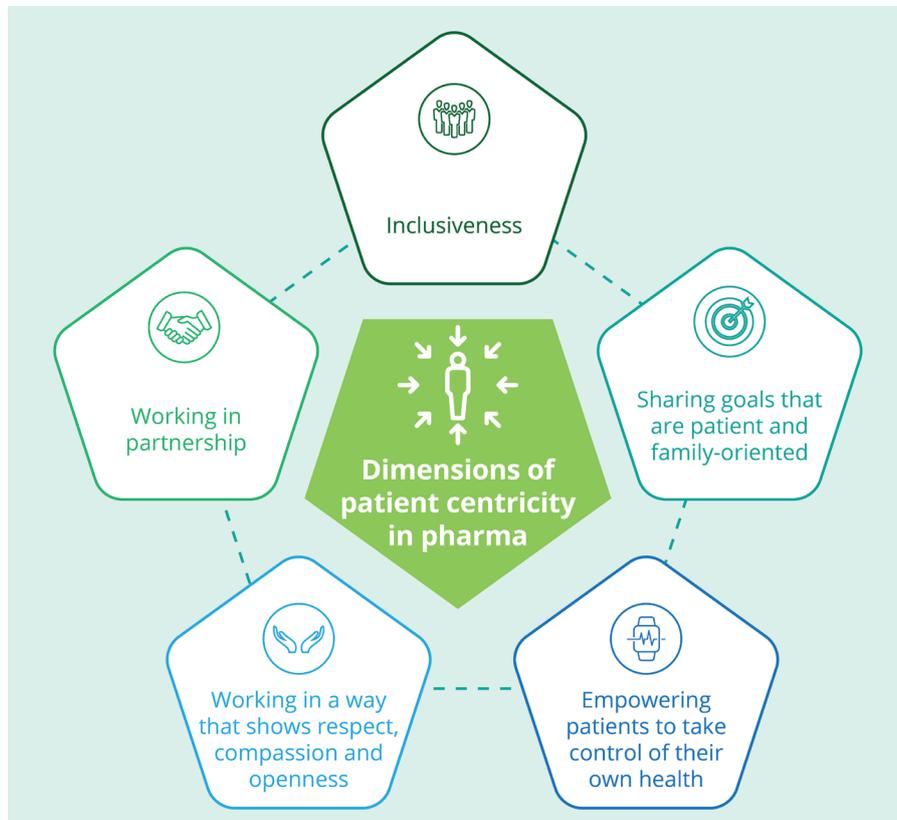


Source: Deloitte's Biopharma Digital Innovation Survey 2021

With the connected health care ecosystem, life sciences companies can expand their patient-centric ambitions beyond drug and medical device manufacturing. Increasingly, pharmaceutical companies and medical technology developers are collaborating with third parties to create more digitally interoperable systems and thus getting closer to 360° of patient understanding and experience. This focus on improving the patient experience also can help identify patient populations that might be undiagnosed or misdiagnosed, empowering people to have better conversations with doctors about treatments.

In building a strategy to enhance their understanding of patients, companies are making targeted investments in technology that can tailor product offerings and navigate complex rules as they learn what patients are experiencing – and what they'll need in the future (Figure 2).

**Figure 2: Pharma companies are now facing up to the need to frame their patient-centric strategies for operating in a new customer-centered, digital ecosystem.**



Source: Deloitte analysis

## Decentralized diagnostics

Thanks to virtual checkups and smartphone-enabled diagnostic tools — and with COVID pandemic habits now increasingly entrenched — fewer patients are visiting centralized care sites. Instead, life sciences companies can collect data through personal devices from the comfort of a patient’s home. In China, where 95% of the population is covered by social health insurance, the private supplementary insurance that was introduced in 2015 is emerging and helping reduce the financial burden of severe diseases such as cancer.<sup>3</sup> By 2019, nearly all 31 provinces and municipalities in mainland China had established regional telemedicine centers, as the country aims to resolve the unequal allocation of health care resources.<sup>4</sup>

As “hospitals without walls” become more prevalent in health care, life sciences companies can use the innovations to collect real-time diagnostic information. The US-based medical equipment company ResMed has an outcome-based reimbursement strategy for its digitally connected sleep apnea machine. The strategy aims to increase adherence and improve patient outcomes; patients who are both remotely and self-monitored using cloud-connected devices are 87% compliant, compared with 50% to 60% on non-connected devices.<sup>5</sup>

As life sciences companies advance patient-centricity, many are exploring “real” direct-to-consumer (DTC) channels. DTC enables direct patient engagement when and where they seek it. The US-based medical technology company Becton, Dickinson and Company, also known as BD, acquired privately held Scanwell Health Inc., which makes smartphone-enabled at-home medical tests, and wants to expand the availability of diagnostic tests for an array of infectious diseases.

“*The COVID-19 pandemic has accelerated the shift to new care settings, and BD is ready to deliver a smart, connected at-home diagnostic ecosystem to support traditional and telehealth providers and consumers,” Dave Hickey, president of Life Sciences for BD, said when the transaction was announced.*”<sup>6</sup>

## Drug discovery and development

Wearable devices comprise another realm of active exploration and investment for life sciences companies as they seek to broaden access to clinical trials and gain more real-time data in a more patient friendly way. Companies can collect data by using biosensors and wearables to generate and track digital biomarkers.



*“The digitization and visualization of individual lifestyle data will dramatically accelerate patient-centered drug research and development,” Ceri Davies, Head of Neuroscience Drug Discovery Unit at Takeda, said in a statement about the expected outcomes of the research. “Combined with this, we hope to develop new methods of utilizing big data, which will not only lead to the creation of high-precision pharmaceuticals, but also contribute to medical care tailored to the characteristics of patients.”<sup>7</sup>*



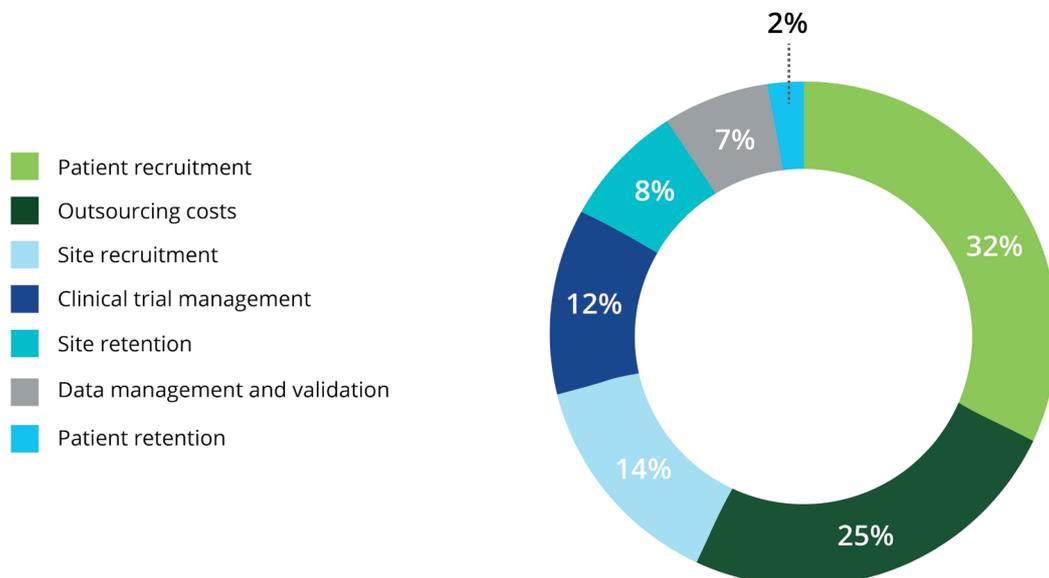
In a multi-year arrangement, Johnson & Johnson’s Janssen pharmaceuticals division is licensing physIQ’s accelerateIQ™ platform to collect data across clinical studies using wearable biosensors. The collaboration allows the companies to perform continuous biosensor data collection, processing, and analysis while across discrete sensors, data types, and algorithms – enhancing the opportunity to create real-world insights for patients.<sup>8</sup>

At Tohoku University’s Tohoku Medical Megabank Organization in Japan, the pharmaceutical firms Daiichi Sankyo and Takeda, and the medical IT company MICIN, are using a wearable device to track long-term lifestyle habits of 2,000 subjects through 2025, to create new drugs. The device captures sleep status, heart rate, and other activity levels that can be tough to pinpoint through self-reporting.<sup>9</sup>

In 2022, AstraZeneca tracked fluid volume in clinical trials for patients with chronic kidney disease using the medical software from Impedimed’s SOZO system. The platform is designed around patient-centricity, measuring fluid status in less than 30 seconds. The platform helps provide early detection of secondary lymphedema, indicates fluid status for patients living with heart failure, and processes results immediately for online access and sharing across the entire health care system.<sup>10</sup>

The number of clinical trials has grown by more than 400% since 2010.<sup>11</sup> Recruitment, however, remains a challenge for discovery research (Figure 3). A study on the benefits of virtual randomized clinical trials shows that more than 80% of in-person studies are delayed because of insufficient patient recruitment, while 80% of research sites fail to meet enrollment goals. The study found that accessibility is a key barrier to participation, as 70% of the patients live more than two hours from a research institution, and 30% of participants drop out before the conclusion of clinical trials.<sup>12</sup>

**Figure 3. Cost drivers in clinical trials**



Source: Deloitte Analysis

The emergence of remote and virtual-participation trials is one method pharmaceutical companies are using to be more cost-efficient and to address patient barriers to traditional trial designs.

In 2021, the Swiss multinational health care company Roche developed the first virtual rare-disease clinical trial. The company wanted to test a new molecule for cancers with a specific genomic alteration in a range of tumor types, but only found in about 0.2% of all cancers. Capturing a statistically significant sample would mean screening 25,000 patients to enroll 50 patients for an in-person trial over a decade. Instead, the company used a virtual approach to remove geographical barriers – relying on virtual collaboration between the lead researcher and local medical teams and monitored through home visits.<sup>13</sup>

In an attempt to ease some of these barriers, this year the French multinational pharmaceutical and health care company Sanofi announced a partnership with the US consulting and technology provider THREAD, which will serve as the sole provider of unified decentralized clinical trials. The objective is improving access to customized clinical trials by providing a uniform experience for patients, investigators and sites where trials occur.<sup>14</sup>

In countries or regions where privacy laws and social norms render some of these approaches unfeasible, life sciences companies may need to adjust their approach. For instance, in 2021, a new EU regulation expanding the definition of “medical device” took effect, with a requirement that the product or service be certified by the appropriate regulatory authority. A subsequent EU regulation in 2022 introduced stricter controls before devices could be taken to market, highlighting the steps life sciences companies should consider when designing patient-centric products and services.<sup>15</sup> Also in 2022, the US Food and Drug Administration issued new guidance on medical device data systems, signaling intensifying scrutiny of software, security, and device effectiveness.<sup>16</sup>

## Patient-centric partnerships for better diagnostics, experiences, and outcomes

The diagnostic data collected by life sciences companies emanates from across a spectrum of locations, and many medical device companies need functional expertise or even third-party expertise to help organize the findings and share them with clinical professionals. Digital partnerships comprise another approach that life sciences companies are embracing to enhance their patient-centric offerings.

For instance, a major collaboration among the pharmaceutical companies AbbVie, Janssen, Novartis, Pfizer, and UCB is providing a “digital” endpoint for atopic dermatitis, which causes nighttime scratching and can affect sleep quality. The collaboration is developing an alternative for capturing patient-reported outcomes, which currently are gathered through passive, unsupervised monitoring. By developing a “digital” endpoint, the team hopes to gain a more precise understanding of the condition and reduce the time and cost to commercialize new therapies.<sup>17</sup>

In another collaboration, Biogen Inc., and MedRhythms are developing and commercializing an investigational, prescription digital therapeutic aimed at improving gait deficits in patients with multiple sclerosis (MS).<sup>18</sup> A significant share of MS patients have a walking impairment. The MedRhythms technology includes sensors on shoes to detect walking gait, relaying the information to a smartphone app that can adapt the music to match rhythm in real-time.<sup>19</sup>

Other companies want to improve patient health by predicting the likelihood of future health implications. The US-based data platform DNAnexus, a cloud-based genomic and biomedical data access and analysis software, allows scientists to analyze large data sets. Another US-based health intelligence company, Human Longevity, has used the DNAnexus platform to collect and analyze data from whole-genome sequencing, imaging, and different biomarkers to create data-driven personalized health platforms.<sup>20</sup>

Meanwhile, MolecularYou, a Canadian biotechnology research company, has created a health assessment blood test kit and associated app that can produce a unique health report with more than 200 biomarkers, offering insight into current and future health risks. Molecular You can identify early biomarkers outside of normal ranges and provide interventions to help normalize them before chronic symptoms and disease occur.<sup>21</sup> The technology uses nutrition and exercise modification research to develop action plans to normalize biomarkers detected outside of normal ranges – information that provides users more comprehensive analyses of their health before as they age.<sup>22</sup>

Prescription-based digital therapeutics are also contributing to patient-centricity by improving safety signaling and medication adherence – all through connected devices. Akili, the US-based prescription digital medicine company, has developed an

ADHD treatment for children ages 8 to 12. The treatment uses video games on mobile devices, targeting areas of the brain that help regulate attention function. As an FDA-authorized medical device, the EndeavorRx digital therapeutic has helped 68% of patients improve in ADHD-related impairments after two months of treatment. Meanwhile, 73% of children using the tool reported improvements in their attention.<sup>23</sup>

The technologies are also being used to help patients quit smoking. Click Therapeutics' Clickotine is a digital therapeutic that uses a mobile app integrated with nicotine replacement therapy. Thirty percent of study participants achieved 30-day sustained abstinence from smoking.<sup>24</sup>

An analysis of the only FDA-authorized prescription digital therapeutics for chronic insomnia, showed both real-world health care resource use reductions as well as cost savings compared with sleep medicines alone. Patients using the therapeutic could save more than \$8,200 over 24 months, compared with insomnia medications alone.<sup>25</sup>

This type of real-world data curation enables life sciences companies to more precisely target patient cohorts that would benefit from their therapeutics. Optum, the US pharmacy benefit manager, offers access to real-world data for use by various life sciences teams, including epidemiology and commercial, health economics, and outcomes research. The company's electronic health record data comprises more information from more than 100 million unique lives, allowing researchers to examine treatment patterns and outcomes for specific populations.<sup>26</sup>

By focusing on technologies that enhance the interoperability among distinct entities, life sciences companies can create a digitally interoperable ecosystem, improving patient care. To be clear, patients themselves who play an outsized role in their care – interacting with health care providers on a limited basis while they manage medications and cope with the stress of an illness – giving life sciences companies additional incentive to understand the drivers of patient behavior.<sup>27</sup>

What's more, full digitization may only be worthwhile if patients are receptive to sharing sensitive personal information. A Deloitte survey in Switzerland revealed a trust crisis among health entities, with 62% of respondents saying they didn't want their health data shared with private companies under any circumstances.<sup>28</sup>



***“When we think about all these things in med tech whether they’re wearables, whether they’re devices, whatever they are, they seamlessly need to fit into a patient’s life, and then they seamlessly need to fit into the clinicians or the hospitals,” says Keith Boettiger, President, Abbott Heart Failure. “A lot of what you see in med tech today is somebody using engineering to solve the problem. But it’s not ideal for the patients, not ideal for the physicians or ideal for the hospital. We need to develop devices and workflows that make the data easy to see and put it in the hands of patients so they can take action and manage their own care.”***



## Patient-centric considerations for life sciences organizations

1. Where are the opportunities to broaden existing alliances to help patients navigate the health care ecosystem more easily?
2. How can we deliver more personalized content?
3. How can we identify at-risk reaching patients and ensure they get access to our services and products?
4. How can we adopt a direct-to-consumer approach?

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