Future of care

Predictive. Preventive. Personalized

Contents

Introduction

Imagine being treated for an illness without seeing your doctor in person. You are diagnosed at a distance, using data collected by your personal devices. Medication is delivered to your door and your condition is constantly monitored remotely. You never set foot in a hospital, and you return to full health in the comfort of your home, surrounded by those you love.

This kind of treatment – and its associated benefits for patients, payers, healthcare providers, and other stakeholders – is just one example of the possibilities that connected care offers. The disjointed, episodic, and inconvenient care we so often experience today is on the cusp of disruption, rewired by the secure flow of data between partners in the healthcare ecosystem.

The opportunities offered by this reinvention are vast, from digital therapeutics and AI-assisted diagnostics to robotic surgery and treatments tailored to each individual. On its own, the global 'hospital-at-home' market will exceed $500bn by 2031, according to one estimate[1].

Equally vast is its likely impact on the structure of the healthcare sector: new partnerships will be forged, and new players created, as the power dynamics of the industry evolve. This is already under way.
US pharmacy chain Walgreens acquired Summit Health, which operates medical practice for a record $9bn[2], just months after another drugstore chain – CVS – outbid tech giant Amazon to acquire in-home MedTech provider Signify Health, for a reported $8bn[3].

1   'Hospital-At-Home Market Worth USD 514.08 Billion to 2031 with CAGR of 8.62%', InsightAce Analytic Pvt Ltd., 4 May 2023
2   'Walgreens' VillageMD inks $9B deal to buy Summit Health, marking largest physician deal of the year', Fierce Healthcare, 7 November 2022
3   'CVS Beats Amazon And Rivals For Signify Health With Winning $8 Billion Bid', Forbes, 5 September 2022

Meanwhile, healthcare innovation is expanding. In the first half of 2023, the US Center for Devices and Radiological Health approved 45 new MedTech devices – almost as many as in the whole of 2022.

The healthcare industry stands on the cusp of a new frontier in connected care. Generative AI-based LLMs and the orchestration of care through FHIR resources can significantly transform connected care. But while the technological building blocks to create a connected care ecosystem may exist, a blueprint for putting them together to actually create new possibilities in health and wellness does not. Who's going to be the architect?

The answer has to be: everyone. We all have a role to play in rebuilding healthcare systems created for an analogue age, as every component of the value chain – from administration to delivery – needs to be completely reimagined.

To act effectively together, we need to know where we are and how we should proceed. This is what inspired us to investigate the connected care ecosystem.

To understand its dynamics, we surveyed 375 stakeholders from across the value chain: healthcare professionals (HCPs), payers, pharmaceutical and MedTech manufacturers, and pharmacy groups. We asked them about the opportunities they see in connected care, what is helping them to move forward, and what is holding progress back.

What we found was widespread belief in the potential for connected care to enable a new patient-centric, value-based paradigm of healthcare provision. But it also revealed a complex mesh of objectives, concerns, and barriers that require stakeholders to co-ordinate and collaborate to make connected care a reality.

We hope this research goes some way in helping them understand how.

01

HCPs' working practices are in urgent need of **reinvention**

The whole ecosystem — including HCPs themselves — believes the way they work needs to change for connected care to work. And the whole ecosystem has a role in making it happen.

The consensus in the ecosystem is clear: HCPs are the pivotal group when it comes to making connected care work in practice.

Six out of ten survey respondents identify new working practices that allow HCPs to work with increased efficiency and higher capacity as the factor requiring the greatest reimagining if connected care is to become reality, far more than any other option.

Even healthcare providers themselves know this to be true, with 61% identifying their own working practices as having the greatest need for reimagination. But HCPs appear to be uncertain about some important aspects of connected care, such as AI's potential to transform their working practices (see page 28). Now with the advent of generative AI, this belief might change as provider workflows can be streamlined by automating administrative tasks like clinical notes drafting and other documentation, real-time scheduling, data analysis, etc,. This would free up their time to focus more on patient care.

In addition, more than half of respondents (51%) cite HCPs' lack of confidence in the quality of the data that is shared with them as a leading data-related barrier to value-based connected care. This proportion rises to 57% among HCPs themselves (see figure 7).

In a connected care ecosystem, LLM-based virtual assistants from different players (providers' patient communication assistant, pharmacies' medication management and payers' claim, coverage and benefits explanation assistant) can collectively create an intelligent and interconnected healthcare ecosystem, enhancing data sharing.
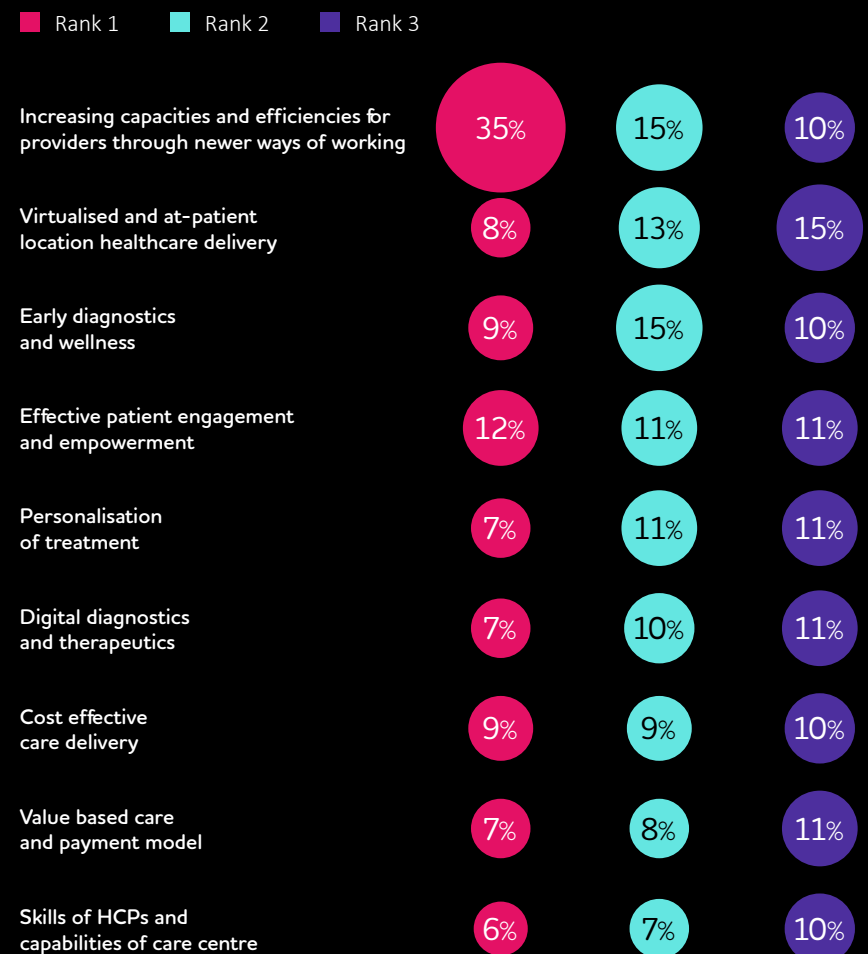
So, what's standing in their way? For HCPs, one of the greatest barriers to implementing connected care is 'funding models that do not incentivize investment', our survey shows, with 44% ranking it in their top three. This underscores the role of payers in catalyzing progress. This coupled with regulatory requirements and non-acceptance of certain patient data sharing practices is surely an impediment for the wholehearted adoption.

A 'lack of robustness of discovery and trial process' is an equally widespread barrier, while 'infrastructure limitations' and 'reluctance to adopt new technologies and change' were each selected by 37% of HCPs.

FIGURE 01

Connected care calls for HCPs' working practices to be reimagined

Which of the following changes will require the greatest reimagination of the healthcare value chain to make connected care a reality? *% of respondents who ranked in top three*

- Rank 1
- Rank 2
- Rank 3

	Rank 1	Rank 2	Rank 3
Increasing capacities and efficiencies for providers through newer ways of working	35%	15%	10%
Virtualised and at-patient location healthcare delivery	8%	13%	15%
Early diagnostics and wellness	9%	15%	10%
Effective patient engagement and empowerment	12%	11%	11%
Personalisation of treatment	7%	11%	11%
Digital diagnostics and therapeutics	7%	10%	11%
Cost effective care delivery	9%	9%	10%
Value based care and payment model	7%	8%	11%
Skills of HCPs and capabilities of care centre	6%	7%	10%

44% of HCP respondents say 'funding models that do not incentivize investment' prevent them from implementing connected care.

If time-pressed HCPs (among others) lack the incentives to engage, and they are uncertain of the data underpinning connected care solutions, this is likely to significantly slow progress in the adoption of connected care. What can be done?

HCPs themselves identify training and support on using connected care devices – both for them and their patients – as a crucial enabler of value-based connected care, as well as remote monitoring with AI-powered alerts and analytics.

But their lack of trust in data shared shows that the whole ecosystem has a role in helping HCPs to implement connected care. And making technology easy to adopt and integrate into their existing process will also facilitate implementation: 73% of MedTech providers identify this as one of the most helpful ways to accelerate adoption.

Precisely what will help HCPs unlock process transformation will depend on the health system in which they operate and the incentives it offers. But while it may be the HCPs whose

practices need to change most to enable connected care, the whole ecosystem has a role in making it possible.

The intricacies and complexities involved in healthcare mean that unless the value chain evolves as one, patient outcomes could be adversely impacted.

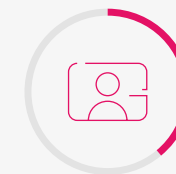**HCPs' top three enablers of value-based connected care:**

Training for HCPs and patients on connected care devices

64%

Remote monitoring with AI-based alerts

51%

Remote consultation, e.g. via telehealth platforms

39%

02

Pharmacies:
Our new healthcare convenience stores

Pharmacies have untapped potential to reinvent the economics of connected healthcare provision.

Pharmacies can fill in the missing piece in the connected care jigsaw, our survey suggests, ready to facilitate new and better ways of delivering care. As such, they stand to be one of the main beneficiaries of connected care, as they add new value by working with patients to adopt and manage new digital care paradigms.

Pharmacies will be able to assist with the handoff between HCPs and patients, and facilitate ongoing care, helping cut down on the inconvenience of primary care and outpatient visits.

In essence, they have the potential to become versatile, multi-purpose healthcare and wellness one-stop shops, transforming the patient experience.

Less travel, fewer physical appointments with far-flung care centers and less disruption to patients' daily lives amount to powerful incentives for patients to engage closely with a trusted pharmacy partner and the US market is beginning to evolve in this direction already[5].

There is widespread belief in this proposition. More than two thirds of survey respondents (67%) agree that pharmacies will play a much broader role in a connected care future, acting more like primary care providers. This includes 71% of respondents from pharmacy groups.

The chief roles that pharmacies expect to play in future, thanks to connected care, will be as the primary point of contact for the patient in both primary and urgent care – 88% expect either an extensive or moderate role in this (see figure 2) – and dispensing precision medicine (also 88%). This is followed by ongoing health monitoring (84%).

67%

of respondents agree that pharmacies will play a much broader role in a connected care future.

These expanded roles in the connected care ecosystem are justified by pharmacies' lower operating costs, 51% of those surveyed believe, and their relationships with pharmaceutical providers (48%).

So, what will it take to enable pharmacies to evolve into this key new role? The answer is data, the survey shows: Pharmacy group cites the ability to monitor patient data from connected devices as the most important pre-requisite, followed by access to patient healthcare records. They also acknowledge the need to further develop their own technological capabilities.

Another piece of the puzzle for pharmacies is the need for revised funding models that support pharmacy-delivered services.

Pharmacy leaders are also clear that logistical and regulatory barriers first need to be overcome if, as hoped, they are to become precision medicine dispensaries.

> **Delivering precision medicine at scale requires personalized medicines to be moved at speed through specialized, cold-chain logistics.**
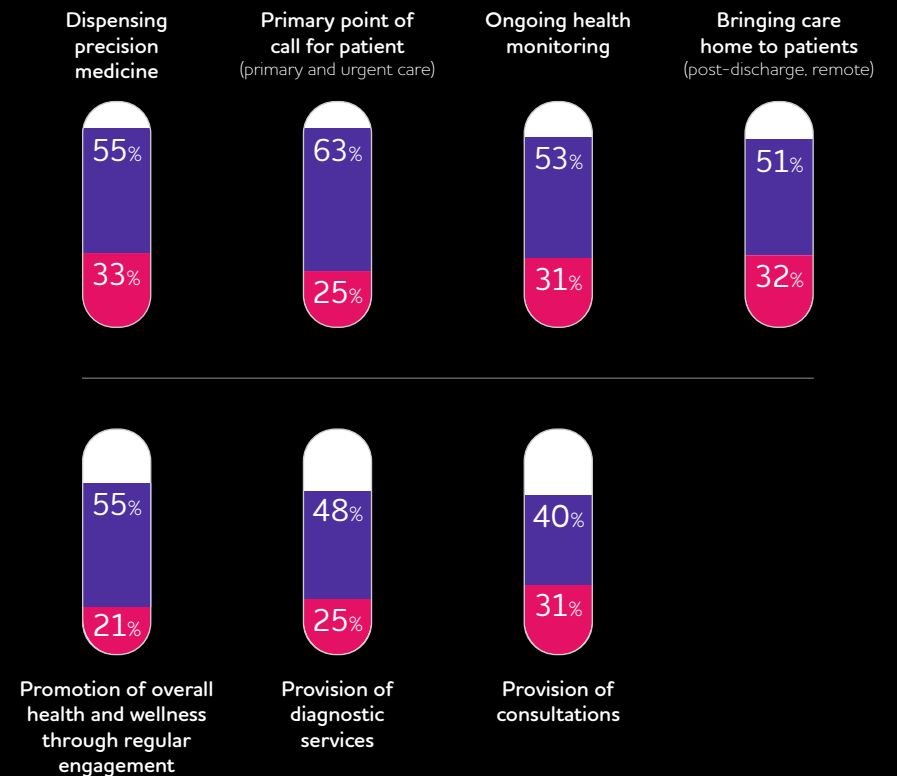
The complexity of these operations will need to be addressed, they say, as well as a lack of confidence and acceptance among customers.

FIGURE 02

Pharmacies expect to join the front line of healthcare provision

What role do you believe pharmacies could play in future thanks to connected care?
% of pharmacy/drugstore groups

■ Moderate role   ■ Extensive role

Dispensing precision medicine
55%
33%

Primary point of call for patient (primary and urgent care)
63%
25%

Ongoing health monitoring
53%
31%

Bringing care home to patients (post-discharge, remote)
51%
32%

Promotion of overall health and wellness through regular engagement
55%
21%

Provision of diagnostic services
48%
25%

Provision of consultations
40%
31%

03

Why connected care will pay out
for payers

New models for healthcare delivery and patient engagement will help payers cut costs while improving the member experience, respondents overwhelmingly agree.

Given their influence and reach, payers hold great power to drive the connected care agenda. They can catalyze action by bringing together all other parties in the healthcare ecosystem and encouraging the collaboration needed to overcome the barriers to progress. And they also stand to gain the most.

Three quarters of respondents agree that connected care will enable payers to manage care costs and improve the member experience. And two thirds believe that connected care will enable payers to grow their top and bottom lines, attracting more customers and so enhancing profits.

These financial benefits are clearly big incentives. Besides the financial advantage, improved clinical outcomes will be a primary driver to connected care.

In every instance, the ability to drive the quality of care up – and the costs down – is a powerful motivator for the adoption of digital technologies.

In particular, connected care offers the opportunity for payers to establish value-based care, in which healthcare providers are reimbursed on the basis of the 'value' they deliver, measured in terms of health care outcomes.

How connected care will benefit payers:

Manage care costs and improve member experience

75%

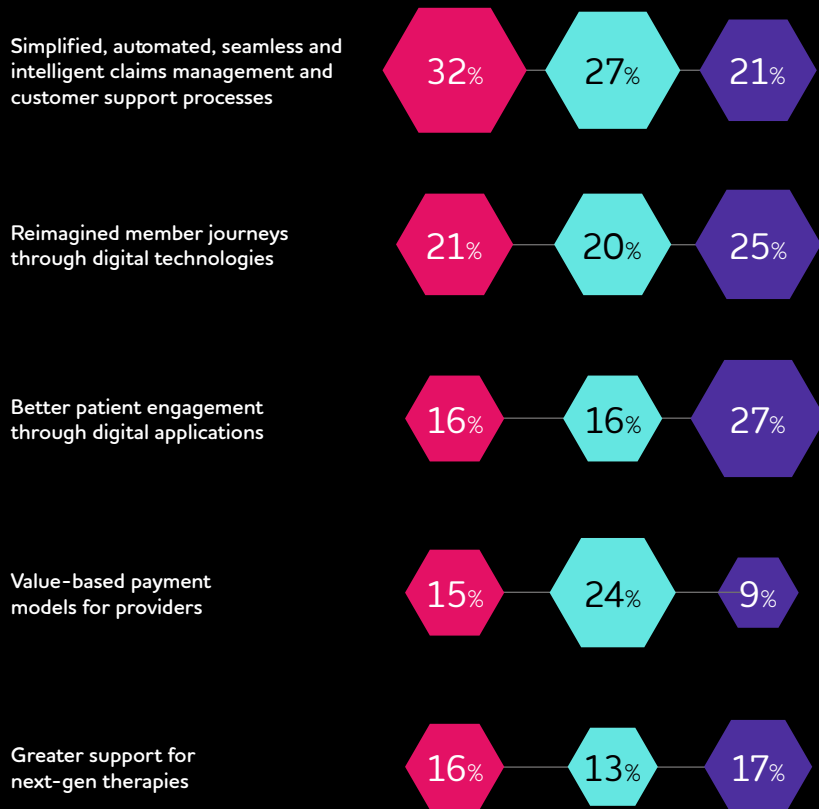Sustain and grow their bottom and top line

66%

FIGURE 03

Process transformation will enable value-based connected care, payers predict

Which transformation levers will have the greatest impact in enabling health plans that deliver value-based connected care? *% of payers*

🟥 Rank 1   🟦 Rank 2   🟪 Rank 3

Lever	Rank 1	Rank 2	Rank 3
Simplified, automated, seamless and intelligent claims management and customer support processes	32%	27%	21%
Reimagined member journeys through digital technologies	21%	20%	25%
Better patient engagement through digital applications	16%	16%	27%
Value-based payment models for providers	15%	24%	9%
Greater support for next-gen therapies	16%	13%	17%

The payers we surveyed believe the most impactful levers in enabling value-based care are internal. These include 'simplified, automated, seamless, and intelligent claims management and customer support processes', which 80% of payers rank in the top three levers (see figure 3), and 'reimagined customer journeys through digital technologies' (66%).

Value-based care will be underpinned by AI, the Internet of Things (IoT) and improved mobile connectivity through 5G/6G, payers predict.

But it's not just existing healthcare financing, administration, and regulatory models that connected care could transform. It also has the potential to reshape the entire healthcare ecosystem, enabling entirely new business and operating models, new partnerships, and new routes to market. Payers will have a leading role in shaping this transformation, by determining which new models and market entrants receive funding.

New healthcare models will only work if the processes that underpin them are legitimized by payers' policies.

From this vantage point, payers see the adoption of hyperscale cloud services as having the greatest potential among the enabling digital technologies of connected care to disrupt today's healthcare value chain, perhaps because it reduces barriers to access cutting-edge technology and so opens the floodgates of disruptive innovation.

Additionally, generative AI-based LLMs will have multiple use cases (including automated coding, summary of regulations, and creating multi-lingual empathetic member messaging for explanation of benefits (EOBs) customized to various reading levels), that align with payers' process transformation priority.

04

Bespoke healthcare will tailor treatment just for you

Precision medicine, enabled by connected care, is already here in the form of companion diagnostics, while tailored therapies at scale are an imminent reality.

As individual patient data, as well as population-level data, becomes easier, cheaper, and faster to access and analyze, the potential to drive ever more tailored therapeutic approaches also rises.

The elements needed to create a future in which 'boutique' medicine happens affordably and at scale are being put in place. These include: access to broader, deeper, and more granular real-world data; insights from genomics and other 'omics'; cheaper, faster compute power; and new AI-driven insights.

The survey reveals a clear sense among pharmaceutical manufacturers of the opportunity for connected care to usher in smarter and safer medicine.

For example, eight in ten pharma leaders see precision medicine as a key means of preventing side effects and adverse reactions, a significant cause of, or contributor to, harm and death.

Pharma respondents also identify significant potential for precision medicine to enable more accurate disease risk prediction (77%), as well as better diagnosis and individual patient management (74%).

As our survey shows, more tailored approaches to treating patients are well under way. Almost half (48%) of pharma respondents report that companion diagnostics are already in use and expect further adoption of precision medicine in the near term.

For precision medicine to be rolled out faster and in more places, reliable access to patient records is vital (it is chosen as a priority by 55% of respondents), as is the availability of AI and advanced computation tools, essential for mining vast troves of genomics data (52%, see figure 4).

80%
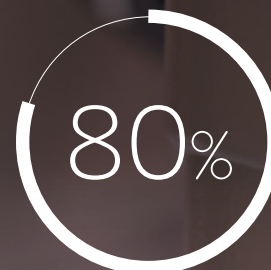
of pharma leaders expect precision medicine to prevent adverse side effects.

Interestingly, survey respondents don't see the maturity of sequencing techniques, 'omics' maturity or data privacy issues as the most significant barriers to precision medicine.

Rather, they highlight the delay involved in diagnoses and the absence of collaboration needed to create personalized plans as the barriers that stand in the way of faster progress.

This suggests that breakthroughs will depend on closer collaboration between pharma and other constituent parts of the healthcare ecosystem as well as the willingness of HCPs to develop highly personalized approaches.

Precision medicine is not the only way in which pharma can gain from the emergence of connected care.

Almost two in three (65%) survey respondents agree it will allow pharma to develop value-based contracting and pricing models further and faster.
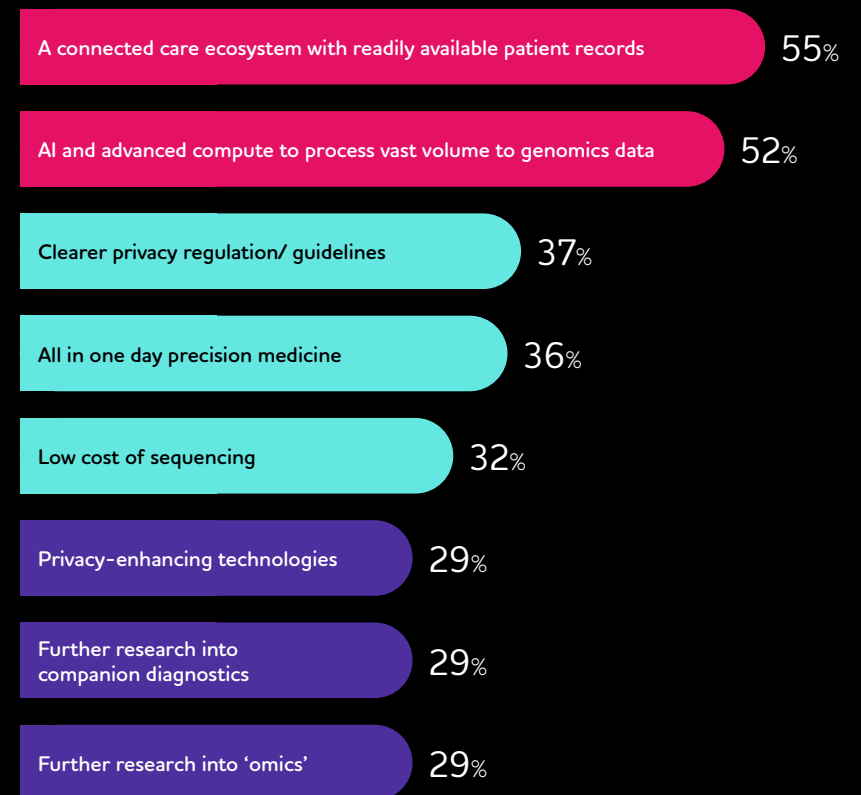
Pharma can save costs by using AI to reduce clinical trial expenses, according to 63% of our survey respondents. This presents an opportunity for pharma pioneers in connected care approaches to gain a competitive edge. Next- gen AI powered diagnostics can usher in precision medicine by analyzing complex genetic and molecular data, providing real-time, evidence-based recommendations for personalized treatment options based on the patient's genetic profile.

FIGURE 04

Data, AI, and compute will enable widespread precision medicine

Which of the following would be most effective in widespread enablement of precision medicine? % of respondents who ranked in top three

A connected care ecosystem with readily available patient records	55%
AI and advanced compute to process vast volume to genomics data	52%
Clearer privacy regulation/ guidelines	37%
All in one day precision medicine	36%
Low cost of sequencing	32%
Privacy-enhancing technologies	29%
Further research into companion diagnostics	29%
Further research into 'omics'	29%

05

Why the home might be healthcare's most **challenging frontier**

Leaders from across the sector acknowledge the potential of home-based care, but they know it requires reinvention of the healthcare value chain.

As technologies converge, the ability to virtualize care via digital devices is becoming a reality.

> **The transformational potential of moving healthcare into the home is enormous, as it promises to enhance the three pillars of care that matter most to patients.**

The first of these is accessibility. Care delivered in the home removes or reduces the need to travel often over great distances for care, improving access even for those far from healthcare facilities.

Second is affordability. More virtual care, including home-based care, promises to cut the frequency of hospital visits both through the direct delivery of care and by remote monitoring, cutting both the direct and indirect costs of physical visits, achieving cost savings of 19% to 30% compared with traditional inpatient care[6].

And third is effectiveness. Remotely delivered care also promises to transform the management of conditions with real-time monitoring from the comfort of home, reducing the stresses of ongoing care and improving outcomes.

Belief in the potential of home-based care is widespread across the healthcare value chain. Respondents from all five stakeholder groups rank it highly among their expected drivers of value in the connected care ecosystem. The strongest support comes from healthcare providers, among whom it is the top-ranked value driver, and MedTech companies (see figure 5).

---

6   *'Hospital at Home', Johns Hopkins Solutions*

While some aspects of remote healthcare are growing fast – telehealth visits, for example, now account for around 15% of US healthcare visits[7] – extending a broader array of care delivery into the home may also be one of the hardest value drivers to deliver.

More than a third of respondents (36%) identify 'virtualized and at-patient location healthcare delivery' among the capabilities that will require the greatest reinvention of the healthcare value chain, second only to improved ways of working (60%).

The patient's home is a new frontier for the delivery of connected care, with success dependent on many parameters that are outside the control of providers and their value chain partners, such as communications infrastructure.

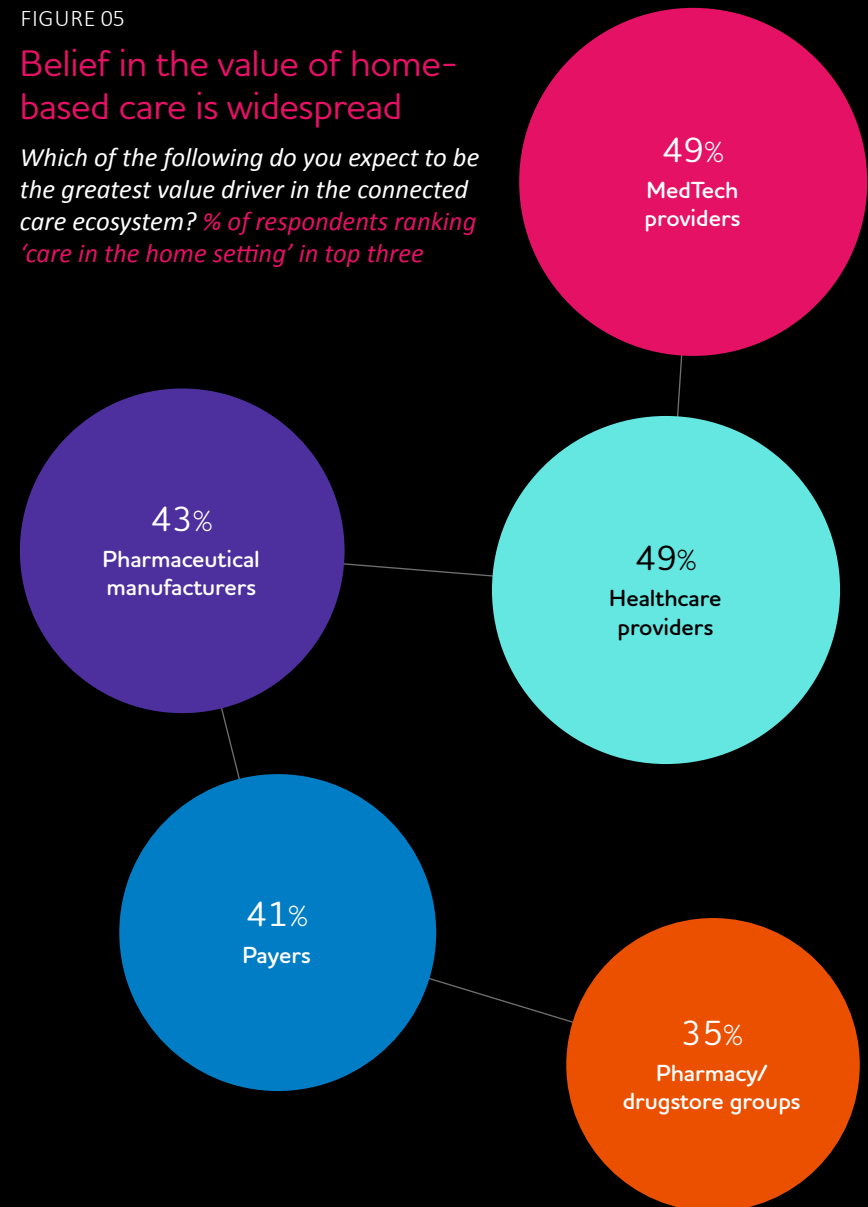For this reason, it is likely to remain a work in progress for years to come.

FIGURE 05

Belief in the value of home-based care is widespread

Which of the following do you expect to be the greatest value driver in the connected care ecosystem? % of respondents ranking 'care in the home setting' in top three

49% MedTech providers

43% Pharmaceutical manufacturers

49% Healthcare providers

41% Payers

35% Pharmacy/drugstore groups

---

7   'Is virtual care delivering on its promise of improving access?' McKinsey & Company, 9 January 2023

19

06

Is infrastructure too sickly to support **connected care?**

Hopes to deliver care in new and more remote settings will be dashed without improved infrastructure.

It is axiomatic that connected care requires network connectivity, as well as IT hardware and other secure digital infrastructure. And while some in the healthcare sector may have up-to-date devices and strong networks in their hospitals, offices and research labs, weak infrastructure may jeopardize their ability to deliver connected care in new and more remote settings.

Our survey respondents certainly believe so: when asked to identify the biggest barriers to the delivery of healthcare services in new settings such as the home or in pharmacies, the top answer they give is 'inadequate infrastructure (internet connectivity, telecom systems, IT systems etc.) in remote areas' (see figure 6).

This outranks barriers including resistance among patients, complex regulation, and data privacy, integrity, and quality by a wide margin.

As this makes clear, the mass rollout of care beyond hospital settings is hostage to the rollout of robust IT

infrastructure and will not be possible where such infrastructure is lacking.

Improving and enhancing remote connectivity is beyond the immediate purview of most healthcare players.

Stakeholders may therefore need to strike up new partnerships with providers they haven't traditionally collaborated with, to ensure their connected care services are resilient, reliable, and broadly available.
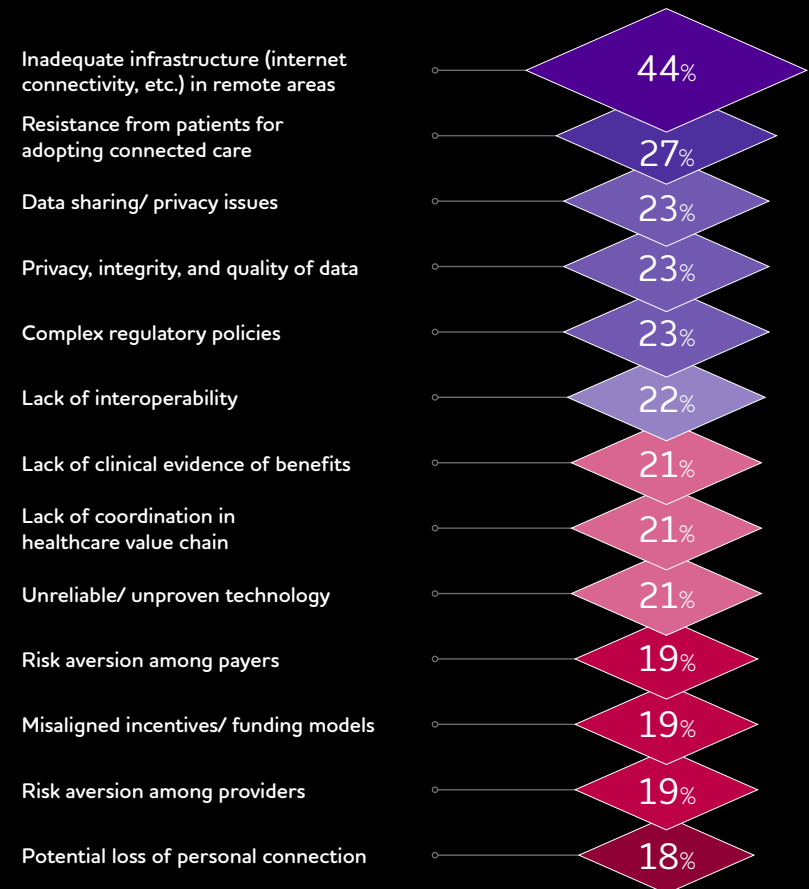
Technology innovation may help over time. According to the International Telecommunications Union, satellite broadband services, such as those provided by Starlink and OneWeb, have the potential to close the digital divide between urban and rural communities around the world.[8]

But disparities in access to digital infrastructure are not confined to rural areas. In the US, in fact, the digital divide is three times wider within urban populations than among rural communities.[9]

8 'Satellite broadband access for everyone: Opinion', International Telecommunication Union, 11 May 2020
9 'Understanding the Urban Digital Divide', Bipartisan Policy Center, 5 Mar 2021

FIGURE 06

Inadequate infrastructure jeopardizes connected care in new settings

What are the biggest barriers to the delivery of healthcare services in new settings, such as the home or pharmacies?
% of respondents who ranked in top three

Barrier	%
Inadequate infrastructure (internet connectivity, etc.) in remote areas	44%
Resistance from patients for adopting connected care	27%
Data sharing/ privacy issues	23%
Privacy, integrity, and quality of data	23%
Complex regulatory policies	23%
Lack of interoperability	22%
Lack of clinical evidence of benefits	21%
Lack of coordination in healthcare value chain	21%
Unreliable/ unproven technology	21%
Risk aversion among payers	19%
Misaligned incentives/ funding models	19%
Risk aversion among providers	19%
Potential loss of personal connection	18%

07

Without trust, data will not flow

Connected care requires the free flow of data. This relies on trust between stakeholders, but this is in short supply, our survey shows.

Data is the thread that ties the connected care value chain together. But for data to be useful when shared between the constituents in that value chain, they must have faith in its quality.

And if they are to share their data with others, stakeholders must trust that it will not be misused.

Both forms of trust are lacking, our survey shows. HCPs' lack of confidence in the quality of the data shared with them is the greatest data-related barrier to value-based connected care.

But this lack of trust isn't confined to HCPs. A 'lack of trust among patients, payers and other players to share data with each other' is the second biggest data-related barrier (42%). Third is 'a lack of incentives to share data between players (40%)'. All three barriers are common across the connected care value chain (see figure 7).

For industry participants, the broad prescription for overcoming this lack of trust is clear: respondents place 'better collaboration across the healthcare value chain' among the greatest enablers of accelerated connected care.

Such collaboration might include the collective design of future care pathways, including providers, patient advocacy groups and pharmaceutical manufacturers, to ensure that data quality, security and privacy checks are baked into data sharing processes.
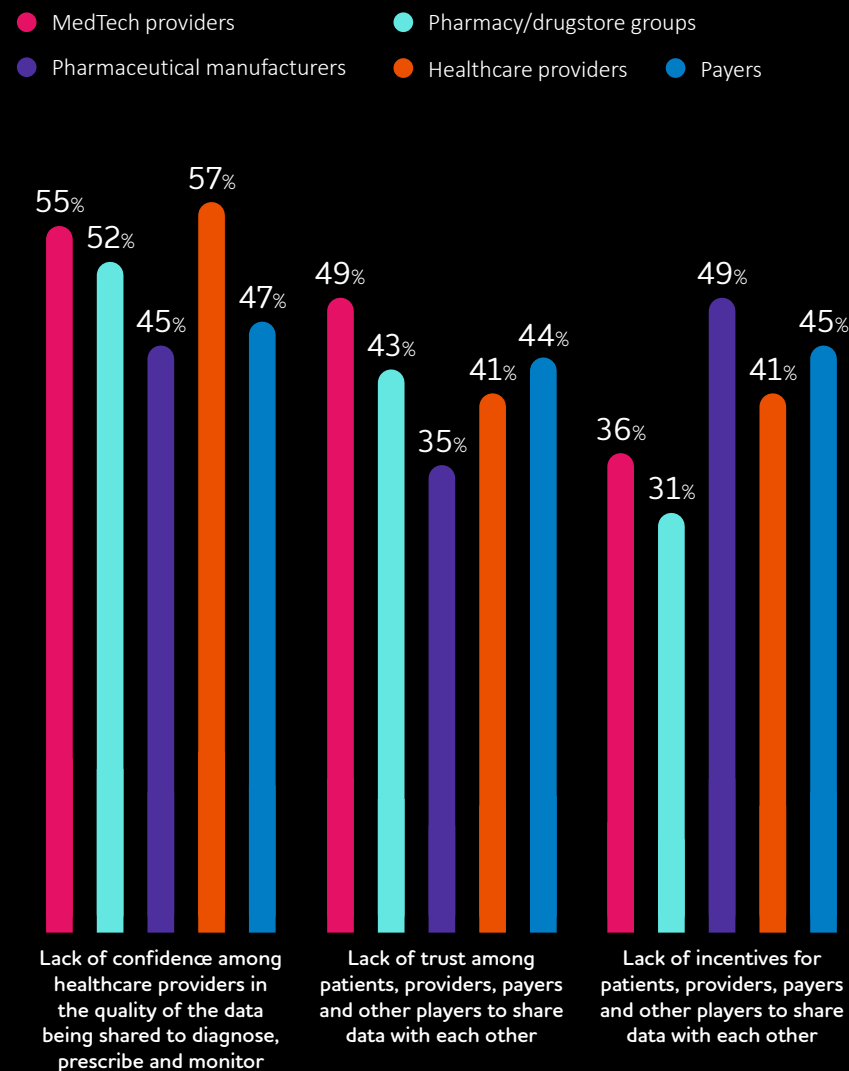
> **There is also a role for technology innovation in building this much-needed trust in data sharing.**

For example, the European Health Data and Evidence Network (EHDEN), a consortium of universities, patient groups, and drug companies, is developing federated data technologies to support secure and trusted data sharing in the healthcare ecosystem[10].

FIGURE 07

A lack of trust is holding back healthcare data sharing

Which of the following patient data issues presents the greatest barrier to value-based connected care? % of respondents who ranked in top three

- MedTech providers
- Pharmaceutical manufacturers
- Pharmacy/drugstore groups
- Healthcare providers
- Payers

Lack of confidence among healthcare providers in the quality of the data being shared to diagnose, prescribe and monitor: 55%, 52%, 45%, 57%, 47%

Lack of trust among patients, providers, payers and other players to share data with each other: 49%, 43%, 35%, 41%, 44%

Lack of incentives for patients, providers, payers and other players to share data with each other: 36%, 31%, 49%, 41%, 45%

08

Prevention is better than cure but who will gather **the evidence?**

Healthcare stakeholder groups want more evidence of the effectiveness of preventative medicine. They can play a part in creating it.

The value of being able to predict or detect illness early, and to slow, reverse or even prevent the advance of disease, is self-evident. And it is among the most highly prized applications of connected care: 41% of respondents expect 'predictive health' to be one of its greatest value drivers.

Technologists are confident that connected care will make this goal a reality. More than three quarters of MedTech providers (76%) agree that digital technology in medical devices has the potential to enable mass preventative or anticipatory care.

Preventative medicine will certainly depend on data and technology infrastructure – proactive remote patient monitoring and well-maintained healthcare records are among the practice's most important enablers, respondents say (see figure 8).

But the most important, according to respondents, is more fundamental than either of these: 'scientific evidence on the effectiveness of preventative medicine'. This indicates that more work is needed to establish an evidence base for the techniques of preventative medicine before payers and HCPs will invest in the necessary infrastructure and capabilities.

> **More work is needed to establish the evidence base for preventative medicine before payers and HCPs will invest.**

The scale of the research required to provide this evidence base means that the primary responsibility lies with national governments and international bodies, and state-backed research is indeed under way.

FIGURE 08

Scientific evidence is key to unlocking preventative medicine

Which of the following do you consider to be the most important enabler of preventative medicine? % of respondents who ranked in top three

■ Rank 1   ■ Rank 2   ■ Rank 3

Scientific evidence on the effectiveness of preventative medicine

| 27% | 22% | 20% | 69% |

Proactive remote monitoring of patients' wellness v/s illness

| 26% | 21% | 18% | 65% |

Well-maintained electronic healthcare records

| 15% | 15% | 15% | 45% |

Regular engagement with patients

| 11% | 15% | 16% | 42% |

New business models for healthcare providers

| 12% | 13% | 16% | 41% |

Artificial intelligence skills and technologies

| 9% | 14% | 14% | 37% |
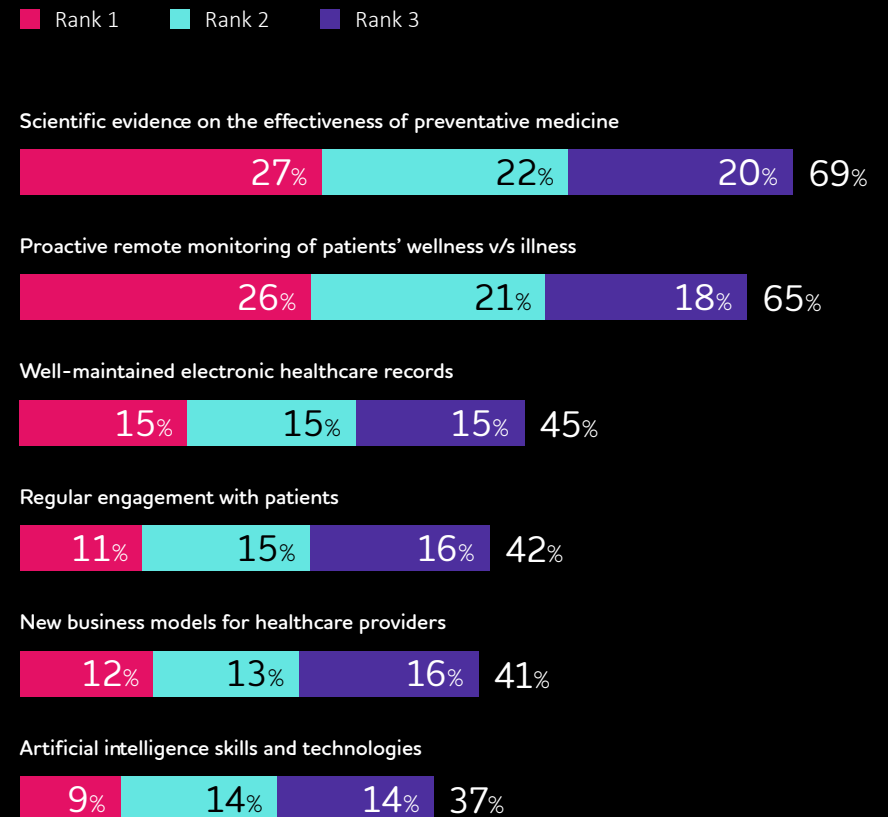
For example, the UK's National Health Service announced £100m in funding for the country's largest ever health research program, 'Our Future Health', which will focus on "developing approaches for identifying diseases such as cancer and heart disease before they become symptomatic"[11].

In the US, the ongoing 'All of Us' research program aims to enroll over a million volunteers to investigate precision medicine[12]. And bolstering disease prevention is among the objectives of the EU's current Horizon research agenda in health[13].

There is a role for other stakeholders beyond public health research institutions in this research. In an article in Nature Medicine, oncologist

Dr. Vivek Subbiah argued that the need for preventative and personalized treatments, enabled by digital technology, calls for the organizational siloes separating medical practice and research to be broken down. "Disruptive innovation should lead to every clinical site being a research site," he wrote[14].

The need for greater evidence in emerging areas such as preventative medicine is another driver for collaboration and partnership across the connected care value chain.

11   'The UK's largest ever health research programme to transform the prevention, detection and treatment of diseases', Our Future Health, 17 January 2022

12   'All of Us Research Program', National Institutes of Health

13   'Horizon Europe, Work Programme 2023-2023, 4. Health', European Commission, 31 March 2023

14   'The next generation of evidence-based medicine', Nature Medicine, 16 January 2023

09

HCPs will need to be convinced before prescribing AI

The healthcare ecosystem sees huge potential in AI, but HCPs don't yet see it as an operational 'wonder drug'.

Applications of AI in connected care are maturing fast and promise to augment the job of HCPs, speeding time to insight, automating drudge work, and giving more time for quality patient interactions.

This is not to mention AI's growing use cases in delivering enhanced medical care across a range of areas including advanced diagnostics, digital therapeutics, and a range of enhancements for medical devices.

AI has the potential to augment every stage in the healthcare value chain, from administration and training to patient engagement and diagnosis, healthcare delivery and patient monitoring.

Generative AI can help HCPs to realize the full potential of AI in healthcare by providing them with more dependable and transparent AI solutions that can support them in various ways, such as screening and triaging patients, streamlining care, improving diagnosis and treatment planning, enhancing patient engagement and monitoring, and supporting medical research and innovation.

This can empower HCPs to embrace AI as a valuable tool to improve the quality of patient care.

Our survey respondents, drawn from across that value chain, believe in AI's potential: 44% expect AI that helps HCPs to 'screen and triage patients' and 'streamline care by automating repetitive tasks' to be one of the three greatest value drivers of connected care, more than any other capability.

MedTech providers, in particular, express a strong belief in the transformative potential of AI, with 63% ranking this in their top three value drivers (see figure 9). They identify radiology, cardiology, and intensive care as the areas in which AI has the greatest potential to add value. Payers are also especially convinced of AI's potential in healthcare provision.

Our survey suggests that the use of AI to triage patients and automate processes is currently at a low adoption rate among HCPs themselves. Only 32% of HCPs identify this application of AI among their top value drivers, fewer than any other stakeholder group. However, we believe that with the advent of generative AI, the adoption of this technology will increase. significantly.

FIGURE 09

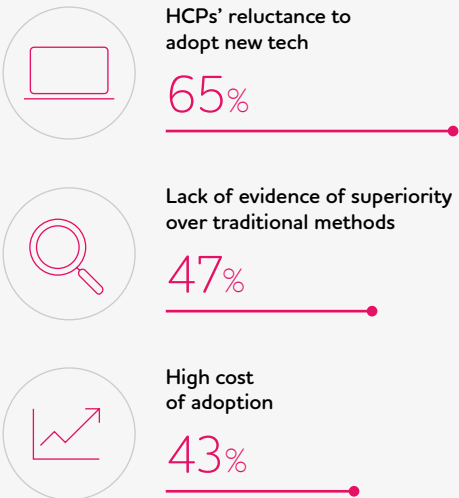## HCPs need reassurance that AI is ready for practice

Which of the following do you expect to be the greatest value driver in the connected care ecosystem? % of respondents selecting 'AI to help screen and triage patients and help HCPs streamline care by automating repetitive tasks'

MedTech providers	Payers	Pharmacy/ drugstore groups	Pharmaceutical manufacturers	Healthcare providers
63%	51%	37%	37%	32%
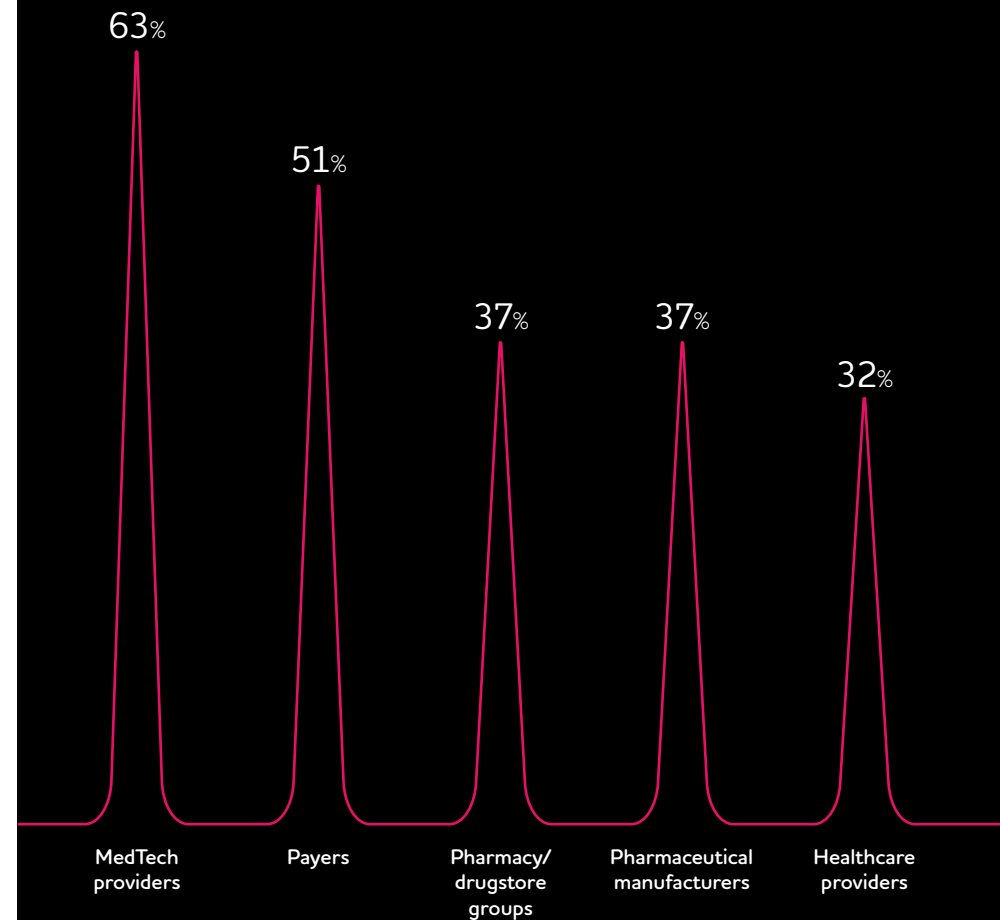
This is not to say they see no value in AI. More HCPs select predictive health, which will rely in part on AI, as a top value driver (37%).

Nevertheless, the survey indicates a lukewarm belief in the potential of AI from a key stakeholder group, which might have been expected to welcome the removal of repetitive work by AI tools.

MedTech providers' top three barriers to adoption:

HCPs' reluctance to adopt new tech

65%

Lack of evidence of superiority over traditional methods

47%

High cost of adoption

43%

This sense that HCPs may be reluctant to embrace AI innovation is echoed by MedTech providers. Almost two thirds (65%) cite HCPs' 'reluctance to adopt new technologies/resistance to change' as one of the top three barriers to the adoption of MedTech-powered digital diagnostics and surgery, with more than a quarter (28%) identifying it as the single most significant barrier to progress.

But HCPs' hesitation should not be dismissed as technophobia. They, above all others, are responsible for patient outcomes, and they rightly have high standards for the tools they put into practice. It may also reflect regulatory norms: some jurisdictions have yet to recognize some AI applications and data sharing practices, and HCPs may wish to take a legally cautious approach to adoption.

If AI's potential to make HCPs more productive is to be realized, technologists and payers must find ways to reassure them of AI's dependability. This, among other things, will require AI tools to be more transparent, and their inner working more explainable.

Don't **forget** the patient

Connected care will not move forward unless the healthcare sector brings patients with it.

Patients may not be in the driving seat for connected care, but our respondents acknowledge that it won't move forward without them.

They place 'effective patient engagement and empowerment' third in the list of changes that require the greatest reimagination of the healthcare value chain, for example. And they identify resistance from patients to connected care solutions as the second biggest barrier to the delivery of healthcare services in new settings.

As respondents understand, patients need to trust that connected care works as well or better than existing care paradigms if they are to adopt and support connected care solutions. And they also need to be comfortable taking ownership of some aspects of their own care, such as monitoring or self-administering.

Every stakeholder, therefore, will need to put the patient at the center of efforts to convince them of the merits of these new approaches, and to make adoption as straightforward as possible.

Connected care solutions are complex and involve multiple participants. But if these stakeholders engage patients separately and without coordination, they are unlikely to win their trust and cooperation.

Patient engagement and education must be tackled on a cross-industry basis. Collaboration is all when it comes to making connected care solutions easy for the patient to adopt.

Conclusion:
The way forward

Opportunity abounds for every healthcare player
in the global rollout of connected care.

Our survey reveals much to be excited about. The adoption of connected care addresses the three vital pillars of healthcare: accessibility, affordability, and clinical effectiveness. We are thus on the cusp of realizing enormous benefits for patients, while also driving efficiencies for payers and society at large, and creating new revenue streams in the process for every healthcare stakeholder group.

But it also reveals a stark reality: the capabilities and collaborative efforts needed to deliver connected care are failing to keep pace with the rapid advance of its enabling technologies.

Connected care remains hostage to some basic human and physical problems. A lack of trust in patient-provided data, a reluctance to share data, and the absence of reliable data infrastructure outside hospital settings are significant impediments to progress. Regulation must of course also keep up with the ever-advancing possibilities that connected care offers. Regulations lag behind fast evolving technology and innovation.

Perhaps the most significant barrier though, is the fact that providers have the most to do to help drive connected care but appear to be the least convinced of its ability to deliver the necessary patient outcomes as currently evidenced.

A key task for the care ecosystem at large, then, is to assist and incentivize HCPs to develop connected care capabilities that they trust will help them deliver the best care for patients.

This entails ensuring new solutions are well evidenced, are as simple as possible to deploy and maintain, that where possible they fit into existing workflows, and that they do not add to the administrative burden.

The whole healthcare ecosystem must therefore convene more closely to deliver connected care's truly revolutionary potential. Enable connected care by elevating healthcare ecosystem with forward-thinking strategy - transition from merely controlling data to controlling the right questions. This would foster seamless data flow within organization and among different players, unlocking a new era of interconnected care and collaboration.
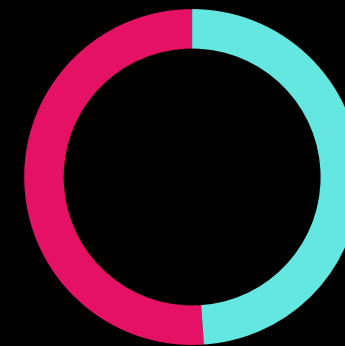
Methodology

In April and May 2023, we surveyed 375 senior decision makers and key influencers at organizations in five key sub-sectors of the healthcare industry. The make-up of respondents is as follows:
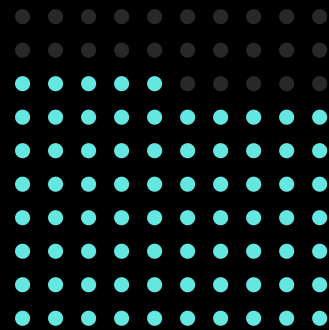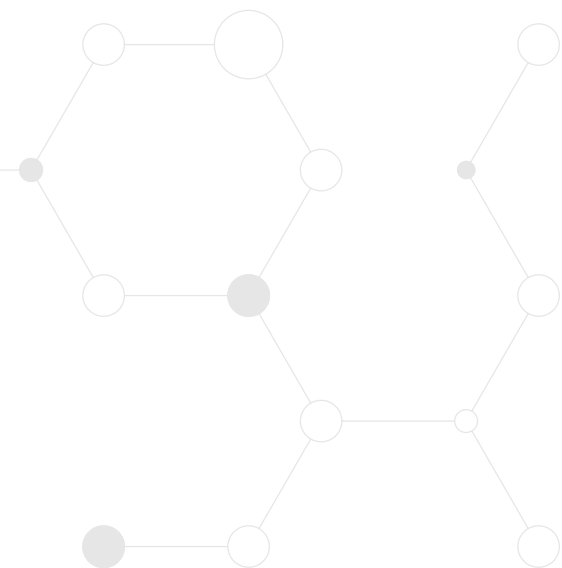
75

respondents each from:

- HCPs
- Payers
- Pharmacy/drugstore groups
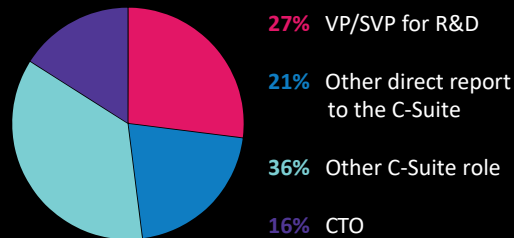- Pharmaceutical manufacturers
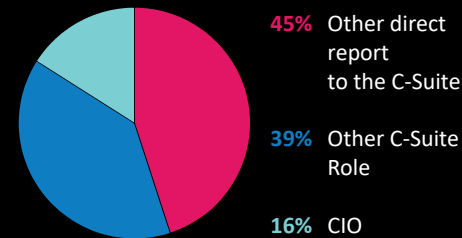- MedTech providers
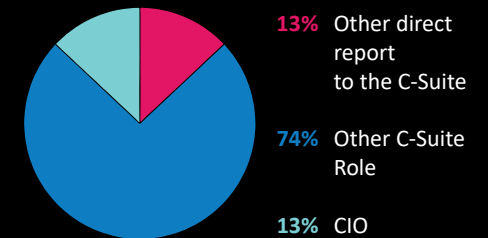
49%
C-Suite

51%
reporting directly into the C-Suite

MedTech provider

27% VP/SVP for R&D

21% Other direct report to the C-Suite

36% Other C-Suite role

16% CTO

Pharmacy/Drugstore

45% Other direct report to the C-Suite

39% Other C-Suite Role

16% CIO

Pharmaceutical

13% Other direct report to the C-Suite

74% Other C-Suite Role

13% CIO

Healthcare professionals

16% Chief Medical Officer

15% Chief Medical Information Officer

15% Chief Nursing Officer

26% Other C-Suite

28% Other direct report to the C-Suite

Payers

15% CIO

12% CTO

**49%** Other direct report to the C-Suite

24% Other C-Suite
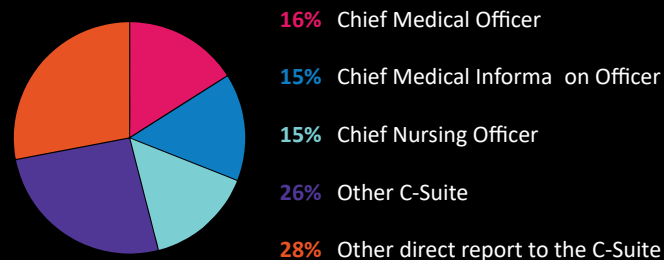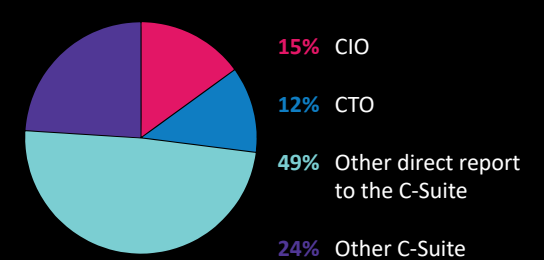
Key findings

Our global survey of 375 stakeholders in the connected care ecosystem, including healthcare providers (HCPs), payers, pharmacies, pharmaceuticals and MedTech manufacturers, reveals the opportunities that are motivating progress, and the tensions and blockers that are holding it back. Key findings include:

The ecosystem must pull together to help HCPs advance

60%
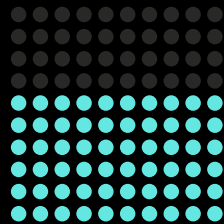
of respondents believe HCPs' working practices are in greatest need of reinvention to make connected care a reality

Payers have the most to gain from connected care

75%

of respondents agree that connected care will help payers manage care costs and improve member experience

66%

say it will help them sustain and grow their top and bottom lines

Payers' most impactful levers are:

80% Simplifying processes

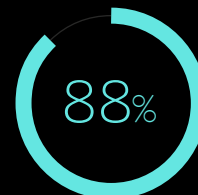**67%** Reimagining customer journeys

Pharmacies are potential 'convenience stores' of health
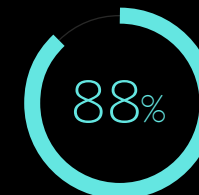
69%

of stakeholders believe connected care will allow pharmacies to play a broader role
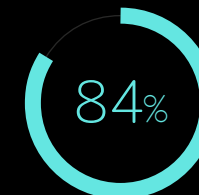
Pharmacists believe they will:

Be the primary point of call for patients
88%

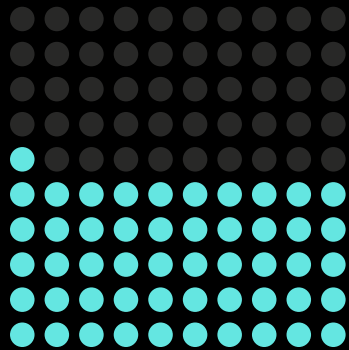**Dispense precision medicine**
88%
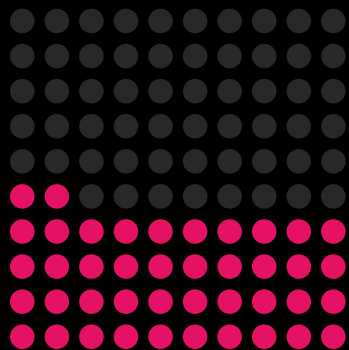
Monitor patients' health
84%

Without trust in data, connected care will not deliver

The data issues that most threaten
value-based connected care are:

51%

Lack of confidence among
HCPs in data quality

42%

Lack of trust among
stakeholders to share data

Healthcare in the home is not guaranteed

'Care in the home' will be one of the greatest value drivers
in connected care, respondents agree, but:

44% believe **'inadequate infrastructure'
hinders care** in new and remote settings

36% say home care requires the
value chain to be reinvented

More proof is needed that preventative medicine works

76%

of MedTech providers believe **digital
devices can deliver preventative care**

73%

of all stakeholders say **more
'scientific evidence'** is needed

tcs **TATA**
CONSULTANCY
SERVICES