

BEING RESILIENT

AI AND
DIGITAL-FIRST
HEALTHCARE
DURING A
PANDEMIC
AND BEYOND

Infosys®
Navigate your next



BEING RESILIENT. THAT'S LIVE ENTERPRISE.

Care management in times of a pandemic

As COVID-19 continues to stretch healthcare systems and their resources, care management becomes the need of the hour. Effective care management can reduce the need for medical services and hospitalizations, and avert emergency room visits. It can also improve the quality

of healthcare and control costs for patients with complex conditions by enhancing the efficiency of care coordination and management.

Care management is that binding agent that brings together payers and providers to effectively manage health conditions.

A multidisciplinary endeavour, care management covers every aspect of the patient journey through the delivery of onsite or remote care facilities, analysis of patient records for right diagnostics and treatment, and facilitation of post-intervention activities.

What is fast-tracking the shift to value-based care?

In the traditional fee-for-service model, a care manager was perceived as an additional expense and not a revenue source. This meant the cost of care management fell on providers. But the ongoing crisis has stirred an urgent need among providers for an alternate comprehensive and value-based approach

to care management. A few other pre-pandemic factors have also underscored the current rapid adoption of value-based care:

- **Rising healthcare spending:** Healthcare spending in the US is expected to rise from around 17.8%

of GDP in 2019 to 19.4% in 2027.¹ Healthcare systems are in a state of distress with elective surgeries being postponed, and employees either overworked or furloughed. This is leading to a burgeoning of healthcare costs which is pushing the industry to adopt better care management.

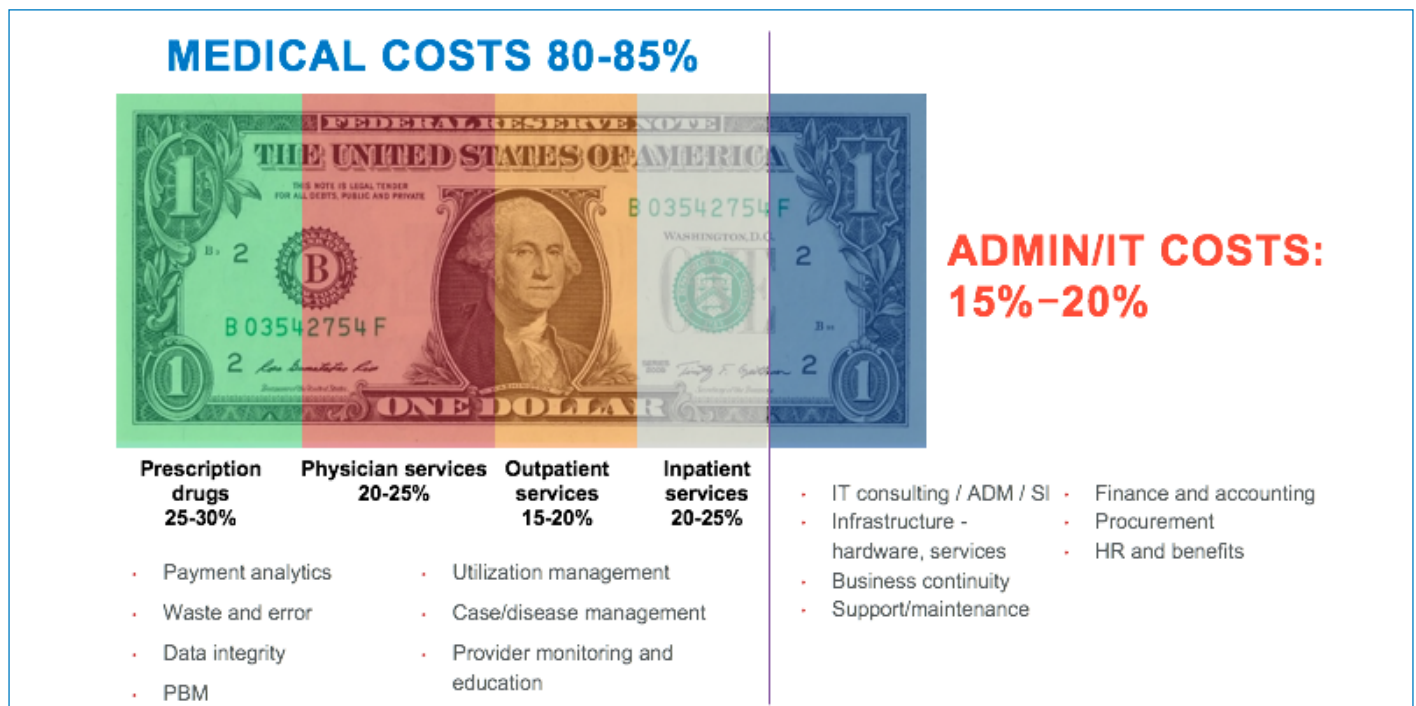


Figure 1: Rise in healthcare costs (Source: Everest Group)

- **Demand for quality outcomes:** Performance incentive programs and regulations tied to quality outcomes are also driving providers towards a value-based payment approach.
- **Remote medical care:** There has been an uptick in the demand for telemedicine and telehealth. In addition to enabling remote healthcare delivery and access, telehealth technologies can also reduce costs. Reimbursement opportunities are also growing for providers offering telehealth services. Several states in the US including Massachusetts and Illinois have mandated that the reimbursement of telehealth services would be on par with traditional in-person services.
- **Platform-led efficiency:** The integration of IT into healthcare is widening the scope of value-based care management. Consumer applications, electronic health records (EHRs), and support for clinical decisions are a few areas where healthcare IT has already shown a positive impact.

Value-based model: Scaling from project to program

Since 2019, value-based care has seen an increase in investment due to the immediate benefits it yields. But to get the most out of it, providers need to understand the related costs and the relation between financial and operational outcomes which has created an increased demand for robust analytics tools.

In March 2019, global health service company Cigna saved \$600 million in medical costs by transitioning to value-based healthcare.¹ In September 2019, UnitedHealth started leveraging a suite of analytics tools to create a digital ecosystem for patients and providers to set up a value-based payment structure.² In November 2019, Humana published its annual

value-based care report which detailed a 27% reduction in hospital admissions and a 14.6% reduction in emergency room visits in comparison with Original Medicare.³ In January 2020, mental health technology company Quartet Health, in partnership with insurer Blue Cross of North Carolina, introduced a framework that enables installing a value-based quality measurement system for mental healthcare.

The above examples show that data management and analytics capabilities can drive providers into the next phase of value-based care. Here are the top three focus areas that can strengthen the future of value-based care:

- **Data-driven personalized care:** Analytics solutions can generate an accurate assessment of patient health status which can improve patient or member engagement and enable providers to offer unique and personalized care.
- **Interoperable systems:** Information sharing among health IT systems is key to getting a unified patient view to improve care.
- **Effective use of EHR:** Analyzing real-time data from EHR systems can help healthcare providers devise strategies for providing better quality care at a lower cost.

Telehealth: Gaining a wider role in healthcare

In an increasingly value-oriented industry, telehealth services are emerging as more than just a solution to facilitate remote access. In 2019, UnitedHealthcare launched a new app that gives members on-demand access to telehealth services.⁵ The US-based health insurance company Humana, in partnership with the telemedicine provider Doctor on Demand, has also launched a

new virtual primary care health plan for significantly lower monthly premiums.⁶ Highmark Health also introduced a program to deliver inpatient hospital care from the safety of homes for a lower cost. It combines both in-person home visits and telehealth services.⁷

That was before the COVID-19 outbreak. According to Optum, a part of the

UnitedHealth Group, behavioral telehealth claims saw a 31% rise by the end of March compared to pre-COVID. Medstar Health also went from 7 to 4150 daily telehealth visits in just two months. Figure 2 shows the key advantages of telehealth services that drive the integration of telehealth technology into different areas of healthcare.

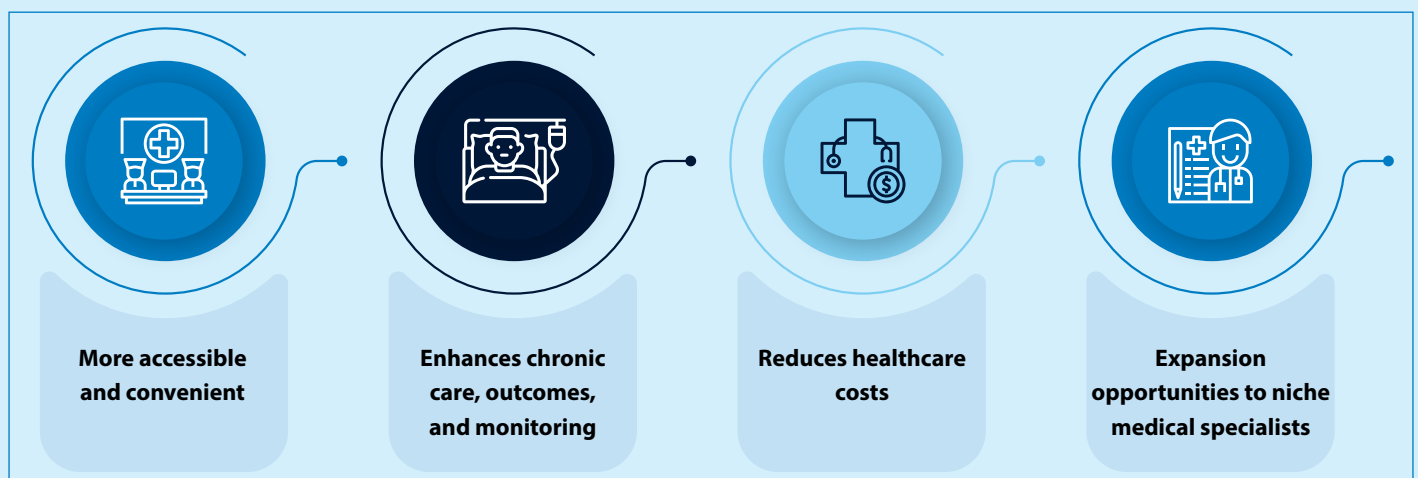


Figure 2: Key benefits of telehealth services (Source: Everest Group)



The potential of digital beyond IT

Majority of technology decisions impact business processes, customer experience, and cost. As a result, decision-makers at many healthcare organizations have stayed away from adopting digital and advanced analytics, until the COVID-19 outbreak. The pandemic has pushed them to consider the possibilities that artificial intelligence (AI),

analytics and other digital technologies bring. It has also brought to light the fact that the impact of digital - on costs, operations and overall business - goes far beyond the traditional IT function.

Today, enterprises are mostly focusing on operationalizing digital technologies

through strategic hiring of AI and digital officers; streamlining internal resources by creating digital studios, Centers of Excellence, AI teams, innovation labs; and leveraging partnerships with service providers such as Amazon, Google and Microsoft as well as startups.

Payer value chain	Product development	8.7%	Provider value chain	Patient engagement	13%
	Policy servicing	8.7%		Care management	50%
	Network management	8.7%		Clinical management (Diagnostics, treatment, & monitoring)	34.8%
	Care management	60.9%		Financials & network management	2.2%
	Claims management	13.0%			

Figure 3: AI adoption rate across payer and provider value chains (Source: Everest Group)

**Based on the activity of the top 10 U.S. payers' adoption of AI across their processes (2018)*

Adopting digital capabilities can have a long-term impact on both payer and provider value chains.

Advancing digital in healthcare: Payer value chain

- **Product management:** Real-time and usage-based data can be leveraged to develop customer-focused products and provide suggestions on the required insurance plan and the sum insured.
- **Policy servicing:** Real-time risk assessment for automated underwriting and direct policy purchase.
- **Network management:** Digital platforms can streamline information flow between payers, providers and pharmacy benefit managers with respect to changes in regulations, contract terms, claims, eligibility, and benefits inquiries.
- **Care management:** Customer portals and mobile applications can improve self-service and personalize experiences. Chatbots and virtual assistants can provide quick resolutions to standard customer inquiries. Digital health assistants can help patients better understand their symptoms.
- **Claims management:** Claim validation and loss determination can be improved through drones (video and image analysis) whereas algorithms can automate payout calculation for

policyholders, thereby reducing the manual effort.

Advancing digital in healthcare: Provider value chain

- **Patient engagement:** Real-time aggregation and analysis of health data from disparate sources can generate clinical insights and track patients. Automating and enhancing patient selection, outreach, and data analysis can improve efficiency in care management.
- **Care management:** Telehealth can improve the way hospitals communicate with patients. For instance, it can automate reminder calls and improve engagement through tailored communications. By integrating claims and clinical data and using advanced analytics, providers can identify and prioritize at-risk patients, and optimize resources and improve intervention efficiency and outcomes.
- **Clinical management (diagnostics, treatment & monitoring):** Digital technologies can help build a holistic picture of the patient for early disease detection. By analyzing massive volumes of scientific literature and clinical databases, it can uncover insights to identify and optimize treatment options.

It can also improve clinician productivity and patient outcomes in diagnostic imaging.

- **Financials & network management:** Digital technologies can be beneficial in the automation of invoice processing. AI-based fraud detection solutions can also help providers mitigate financial risks.

Ever since the outbreak, the need for operational efficiency and cost reduction has led to the widespread adoption of digital in healthcare. Analytics has seen significant adoption across care management processes with 55%-60% active contracts in 2019 have analytics included. Automation is not far behind with 30%-35% active contracts having included automation .

Besides the focus on operational digital, enabling secure digital will also be critical to a successful care management strategy. While operational digital will be the key focus for the back office, core mid-office is expected to invest 40% of its digital spend on compliance, cybersecurity and PHI security. For the front office, patient-focused digital initiatives will be the top priority with almost 15% investment going towards virtual care, unified patient view and patient engagement.⁸

A new ecosystem for the evolving healthcare landscape

The healthcare ecosystem consists of three key facets - care coordinator or care manager, the administration and member information. A digital ecosystem can link these facets to predict the right intervention. Infosys' digital ecosystem focuses on creating a solid foundation of evidence that includes integrated real-world data (RWD) assets and processes based on business strategy enabled by artificial intelligence and machine learning (AI-ML) and automation.

- AI-ML/Analytics:** A digital ecosystem can leverage AI/ML to help care managers predict interventions based on disease detection and progression. Administrators can extract value-adding outcomes from natural language processing (NLP) based medical literature and pathology report analytics to drive care programs and interventions. AI/ML and automation can also enhance process efficiency based on predictive disease detection models.

- Processes and Workflow:** The ecosystem can facilitate video consultations, offer prescription management tools, and create provider networks and communities for both face-to-face and virtual interactions. It can also enable prior authorization (PA) process, allow early medication refills and reach out to physicians. The patient support programs focus on adherence, education, adverse event management, disease management, etc.
- Evidence Generation:** For evidence generation, the system can integrate RWD patient data (diagnosis, specialty visits, treatment, procedures, etc.), device and sensor data (monitors, sensors, wristbands, watches), shipping and inventory data as well as consumer and PRO data.

Infosys is helping clients address the key issues to improve patient outcomes, manage costs, and do proactive interventions. The aim is to predict the

right interventions for a patient, develop disease detection to automate the PA process, and create a better personalized customer experience.

By leveraging AI, Infosys has built solutions that can predict events and patient pathways. These are based on risk stratification and patient interactions with the healthcare system. Here is how the solutions can improve a COVID positive patient's journey from pre-diagnosis to post-treatment care.

At the beginning of the journey, patients can be risk-stratified based on their clinical risk, demographic profile and hot spot areas. If the patient has diabetic conditions, the provider can predict adherence, risk profiles, cost/risk scenarios and critical drug needs by using AI. Next, proactive interventions can be predicted based on COVID symptoms. During the recovery phase, the solution can predict and project patient pathways and critical drugs and interventions required.

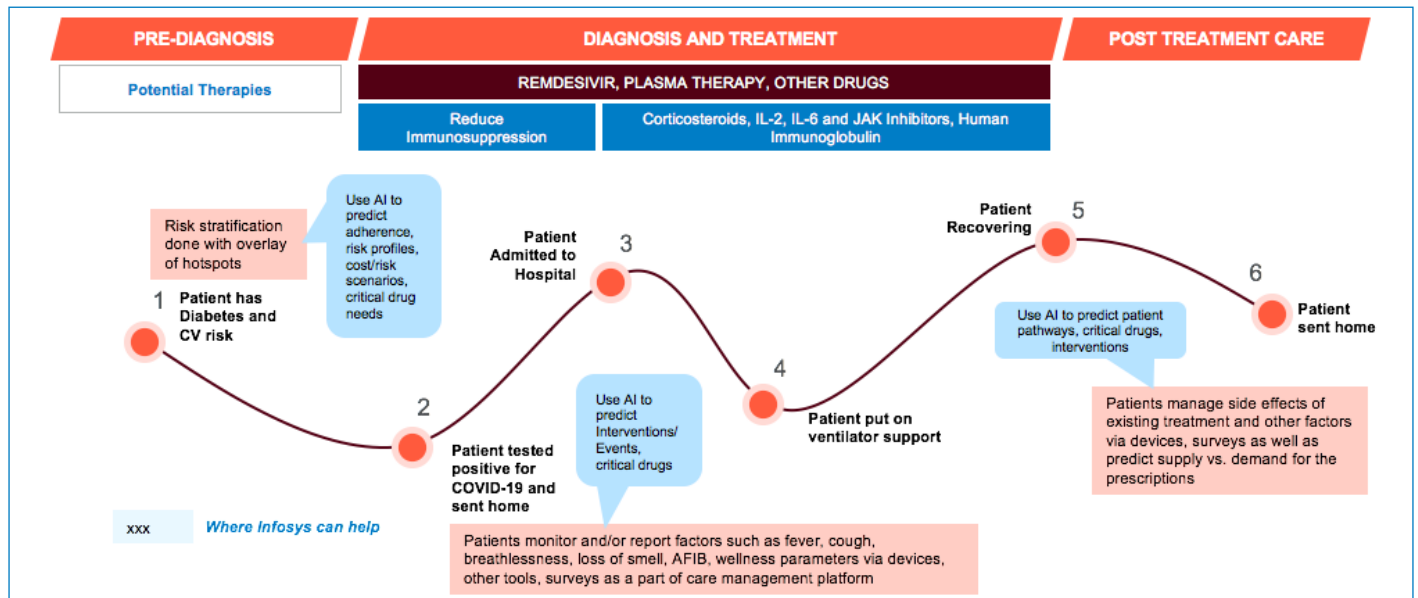


Figure 4: The role of AI in predicting potential complexities



Use of integrated RWD for disease detection

Infosys has used an integrated real-world dataset comprising demographics and clinical factors (diagnosis, treatments, procedures, specialist visits) and over a hundred potential predictors to identify top predictors for diabetes. These top predictors can, in turn, predict the potential of diabetes in patients at an early stage. After a one-year observation, the

solution starts combining some of the top predictors with events that happened during the observation period. The probability keeps increasing and when it reaches the agreed-upon threshold, the payer can initiate or prepare for proactive interventions such as PA process automation, care interventions and automatic refills. Such interventions can

help payers and providers drive patient outcomes and manage costs.

Here is a snapshot of a patient cohort view showcasing potential patients at risk for diabetes based on their characteristics such as age, ethnicity and other clinical factors:

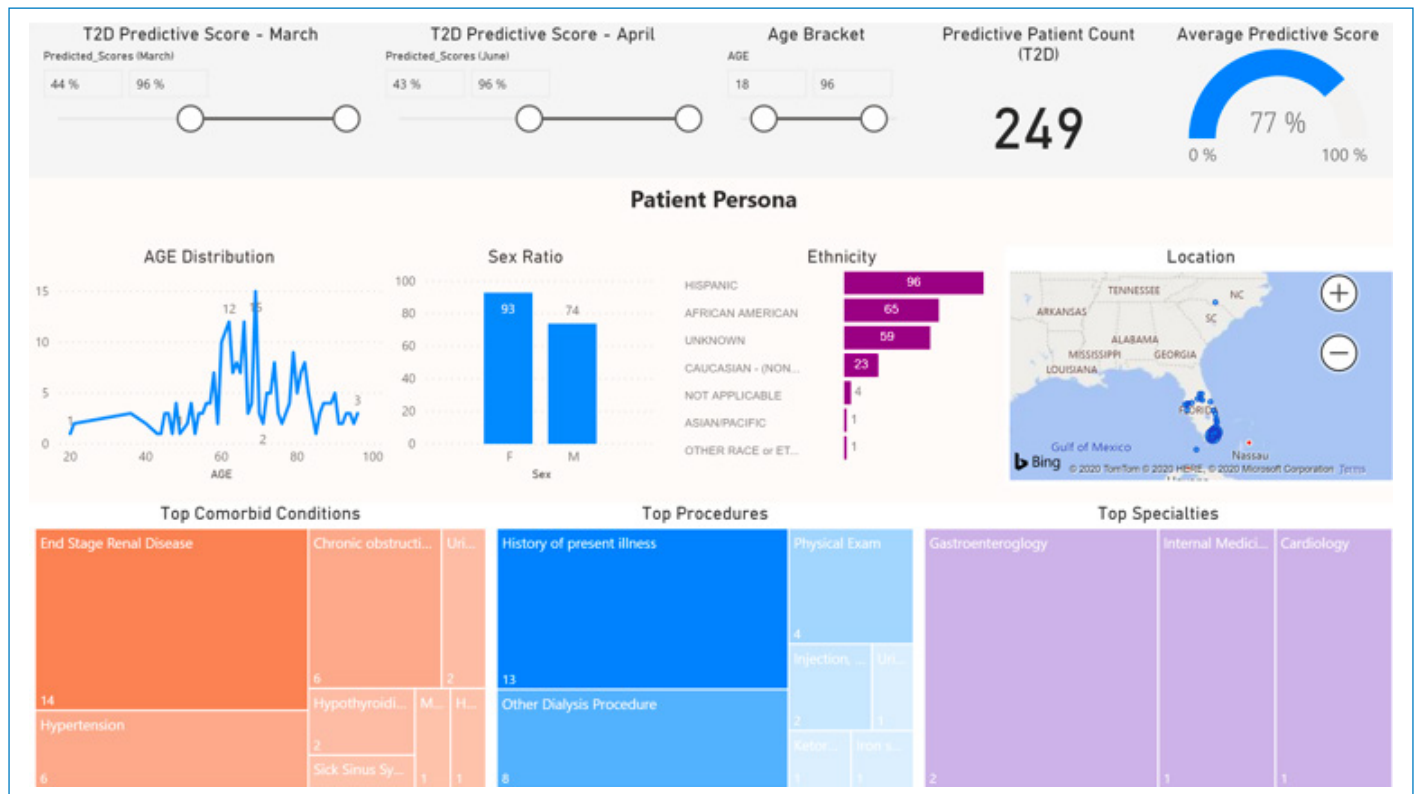


Figure 5: Dashboard showing patient cohort characteristics based on machine learning



The implementation of AI-enabled platforms depends on the level of organizational maturity. Those at the first level of maturity often operate in silos and are not equipped to survive a sudden market disruption. Their legacy infrastructure, retrospective and ad-hoc analytical requirements, and multiple datasets that lack integration create a roadblock to digital transformation.

Organizations at the second level of maturity show a mix of siloed and persona-based approach with a focus on areas where they are proactive. They use predictive analytics with a mix of syndicated and ad-hoc capabilities.

At the advanced stage of the maturity curve, organizations are often agile and

persona-based. They are proactive in their approach and well-equipped for any market disruption. Their analytical, data and technological capabilities are comparatively more advanced compared to initial and emergent-level organizations.

Infosys' solution is designed to help organizations at different stages of the maturity curve in the digital transformation and care management journey. The comprehensive AI platform developed by Infosys can power interventions across healthcare and wellbeing journeys, helping healthcare organizations usher in the era of value-based personalized care.

The COVID-19 pandemic has highlighted the power of AI and digital in driving better healthcare outcomes while bringing

down the costs. From improving disease management, transforming supply chains, or strengthening patient care, healthcare organizations must learn how to effectively utilize AI, analytics and other emerging digital capabilities to deliver highly efficient value-based care.

The COVID-19 pandemic has highlighted the power of AI and digital in driving better healthcare outcomes while bringing down the costs. From improving disease management to transforming supply chain or strengthening patient care, healthcare organizations must learn how to effectively utilize AI, analytics and other emerging digital capabilities to deliver highly efficient value-based care.



Authors



Venky Ananth,
SVP and Head – Healthcare, Infosys



Abhishek Singh,
Vice President, Everest Group

References

¹ [National Health Expenditure Projections 2018-2027, CMS.gov](#)

² [Cigna Transition to Value-based Health Care Results in \\$600 million in Medical Cost Savings, Cigna](#)

³ [UnitedHealth Group will equip providers in the OptumHealth network with a suite of analytics tools, Business Insider](#)

⁴ [Humana Improves Health and Reduces \\$3.5 Billion in Health Care Costs through Medicare Advantage Value-Based Care Programs, Humana](#)

⁵ [UnitedHealthcare app gives members on-demand access to telehealth services, Healthcare IT News](#)

⁶ [Humana and Doctor on Demand launch new virtual primary care health plan, MedCityNews](#)

⁷ [Highmark Health to deliver hospital care at home, Modern Healthcare](#)

⁸ [Everest Group \(2020\)](#)

For more information, contact askus@infosys.com



© 2020 Infosys Limited, Bengaluru, India. All Rights Reserved. Infosys believes the information in this document is accurate as of its publication date; such information is subject to change without notice. Infosys acknowledges the proprietary rights of other companies to the trademarks, product names and such other intellectual property rights mentioned in this document. Except as expressly permitted, neither this documentation nor any part of it may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, printing, photocopying, recording or otherwise, without the prior permission of Infosys Limited and/ or any named intellectual property rights holders under this document.