Digital Health Will Reshape Patient Engagement, Care Delivery, and Payment Models

ECG's weBELIEVE SERIES

Part 4

ECG MANAGEMENT CONSULTANTS

A Siemens Healthineers Company

Table of Contents

Introduction

Remember the days of hailing a taxi? Or calling a travel agent when you wanted to plan a vacation? Or driving from store to store, looking for a particular product?

You can still do those things, of course. But when a couple of swipes on a smartphone screen can save time and aggravation, fewer and fewer people opt for such traditional approaches to obtaining services.

Consumers—patients—have choices. And they expect to find the same flexibility and ease of navigation in healthcare as they experience in other industries. Digital transformation is giving them the ability to decide when and where they receive care, and how they'll pay for it.

Patients expect more help so they can make smarter decisions for themselves, manage costs, and find their way to the right care at their convenience. Helping individuals in their health journeys requires providers to reimagine the way patients pay their bills, partnering fully and actively with the consumer to enhance wellness. Today's consumers want better products, higher-quality service, and a better overall experience. Why should their expectations for healthcare be any different?

Healthcare providers cannot simply avoid this disruption. Consumers have increased purchasing power, and the impact of healthcare reform is transforming employers' health benefit plans, putting economic purchasing power and decision-making in the hands of plan participants. Increasingly, healthcare apps are putting personal health information in the hands of the consumer, and well-capitalized, nontraditional players are entering the healthcare field with an eye toward competing for patient dollars.

We believe that providers need to embrace the digitization of care and use it as a strategic advantage. Patients will continue to make informed choices about their healthcare. Health systems that build on existing patient relationships and use digital care to expand integrated care across settings will be the providers of choice in the future.

This paper is the forth in a series of five ECG strategic perspectives on the changing dynamics of the US healthcare system.

Digital Health Imperative: Consumer-Centric

The digitization of healthcare has prompted a quantum shift in the traditional physician-patient relationship, driven by the proliferation of technology and consumer demands for convenient, personalized services. Only a decade ago, what exists today seemed like something from a galaxy far away—EHR adoptions were faced with mixed sentiment from providers, patients were expected to wait patiently (pun intended) to see physicians, and many traveled great distances for face-to-face visits with providers only to duplicate paperwork and repeat diagnostic tests due to a lack of data exchange. Today, providers use consumer data and digital health applications to more proactively engage patients in their care and intervene in a timelier manner.

With the growing use of smartphones (currently 275 million users in the US),[1] consumers are expecting real-time connections to information and services in a personalized way. Across every industry, the

RETAIL INDUSTRY TRANSFORMATION

After being forced to adopt EHRs, healthcare providers have come to demand immediate access to data and the ability to use it to inform both clinical and business decisions. Healthcare is no longer lagging behind other major industries with the adoption of data to deliver services, but there is still opportunity to learn by looking outside the insular circles of peers. Countless other industries have addressed disruption in traditional consumer relationships by responding to consumer needs using scalable, sustainable, and cost-effective solutions with data as the consumer currency.

Big box retailers such as Walmart and Kmart once battled for market share by offering low prices on countless products, all available under one roof. But Walmart recognized the competitive threat coming from online companies. While the approach of offering more products online and using stores as warehouses for prompt delivery ran counter to traditional retail strategies, the insight to make the shift led to Walmart maintaining a leading market position. Consumers got the best of both worlds—accessible retail locations plus online purchasing. This new reality exists due to the development of vertically integrated digital networks that create seamless and frictionless online shopping experiences. Walmart invested in digital platforms that provide scalability and the ability to drive down unit cost, and the company expanded business to new market segments previously unseen. Kmart, however, chose a different strategy and experienced a rapid demise as online disruptors transformed the retail industry.

DISRUPTORS

Now, retailers like Walmart and Amazon realize they can build customer relationships they've developed and provide new service offerings—including healthcare. These nontraditional players are starting to develop transformative healthcare solutions and be competitive threats to conventional brick-and-mortar provider businesses. Increasingly, well-capitalized disruptors are developing digital solutions designed to decrease cost, increase access, and develop relationships to drive consumer loyalty. Much of this action is supported by the ability to drive real-time insights on the patient and give providers the data they need to take actionable measures. This ultimately drives personalized, curated patient experiences. Care experiences are being delivered at much lower and transparent price points using digital platforms that provide scalability and the ability to reduce the unit cost of delivery while selling consumers additional nontraditional items and services.

digitization of the consumer experience has already disrupted how and when services are purchased (see the Retail Industry Transformation sidebar on page 4). Provider organizations must accept the need of heightened consumer engagement—and learn from other service-oriented industries—by implementing digital health applications that engage patients in a consumer-centric approach, as illustrated in figure 2.

FUTURE-STATE, HEIGHTENED ENGAGEMENT OF THE INFORMED PATIENT

In the Community

PHYSICAL PRESENCE IN THE PLACES PEOPLE GO TO CONNECT WITH THEIR COMMUNITY:

- Food security and nutritional services
- Healthcare outposts at retail locations
- Publicly available healthcare diagnostic tools
- Patient support groups and community advocacy

Online

WEB PRESENCE TO REINFORCE INDIVIDUALS BUILD THEIR ONLINE HABITS AND LIFE

- Social media presence
- Targeted healthcare education
- Digital marketing
- APIs to other consumer applications

The Patient

At Home

DIGITAL PRESENCE IN THE PATIENT HOME, WHERE CONSUMERS MAKE A MAJORITY OF THEIR HEALTH DECISIONS:

- Secure messaging and chat
- Remote monitoring
- Virtual visits
- Home counseling and coaching

Healthcare Facilities

CURATED, PERSONALIZED SERVICE TO MAKE IN-PERSON ENCOUNTERS VALUABLE AND ENJOYABLE:

- Personalized medicine and care planning
- Physical experience, wayfinding, and efficient triage
- Advanced biometrics and diagnostics
- Integration of online, community, and home data
- Concierge-level service

Figure 2: Future-State, Heightened Engagement of the Informed Patient

Digital Health: Scaling Personalized, Consumer-Centric Care

Historically, healthcare has been delivered in a provider-centric model with face-to-face interactions in brick-and-mortar locations to address conditions as they present. The future requires the successful execution of a digital health strategy that integrates technologies to enable and support—not replace—traditional healthcare settings by creating personalized services that direct consumers to the appropriate care at the correct time. The new threshold to healthcare is a digital front door, whether the appropriate care setting is a hospital, an ambulatory center, or a patient's home. Cohesive digital health platforms will improve access to care and drive the delivery of better, more personalized care to larger and more diverse patient populations.

The accelerated adoption of digital health is disrupting the industry—altering the economics of care, creating new competitors, opening new markets, and reshaping payment models. Health systems have an opportunity to lead the transformation or risk being a mere vendor of services as new and well-capitalized market entrants fill consumers' needs through a connected delivery system driven by customer service, access, and data.

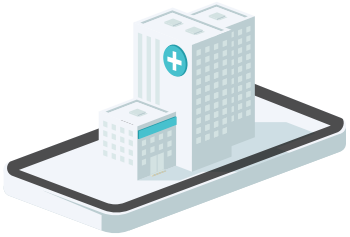
Ultimately, an effective shift to digital solutions will enable healthcare organizations to treat information as a strategic asset, empowering data-driven decisions to manage outcomes for individuals and populations. Digital health adoption can exponentially scale the generation of personalized health experiences. It enables health systems to use data to deliver the right care, at the right time, and in the right place while better optimizing staffing allocations and regional facilities to offer a convenient patient experience and drive performance success (see figure 1). This will allow digital health to be an enabler of systemness—access to insights that can drive patient engagement through personalized care for consumers (at the appropriate setting), provide delightful patient experiences, and ultimately build lasting brand loyalty.

Technology alone won't influence true change; successful adoption will also require transitioning to new payment models that align with the economic shift resulting from digital health and ensure a favorable return on investment (ROI) in technology and processes.

We believe the digitization of the provider-patient interaction is the catalyst to enhance quality, cost, access, and patient-provider engagement. But technology alone won't influence true change; successful adoption will also require transitioning to new payment models that align with the economic shift resulting from digital health and ensure a favorable return on investment (ROI) in technology and processes.

The remainder of this paper examines the critical success factors and building blocks required to create the desired future state via digital health. With the global digital health market expected to grow from $111 billion in 2019 to $510 billion in 2025, health systems have an opportunity to redefine market boundaries and generate new sources of revenue by investing in this rapidly expanding sector of the industry.[2]

THE FUTURE OF DIGITAL HEALTH IN THE CLINICAL ENTERPRISE CONTINUUM



Digital Health

Patient Access Enhancement
Consumer Self-Service
Telehealth Virtual Provider Visits
Coordination of Digital Health Activities
Clinical Decision Support & Precision Medicine
Virtual Health Monitoring

Ambulatory Care

Wellness & Prevention
Cognitive & Developmental
Physician Office
Urgent Care
Diagnostics (e.g., lab, imaging)
Treatment (e.g., surgery, cancer care)

Post-Acute Care

LTC, Specialty Rehab, & Chronic Care
Outpatient Rehab, PT, OT, & ST
Home Care
Specialty Pharmacy

Acute Care

Emergency Services & Trauma
Hospital Medical-Surgical, NICU, & PICU
Inpatient Rehab & Behavioral

EHR
Omnichannel Communication + CRM
Revenue Management
Customer Service, Training, & Quality Standards

Shared Infrastructure

Figure 1: The Future of Digital Health in the Clinical Enterprise Continuum

Drivers of Digital Health Adoption

Even before COVID-19, the healthcare industry was on the brink of transformation, driven by players from within and outside of the traditional sector. The pandemic has accelerated industry disruption and transformation, presenting an opportunity for providers who are willing to seize the possibilities offered by digital health applications. Advancements in digital health are being driven by several key factors, including the following:

RISE OF CONSUMERISM: Individual patients, or consumers, expect more control over how they will access and pay for care. Consumers will seek information to make healthcare decisions.

MARKET DISRUPTORS: Nontraditional healthcare companies, such as Amazon, Google, and Walmart, are recognizing the fragmentation in the industry, along with rising consumer expectations, and capitalizing on the opportunity to deliver healthcare and share information with consumers through virtual connections that eliminate traditional barriers.

ADVANCING DIGITAL CAPABILITIES: Better fitness-tracking devices, glucometers, and calorie counters and an increased gamification of healthcare apps are putting personal health information increasingly in the hands of consumers.

REGULATORY ENVIRONMENT CHANGES: Government action is accelerating the shift to digital health. New CMS rules enacted in 2020 through the Inpatient Prospective Payment System aim to unleash medical innovation and promote access to new medical device technology. The 2020 Physician Fee Schedule gives health systems more opportunities to use and get reimbursed for remote patient monitoring (RPM).

OVER THE PAST FIVE YEARS, patients, providers, and payers have increasingly been embracing digital health technologies.From 2015 to 2019, studies found that:‡

The percentage of patients who had experienced a live video appointment climbed from **7% TO 33%**.

The percentage of patients who use of digital tracking devices to follow health metrics grew from **18% TO 42%**.

COVID-19: The unprecedented circumstances of the pandemic exposed many patients to virtual visits, and demand for these services will only increase moving forward. Virtual visit platforms are experiencing exponential growth; Amwell had a 158% increase in the use of its telehealth app since January 2020, and Teladoc saw a 200% growth in virtual visits in Q2 2020.[3,4] Additionally, the COVID-19 pandemic has led to temporary lowering

‡ Sean Day et al., "Digital Health Consumer Adoption Report 2019," (Rock Health, 2019) https://rockhealth.docsend.com/view/i6j4ieu.

of regulatory and reimbursement hurdles, paving the way for accelerated adoption of new telehealth programs. Funding for digital health startups is at an all-time high during the pandemic: 33% higher in Q2 2020 than the $1.8 billion quarterly average for the prior three years.[5]

VALUE-BASED CARE: As more health systems structure value-based payment models and assume risk, digital health will offer tools so physicians can proactively monitor patients, stratify risks, and intervene earlier in the care process. The use of data as a strategic asset is a foundational element that will enable health systems to better manage the total cost of care.

SUBSCRIPTION PLANS: Provider organizations are increasingly exploring "subscription plans" to link consumer-centric strategies with new economic models. These plans give "members" access to different levels of prepaid care and use digital health applications to elevate interactions. Members are typically encouraged to subscribe for digital access to physicians, and pricing ranges from free (for limited access) to upwards of $100 per month (for premium access, including consults with specialists). In general, members (and employers) are willing to invest in this approach to ensure access and convenience, and they are now more comfortable with this type of care model due to COVID-19 and their familiarity with subscription models in other industries.

EXPANSION TO NEW MARKETS: Digital health applications allow a health system to reach more patients and minimize traditional barriers presented by geography or patient mobility. For example, telehealth visits enable specialty care in more rural locations. A May 2020 survey found that 52% of Medicare Advantage seniors are comfortable using telehealth; among those who used telehealth services recently, 91% had a favorable experience and 78% are likely to use telehealth appointments in the future.[6] This shift in attitude toward virtual care will broaden the reach of providers.

POPULATION HEALTH: RPM tools further an organization's effectiveness in proactively caring for more distant patient populations and addressing social determinants of health. Digital communication tools can lower the barrier for patients who have health literacy challenges, coordinate access to follow-up care and outreach programs, and enable continual contact with patients who are less likely to have a fixed address.

The unprecedented circumstances of the pandemic exposed many patients to virtual visits, and demand for these services will only increase moving forward. Virtual visit platforms are experiencing exponential growth.

The whitepaper continues on page 14

A Journey in Digital Health

Meet Alex.

Alex is a 50-year old male patient with multiple comorbidities—diabetes and congestive heart failure (CHF). Alex participates in a chronic disease management program run by ABC Health System. As part of the program, Alex has an app on his smartphone that regularly collects and transmits data to his care team. It is integrated with ABC Health's secure, cloud-based EHR platform, and the app:

- Is connected to Bluetooth devices (weight scale, glucometer, patient activity tracker, medication intake, etc.) that periodically transmit relevant data to the EHR.
- Creates personalized care plans and provides reminders.
- Provides therapeutic education relevant to Alex about managing his conditions, including access to nutritionists and health coaches.
- Is integrated into ABC's appointment scheduling system.
- Allows for actionable feedback to Alex, enabling self-management and patient engagement.

LET'S FOLLOW HIS JOURNEY

THE ISSUE AND INTERVENTION

Alex's care team receives relevant, real-time information (on a dashboard) in a HIPAA-compliant manner, enabling them to monitor Alex's health status, drive clinical decision support, and prioritize patient care. Alex experiences a serious medical episode one morning. ABC Health's digital health infrastructure enables his providers to quickly intervene.

Remote patient monitoring allows for a holistic view of the patient

Alex's blood glucose level spikes. His care team receives the data in real time, and his physician, Dr. Abbott, decides to intervene.

Telehealth, Care Coordination, Clinical Decision Support

Dr. Abbott initiates a real-time video visit with Alex, determines that he needs to go to the ED, and sends a message to ABC Health.

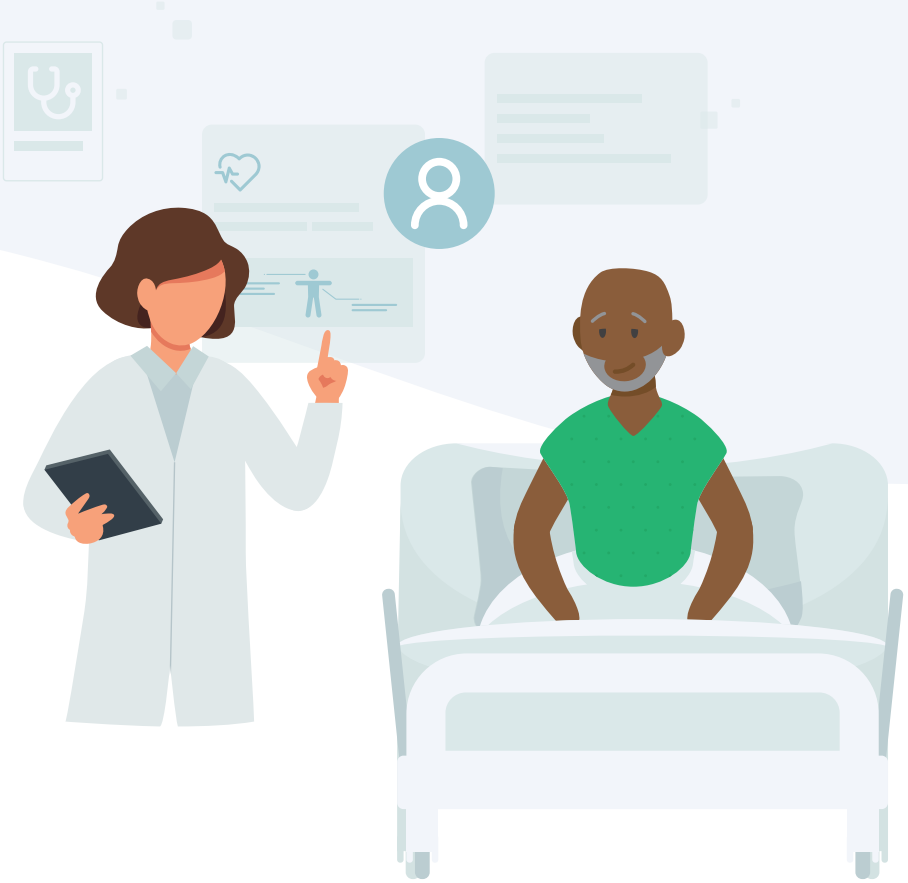
- This also triggers an automated process to send an ambulance to Alex's location.
- The EMTs already have the patient vitals and other relevant health data by the time they arrive at Alex's location and therefore can have the appropriate protocols ready in advance.
- The EMT data is also transmitted to the ED in preparation for Alex's arrival.

ADMISSION

The availability of data in real time simplifies the admission, discharge, and other process processes at ABC Health.

Automated admission

The EHR already has information Alex's demographic information and medical history. With RFID tags, Alex's progress within the ED and the hospital are able to be tracked by relevant parties. Before Alex is admitted to ABC Health, inpatient rooms, bed, and bedside devices are prepared based on his demographics, preferences, and care team input.



CONTINUING AT-HOME CARE

The power and promise of digital health is its ability to deliver care across acute and home settings, and at scale. It enables Alex's care team to prioritize patient care.

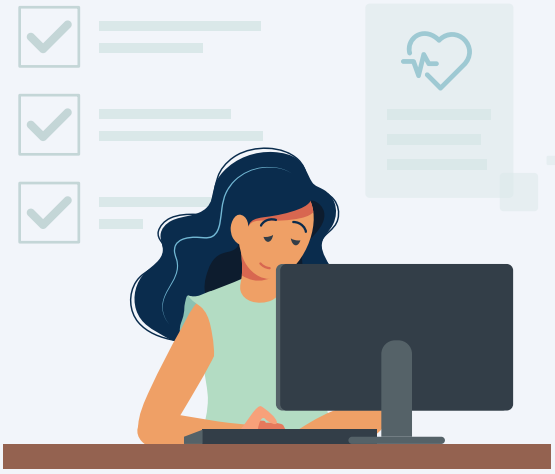
Dr. Abbot has determined that Alex needs to rest at home after discharge for the next few weeks. Alex schedules an in-person follow-up visit with Dr. Abbott using the mobile app.

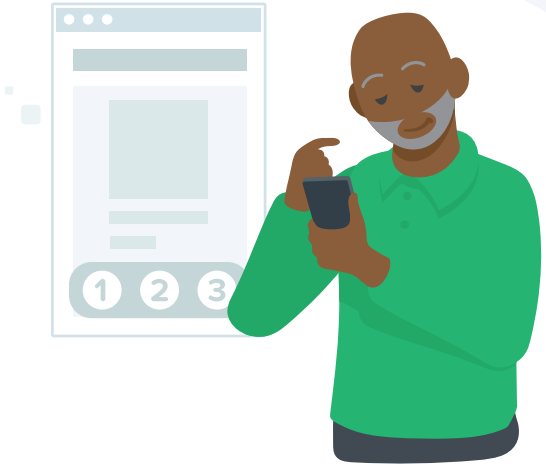
DISCHARGE

The use of digital health in managing the patient's condition and intervening at the right time may have saved Alex's life. The AI and predictive analytics enable ABC Health to provide personalized care, improve patient satisfaction, and ensure a delightful patient experience.

Automated discharge

The discharge process is seamless, with minimal paperwork (electronic discharge). ABC Health is able to create customized discharge and post-discharge care plans in advance using predictive analytics based on Alex's medical history, how well he is responding to his treatment, and key social determinants of health (housing, family support, etc.).





Because all the information is readily available within the EHR, AI algorithms can create customized discharge guidelines that can be integrated into a virtual care assistant.

- Alex can interact with the virtual care assistant via chat bots or speech driven interactions and make sure that he understands the instructions.
- He can also request to speak with nurses or other medical staff if human intervention is needed.

He also receives routine virtual visits from his physician and care team during his at-home recovery process. Information and visit documentation from these and other scheduled visits with caregivers are captured within ABC Health's EHR for continuous monitoring of Alex's health status.

Development of a Robust Digital Health Ecosystem

1

Embracing the New Reality: Digital Health as a Strategic Asset

Delivering a seamless consumer/patient experience requires health systems to facilitate extensive interactions with patients (using data and continuous insights), expand care beyond traditional settings, and drive engagement by offering convenient access via an online presence and home-based services linked to the care continuum. Healthcare organizations must recognize data as a key strategic asset and invest in building connected delivery systems that harness the power of data across the spectrum of services, as described in figure 3.

There are many barriers confronting health systems when it comes to digital health adoption, such as financial constraints, leadership hesitancy, and competing strategic priorities. However, forward-thinking healthcare leaders have already embarked on implementing a cohesive digital strategy focused in distinct application areas. Health systems should consider how they will utilize core digital capabilities to drive favorable business performance across the four key areas shown in figure 4 and detailed further on page 11.

SPECTRUM OF DIGITAL HEALTH TECHNOLOGY ADOPTION

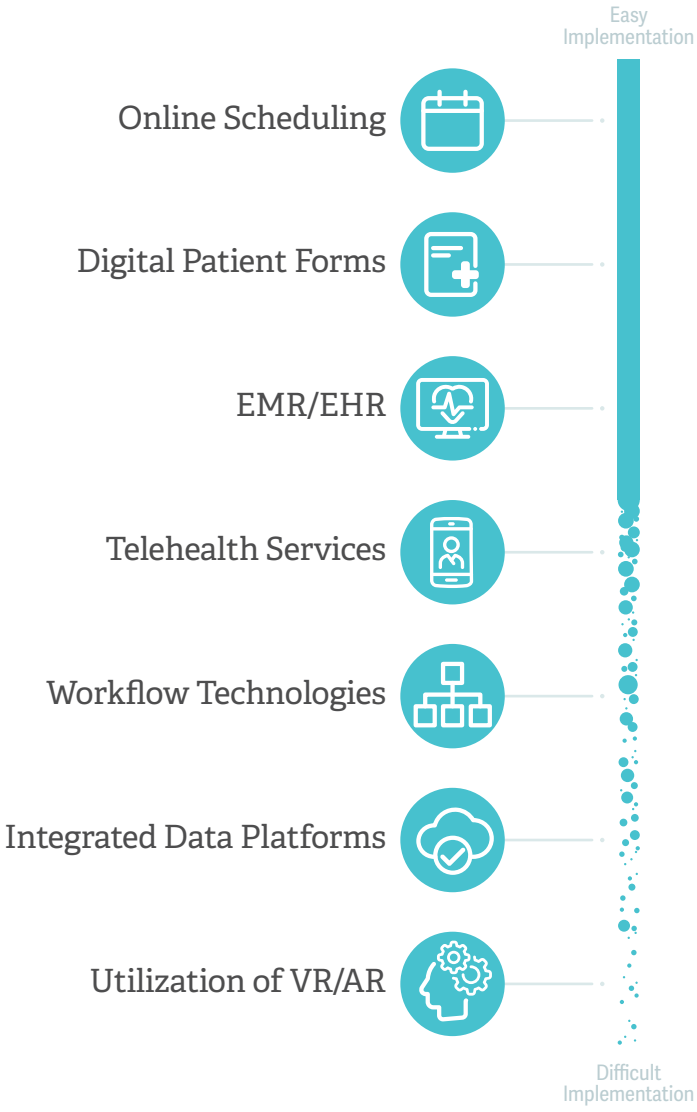


Figure 3: Spectrum of Digital Health Technology Adoption

KEY FOCUS AREAS FOR DIGITAL HEALTH STRATEGY

Figure 4: Key Focus Areas for Digital Health Strategy

PATIENT ENGAGEMENT: Allow for direct and more frequent patient touch points, including mobile health and social media technologies, communication channel integration, fitness and wellness apps, and wearable devices. A shift in perspective to interact with patients as consumers in a more proactive manner will yield greater benefits, including new revenue opportunities. A survey of over 100 health system professionals found that tools that enable patients to access their own health records and test results and communicate directly with their care team will be the largest opportunities for ROI.[7]

COMMUNITY ENRICHMENT: Focus on social determinants of health, and develop partnerships using digital health enablers aimed at connecting health and social services to better coordinate and improve patient care. This supports health system missions to provide better benefits and improve the health of populations in the communities they serve.

SOCIAL MEDIA FOOTPRINT: Establish a dynamic social media presence. Individuals with similar interests, concerns, and needs make up digital communities that use social media platforms to support one another; share challenges, stresses, and victories; advocate for causes; and share knowledge to help improve quality of life. Be active on these platforms and channels.

CONNECTED HEALTH: Support patients who access and receive care remotely, such as through telehealth/telemedicine, RPM, and chronic disease management applications. The efficiency and increasing effectiveness of virtual visits will result in exponential growth in this volume. With no physical boundaries, market lines are disappearing. Telehealth visits are on track to top 1 billion by the end of 2020.[8]

CLINICAL CARE DELIVERY: Augment clinical care delivery, including care coordination, clinical decision support, clinical workflow enhancement, and precision medicine tools. A 2019 study estimated the total annual cost of waste due to a failure of coordination in the US healthcare system ranged between $27.2 billion and $78.2 billion.[9]

OPERATIONAL ENHANCEMENT: Facilitate nonclinical workflow automation and efficiency improvements for revenue cycle, patient throughput, and demand-matching applications. One health system found that digital online booking saved the organization $3 to $4 per appointment when staff don't have to do the booking manually. Multiplied by 100,000 appointments or more booked online in a year, these reduced labor costs can add up to big savings.[10]

2

Foundational Digital Health Capabilities

Establishing a cohesive digital health infrastructure that enhances the patient experience and provides seamless communication and data flow between patients and their care teams requires five critical building blocks. These foundational core capabilities, supported by data analytics and health IT functionalities, include the following:

DATA STORAGE PLATFORMS:

Allows the organization to receive external clinical and patient-generated data and data sets and combine them with data from internal clinical and nonclinical systems

ANALYTICS TOOLS:

Provides reports, dashboards, and self-service reporting; is capable of applying predictive analytics, analyzing large genomic data sets, and generating actionable and personalized insights and recommendations

APPLICATION PROGRAMMING INTERFACE AND INTEROPERABILITY COMPETENCIES:

Supports the integration of data from internal and external sources

PATIENT INTERFACE TOOLS:

Facilitates patient interactions with the organization via health system assets such as external websites, patient portals, and mobile apps

CRM TOOLS:

Enables the organization to capture patients' preferences, provide a longitudinal record of the patients' nonclinical histories with the organization, and seamlessly integrate all patient-facing communication channels

Each capability needs to be thoughtfully designed and implemented in tandem with the others.

In addition, to support these capabilities, it is imperative to put in place a robust cybersecurity defense, with its effectiveness against vulnerabilities and data breaches tested by unaffiliated third parties. Finally, digital transformation also entails, to a large degree, revisiting organizational culture. Therefore, to ensure long-term success of digital health initiatives, organizations will need to implement and manage high-quality IT services that meet the needs of the business through an effective mix of people, processes, and technology. This will require developing the right set of internal skills for the organization's IT professionals, providing training, and utilizing best practices to ensure the desired business and clinical outcomes.

Digital appointment scheduling and tools, such as "find a provider" and appointment "waitlisting," enhance patient access while reducing the burden on staff. Automated appointment reminders have been around for some time, but with CRM and omnichannel communications, organizations can more effectively reach each patient via their preferred method.

Patient flow is another area where health organizations are poised to use digital tools to lower costs. Automated arrival and check-in tools speed intake. Acuity-based rostering systems allow organizations to schedule their resources efficiently; predictive analytics are used to forecast future bed and staffing needs. Real-time location systems support patient, asset, and staff tracking to reduce wait times and increase throughput.

Provider workflows benefit from automation as well. AI/ML tools already exist that detect diseases and complications, interpret medical images, and track medication adherence, and can be very effective. These "preventive" technologies use AI-augmented analysis of RPM data to flag needs for intervention and predictive analytics to identify a patient's future rest of incident readmission. A meta-analysis of studies from 2012-2019 shows that the accuracy of AI models used to diagnose medical images was 87% compared to healthcare professionals at 86.4%. To be sure, these types of tools will not replace providers any time soon, but they will serve to free up ever-scarcer provider time to focus on more complex cases.‡

‡ "A Comparison of Deep Learning Performance Against Health-Care Professionals in Detecting Diseases From Medical Imaging: A Systematic Review and Meta-Analysis," Xiaoxuan Liu, MBChB, et al. (The Lancet, September 25, 2019), https://www.thelancet.com/journals/landig/article/PIIS2589-7500(19)30123-2/fulltext

3

Infrastructure Framework

To offer digital patient/consumer interactions, health systems will need to conduct strategic technology and operational planning that will establish robust back-end platforms. Under the foundational capabilities noted above, these applications will serve as the source of all clinical and nonclinical data across the entire care continuum (outpatient, inpatient, and post-acute settings). To facilitate this infrastructure, clinical tools such as EHRs will evolve from documentation tools to smart solutions to allow clinicians more direct interaction and help facilitate the practice of evidence-based medicine.[11] Additionally, organizations will increasingly turn to digital health tools, including artificial intelligence (AI), to enhance front- and back-end workflows, deploy automation, and drive operational efficiency.

While no two organizations' digital health infrastructure will look the same, a general spectrum of digital health adoption built on core capabilities is shown in figure 5.

The patient-facing (i.e., consumer engagement) tools will need to integrate seamlessly with back-end platforms in the digital health ecosystem. Health systems will then be able to create data-driven standards that bridge care delivery, connect providers, and extend interactions to patients' daily lives.

The development of AI and machine-learning capabilities will then enable rapid data mining from multiple sources within the back-end and consumer-facing platforms to support a robust digital health ecosystem, provide diagnostic and predictive algorithms to drive clinical and operational decision-making, and ultimately allow for more personalized care and increased patient engagement.

To facilitate this infrastructure, clinical tools such as EHRs will evolve from documentation tools to smart solutions to allow clinicians more direct interaction and help facilitate the practice of evidence-based medicine.

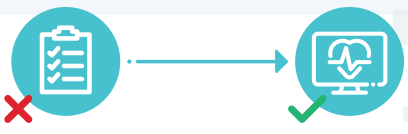
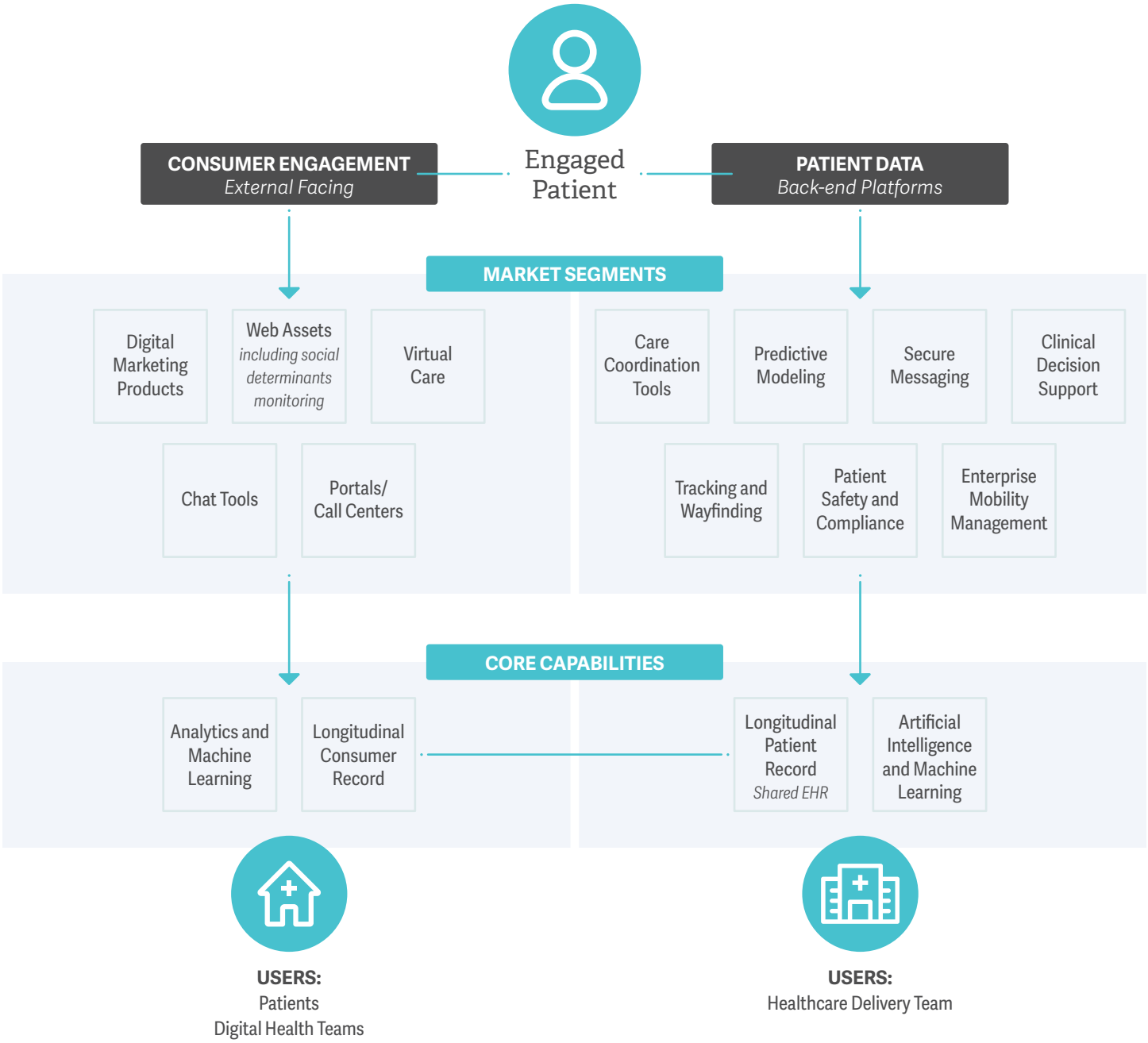


FIGURE 5: INFRASTRUCTURE FRAMEWORK FOR A DIGITAL HEALTH ECOSYSTEM



- PRECISION MEDICINE
- SAFETY
- OUTCOMES
- BRAND LOYALTY
- CONTINUOUS PATIENT TOUCH POINTS

Figure 5: Infrastructure Framework for a Digital Health Ecosystem

4

The Need for Partnerships

ONC's and CMS's final rules for interoperability and information-blocking provisions in the 21st Century Cures Act provide the regulatory framework and incentives to accelerate the ability for providers, payers, and technology vendors to offer patients safe and secure access to their digital health data.[12] The final rules also have an array of requirements for standards-based application programming interfaces to support and empower consumers to access and control their electronic health information from the health system's medical record using the smartphone app of their choice.

Therefore, some legacy barriers to digital health that have been driven by the lack of interoperability are expected to be alleviated soon, creating additional imperatives for nontraditional players and other competitors to capitalize on innovative opportunities to expand market share and drive consumer loyalty. Implementation of a successful patient engagement strategy through digital health will require organizational agility to learn and adapt to the realities of this rapidly changing landscape.

In addition to agility and adaptation, partnerships will be a key success factor for systems attempting to build a robust digital health ecosystem. The ability to develop and maintain new types of collaboration will be necessary to support the underlying complex technologies and data exchange agreements. Setting up the core computing infrastructure of a connected

One in five

respondents left a provider because of a poor digital experience, and 41% said they'd consider switching to a provider who offered a better digital experience, according to a recent survey.

61%

of patients aged 18 to 24 would consider switching providers over a poor digital experience.

The total revenue

attributed to a single consumer ranges from $200,000 for a physician practice to $1.4 million for a health system organization.‡

‡ "2019 Healthcare Consumer Study" (Cedar, October 2019), https://cdn2.hubspot.net/hubfs/5672097/Content%20Assets/2019_Whitepaper_PatientSurvey/Patient_Survey_Exec_Summary_Final.pdf.

‡ "Patient Satisfaction: Why It Matters and How to Improve It," (Practice Builders, July 28, 2019), https://www.practicebuilders.com/blog/patient-satisfaction-why-it-matters-and-how-to-improve-it/.

The ability to digitize simple interactions,

such as scheduling an appointment, reviewing health records, requesting prescription refills, paying bills, and communicating with providers, offers market advantages.

One example: patient bills. A study from 2019 found that **77% OF PATIENTS** want e-statements from providers, yet only **23% OF CONSUMERS** receive them. The same study found that **66% OF PATIENTS** would consider switching providers for a better payment experience.‡

digital platform will require innovation and data-sharing relationships. These partnerships will include companies that provide cloud-based platforms that support large-scale computing, big data analytics, and innovative machine learning and AI technologies (e.g., Microsoft, Amazon, Google, IBM).

Health systems must also enhance existing partnerships. Integration with health insurers, for example, will move far beyond eligibility and claims transactions, leading to greater collaboration with patient data–sharing and health, wellness, and preventive care programs, not to mention further inroads in value-based and cost-sharing payment models. Finally, supporting patient-centric clinical data interoperability across the care continuum requires increased collaboration with clinical care partners and area competitors.

‡ Sara Lehman Laskey, MD, Steve Jackson, "Effortless Care Experiences," (NRC Health, June 18, 2018), https://nrchealth.com/wp-content/uploads/2018/06/Effortless-Healthcare-White-Paper.pdf.

‡ Trends in Healthcare Payments Tenth Annual Report: 2019," (InstaMed, April 28, 2020), https://www.instamed.com/white-papers/trends-in-healthcare-payments-annual-report.

Critical Success Factors: Keys to Achieving the Ideal Future State

To successfully create a comprehensive digital health ecosystem that leads to a seamless patient experience and drives lasting brand loyalty, there are several considerations to keep in mind.

1. **DEFINE THE STRATEGIC IMPERATIVES FOR YOUR ORGANIZATION:** Address the key pain points you are trying to solve, such as patient access, chronic care disease burden, workforce utilization and satisfaction, primary care volumes, and competitive response. Then, prioritize your digital health roadmap to ensure it aligns with the overall organizational strategy.

2. **DESIGN THE DIGITAL HEALTH ECOSYSTEM AROUND THE PATIENT EXPERIENCE:** Since patients are the consumers of healthcare, build the digital health ecosystem with them in mind.

3. **DEVELOP INTERNAL GOVERNANCE MODELS AND STRUCTURED DECISION-MAKING:** Create a steering committee to oversee, prioritize, and coordinate planning efforts.[13] To facilitate decision-making and workflow design, establish work groups by functional area to operationalize and implement the strategy and identify interdependencies and the systematic approach to change management.

4. **IDENTIFY EXECUTIVE AND CLINICAL PROGRAM OWNERS:**
   - Assign an executive who will be responsible for successfully deploying the digital health strategy, understands broader program risks and mitigation solutions, and collaborates with the steering committee for program sustainability and growth.
   - To ensure physician buy-in and adoption, identify a physician champion to engage clinical stakeholders in the development of digital health protocols and related care models.

5. **ENSURE THE EXECUTION OF A COMPREHENSIVE DIGITAL VISION:** Don't rely on individual tools that aren't integrated, as they do not support a robust digital health ecosystem. As a digital health strategy is implemented, coordinate and tie together all applications.

6. **INVEST IN ESSENTIAL CORE CAPABILITIES:** Remember that without the foundational elements to collect, store, and analyze data, it will be impossible to deliver a seamless patient experience and maximize the investment in digital health applications.

7 **REDEFINE CARE SETTINGS:** Adopt a new mindset regarding where, when, and how care is delivered to create a robust digital health ecosystem and offer a seamless patient experience that is location agnostic.

8 **RESHAPE THE ECONOMICS OF CARE DELIVERY:** Optimize investments in ambulatory facilities and staff by embedding digital health in operations to expand capacity. The economics of care delivery are altered by digital health, with new costs being overlaid on traditional delivery operations. In addition to the incremental operating costs, revenue from traditional services may decline on a per patient basis due to more proactive patient engagement tools.

9 **PURSUE NEW PAYMENT MODELS:** Embrace payment models that either share savings or offer total-cost-of-care risk pools, since the benefits of digital health will reduce utilization of traditional services. Consider subscription plans or other retail pricing strategies to generate new sources of revenue.

Digital Health: Realizing the Strategic Advantage

The next generation of digital health platforms and technology enablers and the recent CMS-proposed rules related to interoperability and information blocking will require changes to technology, the care model, and expectations of providers and staff. When designing and implementing a comprehensive digital health plan, ECG recommends health systems address the areas outlined below.

ENGAGE PATIENTS MORE ACTIVELY IN THEIR OWN CARE.
Send patients interactive text and email reminders before appointments, with easy pre-appointment instructions.

DELIVER CARE VIA MOBILE AND TELECOMMUNICATION PLATFORMS.
Use on-demand virtual telehealth visits to allow patients and providers to connect anywhere.

ASSIMILATE VAST SETS OF DATA INTO ACTIONABLE CARE DECISIONS FOR PATIENTS.
Sync data from wearables and remote monitoring devices into patient health records to allow for proactive care.

UTILIZE DATA AND ANALYTICS TO DELIVER PERSONALIZED PRECISION MEDICINE.
Define more precise and effective treatment plans by comparing individual patient characteristics to evidence-based data.

CONDUCT GENOMIC PROFILES OF PATIENTS TO DETERMINE THE BEST CANCER TREATMENTS, AND INCORPORATE AI INTO THE DELIVERY OF CARE AND PATIENT EDUCATION.
Increase the accuracy and precision of standard imaging reads through AI, and allow physicians to spend more time on complex reads.

USE PREDICTIVE ANALYTICS AND RPM TO PROACTIVELY INTERACT WITH PATIENTS.
Integrate external data sets, such as air quality, with patient health records to deliver guidance to patients with asthma or allergies.

AUTOMATE AND STANDARDIZE BUSINESS PRACTICES.
Improve billing and collections through enhanced revenue cycle management tools.

ADAPT TO CHANGING PAYMENT MODELS.
Allow patients to pay bills online using an easy-to-find location within patient profiles.

We believe the strategic advantage of digital health is the ability to connect both the virtual and physical worlds, engaging consumers in data and information transmission with the ability to deliver care when necessary. It is paramount that health systems capitalize on existing patient relationships and expand the consumer relationship to ultimately yield integrated care across settings (home to hospital to home). To generate a favorable ROI, health systems must also pursue new economic and payment models that yield revenue to offset the added cost of operating in both the digital and physical worlds. Organizations must evaluate a range of payment model changes that include shared savings, risk-based arrangements, subscription models, and consumer pricing strategies for virtual services.

But healthcare organizations must keep consumers at the center of any digital health strategy. A comprehensive digital health plan will use technology to advance the delivery of better healthcare; enhance the well-being of individuals through heightened patient engagement and more precise, personalized care; and address social determinants of health and build community connections. To patients, "the right care, at the right time, in the right place" will have different meanings. Healthcare organizations need to understand that and recognize that technologies such as patient portals, open scheduling, asynchronous telehealth visits, live video visits, RPM, and mobile compliance platforms have become requirements rather than luxuries.

REFERENCES

1. "Number of Smartphone Users in the United States from 2018 to 2024 (in millions)" (Statista, 2020) https://www.statista.com/statistics/201182/forecast-of-smartphone-users-in-the-us/.
2. "Global Digital Health Market Was Valued as USD 111.4 Billion in 2019 and Is Expected to Reach USD 510.4 Billion by 2025, Observing a CAGR of 29.0% during 2020–2025," (VynZ Research, May 23, 2020), https://www.globenewswire.com/news-release/2020/05/23/2037920/0/en/Global-Digital-Health-Market-was-Valued-at-USD-111-4-billion-in-2019-and-is-Expected-to-Reach-USD-510-4-billion-by-2025-Observing-a-CAGR-of-29-0-during-2020-2025-VynZ-Research.html.
3. "COVID-19 and the Rise of Telemedicine" (The Medical Futurist, March 31, 2020), https://medicalfuturist.com/covid-19-was-needed-for-telemedicine-to-finally-go-mainstream.
4. Heather Landi, "Teladoc's Virtual Visits Grow 200% in Q2, Revenue Reaches $241M as COVID-19 Resurges," (Fierce Healthcare, July 30, 2020), https://www.fiercehealthcare.com/tech/teladoc-s-virtual-visits-grow-200-q2-revenue-reaches-241m-as-covid-19-resurges.
5. Nina Chiu et al., "2020 Midyear Digital Health Market Update: Unprecedented Funding in an Unprecedented Time," (Rock Health, 2020), https://rockhealth.com/reports/2020-midyear-digital-health-market-update-unprecedented-funding-in-an-unprecedented-time.
6. "Poll: Seniors Give Telehealth High Marks; Medicare Advantage Satisfaction Smashes New Record," (Better Medicare Alliance, May 27, 2020), https://www.bettermedicarealliance.org/news/poll-seniors-give-telehealth-high-marks-medicare-advantage-satisfaction-smashes-new-record.
7. "Survey: Apps, Other Digital Tools a Critical High Priority for Half of Health Systems," (Center for Connected Medicine, 2020), https://connectedmed.com/resources/health-system-apps-digital-tools-patients-not-providing-best-consumer-experience-survey.
8. "US Virtual Care Visits to Soar to More Than 1 Billion," (Forrester, April 10, 2020), https://go.forrester.com/press-newsroom/us-virtual-care-visits-to-soar-to-more-than-1-billion.
9. William Shrank, MD, MSHS, et al., "Waste in the US Health Care System: Estimated Costs and Potential for Savings," (JAMA Network, October 7, 2019), https://jamanetwork.com/journals/jama/article-abstract/2752664.
10. Rachel Arndt, "Health Systems Save Money Using Digital Tools for Scheduling Appointments, Administrative Work," (Modern Healthcare, July 7, 2018), https://www.modernhealthcare.com/article/20180707/TRANSFORMATION02/180709982/health-systems-save-money-using-digital-tools-for-scheduling-appointments-administrative-work.
11. Thomas Handler, MD, "Gartner's Update to the Enterprise EHR Generation Model," (Gartner, August 26, 2016), https://www.gartner.com/en/documents/3418848/gartner-s-update-to-the-enterprise-ehr-generation-model.
12. "ONC's Cures Act Final Rule," (ONC, March 2020), https://www.healthit.gov/curesrule.
13. Recommended steering committee composition includes executive leadership and stakeholders representing clinical, financial, operational, technology, marketing, legal and compliance, and patient and community advocates.

ABOUT ECG

With knowledge and expertise built over the course of nearly 50 years, ECG is a national consulting firm that is leading healthcare forward. ECG offers a broad range of strategic, financial, operational, and technology-related consulting services to providers, building multidisciplinary teams to meet each client's unique needs—from discrete operational issues to enterprise wide strategic and financial challenges. ECG is an industry leader, offering specialized expertise to hospitals, health systems, medical groups, academic medical centers, children's hospitals, ambulatory surgery centers, and healthcare payers. Part of Siemens Healthineers' global enterprise services practice, ECG's subject matter experts deliver smart counsel and pragmatic solutions.

For more insights from ECG, visit www.ecgmc.com/thought-leadership.

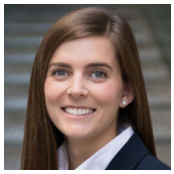
the Authors

ASIF SHAH MOHAMMED
Principal
ashahmohammed@ecgmc.com

DARIN LIBBY
Principal
dlibby@ecgmc.com

Contributors

LEN HENZKE



MONICA HAGGARTY

ECG MANAGEMENT CONSULTANTS
A Siemens Healthineers Company

COPYRIGHT © 2020 ECG MANAGEMENT CONSULTANTS. ALL RIGHTS RESERVED.

ECG MANAGEMENT CONSULTANTS

A Siemens Healthineers Company

COPYRIGHT © 2020 ECG MANAGEMENT CONSULTANTS. ALL RIGHTS RESERVED.