Reinvent & Reimagine Population Health: Interconnected Care Delivery

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THE DRIVERS: IMPROVING QUALITY & REDUCING COSTS

The healthcare industry is currently experiencing a tectonic shift, which is directly linked to legislative developments, changing demographics, and growing cost and revenue pressures.

The increasing demand for services stemming from an aging population and increasing incidence of chronic lifestyle disease, combined with shifting reimbursement models, is putting a lot of pressure on health systems and health plans. They are mandated to reduce the cost of patient care, while improving outcomes and expanding access, with ever-shrinking resources.

Change is occurring not only in the digital and non-digital technology used in population health, including enterprise diagnostics, telehealth and mobility. It is occurring throughout care delivery. This change is so profound that it is fundamentally altering the business model of the industry.

Most of the recent reports show healthcare costs rising consistently year over year, and that trend is expected to continue for the foreseeable future. However, rising costs do not necessarily correlate with higher quality care or better outcomes. That is the reason clinical quality and patient safety are foundational elements for effective care delivery, as suboptimal results cause readmissions, escalations, deaths and higher costs – direct results of system problems and failures.

Health systems face increasing demands to improve the quality of health care services and patient care, as poor clinical quality and safety have a devastating impact on the quality of life for patients. In addition, poor quality adds tremendously to the overall cost of healthcare.

Any mandate or legislation in the United States, such as the Affordable Care Act or Medicare Advantage Prescription Drug program, regardless of design, is based on risk transfer mechanisms. These mechanisms only shift or redistribute costs among various sources. While these features enable health insurance markets to function more smoothly, they are not a solution for controlling healthcare costs in general.

No doubt, legislative reforms have brought these quality and cost-shifting issues to the forefront and have heightened awareness of the need to make improvements. Further progress is only possible by defining end-to-end care delivery value across settings (including acute care and ambulatory) and by type of work. In order to make these improvements, incentives must be aligned while delivering care in the most cost effective setting.

Chart 1. Managing chronic diseases is a continued challenge for healthcare organizations. Successful population health management provides an opportunity to enable real transformation and deliver improved financial and quality outcomes.

Healthcare Spending in US Population by Number of Chronic Conditions: 86 percent of healthcare spending attributed to patients with one or more chronic conditions

0 chronic conditions — 14%
1 chronic condition — 15%
2 chronic conditions — 13%
3 chronic conditions — 12%
4 chronic conditions — 11%
5+ chronic conditions — 35%
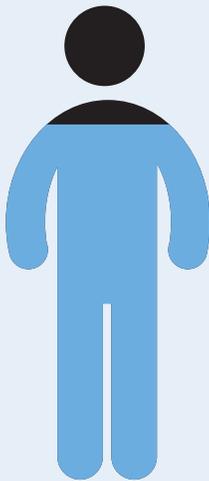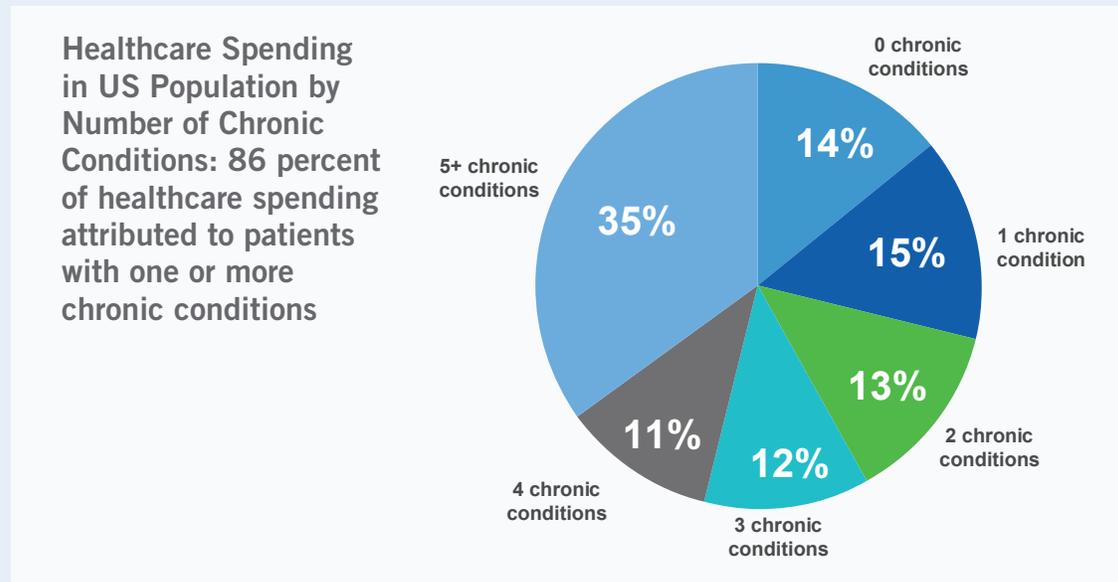
Medicare fee-for-service beneficiaries with multiple chronic conditions account for 93% of total Medicare spending.

Sources: https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/pre-vention-chronic-care/decision/mcc/mccchartbook.pdf; https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Downloads/2012Chartbook.pdf

The Promise of Population Health Management (PHM)

In the face of these rising costs and increasing burden of chronic conditions, population health management (PHM) is at the forefront of strategic initiatives taking place across the healthcare industry. Prompting these strategic initiatives is the massive shift in risk from payers to providers and patients through value-based care payment models. This shift is completely redefining the way healthcare is delivered and organized in the U.S.

Commercial and public health plans can no longer fund healthcare services without looking at the outcomes. They want assurance that services are of the highest quality and offer clear clinical value. Most often, that means asking for quality that can be demonstrated through better patient outcomes, care that is appropriate for the patient, and improvements in patient safety.

There are several challenges that stand in the way of healthcare organizational adoption of PHM-centric strategies. Most health systems and health plans acknowledge the benefits of PHM, but have failed to adopt a defined approach due to a lack of:

1. Strategic preparedness and direction
2. Internal expertise to succeed
3. Investments into needed technology infrastructure

Transitioning to population health is no easy undertaking. At the heart of clinical decision-making is data. Providers must assimilate a wide variety of information and inputs during the clinical decision-making process to provide the best outcomes for patients. This requires the convergence of information technology and healthcare technology, e.g., clinical, radiology, labs and medical devices. How do you keep this data relevant, timely and accessible when and where the clinical staff across care continuum needs it, while maintaining the electronic health record (EHR) as your single source of truth?

With a lot of electronic medical record (EMR) investments made and no single vendor-driven, complete PHM solution offerings available, healthcare organizations are forced to take a best of breed approach. This creates an integration nightmare and turns healthcare organizations into system integrators. Many health systems and plans still perceive PHM as an advanced application of healthcare analytics. However, in reality, the PHM ecosystem is larger and interconnected. It is inclusive of data management, risk management, care management, disease management, financial management and performance management solutions.

> Healthcare executives still face the continued challenge of evaluating technology solutions for value-based care—especially given the need to leverage existing investments in other systems.
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> **Source:** The population health management conundrum: Overcoming challenges to sustainable PHM strategies"
> http://www.beckershospitalreview.com/population-health/the-population-health-management-conundrum-overcoming-challenges-to-sustainable-phm-strategies.html

Currently, many health systems are applying a cobbled-together strategy toward population health management (PHM) and its technology (PHMT) with a focus on reducing costs through prevention, care coordination, regular check-ups, medication adherence and improved management of chronic conditions. Granted, early results are encouraging, but there is an increasing need to achieve much better results.

To attain better results and aggressively compete for value-based payments, health executives need to reinvent care delivery while focusing on going beyond coordination of care. Health executives need to consolidate the various clinical expertise required to address specific chronic conditions and deliver care where it is most cost and quality effective. Additionally, technology must be extended to offer care providers, referring physicians and patients "anywhere, anytime" access to the patient's health information from different sources.

The result of this care delivery shift is better quality and lower overall costs on a population basis. This shift represents an incentive for public and commercial health plans, employers and patients. At the same time, prevention-focused care delivery represents a potential revenue decline for hospitals by reducing the need for acute care services, as more procedures are performed on an outpatient basis.

Healthcare organizations must decide if they are fully prepared to make the complete transition from their current PHM model of care delivery to a more sophisticated PHM model. A complete transition means moving into a **platform-based business model** to achieve **interconnected care delivery**.

Achieving the full potential of PHM, while maintaining or expanding the revenue base, requires a long-term strategic vision and commitment from top-level executives to prepare for this strategic business model shift.

A few forward-thinking healthcare organizations have already put strategies in place and are aggressively moving toward that vision. Cornerstones of those strategies include:

- Expanding revenue base by tapping into premium revenue (standing up own plans and/or negotiating upside on value-based contracts with commercial payers).

- Maintaining a revenue base by creating a healthcare ecosystem to offer preventive care services and outpatient procedures.

- Better coordination and consolidation of clinical expertise to compete for value-based payments with an optimized cost base and excellent clinical outcomes, e.g., outsourcing low volume services to specialized providers with higher volume.

- Tapping into non-premium revenue potential by providing new services to patients and caregivers, such as tools to participate more fully in self-care.

The only way to realize the full potential of PHM and interconnected care delivery is via vertical integration through a technology strategy. That means moving into a platform business model.

THE EVOLUTION TO INTERCONNECTED CARE DELIVERY

Choosing a platform-based business model to evolve to interconnected care is an enterprise-wide strategy. Central to the strategy is a focus on managing the patient's circle of care across the continuum to achieve the Quadruple Aim: improved patient outcomes, patient experience and physician experience, and reduced healthcare costs.

Information technology plays an important role in organizing care coordination. It facilitates interconnected care delivery within a health system's network of ecosystem partners by enabling data aggregation and utilization of information for improving overall outcomes.

The investments made in the EHR are important, but they can't meet the growing requirements of a comprehensive PHM strategy. As mentioned earlier, many health systems are taking a best of breed approach to PHMT due to the lack of fully functional PHMT solutions currently on the market. Thus, platform business model strategies can be tailored using PHMT to aid in the progression toward the goal of interconnected care. This allows healthcare organizations to maximizing EHR investments.

An integrated information system is achieved by leveraging existing systems and standards with a health information exchange (HIE) infrastructure. The path forward is a single point of contact solution for bi-directional information exchange and communications between hospital information systems, clinical informatics solutions and medical devices.

Healthcare organizations should think of the process of moving toward fully interconnected care as a journey that involves all members of the healthcare ecosystem – providers, payers, clinicians, patients, pharmacy and caregivers. The four-step process that follows is a suggested roadmap that will help healthcare organizations better prepare for new value-based payment models.

> The next wave of care delivery innovation will arise from technology-enabled, platform-driven ecosystems now taking shape across the industry. Harnessing technology to establish healthcare ecosystems, health leaders are creating adaptable, scalable and interconnected platform economies that underpin success in value-based care.

Step 1 – Achieve Integration & Interoperability

Interconnected care is becoming a reality, and hospitals need systems and solutions that give them a full overview of the patient, with the ability to share and collaborate with all stakeholders across the care continuum.

With some key healthcare standards and initiatives, achieving two critical levels of interoperability is made possible. Syntactic, through ICD-10/CDIS standards, enables two or more systems to exchange information. In addition, Semantic, through HL7/DICOM standards, gives the ability to use the information exchanged.

EHRs and EMRs are the most widely adopted healthcare information technology (IT) in the U.S. However, achieving interconnected care delivery requires adoption of other platforms, applications and devices to maximize investments in EHRs and EMRs and ensure coordination of care to meet the Quadruple Aim.

A portal interface solution is the first step to achieving a fully interconnected care model. Portals act as an overarching framework, achieve standard-based integration and interoperability, and enable the EMR/EHR to be connected to and interoperable with other disparate systems.

The benefits of a portal interface include:
- Providing a single point of contact solution for two-way interfacing and communications between hospital information systems, clinical information solutions and medical devices.
- Interoperability with any EMR, picture archiving and communication system (PACS), radiology information system (RIS) and laboratory information system (LIS) through vendor-neutral architecture and standard-based bi-directional data exchanges.
- Enhancing EHR investment by providing rich clinical data from population health, registration, specialty, patient monitoring and clinical IT systems directly to clinicians through the EHR.
- Providing EHR data with improved clinical workflows and decision tools at the point of care, while image enabling the EHR with universal image viewer.
- Capturing, aggregating and presenting information in a clear and user-friendly screen interface for clinicians, referring physicians and patients, furthering the concept of interconnected care.
- Achieving interoperability between clinical systems and the EHR in an efficient and cost-effective way, enhancing the value and clinical impact of IT investments.

- Empowering the patient with fast access to results, while reducing redundant exams and procedures.
- Increasing EMR adoption as referring physicians receive clinical notes, results and images more quickly, with the patient's complete health record providing greater context.

> When a physician is in the EMR, he or she is still missing data that has already been acquired on a patient. For example, a big part of the missing content is imaging and prior clinical history. When imaging is missing, it may be repeated unnecessarily, increasing healthcare costs and exposing the patient to additional radiation. EMR adoption rises when patient information can be quickly and easily retrieved, and clinicians can better manage care when they have a comprehensive view of their patients.
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> **Source:** Nambisan P, Kreps GL, Polit S. Understanding electronic medical record adoption in the United States: communication and sociocultural perspectives. Interact J Med Res. 2013;2:e5. doi: 10.2196/ijmr.2437. [PMC free article] [PubMed]

With a portal, patient-driven workflows and information follow the patient across the care continuum, even beyond the hospital walls. All patient information is shared and accessed through a simple, easy-to-use web browser or mobile technology for better care coordination.

The portal provides a solution for storing, retrieving and sharing health records. It brings together patient data from different sources and different times, for a longitudinal health record. Fast access to complete patient health records speeds up workflow and reduces the time physicians spend searching for information and previous results, images and reports.

As the industry resolves interoperability challenges using standards like SNOMED, RxNorm and LOINC, extending portal interfaces to leverage those standards would give a complete patient-centric longitudinal record with standard-based integration.

In a value-based care environment, it makes sense to invest in infrastructure that provides secure, reliable and fast access to all the patient clinical data and images across organizational boundaries. The infrastructure enables hospitals and health systems to reduce the points of interface to one standard-based connection for more streamlined operations.

Step 2 – Enhance EHR Functionality

In value-based care, context is king, with information that is searchable and comparable. However, in their current form, EHRs and EMRs can't meet all of the requirements of interconnected care delivery. One of the most frustrating aspects of EMRs and EHRs among users is the inability to access and mine data and use it for meaningful patient intervention within the context of the patient-physician workflow.

EMRs collect and catalog patient information, but they do not always aggregate data in ways that make clinical sense for patient care. Today's needs go beyond aggregation to having additional functionality.

To move toward interconnected care with patient-driven workflows, a good place to start is data aggregation. This is another area where PHMT provides a foundation for health systems:

- Some health systems use PHMT outside of the EMR for clinical workflows and decision support tools. The technology is used across the point of care within a silo and without any bidirectional capabilities with the EMR and clinical systems.
- With a PHMT approach, workflows across a clinically integrated network or narrow network are achieved, allowing any referring physician to log into a clinical portal and start a referral workflow for a given patient.

Portal interface solutions are a better option than PHMT, as they connect to various clinical systems and medical devices. As the volume of clinical data available grows exponentially, it is imperative that it is captured and exchanged among EMRs from multiple silos across the healthcare organization. Portal interface solutions provide:

- The ability to better manage the data and make it easily accessible across the ecosystem through visual tools, providing context and synthesizing huge amounts of data into more granular and clinically relevant information.
- Patient-driven workflows to define value-based care (specifics of appropriateness in utilization translates to better care).
- Simplified clinical workflows with form design capability, rule-based decision support, data query design, enhanced encounter forms and simplified e-waveforms.
- Integration with population health tools, such as connecting to claims and pharmacy data to identify and stratify patients likely to benefit from proactive care management. For example, clinicians can:
  - Use the data to contrast with other clinical findings
  - Use the visual tools and easy-to-interpret trend data, including early warning, patient monitoring, vital signs and discharge systems
  - Monitor acute care patients to intervene early and prevent complications and help clinicians evaluate the effectiveness of interventions
- Facilitate workflow customizations within the longitudinal enterprise platform to meet departmental needs with one single construct.

A portal interface better identifies at-risk patients, resulting in decreased mortality and length of stay (LOS) and faster measurement of vital signs. These decision support solutions export data to the EMR through the portal interface solution, centralizing all patient information for easy access.

In interconnected care, these enhanced functionalities through workflows and clinical decision support provide an excellent opportunity for healthcare organizations to:
- Define the entire value chain along with the right metrics to capture value throughout the care continuum.
- Define, capture and track metrics, and quantify value across clinical quality, business growth and service metrics – all the ingredients needed to achieve value-based care.
- Define roles across hospital departments, e.g., cardiology and radiology, based on what value each needs to deliver to the organization. This increases clinical efficiency, makes clinicians more effective consultants, and brings the best value of care to patients.

Step 3 – Launching a Platform-Based Business Model: Connecting With the Wider Care Community

As hospitals merge, consolidate and grow, and EHRs achieve widespread implementation, it has become increasingly clear that healthcare data silos must come tumbling down. In the new business model, the patient's data lives across multiple silos, so how we get to the right context becomes a key driver of value-based care.

Source: Bates DW, Saria S, Ohno-Machado L, Shah A, Escobar G. Big data in health care: using analytics to identify and manage high-risk and high-cost patients. Health Aff (Millwood). 2014;33:1123–1131. doi: 10.1377/hlthaff.2014.0041

To survive and thrive in this shifting business model, health organizations of all types must redefine their roles and goals, and embrace the new rules of value-based care. The winners will master the strategic use of technologies to build successful platform-based business models.

Leading healthcare organizations are starting to make big investments in building digital platforms. As they do, they're uncovering exciting growth opportunities that fundamentally change how they create and deliver products and services to patients. But these technology platforms and the new business models they drive are only part of the story. As more healthcare organizations build or partner in industry platforms, new digital ecosystems, such as clinical research and genomics, are growing around them. These digital ecosystems will become the foundation for the next major stage of technologic and economic disruption.

With bi-directional integration and interoperability, the portal interface solution becomes a patient-oriented, longitudinal, cross-organizational electronic health record (EHR). It easily extends EHR platform access outside hospital walls into outpatient settings and patient homes. This enables healthcare organizations to collaborate and coordinate care across all patient touchpoints in the ecosystem.

Using a clinical portal, clinicians only need a browser for secure access to the comprehensive patient record, aggregated from multiple information sources, to aid in clinical decision support inside and outside the hospital. Hospital clinicians can still work within their own EMR for administrative and clinical functions, while also benefiting from a more complete picture of the patient within the EHR.

A portal can also be used for referring patients, viewing results from other encounters, and raising orders. In addition, hospitals that integrate primary care data into this comprehensive patient record can also realize major benefits. For example, a portal can help reduce duplicate tests and improve prescribing and treatment decisions during emergency admissions.

Platform business supports creating an interconnected care delivery model with a unified single platform and integrated infrastructure. It gives healthcare organizations an excellent opportunity to innovatively leverage their capital investments in expensive care delivery technologies.

A unified single platform helps:

- Expand the revenue base with community-based preventive care services and outpatient procedures.
- Achieve technology-enabled better coordination of care, while consolidating the internal and external clinical expertise required to address chronic conditions and deliver care in the most appropriate setting.
- Eliminate redundant resources, such as integrations, multiple imaging centers and PACS systems.
- Decrease overall costs by outsourcing low volume services to specialized providers with higher volume.
- Provide new services, such as home health and telehealth, to patients and caregivers, and offer tools to increase participation in self-care, which improves outcomes.

> Health organizations no longer just serve patients; they collaborate with them. They no longer just compete with rivals; they partner with them. They're no longer limited by industry boundaries; they ignore them.
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> The connective tissue for all this may be a digital platform, but the defining elements are people – patients, physicians, employees. And it's much, much more than a means of improving business outcomes today. Digital's power is to drive fundamental change in the status quo of healthcare organizations — whether that's the communities in which they operate, the markets they serve, the talent they employ, or the coordination and consolidation of clinical expertise.
>
> **Source:** http://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/how-healthcare-systems-can-become-digital-health-leaders

Portal interface solutions help coordinate care remotely. Remote monitoring is a very effective way to coordinate care, reduce costs, and compete aggressively under value-based care. Healthcare organizations must utilize technology to leverage resources and people. Hospitals and health systems will need both technology and expertise to remotely manage patients in the intensive care unit, on the medical and surgical floors, and in their homes.

This platform business strategy allows hospitals to play a bigger role in patient care beyond hospital walls, especially for patients with chronic conditions. The goal of a platform business strategy is to grow market share across the continuum of healthcare needs, from healthy living, prevention, diagnosis, treatment, medication, recovery and home care.

Step 4 – Physician-Patient-Caregiver Engagement

Portal interface solutions come with advanced application program interface (API) functionality to provide and connect to any third-party engagement solutions. Many mobile devices and applications exist to improve patient engagement.

Empowering patients to manage their own health is critical to improving health outcomes, as lack of engagement is a major contributor to preventable deaths. Healthcare must be made more convenient and easier to access for patients. It must be far simpler to perform administrative tasks, such as making appointments, checking and rescheduling appointments, receiving reminders, and seeking advice and coaching on lifestyle changes.

We are in the midst of a major technology revolution, specifically a digital revolution. Research shows that digital is now dominating every sector of the economy, and even more so in the health sector.

Source: http://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/healthcares-digital-future

Getting patients with chronic diseases engaged in their own care has always been a goal and a challenge for providers across the care continuum. To be effective, population health management should include a variety of interventions, some of them automated, to keep patients engaged and help them manage their own care between visits.

By enabling patients and their circle of care to become an integrated part of the care delivery team, providers can benefit from additional patient-reported outcomes (PRO) data. The data can be used to update the care plan and support patients and their caregivers in actively performing some basic care tasks themselves. In a value based healthcare environment, revenue often depends upon how fast and effectively you can identify and engage at-risk patients to close gaps in care.

The key to patient engagement is the physician-patient/caregiver relationship. Patient engagement tools provide comprehensive, intelligently organized patient information, including care plans and clinical trending data. This information allows physicians, care managers and coordinators to prepare effectively for follow-up patient visits, increasing efficiency, patient satisfaction and quality performance.

Incorporating patient engagement solutions into the portal can enhance population health management efforts:

- A patient portal or mobile application can sit across a unified patient record, providing patients with access to their connected record, including information in the hospital EMR and beyond.
- This information flow can be enabled in a multichannel approach by using website-based interaction, native mobile applications and text messaging.
- Clinical mobility solutions are ideal technologies to leverage for care coordination because of their rapid adoption among clinicians.
- Through event management, clinicians can receive notifications and alerts on their mobile devices – a concept that is being widely embraced by clinicians and patients. These types of solutions may help hospitals and health systems effectively and cost-efficiently extend clinical capabilities outside of traditional care locations, allowing clinicians to proactively manage changes in their patients' health status to prevent hospitalizations or readmissions.
- Engagement solutions can be extended to the central monitoring system in the patient's home, which will give clinicians easy access to patient information aggregated by the mobile apps.

MOVING TOWARD INTERCONNECTED CARE DELIVERY TO MANAGE POPULATIONS

Adopting a platform business strategy allows hospitals to play a bigger role across the continuum of healthcare needs, from healthy living, prevention and diagnosis to treatment, medication, recovery and home care.

Having a comprehensive, single patient record with optimizable clinical workflows and the ability to define

clinical pathways within the clinical portal supports high quality care across the continuum. It ensures that clinicians have access to support tools to complete tasks, render evidence-based treatment and engage patients in their care.

Benchmarking, measuring, reporting and sharing clinical data are paramount to successfully meeting requirements of value-based payment models. This level of care coordination and consolidation of expertise among all members of the circle of care (clinicians, caregivers and patients) help hospitals and healthcare systems become dynamic organizations that continuously evolves and scale.

Achieving Financial Sustainability With Interconnected Care

Moving into platform-based business model supports interconnected care delivery for more effective population health. This model enables healthcare organizations to aggressively grow market share, tap into insurance revenue and engage in value-based payment agreements, all of which provide a sustainable competitive advantage.

The evolutionary development of information systems needed to support interconnected healthcare delivery requires commitment and financial investments. Negotiating value-based contracts with payers and employers that improve outcomes and lower costs can be a great way to fund this transformation.

Another growing and attractive option is to partner with health information technology companies and get into a part license-based fee and part risk/member outcomes-based fee arrangement.

It is all about creating a **competitively sustainable and defensible position** with a platform business model strategy.

> Health organizations must focus on enabling people—patients, physicians, caregivers, employees and ecosystem partners—to accomplish more with technology. They will have to create a new corporate culture that looks at technology as the way to enable people to constantly adapt and learn, create new care delivery solutions, drive relentless change, and disrupt the status quo. In an age where the focus is locked on care technology, the true leaders will, in fact, place people first.

About the Author

Kamesh Somanchi
Kamesh Somanchi is a strategic partnership and customer acquisition advisor within Lumeris. His experience spans both health systems and health plans. During his career, he has assisted customers in health plan stand ups (product filings and launches), in transition to value-based care models/contracts and in migration to platform-based business models. He has helped clients set up multi-payer multi-patient population health services organizations, consolidating and optimizing operations to improve value based care outcomes. His expertise includes sales, business development, advisory, systems integration, and stand up and operations. In his prior background, Kamesh held global leadership positions in Cognizant and Accenture.