

The CIO's Guide to Accountable Care
3 Drivers, 5 Functional Requirements and 9 Tech Building Blocks

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Trustees, CEOs, finance directors and others are increasingly turning to hospital IT leaders with a simple request: *Build us the infrastructure for accountable care.*

The challenges are many—system options, interface design, staffing, budgets, timelines, etc. One of the biggest problems, however, is that accountable care is pushing CIOs to master new ways of thinking about healthcare IT.

Traditionally, hospital IT decisions are based on department needs, system functionality and cost. CIOs focus on issues like system selection, implementation and ongoing maintenance. Starting now, accountable care is taking the IT decision making process to a new level. To create a viable accountable care infrastructure, CIOs need to understand and weigh factors like industry trends, system interoperability, evolving regulations, organizational strategy and more.

Drawing the interface design scope is not enough. CIOs need to create a design strategy focused on results-oriented information that supports the hospital's unique accountable care model. The key to moving forward is to understand the fundamental goals of accountable care and how they dovetail with the organization's overall business strategy.

Basic Drivers and Key Developments

The push for accountable care can be boiled down to three basic drivers. (1) *The need for cost control.* U.S. per capita spending on healthcare is significantly above that of other developed nations, and healthcare economists expect costs to swell as the population ages. (2) *The demand for better quality.* While the U.S. compares favorably to other nations on many quality measures, it appears to lag in important ways, including preventive care and patient safety. Healthcare leaders see a pressing need to improve care processes and outcomes in these and other areas. (3) *Expanded use of health information technology.* Both providers and payers see an opportunity to address cost and quality challenges by taking advantage of health IT to capture more information, increase information sharing, standardize care and improve processes.

These basic drivers are shaping the concept of an accountable care enterprise: *a group of providers and provider organizations that use technological tools and clinical integration strategies to assume collective responsibility for the quality and cost of healthcare for a defined group of patients.* In turn, this basic concept is being shaped and modified by a handful of key developments.

The first development is payment reform. Experts blame high healthcare costs on fee-for-service reimbursement, the traditional payment system that rewards physicians and hospitals for the number of services performed, with little regard for quality or efficiency. Both government and commercial payers hope that making provider organizations responsible for costs and quality will help cut waste, control spending and improve care. Medicare's new Value-Based Purchasing (VBP) program is a good example. Under the VBP program, DRG payments are tied to hospital performance on specific quality and patient satisfaction measures.

The second development is the focus on clinical integration. The government is requiring providers that want to function as a Medicare Accountable Care Organization (ACO) to demonstrate that they are collaborating to improve patient care, not just creating negotiation leverage. The key is to show that providers are organizing a clinically integrated delivery system around evidence-based standards, with the

consequence that providers who do not achieve these standards are ineligible to share in ACO payments. While clinical integration is a Medicare requirement, the concept applies to all providers who are pursuing any kind of accountable care opportunity.

The third development is the evolution of government Meaningful Use (MU) standards. MU is currently focused on electronic medical record (EMR) reporting requirements and process improvement in the form of chronic disease management and e-prescribing. However, MU requirements will develop toward clinical outcomes improvement, and in the near future accountable care performance goals will merge with MU standards.

Five Functional Requirements

Taken together, the demand for cost control and quality improvement, trends in new technology, and developments in the payer landscape are pointing toward five functional requirements of an accountable care IT infrastructure. To support an accountable care enterprise, IT systems must enable providers and administrative leaders to:

Coordinate patient care across multiple settings. Experts believe the lack of coordination between caregivers is responsible for a large portion of excessive costs. Poorly coordinated care leads to redundant services (such as duplicative diagnostics), medical errors (leading to additional costs) and poor overall care for patients with chronic conditions. The IT infrastructure for an accountable care initiative will need to enable strong coordination of services via information sharing between primary care physicians, specialists, hospital-based caregivers (including the emergency department), diagnostic facilities/departments, laboratories and others.

Systematically improve quality and patient outcomes. There are many opportunities to improve patient care by adhering to existing evidence-based guidelines. Additional gains can be achieved by improving efficiency and implementing systems to measure, track and improve quality and outcomes. Accountable care IT systems will support providers by capturing structured clinical data, helping them adopt evidence-based medicine and incorporating clinical care plans to enable provider organizations to manage quality data for entire patient populations.

Systematically reduce costs and utilization. As with clinical improvement, gains in cost control and efficiency can be achieved by reducing redundant processes and using data analysis to identify savings opportunities. The IT infrastructure for an accountable care initiative will support adherence to efficient clinical and administrative processes and enable financial leaders to use data to identify the cost of care and improve financial performance.

Incorporate patients in the information loop. Patient compliance is a major obstacle to effectively managing the cost of chronic disease and improving clinical outcomes. Effective IT systems will support accountable care efforts by enhancing patient communication, engagement and monitoring. For instance, clinical outcome tracking around chronic disease management will enable organizations to create patient-focused clinical outreach programs designed to encourage patient compliance.

Identify and enhance managed clinical value. First-generation accountable care initiatives are concentrating on securing additional revenue from government and commercial shared savings programs. Second-generation initiatives will work to tie clinical outcomes to the cost of delivery of care with the goal of negotiating performance-based managed care contracts. To support this goal, accountable care IT systems must develop increasingly powerful capabilities for storing, mapping and analyzing clinical and claims data from the entire range of clinical and administrative systems.

Ultimate Decision Parameter: Strategy

Hospital CIOs can significantly narrow the scope of IT planning by focusing on the five functional requirements of an accountable care infrastructure. However, these functional objectives do not answer every question about IT design. CIOs still have the challenge of creating an infrastructure that supports the hospital's specific goals and tactics. The ultimate decision parameter in the IT development process is the hospital's unique accountable care strategy. Basic questions include:

Will your organization lead an accountable care enterprise or participate in someone else's? The answer will determine how you manage connectivity and create data management capabilities.

Which other entities will the accountable care enterprise interact with and how? The further the network reaches, the greater attention you will have to pay to interoperability issues.

What is the hospital's model for collaborating with physicians? Depending on whether providers are organizing as an integrated delivery network (IDN), a physician-hospital organization (PHO), an independent practice association (IPA) or some other structure, you will need to take a different approach to coordinating EMR systems. This decision will also drive an organization's hospital and physician integration strategy.

What governance model is in place to help drive decision making? Since working toward accountable care requires building on defined strategies, a strong physician-hospital leadership governance model is critical to providing direction and support for IT decisions.

The CIO's job is to build an IT infrastructure that delivers core functionalities in a way that supports the hospital's accountable care strategy with regard to physicians, other provider entities, payers and the market. The key to creating an IT system that delivers on hospital strategy is to understand the different components of an accountable care infrastructure. Following are the nine IT building blocks of an accountable care system, including critical success factors, strengths and weaknesses of different options, typical selection problems, common misconceptions and implementation best practices. CIOs can configure these building blocks to meet any set of strategic needs and position their hospital to function in the world of accountable care.

1. Standards-Based Information Exchange

Hospital IT departments are currently focusing on technical solutions to exchanging data between hospital and ambulatory systems, including ambulatory EMR and practice management systems, hospital EMR systems and other ancillary hospital systems. For CIOs, the important thing is to understand that the goal is not just to exchange data, but to exchange data in a format so that it can be coordinated and accessed across the care continuum. Without standards-based information exchange, healthcare organizations will continue to be data-rich and information-poor.

A basic question is which standard to adopt—Continuity of Care Record (CCR) or Continuity of Care Document (CCD)? The answer depends in part on the capabilities of your application vendors. It also depends on what kind of information you want to exchange and what you want to do with it. Ultimately, that depends on your organization's clinical and strategic goals.

The CCR format is built upon a limited number of data fields. The benefit of a CCR file is that data is entirely structured, allowing for full exchange and usability by computer systems. The format is also simpler, allowing for easier set-up with a broad range of provider entities. A CCR-based system is well suited for exchanging basic patient snapshots across a wide range of providers.

The CCD format includes structured data fields and the ability to enter “narrative” information. While CCD is more complex and does not offer fully structured data, it is also better suited to managing the huge amount of information that currently exists on paper. CCD may be the best option for rich information exchange between providers that have ambitious goals for care management.

Existing systems are also a consideration. What exchange platforms are currently in use within your hospital? What is being used by community providers? How will this information be used to support clinically integrated care? The answers to these questions are the foundation for building a true patient longitudinal record.

2. Agnostic Application Strategy

Since the goal is connectivity, an effective accountable care infrastructure will need to be vendor-agnostic. All applications must be able to interface with other systems within the network. From a planning point of view, there are two pitfalls:

One danger is presented by IT applications promoted by individual hospital departments or community provider organizations. For example, say the medical oncology department advocates a particular software package for managing infusions. If that system does not interface with other applications such as the pharmacy system or the acute EMR, then interoperability cannot be achieved. The software may be a great infusion management solution, but if it does not support clinical integration around shared data, true coordinated care will be a challenge. The overall need for full data integration takes precedence.

The second pitfall is the danger inherent in an enterprise solution. There are several very good integrated solutions available for hospital and ambulatory information systems. However, some of these enterprise systems do not work well with other applications. Connections may be possible, but the preference is staying within the platform. Overall, integrated solutions offer many benefits such as strong core connectivity, and they can make implementation easier. Again, however, if the system prevents full clinical integration and coordinated care management, it will undermine the goal of accountable care. CIOs need to make sure any enterprise solution allows for full connectivity—or negotiate within the vendor agreement that the system will allow for an efficient exchange of information with applications outside the platform.

3. Interoperability

Once information systems have a common language (the exchange standard) and the ability to be heard by each other (agnostic applications), you need to decide *what* they will say to each other. In concrete terms, decisions need to be made about what structured data will be extracted from which systems, where the data will go and how it will be used.

This will largely involve mapping data from hospital applications into the ambulatory EMR. For example, when a heart failure patient goes to the hospital lab for a BNP test, what will happen to that clinical data element? It must flow into the EMR, but where in the patient record? The answer depends on the network’s accountable care strategy and the needs of physician users. Multiply this example across the full range of possible data elements and it becomes clear that mapping data to achieve interoperability is a huge undertaking.

Many EMR systems come pre-loaded with structured data sets, but hospital IT leaders should be wary of these “out of the box” interoperability solutions. Generic data sets do not work well in most situations, because they generally focus on regulatory requirements and are not individualized to the needs and strategy of the organization.

4. Patient Longitudinal Record

Under traditional paper medical records systems, information sharing involves printing or copying records and physically sending them to another provider. When developing an electronic records system, one pitfall is the temptation to see the EMR as simply a digitized version of the traditional process. Attention is focused on exchanging data between different users. Information sharing is important, but hospital CIOs also need to focus on the underlying goal of EMR, which is to create a longitudinal patient record—one that consolidates and organizes patient health information from every provider into a systematically organized composite record.

A patient longitudinal record is critical to accountable care because it provides physicians with a comprehensive view of the patient's health history, tests and services. It is seen as an antidote to "episodic care," in which interventions are based largely on provider specialty with limited knowledge of the patient's total condition. A longitudinal record enables physicians to manage the patient's total care experience across acute, ambulatory and long-term care systems, and between multiple provider specialty settings. The driving force is to integrate and harmonize clinical data for providers. For instance, an effective patient record will organize a patient's name with their complete list of medications from all providers. Beyond that, it will organize brand name medications with generic equivalents, helping to drive efficient clinical decision making at the point of care.

5. Clinical Decision Support Systems

Providing physicians with comprehensive patient information is not the only goal of an EMR system. Healthcare leaders expect EMR to actively drive better care through Clinical Decision Support Systems (CDSS)—automated alerts and reminders that support medical decision making at the point of care. CDSS functions can include alerts for adverse drug interactions, drug allergy reactions and potentially redundant tests; reminders for preventive care services and labs by diagnosis; and automated assistance with prescriptions and dosing.

Most EMR software packages include clinical alert functionalities; but again, using "out of the box" settings and pre-programs is not advisable. Physicians, both employed and community-based, need to lead the process of designing CDSS alerts and reminders based on agreed-upon care protocols—and care protocols must be based on the organization's specific strategies for achieving accountable care.

For instance, say a hospital/physician network decides to focus on coronary artery disease (CAD) as one of the cornerstones of its accountable care strategy. Successfully managing this condition can reduce overall costs significantly by reducing readmissions and preventing complications like heart failure and arrhythmia. Based on this goal, physicians and other clinical leaders will establish a number of diagnostic and interventional protocols for optimal CAD care. As part of this initiative, the EMR will be configured with supporting CDSS functionalities, such as reminders for periodic blood tests and alerts for test results that fall outside agreed-upon ranges. Alerts could also be configured to flag results and indications that suggest the need for imaging studies or EKGs.

6. Clinical Data Repository

An EMR system is a powerful tool, but it is not the only data management system required for accountable care. This is a source of confusion for many. EMR is a tool for capturing, retrieving and working with patient information at the point of care. It does not allow users to manage the care of a large patient population. To create this capability, an organization needs a clinical data repository (CDR).

A CDR is a database that stores information entered from a variety of provider systems. The database includes structured data elements and standardized data sets for coordinating de-identified patient information, and it offers analytic capabilities that allow clinical data reporting. CDRs enable two processes that are critical to allowing an organization to function as an accountable care provider:

First, the CDR creates an infrastructure for joint clinical decision making. Physicians and other clinical leaders can use CDR reports to identify problems with clinical processes and outcomes, develop solutions and track improvement. A powerful CDR will allow clinicians to monitor and improve clinical performance by disease, age group, risk factors, clinical intervention and many other parameters. It also allows hospital and clinical care leaders to help individual providers identify and adopt better clinical practices.

Second, a CDR allows an organization to report information required under accountable care payment systems. The structured database is the means for capturing and validating clinical performance and getting paid for attaining performance goals. This will become especially important for organizations that enter into full risk contracts with payers.

7. Personal Health Record Integration

Patient Health Record (PHR) technology is not as well developed as EMRs, and there are a lot of questions about how patients and provider organizations will use it. However, planning for a PHR system cannot be pushed off to the indefinite future. Medicare ACO regulations specify that patients must have electronic links to their health information, and expectations for patient connectivity will increase. Even under less stringent commercial accountable care programs, organizations recognize a strong need to engage patients in their care and use electronic technology to involve individuals in disease management efforts.

No matter what the current state of an organization's accountable care program, CIOs need to start creating plans for incorporating a PHR system into an accountable care infrastructure. Technically, the issue is establishing the interfaces to get PHR data feeding into ambulatory EMR, acute EMR and patient registration systems. More important, the organization needs to make decisions about what information will be captured in a PHR and how it will be used.

Again, organizational strategy is the driver. Begin by building the PHR around the organization's core accountable care projects. For example, if the organization is beginning with a clinical integration effort around hypertension, the first step might be to allow patients to log medication use and home blood pressure readings within the PHR and receive periodic reminders about diet, exercise and stress management.

8. Business Intelligence Capabilities

A key mechanism of the accountable care model is holding providers financially responsible for spending, at least within certain parameters. Given that fact, clinical information systems and traditional business information systems are not enough for supporting accountable care. Organizations need to develop robust business intelligence capabilities that allow leaders to manage the financial side of care proactively.

A business intelligence system capable of supporting accountable care will include a data warehouse system with versatile analytical tools. The system will need to incorporate data from hospital financial information systems and physician practice management systems and fold in data from the CDR.

The functional objective of the system is to allow multi-dimensional reporting that encompasses physician and hospital services, patient clinical data, and patient claims data. The immediate goal is to be able to tie clinical outcomes to claims data to identify the cost of care for various diagnoses. The ultimate goal is to use the business intelligence system to identify opportunities to reduce waste, reduce spending and improve operational efficiency and leverage those improvements financially under accountable care contracts.

9. Health Information Exchange

Many healthcare leaders think of a Health Information Exchange (HIE) as an interface engine. This is only partially true. An interface engine transmits data points from system A to system B (for example, diagnostic results from the lab system to the physician EMR). An HIE allows for much more robust connectivity, linking all systems within a community, including internal hospital systems and independent provider systems. An HIE captures outcomes data and organizes patient information across all participating entities. More importantly, it allows information to be exchanged in a federated or “open access” model in which organizations can share or protect information selectively.

How should the IT department plan and design an HIE infrastructure? Once more, CIOs need to make these decisions in the context of organizational strategy. A hospital that intends to lead an accountable care initiative should consider developing its own private HIE so it can determine what data is collected and shared. A community hospital that simply wants to keep up with the industry should examine the possibility of connecting with one of the many state or regional HIE initiatives being developed. Another issue is market strategy. Decisions about an HIE should be aligned with the organization’s service area schema, physician integration strategy and any plans for market expansion.

Staying Focused

In working with all these building blocks, the main point is to stay focused on the basic goals. Look at interface design in light of the need to create information that will help the organization manage and control costs and improve quality. Make system selection choices based on the need to provide comprehensive patient information at the point of care, creating a true patient longitudinal record. Most of all, make sure all decisions about specific applications and overall interoperability are driven by a physician-hospital leadership governance body that has ownership of the hospital’s total accountable care strategy.

Ultimately, the definition of a high-performing IT infrastructure is one that helps the hospital achieve its goals for collaborating with specific provider organizations, improving outcomes for specific patient populations and positioning the organization for success within the ever-changing world of accountable care.

[author biography]

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[abstract]

To design an effective information technology infrastructure for an accountable care initiative, hospital CIOs require a solid understanding of the basic goals and objectives of accountable care. This article explains (1) the basic trends that are driving accountable care, (2) how those trends are shaping the basic functional requirements of an accountable care IT system and (3) the nine IT “building blocks” of an accountable care infrastructure.

[key words]

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