

Health reform initiatives are stimulating ACO formation now

Developing ACOs must transform care delivery practices and administrative support to deliver results across the continuum of care

There are 6 ACO critical success factors:

1. ACO member engagement
2. Cross-continuum care management
3. Clinical information exchange
4. Quality reporting
5. Business intelligence, predictive modeling and analytics
6. Risk and revenue management

Effective use of Health Information Technology (HIT) is critical to ACO success; ACOs will also demand far more HIT than is currently available

ACO HIT expansion planning cannot wait; ACO HIT strategy and investment planning must be woven into the enterprise HIT blueprint now

The Promise of Accountable Care

One of the keystones of the U.S. health care overhaul envisioned by framers and supporters of the Affordable Care Act is the Accountable Care Organization (ACO). The reason is simple – ACO adoption goes beyond reimbursement reform, quality measure reporting and other narrowly defined initiatives to transform health care delivery in ways that align delivery with both improved care quality and reduced costs.

At the heart of the ACO model is a system of inpatient, ambulatory and ancillary care providers that assumes responsibility (becomes accountable) for the quality and cost of health care for a defined population of ACO members. For that defined population, the ACO is accountable for delivering care to those who need it, achieving quality benchmarks and keeping spending below defined thresholds. An ACO program for Medicare is written into the Affordable Care Act, and pilots of similar programs are being pursued by commercial carriers and other stakeholder organizations. The availability of the incentives and the start-up programs make it an ideal time for health care providers to get in on the ground floor of ACO development – the time for innovation will never be better, and the financial risks will never be lower.

Nevertheless, moving from theory to practice in building a functional ACO will be a formidable challenge for most traditional health care organizations. Decades of care practices and organizational structures developed in an environment dominated by fee-for-service reimbursement, competition between providers and adversarial relationships with health plans must be transformed to focus on care coordination, quality improvement and cost reduction. Organizational and performance realignment that is enabled by health information technology will be critical to the successful ACO. The ACOs that are forming must focus equally on the broad spectrum of health information technology (HIT) investment and applications needed for their success, and on the provider constituencies, organization, governance and payment models required.

This report outlines an operational model for ACO formation, describes critical success factors for achieving the required performance, and then identifies and discusses HIT necessary to deliver it.

A Fundamental Change in Perspective

For traditionally structured provider organizations to deliver “accountable care” a fundamental shift will be required in perspectives, attitudes, practices, resources and information technology capabilities. This is because “bending the curve” on health care costs will require simultaneously addressing three primary factors:

- Improving the quality of care provided and the outcomes achieved using processes that promote continuous process improvement and align financial incentives with desired behavior and practice

- Optimizing the utilization of services — the quantity — with a focus on chronic disease management, coordination of care, reduction of ED utilization and admissions, reduction of unnecessary redundant testing and care, increasing preventive services, and a broad passionate commitment to care at the “right place and time”
- Reducing the unit cost of care through relentless attention to costs reduction and the elimination of waste, excess capacity and process inefficiencies

ACOs will have to deliver on all these dimensions, a challenging undertaking that will require significant organizational, process and information technology change. The ACO requirements to be fleshed out:

New Medicare ACOs:
 CMS' *Medicare Shared Savings Program*, scheduled to begin operation by January 1, 2012, is an Affordable Care Act provision that allows providers to voluntarily form ACOs and share in financial savings accrued to Medicare. For assigned patient populations, ACOs that meet minimum quality and spending thresholds will receive a percentage of the savings. Core reimbursement will likely continue as fee-for-service, but HHS has the discretion to employ alternate payment mechanisms to improve quality and efficiency. **The shared savings ACO model does not require participants to bear financial risk.**

Accountable	<ul style="list-style-type: none"> • Accountable for the health of a defined group of ACO member beneficiaries • Accountable for the achievement of quality and cost goals — by the “purchaser” — the insurer (Medicare, Medicaid, commercial, employer) • Accountable to the patient for care coordination, accuracy and privacy of their information
Care	<ul style="list-style-type: none"> • Coordination across the continuum • Primary care — advisably organized into a Patient Centered Medical Home • Innovation — in early diagnosis and prevention; in transitions of care; in the use of electronic health records and information technology to improve clinical decisions; in ACO member engagement
Organization	<ul style="list-style-type: none"> • An IPA, PHO, group practice, or hospital/IDN which employs primary care providers • A legal structure capable of distributing shared savings • An organizational form capable of management functions — including taking a contract, distributing payments, establishing and implementing medical management, quality reporting, and investing in the necessary facilities and IT

Table 1 — ACO Objectives.

ACO Operational Model and HIT Requirements

There will be wide variability in the types of ACOs that are established: some will be tightly organized around existing integrated delivery networks (IDNs), others based on independent physician associations (IPAs) with no integrated hospital; others formed as a collaborative multi-stakeholder initiative, perhaps building from a sustainable health information exchange (HIE). There will be distinct payer relationships. Some ACOs will be Medicare-specific, others focused on Medicaid managed care and others multi-payer. As the health benefit exchanges become established there will be an additional stimulus to the development of ACOs — some with integrated insurance functions, others operating in partnership with managed care plans. These many permutations will result from the hundreds of distinct market and provider contexts that pertain throughout the country.

Figure 1 describes an ACO Operational Model and the success factors which are dependent upon the application of information technology. This ACO model incorporates the organizational capabilities for taking on responsibility for a defined population with the integration necessary to coordinate care across the continuum.

Accountable Care and the Patient-Centered Medical Home (PCMH):

The PCMH is a care model that for each patient assigns a provider (usually, but not always a primary care physician) who coordinates patient transitions among primary, specialty, ambulatory and inpatient care settings and supports a patient-centered (as opposed to a provider- or episode-centric) approach to care delivery. In return, these providers are financially rewarded, typically with per-patient bonuses. Successful PCMHs demonstrate: intensive focus on individualized care for chronic patients; highly efficient service provision including extensive use of nurse practitioners, RNs, licensed vocational nurses and medical assistants; and careful selection of high quality, efficient specialists to whom referrals are concentrated.¹

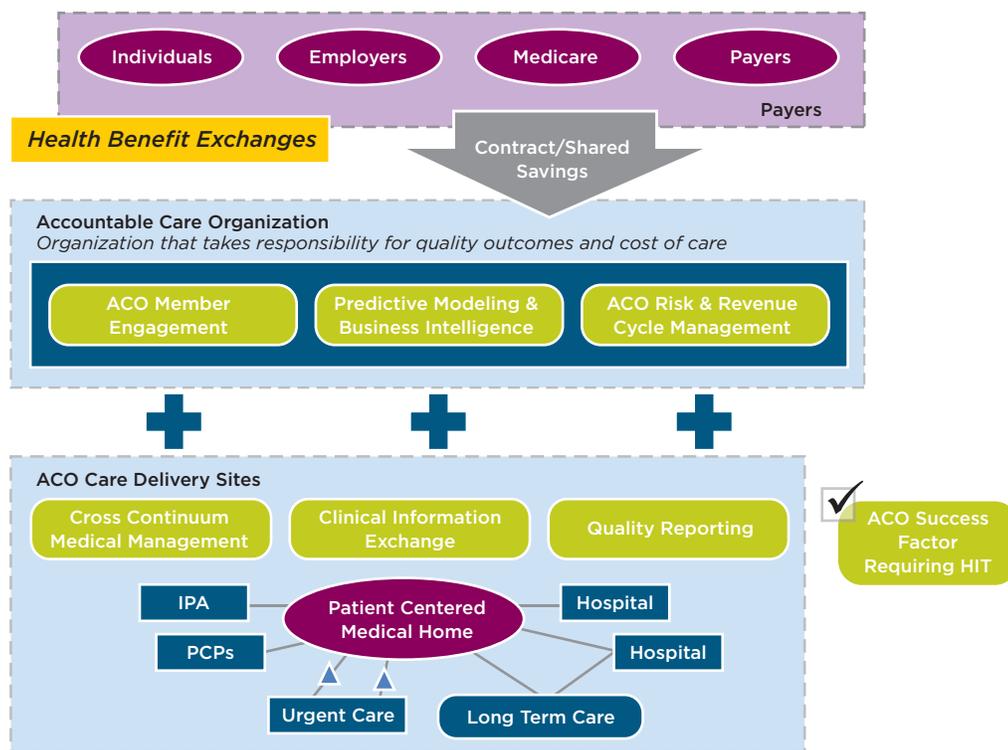


Figure 1 – ACO Operational Model.

The six key success factors for achieving ACO operational goals are further described in the balance of this report.

I. ACO Member Engagement

Successful ACOs will be those that not only provide high quality, effective care at the best possible cost to members who are ill, but also take proactive steps to help ACO members stay healthy. Member engagement as an active participant in care and in staying well is critical to improving quality of care and outcomes – particularly in a world characterized by a growing incidence of disease and disability from chronic ailments that are greatly affected by “lifestyle” factors and choices. The active participation of ACO members, both as patients performing self-care activities, such as taking readings and following medication and nutritional guidelines, and – before they are patients – following wellness guidelines and recommended health screenings, will be an important aspect of this objective.

The underpinning for ACOs will be a patient-centered system of health care, in some cases organized around primary care based medical homes; in others organized around health maintenance and clinical care processes; in others around speciality medical homes optimized for specific diseases. Whatever organizational form the patient-centered system takes, the best quality and lowest cost outcomes for ACO members are likely to occur when members receive the majority of their care through ACO providers who collaborate amongst themselves, particularly when coordinating primary and specialty care. The ACO model, as it is currently envisioned by CMS, is one in which ACOs are not allowed to limit access to care providers and settings. Where limiting ACO member choice is prevented, it will be imperative for the ACO to utilize other methods to create customer “stickiness” – by engaging members with a variety of self-service options for appointment scheduling, registration and check-in, communicating with providers, and managing the financial and administrative aspects of their care.

HIT Solutions:

The ACO member engagement objective for an ACO is to enable self-service for members to participate in their own care and to manage their administrative and financial interactions easily, efficiently and conveniently. Achieving this goal will

Patient Engagement at Kaiser Permanente (KP):

Kaiser Permanente has successfully demonstrated the use of patient engagement techniques in managing blood pressure. In a controlled clinical study, patients used remote blood pressure cuffs to upload data into Microsoft's Health Vault PHR, which in turn updated a KP disease registry. KP clinical pharmacists monitored the readings, applied protocols and consulted with patients to assist them in adjusting their medications. Patients utilized a free application from the American Heart Association to assist them in interpreting their data and improving their health. Initial results have been impressive: the home monitoring group patients were 50 percent more likely to have blood pressure controlled to target levels. This achievement appears in large part due to the automated data capture, which enhances results significantly over called-in readings.²

mobilize members in their own health care and will also help to link them closely to the ACO, its providers, settings and other resources — minimizing the risk that care will be delivered in uncontrolled and unmonitored settings.

Patient portals that provide access to an underlying EHR, available online and via kiosks, give patients access to clinical support, such as secure provider messaging, reminders, alerts, test results views and prescription refill requests. Personalized to the patient or member, the portal will also contain access to tailored health information and provide access to customized health maintenance modules for conditions such as smoking cessation, weight loss, depression and nutrition. Portals will also enable ACO members to connect remote physiologic monitoring devices such as blood pressure cuffs, scales, heart monitors and other remote devices for transmission of real-time data to tracking systems utilized by their care providers. Clinician contact center support — that integrates real-time chat — also has proven to be of significant value in serving patients more effectively. Portal functionality must also support administrative and financial tasks including access to registration, appointment scheduling, messaging and other systems that make it easier for members to access (and therefore enhance relationships with) providers in the ACO network.

Furthermore, it is increasingly likely that the tools driving the growth of social media will also be extended to health care applications if the security and privacy issues can be resolved. Social media tools are already commercially available and beginning to be utilized for “concierge” practices. Social media applications include patient to physician secure messaging (including instant), use of Twitter and social networks to support adherence to health regimens, physician profiles and blogs similar to Facebook pages, and user-generated content that will range broadly from provider evaluations to reports on treatment. Given the stringencies of HIPPA compliance, it appears likely that these applications in the near term will be protected behind the firewall of ACOs rather than as “open” internet services.

II. Cross Continuum Medical Management

The price of entry for ACOs is **care coordination** — the management of episodes of care and routine care of patients who transfer or who are handed-off from one provider, department and/or care venue to another. Practices that need to be implemented include:

- Access to patient records, including treatments and diagnostic procedures already administered, general histories, history of present illness, and care summaries by receiving providers as patients are transferred and referred
- Consistent evidence-based care practices, including problem lists, standard order sets, case management, disease management, care plans, current medication lists and discharge plans
- Coordination of best practices, such as case management, care plans and discharge plans — across care venues
- Consistent clinical decision support (including health care maintenance, follow-up and rules-based reminders and alerts) across care venues
- Medication reconciliation and coordination
- Communication between and among providers, particularly between PCPs and other referring providers and receiving specialist consultants
- Coordinated proactive care management across care venues

The gold standard for ACOs — and the true requirement for achieving savings — will be continuum care management — implementing proactive and preventive care programs across the continuum. For active episodes and acute disease processes, care management must be immediate, focused and tightly integrated with the ongoing delivery of care. Constant attention to the patient's need will be required to prevent unwarranted ED admissions and acute episodes that could have been avoided by a more deeply engaged provider care team. In the absence of an acute episode or immediate need for care, ACO members must be assessed for their ongoing and emerging needs, and enrolled in disease

management and wellness programs that result in care plans and facilitate the management of those plans. At the acute end of the care management spectrum, the focus is on transitions of care, the post discharge care, the extension of the care process into the home and workplace, and close integration between acute and sub-acute settings.

A Beacon Community Program model that illustrates how cross continuum medical management contributes to care quality and reduced costs is illustrated in Figure 2. The Beacon Community Program grants (awarded to 17 communities by the Office of the National Coordinator for Health Information Technology) provide a valuable template for the implementation of continuum management utilizing HIT. The goal of these demonstrations is to increase the role and use of preventive services, improve the care management of patients with complex multi-factorial diseases, and reduce avoidable hospital readmissions.

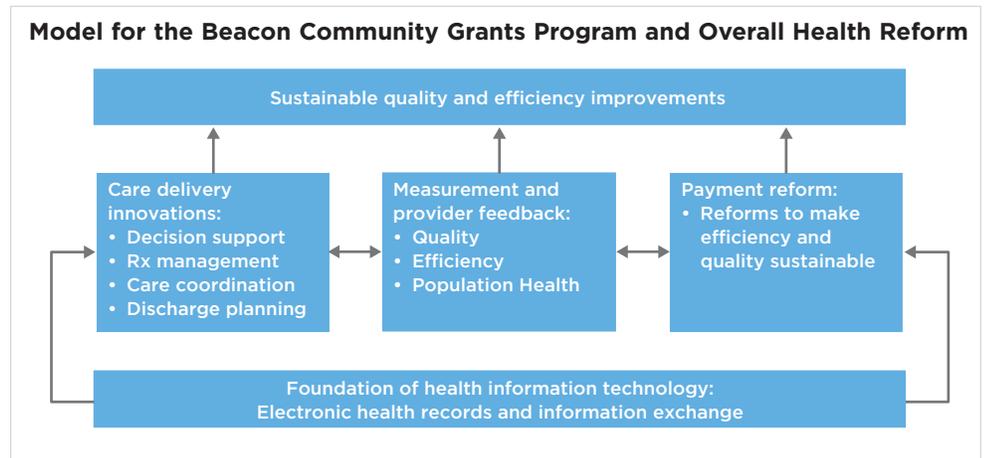


Figure 2 — Beacon Community Program Template.

Source: Melinda Beeuwkes Buntin, et al. "Laying the Infrastructure for National Health Reform." *Health Affairs*, Vol. 29, No. 6, pp 1214-1219

HIT Solutions:

The HIT starting point for supporting cross continuum medical management is the patient electronic health record (EHR) that can be partially or completely transferred or shared between and among referring and receiving providers. An enterprise EHR is a fully integrated system that gives each user (at the hospital, practice, and other ACO sites) an opportunity for customized views and templates for entering and retrieving patient clinical data and information. It uses a common patient database that gives each user real-time access to all relevant patient information available within the ACO, based on their assigned privileges, security access and "need to know." In many ACOs, an enterprise EHR will be out of reach, but other options such as HIE networks that transfer patient record summaries have proven to be an effective compromise, and use of portals that providers can use to review partial EHRs, such as online test results, progress notes and discharge summaries, are a great starting point. Other HIT tools that contribute to cross continuum medical management include:

- Consistent EHR (and HIE) clinical content across venues, such as patient record summaries, health risk assessments, care plans, problem lists, medication lists, discharge plans, standard order sets, visit and other EHR charting templates, and compatible clinical vocabularies.
- Access to online guidelines and protocols — implemented both as look-up features and as built-in content, such as in charting templates — for management of target conditions with an ongoing evaluation (derived from both claims data, as well as clinical transaction data) of compliance by the practitioner. Full realization of this model requires not just access to but also real-time monitoring and reporting of compliance with and outcomes

associated with protocols and guidelines, such as with business intelligence applications (see V. Business Intelligence, Predictive Modeling and Analytics).

- Consistent clinical decision support (CDS) rules and alerts across distinct EHR systems and the continuum of care.
- Provider communication tools, such as options to include notes with referral and transfer orders, and in-box or other messaging modules.

Initially, EHR systems will also be the basic technology for storing, providing access to and managing plans of care, as well as evidence-based medicine protocols and standards. Alerts and reminders (such as health maintenance reminders) will also contribute to managing care across the continuum and actively engaging patients in their care. As care management programs become more broadly implemented, and reach deeper into the maintenance and preventive features that are required to improve quality and reduce costs, HIT tools must be expanded to include disease-specific management programs, such as online diabetes, asthma and hypertension protocols, and services that, through the use of ACO member portals and a personal health record, can fully engage members in managing, promoting and optimizing their own care.

The goal of clinical information exchange is to deliver or make available the right information, to the right provider, at the right time – to help that provider deliver safer, better, and more cost effective care. That includes delivery across the continuum of care.

III. Clinical Information Exchange

Care coordination and collaboration rests on a foundation of clinical information sharing. Even simple examples, such as urgent care patients who do not remember what medications they are taking, illustrate this need. Examples of exchanges and why they are necessary include:

- Patient histories: for urgent care, consulting and other providers seeing patients for the first (and maybe only) time, so they can start with an overview of patient problems, treatment histories, current medications and other unique data that contributes to both effective and coordinated care
- Lab test orders and results: that help providers avoid the unnecessary cost, inefficiency and inconvenience of redundant testing
- Inpatient histories and discharge summaries: that help primary care providers adopt discharge plans designed to reduce re-admissions, disease symptoms and other problem recurrences
- Referral orders and requests: that contribute to care coordination by making the reason for the referral and what steps have been taken clear to the receiving consulting provider
- Referral status: that helps referring providers track the overall progress of a patient, prepare needed follow-up care, understand outcome and recommendations from the referral, and therefore reduce chances of problem recurrence and resulting increased costs
- Medication lists, histories and allergies: to give providers information they need to determine effective treatment plans and avoid potential adverse medication interactions and resulting increased costs
- Test result, immunization and other data to patients which help them monitor and engage in their own care and the care of their family members
- Routine follow-up for vital signs and other relevant clinical data, such as from patients recently discharged following high-risk events, such as stroke or heart failure, patients with diabetes and other chronic diseases, and other special case ACO members such as children at risk for obesity and other chronic disease

HIT Solutions:

The solutions for ACO clinical information sharing requirements will be largely determined by their organizational make-up and cohesion. Some well-integrated delivery networks that will form ACOs either have or are on a path for developing an enterprise EHR approach. Other ACOs, including those that are formed from looser and less-concentrated organizational precedents – IPAs, collaborative models, multi-stakeholder entities – will likely evolve by leveraging HIE technology for exchanging electronic patient clinical information among systems and users.

HIEs are secured networks that use the Internet and private networks to securely and confidentially transmit patient information. In addition to entire patient records, HIEs can share subsets of electronic patient information such as lab test results and patient record summaries, and give users access to individual clinical information system modules such as e-prescribing and CPOE. HIE information sharing can be automatic (such as transmittal of a patient record summary whenever a PCP refers the patient to a specialist) or by request.

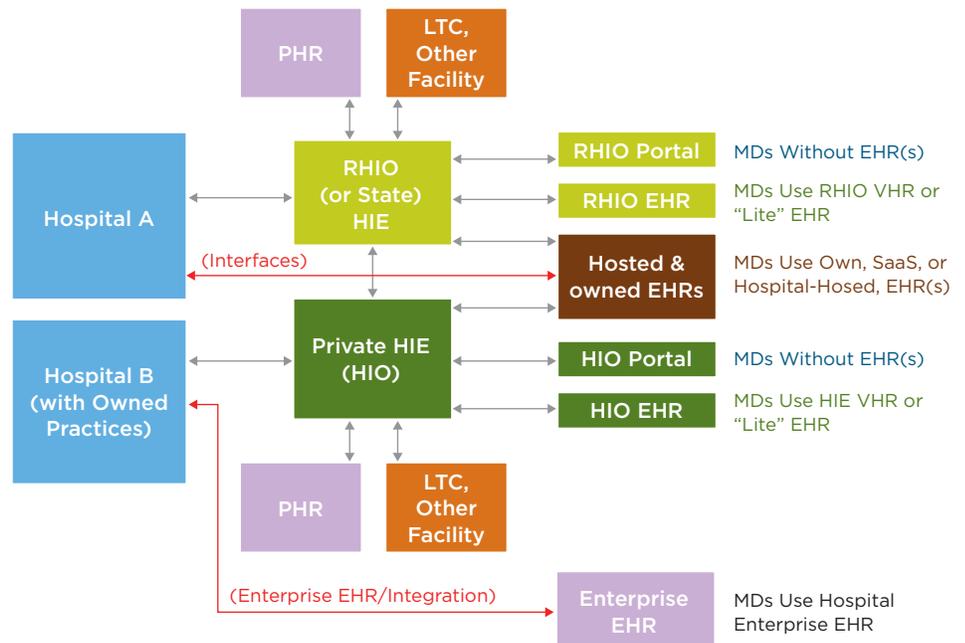


Figure 3 – Health Information Exchange Options.

These capabilities — enterprise EHRs and HIEs — are not mutually exclusive (see Figure 3). Even ACOs with enterprise EHRs need HIE functionality, such as for exchanging data with providers outside the ACO, ACO providers without enterprise EHR access, and in some cases ACO member PHRs, which are increasingly being piloted as secure venues for sharing critical data.

A fundamental question ACOs need to answer as they assess HIT requirements is how to provide HIE access. The most popular options are implementing a private network or using one or more public networks such as those offered by regional health information organizations (RHIOs) and being developed for statewide use. Trade-offs are not surprising: private HIEs provide more control over things like volumes, data and data formats supported, and expansion, but can take time and can be expensive to implement; while RHIOs, for example, often offer immediate access at defined costs, but sometimes cannot accommodate special needs and have rigid data and data format standards. For more information about alternatives for sharing electronic clinical information including enterprise and other EHRs and HIEs, see [“Integrating EHRs: Hospital Trends and Strategies for Integrated EHRs within their Communities.”](#)

IV. Quality Reporting

In order to qualify for Medicare Shared Savings Program and other ACO initiative programs, ACOs will have to provide reports that demonstrate meeting quality of care performance thresholds (among ACO member populations) as defined by CMS and/or other payers and sponsors of their programs. At this point, CMS has not determined performance levels or measures that have to be reported, but it will likely be a subset of those used for other programs such as RHQDAPU (Reporting Hospital Quality Data for Annual Payment Update), PQRI (Physician Quality Reporting Initiative) and ARRA (American Recovery and Reinvestment Act) meaningful use initiatives in support of using an EHR. Other payers and programs may require different and/or overlapping subsets.

ACOs will also need quality reports to internally manage quality initiatives and ongoing quality of care delivery via reporting that supports continuous tracking and monitoring of quality of care at all care sites. To make it effective at this level, ACOs have to begin transforming quality reporting from the current retrospective to a real-time mode, so that clinicians can identify trends and signs of declining quality (among individual patients, panels and populations) in time to effectively intercede.

HIT Solutions:

In response to the HITECH Act and overall health care reform initiatives, organizations such as the National Quality Forum that oversee and coordinate development of quality measures (such as those the CMS and other payers will use to define thresholds) are switching their focus from administrative (claims-based) to clinical-based (EHR) data. Furthermore, the pressure from value-based purchasing requirements is spurring the need for real-time quality reporting data and information, such as supporting the collection of clinical core measure information reporting on patient conditions, such as AMI, CHF (including condition on admission and risk for readmission), Pneumonia, as well as on hospital-acquired conditions such as Sepsis, deep vein thrombosis/pulmonary embolism, and glycemic control. Real-time reporting solutions that provide the clinician with actionable information will be an essential tool in managing high-cost inpatient services and preventing avoidable readmissions. Real-time quality reporting will be delivered through “dashboard” or “desktop” reporting – reports that are meaningfully displayed, such as flashing icons that indicate abnormal results or as pie chart, bar or other graphical summaries that summarize meaningful information – on appropriate leaders’ workstation home pages. Users can directly click on these icons to drill down to the reports. Ideally, the desktop also provides access to an ad hoc report writer that the user can open to further research the problem.

A special challenge ACOs face is coordinating and managing quality reporting across ACO sites and venues, and via independent EHR systems at each site. To some extent they can parse out responsibility to improve reporting, monitoring, and interceding to administrative and clinical leaders at each site. However, there are also likely to be needs for collecting quality reporting results and/or data elements across sites to develop consolidated ACO reports. This is where HIE once again becomes an important ACO resource for enabling the transmittal and receipt of that data for either direct reporting support or creation and maintenance of data warehouses and clinical data repositories (CDRs).

V. Business Intelligence, Predictive Modeling and Analytics

Creating and operating a successful ACO requires a new set of information management techniques and analytical approaches that move beyond the traditional focus on individual patients and specific episodes of care. An ACO must be able to expand that focus to include the entire population of which the specific patient is a member and expand the time horizon to include the life of the payer contract.

Placing information about individuals in the context of the larger assigned population allows information management and analytical processes to account for the larger scope of ACO obligations to provide high-quality care at acceptable cost, as well as to ensure favorable clinical and financial outcomes for the assigned population. Likewise, expanding the time horizon for analysis beyond the discrete patient encounter helps ensure that the ACO can meet target objectives for overall contract performance, as well as provide for individual episodes of care.

Creating a complete data set for the ACO population will require integration and rationalization from multiple sources and systems including:

- Patient level data within the ACO: clinical transactions from EHRs, lab and imaging, and information from pharmacies and physician practice management systems

Successful ACOs will apply business intelligence and analytics to data that includes clinical, health status and financial information about the entire assigned population – creating actionable insights for managing patient care, ensuring high quality health outcomes and financial performance.

- Patient level data from outside the ACO: clinical transactions from out of network providers supplemented with claims data from health plans and pharmacy benefit managers
- Member level data from non-traditional sources: health risk assessments and self-care and wellness regimens

Applying business intelligence and predictive analytics to the data set will inform improvements in patient care processes and activities across the continuum of care and to risk and financial management activities as well. Applying predictive clinical analytics allows the ACO to monitor care patterns, to assess adherence to protocols and best practices, and to anticipate future needs and patient requirements. This effectively creates the continuous feedback loop required for ongoing process improvement. Similar predictions can be made based on analysis of financial information and risk patterns to inform risk management activities and financial management activities as well. This will be especially important in the negotiation and management of payer contracts, where the ACO bears financial risk for clinical outcomes, and will require finely-tuned abilities to predict acuity, utilization and the cost associated with the responsibility for the care of the defined population.

There are implications for care management and quality improvement as well. Using data from financial and clinical sources to identify cases for various levels of care intervention, conducting stratification analysis to prioritize them, and monitoring ongoing clinical activities to identify gaps in required and recommended care are all critical enablers of successful care management and quality improvement programs. Moving beyond these tools, ACOs will want to consider the application of behavioral analytics to the member population, and use these techniques to anticipate and develop successful care management, wellness and self-care interventions that will appeal to the practices and preferences of members and patients.

While retrospective analysis will continue to be important for many aspects of ACO management, as the organization and its contractual obligations become larger and more complex, reporting capabilities must be expanded with insightful and actionable information to the ACO clinician providers to enable them to understand and improve their performance. Real-time analytical capability focused on patient and provider alerting — encompassing reminders, as well as panel- and patient-specific conditions requiring attention — will be integral for unifying the care management processes across the ACO population.

HIT Solutions:

Successful business intelligence implementations must include tools to transform and integrate data and information from multiple sources and systems, apply a variety of analytics and predictive models, and produce outputs that can be used in many different clinical, financial and operational settings. Multiple vendors will typically be required to achieve this objective, particularly for statistical models, clinical analytics and more recently introduced behavioral analytical models. The “core” business intelligence applications designed to meet enterprise wide requirements are complex and difficult to implement, and require significant levels of configuration and integration with other systems and applications. The support of an experienced systems integrator is generally required to achieve successful implementation of these complex applications and toolsets.

Other less complex applications are also available, and tend to focus on a narrower set of functional requirements — often a specific disease state or segment of the care process. The appeal of these applications is that their integration requirements are simpler, their analytical models are relatively straightforward and they can produce results more quickly than larger scale solutions. The risk with implementing them is that they tend to become embedded in the organization and are difficult to replace with solutions that are integrated with more comprehensive solutions.

Implementing tools, applications and processes to provide business intelligence in clinical and financial settings will be a lengthy and complex undertaking requiring careful planning and coordinated execution over an extended timeframe. In the near term, however, ACOs will have immediate needs for business intelligence to manage mission-critical clinical, quality improvement and financial activities. To meet those needs, implementing point solutions that focus business intelligence and analytics on specific functions and activities may be an appropriate short-term decision.

As the ACO grows and matures, these specific solutions must be integrated into an enterprise-wide business intelligence approach and strategy to leverage their incremental value and accelerate the development and deployment of an organization wide solution. Chief information officers will be challenged to establish a coordinated, well-designed application architecture to rationalize and guide the acquisition and disciplined implementation of business intelligence technologies.

For an ACO, ensuring high quality cost effective health outcomes requires managing the cost and reimbursement for patients that present for care — and anticipating, preventing and managing the potential cost and reimbursement for those who have not.

VI. ACO Risk and Revenue Cycle Management

Managing the risk and financial responsibilities of an ACO will require a fundamental reorientation of traditional revenue cycle activities. The scope of these functions must be expanded to account for a broader continuum of care, a broader population that includes all the members of the assigned population (not just those that become patients and present for care) and the new responsibility for managing risk and distributing payments.

As the ACO takes responsibility for the outcomes, quality and cost for its population of patients and potential patients, traditional financial and administrative functions must still be provided; that is, patient billing, cost reporting and management will remain core competencies. Management of membership information that includes the entire assigned population, and provider network management that monitors and supports utilization and activity by provider and by setting must become new competencies as the ACO takes responsibility for the health care outcomes of a larger assigned population, as well as providing a full continuum of high quality care efficiently.

- Patient registration activities must be expanded to manage information about the entire population assigned to the ACO even before those ACO members present for care. Managing membership data creates the foundation for integrating information about the members before, during and after they require care, and sets the stage for creating population-wide insights and guidance that can be aligned with activities across the continuum of care.
- Traditional revenue cycle activities remain core competencies under most of the current ACO proposals. These traditional functions will have to be expanded to include the services of new providers and new care settings that are added to the ACO as it develops the broad spectrum of services and settings to serve the assigned population.
- Cost accounting practices must be expanded as well. In addition to the ever-important need to understand and manage costs at the unit level, ACOs require cost accounting processes at the assigned ACO population level to monitor and manage the overall quality and cost structure and to ensure that the entire ACO contract is successful.
- For some traditional organizations, forming an ACO will also require expanding the scope of management processes to include arrangements with new providers and institutions in order to provide the range and breadth of enhanced services that an ACO requires. ACOs must develop the ability to negotiate and manage reimbursement arrangements in a variety of fee-for-service and pre-paid methodologies for providers within the network. Once the agreements are in place, the ACO must have the ability to administer them, initially calculating and paying incentives and bonuses, and in more complex organizations, adjudicating and paying claims, and calculating and paying capitation.

HIT Solutions:

As the focus of financial and administrative processes changes to include the entire assigned population, ACOs will require an information system that allows them to recognize and capture information before, during and after the period when individuals become patients – in effect, managing beneficiaries rather than patients. Health plans use membership repositories and membership management systems for this function and ACOs will need to quickly adopt similar systems and processes to ensure that they can properly identify, monitor and report on all the activity associated with their population.

Traditional cost accounting and patient accounting systems and processes must be assessed, and likely expanded as well. ACOs must provide a complete spectrum of services in a variety of health care settings, any or all of which will present new accounting and billing requirements and capability. Provider network management and contract management will determine ACO investment in applications and processes that will allow them to manage and distribute ACO revenues to all the participants in care delivery and patient service. The specific application requirements will vary based on employment and contracting models among the entities that combine to form the ACO, but it is likely that large-scale ACO organizations will require the ability to administer and process claims for health care services – perhaps in order to pay providers, but certainly in order to measure and monitor provider productivity and population utilization of services.

Conclusions

Effectively implementing and operating an ACO requires making fundamental changes in how health care is delivered and administered. Provider organizations have to take on clinical and administrative governance responsibilities that many have limited experience with, and the bottom line is that becoming an ACO is a major undertaking that will require extensive investments in time, effort and money. They also need to both make and coordinate those investments across numerous dimensions, including clinical and administrative governance, and the delivery services to support the continuum of care.

It is also likely that ACOs will evolve along highly differentiated paths based on the evolving regulatory requirements in their state, as well as the market dynamics and opportunities. However, in our view, all will require some degree of competence and HIT support along each of the six dimensions described and summarized in the chart below.

Success Factor	ACO Maturity		
	Early	Developing	Mature
I. ACO Member Engagement	Episode of care Call center support	Pre-care intervention; Member outreach; Social media (one to one)	Prevention; Lifestyle consultation; Remote monitoring; Social media (many to many)
II. Cross Continuum Medical Management	Case management	Care coordination; Patient centered medical home	Disease management; Health maintenance
III. Clinical Information Exchange	Static; Read-only access; User request-based	Pushed (automatic); Continuity of care documents	Real time sharing across all venues; Patient access
IV. Quality Reporting	EHR (meaningful use stage 1)	EHR (meaningful use stages 2 and 3)	Real-time, dashboard/desktop, ad hoc reporting
V. Business Intelligence, Predictive Modeling and Analytics	Patient focused; Episode/encounter focused data; Retrospective; Clinical and financial	Population-based; Continuum of care data; Predictive health analytics	Social and network data; Behavioral analytics; Real-time
VI. ACO Risk and Revenue Management	Cost accounting across the continuum of care; Membership data management	Provider network management; Global contracting; Allocation of payment	Capitation management

Table 2 – ACO success factors and the characterization/focus of each associated with start-up, development and mature ACO organizations.

HIT investments to achieve ACO status will go well beyond those required to address other current HIT trends, such as meeting EHR meaningful use criteria, converting to ICD-10 coding standards, and evolving pay-for-performance and value-based purchasing initiatives. As a result, organizations aspiring to ACO implementation need to carefully consider how they allocate spending for HIT along with other demands over the next decade.

The diversity of applications and toolsets increasingly available present a dizzying array to the CIO and the ACO clinical and administrative teams. A sourcing strategy will be required which can specify when to rent, outsource, build, buy or partner with other organizations to realize HIT solutions. At times knowing when to wait for the market to catch up with affordable technology and/or service solutions will be the best approach while other times getting out in front will present clear advantages.

For all these reasons, organizations planning to implement and operate an ACO need an overall HIT roadmap that links capability development with the maturation and evolution of their ACO. That roadmap needs to include individual system and application tactics and strategies that fit into a long-term agenda for sequencing and implementing them tied to the ACOs growth in responsibility for managing patient populations.

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¹ Arnold Milstein and Elizabeth Gilbertson. "American Medical Home Runs." *Health Affairs*, Vol. 28, No. 5, pp 1317-1326.

² "Home Health Monitoring May Significantly Improve Blood Pressure Control, Kaiser Permanente Study Finds." Kaiser Permanente News Service press release, May 21, 2010.

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