

Technology Fundamentals for Realizing ACO Success



Introduction

The accountable care organization (ACO) concept, an integral piece of the government's current health reform agenda, aims to create a health system focused on coordinated care and clinical best practices by holding all members of a patient's care team jointly responsible for the quality and cost of care and by sharing the economic gains with them. Although the ACO concept is still being defined, providers are planning ahead to have the infrastructure in place to implement the model when the Centers for Medicare and Medicaid Services (CMS) issues its rule for bundled payments and ACO qualifications in 2012. In fact, several ACO models – including physician-centric, homecare-centric and hospital-centric varieties – are currently in proposal

or pilot stage.ⁱ Though the optimal governance model has yet to be clearly delineated, the recurring themes across all proposed models are care coordination, interoperability, cost reduction and quality improvement.

The ACO model is built upon the concept of cross-provider care coordination—requiring improved communication and coordination across the community. An ACO may bring together several otherwise disparate entities such as primary care practices, hospitals, specialty practices, ambulatory surgical units, home care providers, pharmacies and diagnostic centers. As a separate legal entity, the ACO would actively oversee and coordinate best practices among these providers to improve clinical outcomes while rewarding the system for preventative care and reducing waste in such areas as duplicative procedures and avoidable hospital admissions. ACOs will oversee participating entities to administer payment distribution and enhance the efficiency of service delivery.ⁱⁱ

Technology Enablers of an Effective ACO

Successful ACOs must possess an information technology infrastructure with specific competencies to support governance, operational, and clinical goals and objectives. Information technology will be critical to enable electronic exchange of health information, coordinate care, bridge the gap across acute and ambulatory settings, track care for determining payment distribution, and collect data and facilitate analysis for timely feedback and for measuring progress against quality goals.

Irrespective of the specific ACO model adopted, key technology pieces required to enable a successful ACO are:

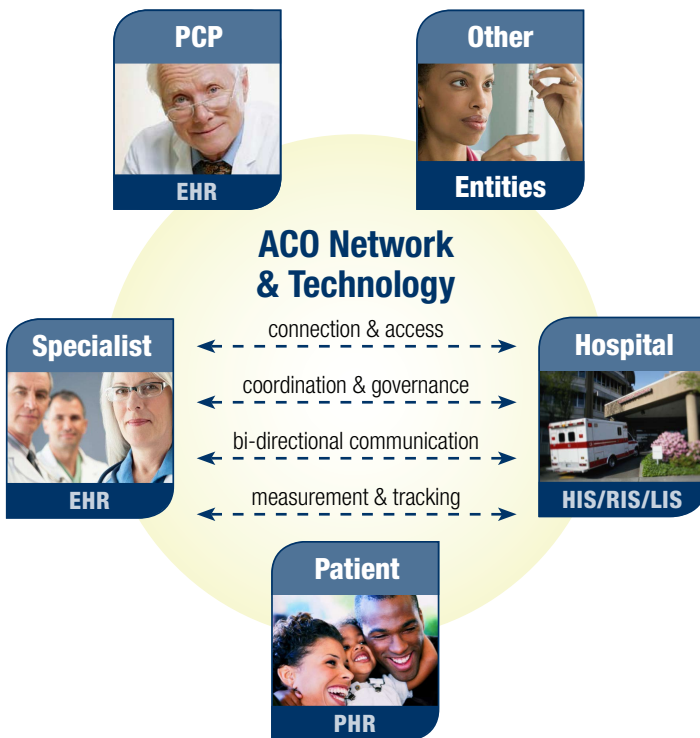


Figure 1: Basic ACO Structure & Objectives

ACO Objective	Technology Enabler	How it Works	Benefits
Achieve information continuity	Standards-based information exchange	Create comprehensive longitudinal patient care records	Instantly coordinated care records Same view of the patient is seen by all members of the patient's care team
Facilitate cross-enterprise care coordination and transition	Application-agnostic interoperability (enabling technology can integrate with any application)	HIE assimilates all data sets (lab, x-ray, transcription, RX) and leverages interoperability standards, to create a composite view of patient	Timely publishing of most recent data allows for collaboration among both acute and ambulatory providers and enables timely remedial action in case of gaps in care
Support best practices, redesign care processes	Interoperable EMR/HIS applications	Interdisciplinary teams of clinical experts collaborate (internally and externally) to develop and spread evidence-based guidelines and standard care processes to promote better coordination of care and quality improvements	Promote accountability and track quality of care
Reduce waste, improve operational efficiency, manage risk	Business intelligence	Leverage clinical, financial and operational metrics to determine trends in areas such as use of urgent care centers, duplicate lab tests and imaging, etc.	Promote accountability and reduce costs
Combine cross-organizational entities to form one legal entity	ACO management technology	ACO management application to support governance and management of the new care-delivery model (allows for management of all clinical and administrative components of patient care) so that there is clear accountability of total patient care	Manage caregivers together in cross-disciplinary service lines to plan, budget, and evaluate performance Establish risk-management responsibilities
Increase patient safety and enhance patient care	Clinical Decision Support functionality Composite view of patient health	Automatic health-maintenance and best-practice alerts to the physician, drug-drug interaction warnings, laboratory test alerts, and other decision-support tools Longitudinal view of patient health record gives each authorized provider a complete view of the patient's medical history	Enhance patient safety, increase quality, reduce costs, and satisfy late-stage meaningful use requirements
Engage patients	Integration with personal health record technologies (PHRs, patient portals, etc.) Accommodation of patients that rely on paper records	Enable patients' access to their health information, discharge instructions, e-mail communication with clinicians, lab results, prescription ordering, monitoring of clinical status and compliance	Increased patient adherence with treatment protocols, better outcomes and increased patient engagement and satisfaction
Improve quality and care outcomes	Standardized data sets that allow for analytics and reporting to support quality and outcomes metrics across the continuum of care	Aggregation and standardization of clinical and administrative data across multiple care silos to support outcomes analysis, performance benchmarking, and reimbursement tracking	Performance-based compensation system strategically aligned with improving outcome goals
Manage diseases	Alerts and reminders, population analysis	Population management (according to problem, age, sex, etc.)	Federal Recommendations: Healthy People 2010 (and beyond) goals achieved

This technology must complement and supplement the technology already in use among the participants, such as disparate EHR and HIS systems. A successful ACO technology infrastructure might therefore be conceptualized as follows:

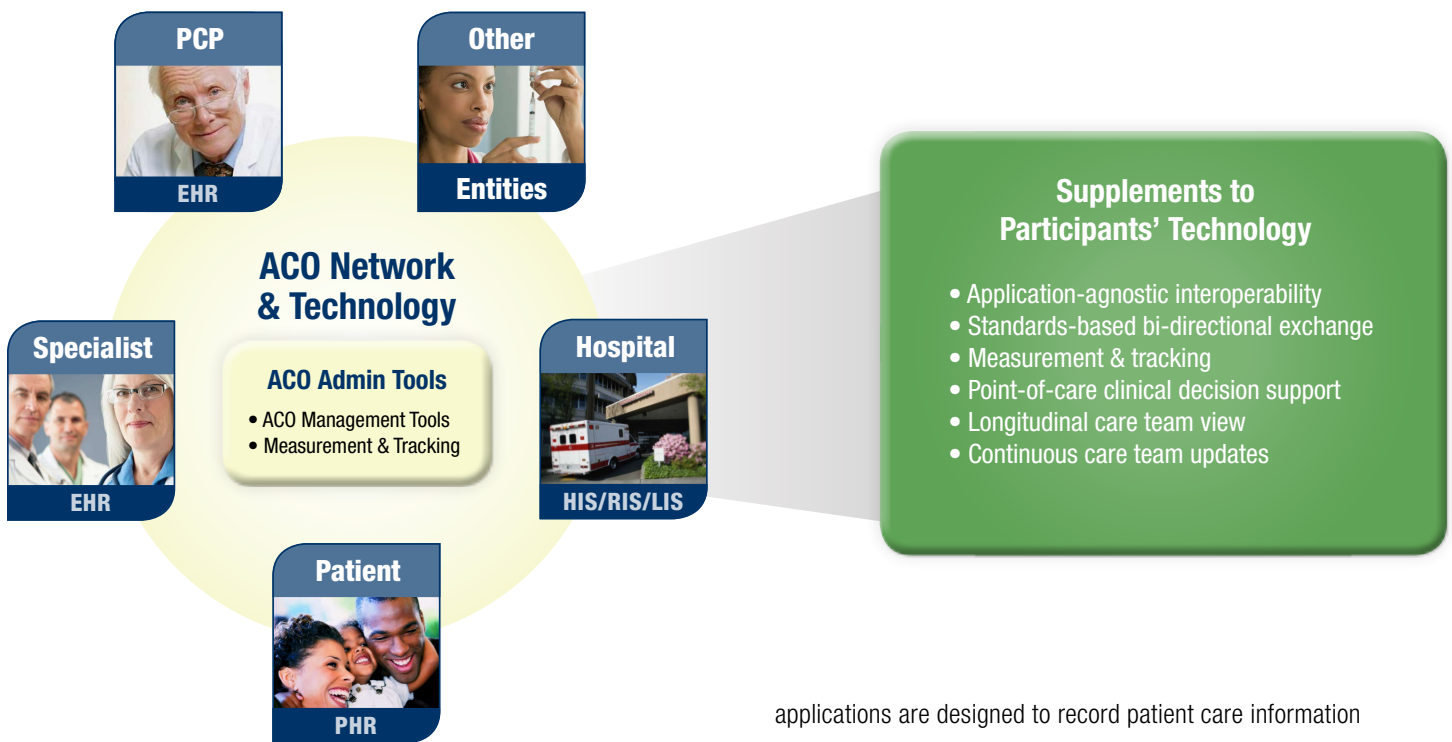


Figure 2: Technology Enablers for ACO Success

Need for Non-Traditional IT Competencies

As noted in the list of technology enablers above, an ACO requires a sophisticated technology infrastructure to facilitate its objectives of improving quality and reducing costs. Of the technology enablers needed to realize a successful ACO, the ability to share information and coordinate care across organizations is fundamental. Without an accurate view of care team activity surrounding a patient, accountability cannot be realized and the data required for population analysis will not be gathered. Without the ability to capture each care encounter, the ACO cannot apportion payments correctly. Without complete patient records across all care settings, providers will continue to deliver patient care on an encounter-by-encounter basis.

Traditional healthcare applications such as EHRs, Hospital Information Systems, emergency department information systems, office-based practice management systems, lab and radiology information systems, and patient administration

applications are designed to record patient care information during an episode of care and are limited in their scope to that care setting's organizational boundaries. These applications are not designed to support the innovative care coordination model required by ACOs. Successful ACO deployments need technology that can seamlessly integrate cross-organization applications for care coordination and delivery.

The challenge of integrating these disparate silos of clinical and administrative data may be addressed by health information organizations (HIOs) that coordinate health information exchange within the boundaries of their community. However, most of the HIOs that are operational today only solve part of the care collaboration problem. HIOs most suited to facilitate a successful ACO implementation must provide an aggregated view of patient data. HIOs must also leverage technology innovatively to support the workflow processes needed for care collaboration across organizational boundaries of primary-care and specialist practices, hospitals, allied care providers, patients, and other care settings. The technology must facilitate and actively track continuity of care to ensure that every care encounter is captured.

Since the participating care providers will be affiliated with disparate organizations, technology supporting the ACO will

need to facilitate a virtualization of the patient's care team. The "virtual" care team's members will need to share and manage patient information in a flexible, secure network regardless of bricks-and-mortar affiliation or differences in EHRs, practice management systems, or other applications already in place in the provider's organization. The technology must support workflow and take into account the varied IT sophistication of participating physicians, hospitals and other organizations.

Continuity of Information

One of the greatest challenges for physicians is visibility into what other providers are doing with their common patients – from visits with other practitioners and specialists to trips to emergency rooms and urgent care centers. The following use case illustrates the complexities of a typical cross-provider care episode, successfully facilitated within the ACO technology framework:

Mr. Johnson is a 59-year-old construction worker with a long history of diabetes. He has documented early retinopathy and hypertension but no evidence of other end-organ changes from his chronic diabetes. He presents to his primary care physician, Dr. Clark, with fever, acute shortness of breath, and left lower lobe rales and wheezing. Dr. Clark diagnoses Mr. Johnson with an acute pneumonia (confirmed on chest x-ray) and admits him to Metro Community Hospital (MCH).

In the hospital, Mr. Johnson is newly diagnosed with renal disease (elevated serum creatinine, proteinuria and mild acidosis). When he is sent home, he is placed in an intensive home care program for monitoring strict sodium and protein intake along with diabetes monitoring. He is discharged to the MCH home care agency to be seen by a visiting RN. His discharge medications include his insulin, an oral antibiotic and two new medications – a brand-name diuretic and a new ACE inhibitor for renal disease and hypertension.

During her third visit to see Mr. Johnson, his visiting RN becomes concerned by his increased blood pressure, weight gain and general lethargy and calls Dr. Clark to order new laboratory tests, which she then draws and delivers to the lab herself. The nurse questions Mr. Johnson, who insists he is compliant with his medication program.

Because MCH, the home care agency, Dr. Clark's practice, the local laboratory and Bayside Pharmacy – where Mr. Johnson fills prescriptions – all belong to an ACO, their clinical findings on Mr. Johnson are published in a common electronic community health record. This community health record features an innovative patient management "dashboard" displayed electronically to all authenticated members of Mr. Johnson's care team.

The home care nurse consults the dashboard and notes that the list of discharge medications from the MCH discharge summary does not reconcile with the list of meds from Bayside Pharmacy. During further discussions with Mr. Johnson, she learns that Mr. Johnson filled only the two inexpensive generic prescriptions and not the expensive new diuretic and ACE inhibitor. During the recent decline in building business, Mr. Johnson's income has been severely impacted and he admits he can't afford to fill his two medications for his new renal disease diagnosis.

The nurse also receives the results of Mr. Johnson's recent laboratory tests via the dashboard. The results show a deterioration of Mr. Johnson's renal function with increased serum creatinine levels and electrolytes, suggesting a recurrence of his metabolic acidosis. She contacts Dr. Clark, and Mr. Johnson is switched to alternative generic medications for his renal disease. Dr. Clark then sends an e-referral to a new nephrology physician to see Mr. Johnson emergently so he can receive more intensive evaluation of his worsening renal disease.

The visiting RN and Dr. Clark were able to intervene quickly and accurately to prevent another admission to the hospital because they were part of an ACO that had health information exchange technology that supports high-quality care and efficient practice. Without the collaborative framework provided by the ACO's technology infrastructure, such a successful outcome would be in doubt and would, at the very least, be considerably less efficient and more expensive.

Continuity-of-care information that is shared in a timely manner among the virtual care team and enabling care collaboration across multiple providers is thus critical for the proper functioning of the ACO. Technology to support such continuity of care and enhanced provider collaboration includes:

- Data and workflow integration across disparate applications and care settings
- A unified view of the patient across organizations and care settings
- Continuous live updates from participating entities and alerts of such updates to ensure timely care synchronization across all accountable parties
- Technology that enables tracking of the patient's care across all settings for administrative decision-making and reimbursement management
- Aggregation of patient information to enable quantitative analysis and business intelligence on patient populations for the purpose of clinical and financial outcomes management

Another essential characteristic of a successful technology infrastructure is the ability to implement the infrastructure without requiring a redesign of workflow. Establishing an ACO inherently involves a certain level of change for participants to manage – such as distribution of roles and responsibilities among social workers, nurses, and physicians assistants and scheduling-process changes to accommodate same-day appointments.ⁱⁱⁱ The technology implemented to facilitate the ACO must not complicate this effort. The technology should enhance, not disrupt, established workflow.

Real-world Innovation and Experience for an Evolving Market

Medicity delivers solutions *today* that fulfill the care-collaboration requirements fundamental to successful ACO operation. Current innovations facilitate cross-provider data-sharing more easily, efficiently, and effectively than any other health-information-exchange offerings in the industry.

Medicity technology includes the following:

- A single technology infrastructure that powers data exchange for both paper-based practices and the most technologically sophisticated organizations. Patented technology enables integration of any HIS, EHR, PMS, lab, PHR, or other system without requiring point-to-point interfaces
- Proven data-aggregation and patient-matching technology for the creation of longitudinal patient records drawing on data from organizations throughout the community
- Options for accessing patient information (online data access, EHR integration, etc.) and performing core functions like referrals, ordering, and resulting according to the provider's workflow and his/her available technology (EHR, fax, printer, web browser, etc.)
- Innovative technology that automatically updates and notifies care team members about care that is provided to one of their patients, enabling care coordination in a virtual, patient-centered environment
- The ability to connect the ACO initiative to any other HIO, governmental, public health or research initiative
- Data services to optimize aggregated data for quality reporting and analytics purposes

Significantly, Medicity's technology complements the workflow and technology currently in place in physician practices, hospitals, and other ACO participants. Rather than requiring use

of certain EHRs or HIS systems, Medicity's HIE infrastructure supplements and integrates with the chosen technology of each participant. Thus, steps providers take today to meet immediate reimbursement opportunities like meaningful use remain viable and position them to capitalize on longer-term opportunities like ACO.

In addition to possessing the technology necessary to implement an ACO foundation *today*, Medicity has a proven history of training, support, deployment, and operations that will ensure a superior end-user experience and a stable and infinitely scalable infrastructure that an ACO can rely on. Medicity currently connects more than 700 hospitals, 250,000 providers, and touches 38 million patients each year.

Most importantly in an uncertain and fledgling ACO environment, Medicity's solutions are uniquely suited to adapt and evolve to changing regulations and technology requirements within the industry. Medicity's service-oriented architecture – combined with patented, lightweight, and easily supported integration technology – ensures that technology can be updated without reengineering of the infrastructure as ACO requirements mature. This adaptability applies as much to supporting technology changes in an individual physician practice as it does to accommodating infrastructure changes in larger ACO member organizations.

Irrespective of the ACO model that emerges as the preferred approach in the immediate future, Medicity is in a unique position to bring viable ACO technology capabilities to market quickly with current products and adapt to changes as the ACO concept evolves over time.

ⁱ For information on the goals of payment reform, various payment models for ACOs, and the types of organizations that can serve as ACOs, see Miller, How to Create Accountable Care Organizations

ⁱⁱ For information and analysis on governance and policy issues surrounding ACOs, see Shortell, Casalino, Fisher, Implementing Accountable Care Organizations

ⁱⁱⁱ See Shortell, Casalino, Fisher, Implementing Accountable Care Organizations, 5, 6

