Designing the health IT backbone for ACOs
Part I: Hospitals look to meaningful use and health information exchanges to guide them

At a glance
An accountable care organization’s success will hinge, at least in part, on its ability to share patient data at the point of care and rely on historical and longitudinal data for use in managing population health.

Healthcare providers must prepare to explore a variety of options for designing the health information technology backbone for ACOs.
Introduction

The market for accountable care organizations (ACOs) will open for business soon. In theory, ACOs can help clinicians deliver more effective and more efficient care across a continuum of preventive, primary, acute, and chronic care services. However, an ACO’s success will hinge, at least in part, on its ability to share patient data at the point of care and rely on historical and longitudinal data for use in managing population health. (For PwC’s definition of an ACO, read the sidebar on page 12: What is an ACO?)

Unfortunately, the data necessary to manage a patient’s whole health isn’t widely available today. It’s locked in a myriad of different provider and payer databases or paper records. This Health Research Institute (HRI) report looks at how ACOs will need to unlock and use that data, via the regulatory and market mechanisms available—or soon to be available. For example, ACOs and health information exchanges (HIEs) are concepts that are still evolving. Their structures will change in the coming year, and health executives must prepare to explore a variety of options. To gauge how healthcare providers are designing the health information technology (IT) backbone for ACOs, PwC surveyed more than 300 provider executives and administrators. PwC’s survey defined a functional ACO as an organization that has the abilities to deliver and manage care for a defined population, accept payment, distribute savings to participants, and to perform disease management and predictive modeling in order to improve outcomes. (For PwC’s definition of an HIE, read the sidebar on page 13: Decoding HIE).

For an in-depth discussion on how ACOs are encouraging closer collaboration among physicians and hospitals, see PwC’s companion report From courtship to marriage.
Key findings from PwC research

**HIE participation may preface ACO participation**

According to our survey, 21 percent of organizations are already participating in some type of HIE, and another 31 percent plan to participate within the next year (See Figure 1). As far as ACOs, only 6 percent said they were participating in a functional ACO, and another 13 percent said they would do so within the next year. More importantly, providers participating in HIEs are more than twice as likely to participate in ACOs as their non-HIE counterparts are. Nearly one-fifth of HIE participants said they are participating in an ACO now or will be in the next six months, compared to only 8 percent of non-HIE participants.

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Most ACO discussions remain internally focused despite concerns about accessing external data.

Hospitals are focusing first on discussing ACOs with their medical staffs, perhaps leaving discussions with other providers until later. Community physicians will be a larger challenge, hospital executives said. Nearly 60 percent of hospitals surveyed said they anticipate difficulty in obtaining data from community physicians in an ACO, yet only one-third of hospitals have started discussions with them about ACO participation (See Figure 2).

“The reality is that hospitals...are going to need data from outside the organization. No one will be able to operate in a bubble anymore—it’s not going to be adequate in an accountable care environment...”

Jennifer Covich Bordenick, chief executive officer eHealth Initiative

*Figure 2: Hospitals expect the most difficulty in obtaining data from community physicians in an ACO, but few have actually talked to them*

Source: PwC Health Research Institute IT Implications of Health Reform Survey, 2010
Participants in the few existing ACOs are relying on private HIEs to address their data-sharing needs.

Half of organizations that are participating or planning to participate in an ACO expect to address the IT requirements through existing or newly built internal systems rather than through local or regional HIEs or partnerships with integrated delivery networks or payers (See Figure 3). While most HIE participants have joined a regional operation for their data sharing needs, ACO participants are more than twice as likely to participate in a private one, according to the survey.

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Harnessing the power of ACOs, HIEs, meaningful use, and government funding to manage patient care

Many of the components of health reform and stimulus funding are coming together to enable organizations to share data and improve patient care. For example, several states are developing HIEs as a result of $548 million in federal stimulus funding. In addition, 12 operational HIEs1 double as regional extension centers, federally funded hubs under way to assist physicians with adopting ambulatory electronic medical records (EMRs) and achieving meaningful use.

The National Committee for Quality Assurance (NCQA), which is the largest US accreditation organization for health plans, has published draft criteria for accrediting ACOs. Not surprisingly, NCQA’s draft standards overlap many of the meaningful use standards (See Figure 4). This underlines the importance of coordinating ACO and meaningful use initiatives throughout the design and implementation process.

Figure 4: More than half of the 93 draft NCQA ACO measures are also meaningful use measures

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1 Source: The State of Health Information Exchange in 2010: Connecting the Nation to Achieve Meaningful Use, eHealth Initiative, 2010. The eHealth Initiative (eHI) considers an HIE operational if the HIE is transmitting data that is being used by healthcare stakeholders.

Healthcare providers can follow four steps in developing an ACO IT backbone.

**Step 1: Achieve meaningful use stage 2 or higher.**
By stage 2 of meaningful use, providers must employ advanced care processes with decision support, which is also a prerequisite for an ACO (See Figure 5). Health information exchange is the mechanism for enabling these processes so HIE activity will undoubtedly grow. “Stage 2 requirements for meaningful use are going to ratchet up the expectations for health information exchange,” said Mark Pasquale, vice president of information services and chief information officer at Piedmont Healthcare, Atlanta. “We are going to see HIEs continue to be driven to utilize the Continuity of Care Document (CCD) standards1. If multiple platforms can integrate to achieve this level of functionality, we’ll be significantly ahead of where we are right now.”

**Step 2: Set data and analytics requirements for ACO participants.**
ACO participants—which include physicians, hospitals, labs, clinics, and subacute providers—must identify what data is necessary to share. They’ll also have to understand how data will be used at the point of care and at care transitions, and how historical and longitudinal data may be used in managing population health. The processes for collecting and integrating information will enable organizations to proactively identify chronic and high-risk patients. The IT objectives of the ACO should be to:

- **Capture:** Capture, collect, and display structured data through an EHR. Data should include inpatient and outpatient claims of encounter data from ACO participants and those outside the ACO; pharmacy data; and laboratory results and other clinical data.

- **Share:** Securely share clinical data within the ACO and among other providers and key health insurers via a platform that facilitate systems interoperability. Be able to share data from personal health records and from the Medicare working file3 of the Centers for Medicare and Medicaid Services.

- **Measure and manage:** Provide robust healthcare reporting and analytic capabilities for measuring and managing care by means of business intelligence/analytic software. This may include peer-to-peer comparisons, monitoring of adherence to evidence-based care protocols, and actuarial data.

- **Inform:** Link and strengthen the community of providers by deploying point-of-care devices, biomedical technologies and equipment, and by providing ongoing feedback for physicians, and patients. This can be facilitated by real-time connectivity to relevant clinical data.

- **Incentivize:** Once providers know how they’re doing, they need to be incentivized to make changes. This requires building ACO participation incentive structures that are linked directly to performance.

- **Mobilize:** Leverage centralized information capabilities to mobile devices, remote technologies and telemedicine. Facilitate and support a team of virtual care givers.

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1 The Continuity of Care Document is a specification for exchange of a patient summary clinical document. The patient summary contains a core data set of the most relevant administrative, demographic, and clinical information facts about a patient’s healthcare, covering one or more healthcare encounters for a specific patient. It provides a means for one healthcare practitioner, system, or setting to aggregate all of the pertinent data about a patient and forward it to another practitioner, system, or setting to support continuity of care. HL7 Continuity of Care Document, a Healthcare IT Interoperability Standard, is Approved by Balloting Process and Endorsed by Healthcare IT Standards Panel, February 2007, accessed November 29, 2010 (http://www.hl7.org/documentcenter/public/pressreleases/20070212.pdf).

2 The Medicare Common Working File (CWF) contains information on Medicare enrollees and receives eligibility data from the Social Security Administration. Medicare contractors use it to obtain such information on beneficiaries as their entitlements, utilization, and claims history.
Figure 5: Comparison of ACO activities with the three stages of meaningful use

**Stage 1: 2011**
Capture/share data

- Medication orders entered by licensed healthcare professionals
- Core clinical documentation
- E-copies of health information to patients
- Quality and immunization reporting
- Drug-drug, drug-allergy, drug-formulary checks; medication lists/reconciliations
- Lab results delivery
- Patient reminders
- E-prescribing

**Stage 2: 2013**
Advanced care processes with decision support

- Health summaries for continuity of care
- Registry reporting and reporting to public health
- Populate PHRs
- CPOE for all order types
- Evidence-based order sets
- Clinical decision support at point of care
- All clinical documentation in EHR
- Claims and eligibility checking

**Stage 3: 2015**
Improved outcomes

- Minimal levels of performance on quality, safety and efficiency measures
- Clinical decision support for national high-priority conditions
- Access comprehensive data from all available sources
- Experience-of-care reporting
- Medical device interoperability
- Dynamic/ad hoc quality reports
- Real-time surveillance
- Multimedia support (e.g., X-rays)
  Patients have access to self-management tools
- Use of epidemiologic data
- Clinical dashboards
- Provide patients with accounting of treatment, payment, and healthcare operations disclosures (upon request)

Note: Not until ACO participants meet stage 3 criteria will the ACO perform effectively by way of improving outcomes, managing population health, and delivering personalized medicine.
Step 3: Determine how a model for health information exchange can be part of the ACO’s IT backbone.

One in five healthcare executives and administrators surveyed by PwC said their organizations are participating in HIEs (See Figure 6). Perhaps so few providers are participating in HIEs because (1) so few have implemented EHRs and/or (2) so few HIEs are fully functioning. The eHealth Initiative, which represents healthcare organizations that are improving health and healthcare through information and IT, reports only 18 HIEs as operational: transmitting data that is being used by healthcare stakeholders—and sustainable: breaking even as a result of operational income alone.4

The advent of ACOs, though, has strengthened the business case for HIEs. “In the past, the value proposition for getting involved in an HIE wasn’t there,” said Stephan O’Neill, vice president of information services and chief information officer at Hartford HealthCare, an 867-bed major teaching facility in Connecticut. “It was only to share data for the sake of sharing. Very few organizations in the industry saw HIEs as a way to coordinate care across the continuum. Now, [with ACOs] they do.”

The savings ACOs generate by reducing the unit cost of evidence-based care could be an HIE’s saving grace. Geisinger Health System is the founding member of the Keystone Health Information Exchange (KeyHIE), which Jim Walker, MD, chief health information officer, considers the backbone for Keystone Beacon Services, and ONC-funded initiative designed to help communities stay healthier, prevent unnecessary hospital readmissions, and share savings. The initiative is a stepping stone toward a community-wide ACO, according to Walker. “Our objective is to create a self-sustaining business model that will enhance care for all individuals, not just those served by Geisinger. We are sharing the methods and skills we have developed with other organizations in the community.”

Walker believes savings from the initiative may eventually help fund KeyHIE. The key will be to enable a team of virtual caregivers through IT. “It’s amazing how these virtual teams are able to function: many of them never see each other face-to-face, yet they are incredibly effective at coordinating individuals’ care as they move through the community.”

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All ACOs will require some mechanism for health information exchange, and there are several options or combinations of options to choose from. Healthcare providers need to consider market, financial, operational and technology drivers when determining the HIE strategy for an ACO (See Figure 7).

- **Build a private HIE using existing internal IT systems or with new IT infrastructure and systems.** This may be an option for large, highly integrated/integrating health systems that are created from established business and clinical relationships. But be forewarned: “As acquisitions are made and health systems continue to grow, continued focus needs to be placed on the integration (not interfacing) of clinical data to a standardized platform,” said Piedmont’s Pasquale. “It’s obviously important if you are going to participate in or become an ACO.”

- **Join a local/regional model once it has been developed.** Often referred to as regional health information organizations (RHIOs), these are governed at a regional or local level. Four HIEs received grants under the federal government’s Beacon Community Cooperative Agreement Program, which is aimed at bringing doctors, hospitals, community health programs, federal programs, and patients together to design new ways of improving quality and efficiency. These may become prime pilot sites for ACO activity.

- **Join a state-run model once it has been developed.** For some hospitals, which may never gain access to a regional model or that don’t have the resources to build their own infrastructures, a state model may have some appealing options. “The approach we have taken in Missouri includes the concept of ‘no provider left behind,’” said David Weiss, senior vice president and chief information officer at BJC HealthCare in St. Louis. “We need to give our rural and stand-alone providers a means for connecting into a data-sharing network. Essentially, we plan to create a virtual RHIO for these providers through our state HIE.”

- **Partner with another organization like a large integrated delivery system, a payer-driven initiative, or a shared EMR model.** For example, Inland Northwest Health Services in Spokane, Washington, coordinates care among 38 hospitals using the same EHR.

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**Figure 7:** Healthcare providers need to consider market, financial, operational and technology drivers when determining the HIE strategy for an ACO.

<table>
<thead>
<tr>
<th>Models of health information exchange for hospital providers</th>
<th>Local/regional model exists</th>
<th>Capital position</th>
<th>Physician relations</th>
<th>Relations with other hospitals in market</th>
<th>Market penetration</th>
<th>Level of technology integration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Yes/No/Maybe)</td>
<td>(Strong/Weak/Neutral)</td>
<td>(Excellent/Poor/Neutral)</td>
<td>(Excellent/Poor/Neutral)</td>
<td>(High/Low/Medium)</td>
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<tr>
<td>Private</td>
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<td>Shared EMR</td>
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<tr>
<td>Regional/local</td>
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<tr>
<td>State</td>
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</tbody>
</table>

Source: PwC Analysis
One of the pressure points from the community is going to be to make all the HIEs in the market communicate, so being an early adopter in a community HIE may be attractive to patients.”

Stephan O’Neill, vice president of information services and chief information officer Hartford HealthCare

Step 4: Develop a plan B for supporting out-of-network care.
ACOs will be responsible for managing the care of a defined population, but doing so will become problematic when a patient seeks care outside the ACO. The ultimate success of an ACO will depend on out-of-network data exchange—at least on a rudimentary level. With the proposed-but-not-yet operational National Health Information Network several years off, ACOs need a plan B in the interim. For most ACOs, though, a non-proprietary HIE won’t be an option. Many RHIOs are linking together, but none of the activity appears to be coordinated.

“The reality is that hospitals that have a private HIE or closed EMR model are going to need data from outside the organization,” said Jennifer Covich Bordenick, chief executive officer of eHealth Initiative. “No one will be able to operate in a bubble anymore—it’s not going to be adequate in an accountable care environment or Stage 2 of meaningful use.”

Some industry leaders expect consolidation among HIEs in the future, which will force expansion of the data sharing circle. Being an early adopter in a community HIE may be attractive to patients. “One of the pressure points from the community is going to be to make all the HIEs in the market communicate, so being an early adopter in a community HIE may be attractive to patients,” said Hartford HealthCare’s O’Neill. “But, that’s when competitiveness will rear its head.”

One solution would be to bring out-of-network participants into a proprietary network through patients. For example, 158,000 Geisinger Health System’s patients have personal health records that link them to their Geisinger care teams and that they can share with any caregiver they choose, regardless of location. Geisinger has found that many patients with chronic conditions use them when they see non-Geisinger physicians. The most frequent users are aged 49 to 64 years; and the second most frequent users are older than 65.

For snowbirds, who generally make repeat office visits while away from home, the ability to offer out-of-town physicians blanket access to a portal or personal health record may improve the continuity of data shared with hometown providers.
Conclusion

With ACO and HIE activity ramping up, it's easy to get lost in the terminologies and distracted from the intended meanings. After all, the industry tends to use many of these terms loosely. Even if they choose not to participate in an ACO, a population health management strategy is something healthcare providers will need. Providers should focus on getting integrated—both from a systems perspective and clinically—before they are positioned to implement this strategy. And health information exchange is part of the IT backbone that will make it work.

In Parts II and III of this report, we will address the clinical informatics and financial issues facing ACOs by focusing on:

• Clinical informatics and secondary use of data across the health industry
• Business intelligence and decision support as the kinds of brainpower behind population health management and strategic planning
• Patient-centered medical home, personalized medicine, care redesign, and optimization supported by business process management systems and patient-centric point of care analytics
• The payer-provider relationship
• Financial system and data requirements for payment
• Requirements for insurance risk management and predictive modeling

Even if they choose not to participate in an ACO, a population health management strategy is something healthcare providers will need. Providers should focus on getting integrated—both from a systems perspective and clinically—before they are positioned to implement this strategy.
Accountable care organization (ACO) is now a ubiquitous term in the healthcare landscape. Nearly every health organization wants to be one, or claims it already is one, or says it’s working to become one. But little agreement exists on what exactly an ACO is. In some ways, ACO is a metaphor for how the health system is changing from an individual output-based system to a population-risk-based system that rewards quality and efficiency instead of volume.

The definition of ACO is derived by the type of organization describing the model:

According to the federal government: Under the health reform law, an ACO is a network of providers and/or organizations that are accountable for the health of a discrete group of Medicare beneficiaries. Starting in 2012, providers can organize themselves into ACOs if they have sufficient primary physician participation, if they implement evidenced-based medicine guidelines, and if they report on cost and quality. If an ACO succeeds in delivering high-quality, low-cost care, it will share Medicare money and share in that savings. Details around the concept are not complete because CMS is still developing them. They are expected to be published by the end of December 2010.

According to commercial health insurers: Several private payers, such as Anthem Blue Cross and Blue Shield as well as Blue Cross and Blue Shield of Massachusetts, have developed accountable care programs that pay providers either capitation or global payments instead of traditional fee-for-service payments. Some of these payment models include a quality incentive. Without a quality component, it’s simply a cost reduction and risk-shifting strategy.

According to providers: Many providers in integrated delivery networks (IDNs) consider their organizations the equivalent of ACOs or, at least, positioned to quickly become ACOs. An IDN’s physicians, hospital, and health plan are responsible for a patient population; they share risk; and they’re ultimately capable of proactive population health management. IDNs with active insurance licenses and histories of disease management are well poised to become ACOs.

Non-IDN providers consider the development of infrastructure that will allow for shared savings among providers and payers to represent a first step in becoming an ACO. That infrastructure can include health IT, evidence-based guidelines, and quality measures.

Types of ACO

<table>
<thead>
<tr>
<th>Type of ACO</th>
<th>Infrastructure ACO</th>
<th>Pre-ACO</th>
<th>Commercial ACO</th>
<th>CMS shared-savings program ACO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Providers build a provider network and an infrastructure to prepare for an accountable care environment such as health IT, physician practice guidelines, and data analytics.</td>
<td>An IDN with the ability to manage patient populations and the ability to manage risk.</td>
<td>A commercial payer contract with some level of risk sharing and quality requirements.</td>
<td>An organization of healthcare providers accountable for the quality and cost of care for a group of Medicare beneficiaries.</td>
</tr>
<tr>
<td>Relationship/description</td>
<td>No formal designation. Strengthens relationships and alignment between hospitals, physicians, and payers.</td>
<td>No formal designation. Includes an insurance license, provider-owned health plan, hospital(s), and physicians.</td>
<td>Contractual relationship between provider and payer negotiated on an individual basis.</td>
<td>A CMS designation for the Medicare shared-savings program or pediatric demonstration project as described in the PPACA.</td>
</tr>
</tbody>
</table>
A health information exchange (HIE) refers to a type of software that provides connectivity of disparate clinical systems and interoperability of clinical information captured by those systems such that a patient centric record is created and available to the physicians providing services for those patients. HIE software can be acquired and deployed by any type of organization including RHIOs, hospitals and health systems, physician practices, payers, and states.

A regional health information organization (RHIO) is an organization whose principle purpose is to acquire and deploy a HIE across a defined geography and, as an organization, needs a sustainable business model beyond large grants to become and remain operational and purposeful. RHIOs are governed at local or regional levels.

A private HIE is one that is deployed by an organization other than a RHIO and uses that organization’s existing IT systems or newly built IT HIE infrastructure and systems. This is generally a closed-system model that connects multiple select facilities within an owned or affiliated organization.

A state HIE or RHIO is governed and operated at the state level. The federal stimulus package extended $548 million to states to deploy HIEs across the country by state governed initiatives.

A shared EMR model of health information exchange exists when all participating organizations deploy the same EMR technology which operates from a common database structure. No exchange platform is necessary in this model as each participant is working in the same patient centric record.
This report is the first in a series of reports on the IT implications of health reform. Subsequent reports will discuss the IT infrastructure, informatics and reporting, and privacy and security requirements for such regulatory initiatives as value-based purchasing, meaningful use, comparative effectiveness as well as such market drivers as the emerging economy of data through secondary use. The research for this report included nine in-depth interviews with thought leaders and executives in the healthcare provider arena. HRI also commissioned in fall 2010 an online survey of more than 300 healthcare executives and administrators.

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