HEALTH INFORMATION TECHNOLOGY INFRASTRUCTURE TO SUPPORT ACCOUNTABLE CARE ARRANGEMENTS

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By:

Robinson & Associates Consulting LLC
Carol Robinson, Principal
Chris Coughlin, Associate
Stephen Palmer, Associate

ROBINSON & ASSOCIATES
CONSULTING, LLC

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Introduction

The American healthcare system is currently in the midst of a dramatic reorganization, as the way we pay for healthcare services is changing to realign incentives for providers, patients, and payers. In response to continuing concerns about unsustainable growth in healthcare costs and the degree to which current spending is delivering high quality care for patients, a renewed focused on "value-based" payment approaches has emerged in recent years, in large part due to reforms included in the Patient Protection and Affordable Care Act (ACA). Today, as providers across the country are gaining experience with these new approaches, we have new reasons to believe that we can reduce unnecessary healthcare costs while maintaining and improving quality and access.

In the traditional "fee-for-service" model of paying for healthcare, providers bill and are paid for visits, tests, procedures and other defined services as they occur, and the payer, whether Medicare, Medicaid, commercial health plans, or self-funded employer plans, takes on the full risk of the costs of care. Value-based contracts and programs are establishing a different paradigm for the relationship between healthcare providers and whoever is paying for healthcare services. For instance, under value-based contracts broadly referred to under the umbrella term "accountable care," the provider bears some degree of accountability for a patient's total cost of care. Under these arrangements, providers must manage costs, report on quality metrics, and achieve improved population health outcomes. In exchange, providers receive some portion of their compensation under an alternative arrangement, for instance, by sharing in any savings that accrue to the system.

As observers debate whether these accountable care approaches will be successful in reducing healthcare costs, they often raise concerns about whether providers have access to the health information technology (health IT) infrastructure needed to support the more complex business and clinical processes associated with these approaches.[1] Spending by large healthcare organizations on health information systems, including business intelligence, analytics, and database and systems management tools, is projected to top $34.5 billion in 2014, indicating that large investments are being made in the technology infrastructure needed to compete in this new paradigm.[2] Yet a 2012 analysis of accountable care readiness published by the Commonwealth Fund found a "low level" of health IT development in the 59 organizations studied. The study described the need for organizations to adopt a sophisticated strategy around electronic health records (EHRs) and health information exchange (HIE) that stretches across the continuum of care and allows clinicians to analyze patient data, measure clinical risk, and assess the value of interventions.[3]

This report presents an overview of how health IT is supporting accountable care arrangements and related value-based initiatives, including: accountable care organization (ACO) efforts led by

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[1] Funtleyder, L. (2013 April 28). The ACO Failure Hypothesis: Likely but Not Inevitable [Blog Post]. The Health Care Blog. Retrieved from http://thehealthcareblog.com/blog/2013/04/28/the-aco-failure-hypothesis-likely-but-not-inevitable/

[2] Technology Business Research. (2013). Healthcare IT Spend Will Top $34.5 Billion in North America in 2014, According to TBR's SourceIT Healthcare Report [Press Release]. Retrieved from http://www.prweb.com/releases/2013/8/prweb11072849.htm

[3] Commonwealth Fund. (2012). *Measuring Progress toward Accountable Care.* Retrieved from http://www.commonwealthfund.org/~/media/Files/Publications/Fund%20Report/2012/Dec/1652_Kroch_Measuring_Progress_web_1212.pdf

federal and state payers, ACO and other risk-based provider contracts established by commercial payers, patient-centered medical home (PCMH) recognition and gain-sharing initiatives, Medicaid Section 1115 waivers,[4] and other payment models linking quality and payment across populations. The report then presents two case studies exploring some of the successes and challenges the communities of Bangor, Maine, and Austin, Texas have encountered as stakeholders have sought to develop the infrastructure need to help providers flourish in an accountable care environment.

[4] For more information, see: http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/Section-1115-Demonstrations.html

Overview of Accountable Care Models and Related Initiatives

Providers operating under accountable care arrangements are responsible, under a contract with a payer entity (Medicare, Medicaid, commercial health plans, employer group health plans, etc.), for providing healthcare for a defined population group and measuring specific health outcomes and other quality metrics, such as patient satisfaction. In general, if spending by the accountable providers exceeds the level set by the contract (e.g. expected spending based on historical trend), or does not achieve the specified health outcomes/quality metrics, the providers are at risk for these costs. On the other hand, if the accountable providers are able to meet the health outcomes/quality metrics at a lower cost than specified in the contract, they may share in those cost savings with the payer.

The ACA accelerated the spread of accountable care models by establishing a variety of innovative payment programs under Medicare and Medicaid. Along with initiatives by commercial plans to include accountability and risk sharing in their contracts, providers now have many opportunities to begin to transition from fee-for-service to value-based payment.

Federal and Commercial Accountable Care Programs

Medicare's most far-reaching accountable care program, the Medicare Shared Savings Program (MSSP), was established under the ACA as a permanent program within Medicare and has grown rapidly over the past several years. As of January 2014, there were more than 340 ACOs participating in the Medicare Shared Savings Program in 47 states, the District of Columbia, and Puerto Rico, covering over five million Medicare beneficiaries.

Under MSSP, organizations contract with Medicare to assume accountability for groups of attributed beneficiaries that are receiving the majority of their care from participating providers. Using historical data, Medicare projects future costs of care for these beneficiaries according to national benchmarks. Under a "no-risk" program track (Track 1) ACOs share with Medicare in any savings they generate by delivering care for attributed patients. ACOs that choose a "double-sided" risk track (Track 2) are eligible to share in a greater proportion of any shared savings generated; however, if the cost of care for beneficiaries exceeds the projection, the ACO is liable to repay Medicare for a portion of the losses. In order to qualify for shared savings, ACOs in MSSP must also demonstrate satisfactory performance on 33 quality measures.

As Medicare seeks to gain experience with different accountable care approaches, it has also established a number of pilot initiatives which offer variations on the MSSP model. The Pioneer Accountable Care Organization Model initiative, administered through the Center for Medicare & Medicaid Innovation (CMMI), is a pilot program designed to support advanced accountable care organizations prepared to take on a greater degree of risk with the potential of greater shared savings.[5] Pioneer ACOs feature larger attributed patient populations as well as a requirement that participating ACOs must develop risk-based contracts with their other commercial carriers. There were 32 entities in the first cohort of the program, which launched in 2012. A detailed analysis was released in January 2014 showing gross savings of $147 million in their first year. Of that first cohort, several have chosen not to continue as ACOs, while others have transitioned

[5] For more information, see: http://innovation.cms.gov/initiatives/Pioneer-ACO-Model/

to the Medicare Shared Savings Program,[6] with a lower level of risk. Of the remaining 23 Pioneer ACOs at the beginning of 2014, nine had significantly lower spending growth relative to Medicare fee-for-service while exceeding quality reporting requirements.[7]

In parallel with government-led initiatives, many commercial payers have recognized the value of accountable care models and established similar programs within their provider networks. In late 2013, Leavitt Partners estimated the number of solely commercial accountable care arrangements to be 235, and put the number of arrangements with both commercial and government contracts at 56.[8] The commitment of health plans to move into this model continues to grow. United Healthcare Executive Vice President and Chief Medical Officer Sam Ho, M.D., noted that United wants to push for value-based payments in all of their contracts. United currently has over eight million lives covered through value-based contracts, and expects that to double in the next four years.[9]

State-based Accountable Care Programs

At the state level, Medicaid programs are also contracting with provider organizations under arrangements that draw on the features of accountable care models. State Medicaid programs currently deliver a substantial portion of care to beneficiaries under managed care models, leveraging these contracts to control costs by paying provider organizations a set amount for each individual covered. Accountable care approaches are seen as an opportunity to incentivize better care quality, increase care coordination, and allow states to contract directly with provider organizations.

Oregon has emerged as a national leader in this arena with a substantial restructuring of its Medicaid program in 2012, putting nearly all of the state's Medicaid beneficiaries into Coordinated Care Organizations (CCOs). Because Oregon chose to allow for flexibility in the structure of the CCOs, some have formed under managed care organizations that had already been serving Medicaid recipients, while others have formed through new business partnerships between provider organizations and community-based groups. The CCOs contract with the State of Oregon to provide care to Medicaid beneficiaries under an accountable care arrangement that includes shared risk and specified quality metrics. Primary care, dental and mental health providers are now operating through 16 CCOs with global budgets.[10] At least seven other states are also experimenting with similar concepts; Colorado[11] and Maine[12] are both rolling out new payment models for Medicaid in 2014, and more states are moving to managed care models with the plan to transition to shared risk contracts in the future.

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[6] For more information, see: http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/index.html?redirect=/

[7] Centers for Medicare & Medicaid Services. (2014). Medicare's delivery system reform initiatives achieve significant savings and quality improvements - off to a strong start [Press Release]. Retrieved from http://www.cms.gov/Newsroom/MediaReleaseDatabase/Press-Releases/2014-Press-releases-items/2014-01-30.html

[8] Muhlstein, D. (2014 January 29). Accountable Care Growth in 2014: A Look Ahead [Blog post]. Health Affairs Blog. Retrieved from http://healthaffairs.org/blog/2014/01/29/accountable-care-growth-in-2014-a-look-ahead/

[9] Japsen, B. (2013). Unitedhealthcare Makes $50 Billion Wager on Accountable Care as Obamacare Looms. Forbes.com. Retrieved from http://www.forbes.com/sites/brucejapsen/2013/07/10/unitedhealthcare-makes-50-billion-wager-on-accountable-care-as-obamacare-looms/

[10] For more information, see: http://www.oregon.gov/oha/ohpb/pages/health-reform/ccos.aspx

[11] For more information, see: http://www.colorado.gov/cs/Satellite/HCPF/HCPF/1251626415803

[12] For more information, see: http://www.maine.gov/dhhs/oms/vbp/accountable.html

Multipayer Approaches

While the models above are primarily focused on risk-based contracts with a single payer, the Affordable Care Act also established initiatives to implement value-based contracts across multiple payers. Because provider organizations usually serve patients who are covered by a variety of different payers, i.e., Medicaid, commercial plans, and Medicare, they may be participating in several different value-based purchasing, or accountable care arrangements. However, managing separate accountable care contracts featuring different performance requirements specific to each payer presents a substantial administrative burden, especially for small providers. Moreover, these patchwork arrangements can lead to different standards of care delivery across a provider's patient panel. Multipayer arrangements which promote agreement across payers promise to overcome these challenges and suggest an important path for value-based payment going forward.

Two important demonstration projects being tested by CMS in this area are the Comprehensive Primary Care Initiative (CPCI) and the Multipayer Advanced Primary Care Practice Demonstration (MAPCP). CPCI currently includes approximately 500 practices in seven markets across the country, and focuses on collaboration between public and private healthcare payers to strengthen primary care. Medicare offers an additional per-member, per-month payment to these providers, who may qualify to participate in shared savings streams with both Medicare and participating commercial payers in future years.[13] Active in eight states, the MAPCP is evaluating whether advanced primary care practice can reduce unnecessary utilization and expenditures; improve the safety, effectiveness, timeliness, and efficiency of healthcare; increase patient decision-making; and increase the availability of care in underserved areas. MAPCP includes a monthly care management fee for beneficiaries receiving primary care from advanced primary care practices that is intended to cover care coordination, improved access, patient education, and other services to support chronically ill patients.[14]

Related Initiatives

In addition to accountable care models, a variety of initiatives have sought to link incentive payments to performance and quality reporting in recent years, including state and commercial payer incentives for patient-centered medical home (PCMH) recognition and CMS' Physician Quality Reporting System (PQRS). In addition, CMS' EHR Incentive program, discussed in greater detail below, has supported provider adoption of certified health information technology; incentives are contingent upon providers' ability to demonstrate their ability to successfully report on a set of quality and process measures.

Table 1. Selected Value-Based Arrangements

Name of Program/Description	Payer Type	Payment Components
Pioneer ACO	Federal	Quality metrics; risk-sharing
Medicare Shared Savings Program (MSSP)	Federal	Quality metrics; risk-sharing after third year

[13] For more information, see: http://innovation.cms.gov/initiatives/Comprehensive-Primary-Care-Initiative/
[14] For more information, see: http://innovation.cms.gov/initiatives/Multi-Payer-Advanced-Primary-Care-Practice/

Name of Program/Description	Payer Type	Payment Components
Commercial value-based contracts	Health plans	Varies depending on contract; can include risk-sharing and quality metrics
Medicaid 1115 waivers including value-based payments	State contracts with providers using federal Medicaid dollars	Varies depending on waiver
Comprehensive Primary Care Initiative (CPCI)	Federal incentives/ multipayer models	Enhanced per member per month payments for advanced care management
Multipayer Advanced Primary Care Practice Demonstration (MAPCP)	Federal incentives/ multipayer models	Enhanced per member per month payments for advanced care management
Physician Quality Reporting System (PQRS)	Federal	Incentives for quality measures
Patient-Centered Medical Homes (PCMH)	States or commercial health plans	Incentives based on recognition as PCMH

Despite the increasing number of organizations participating in value-based arrangements across the country, it is important to remember that most health care is still paid for under the traditional fee-for-service system. The transition to a value-based payment environment is still in its early stages and will require steady, incremental progress to deliver on the promise of better, more efficient care for all Americans.

Health IT Considerations for Accountable Care

One early report on the health IT needs of ACOs defined a functional ACO as an organization that has the capacity to deliver and manage care for a defined population, accept payment, distribute savings to participants, and perform disease management and predictive modeling in order to improve outcomes—all functions contingent upon effective IT solutions.[15] Indeed, organizations that have achieved success by adhering to the same principles shaping accountable care models, such as Kaiser Permanente, the Geisinger Health System in Central Pennsylvania, and Intermountain Healthcare in Utah, have all demonstrated significant leadership in the implementation of health IT tools, data analytics, and IT-enabled care management solutions.

As providers and payers have gained experience with accountable care models over the past several years, observers have continued to recognize the critical need for appropriate IT solutions to support success. A 2013 evaluation of early results from the Pioneer ACO program[16] suggested that successful accountable care organizations should have the capacity to identify and follow beneficiaries across the continuum of care, and to analyze beneficiary data from a population perspective. Among the Pioneer ACOs, a subset reported robust capabilities along these lines. However, the report noted that "Many Pioneer ACOs have not yet fully optimized their relationships with partners and providers, care management protocols, information management and IT systems, strategies for managing beneficiary leakage, or other core aspects of the accountable care model." The organizations that are still in the process of developing these capabilities cited a limited proficiency with health IT tools as their biggest challenge, exacerbated by the limited or non-existent ability to share clinical and claims information across healthcare organizations in the community.

The Certification Commission for Healthcare Information Technology (CCHIT), an independent nonprofit group, published "A Health IT Framework for Accountable Care" in 2013, after receiving input from a wide range of stakeholders. The Framework lays out a comprehensive overview of the technology capabilities providers should consider implementing in order to succeed within accountable care models.[17] Some of the key health IT capabilities for accountable care identified by CCHIT include:

- **Care Coordination.** Providers must be able to access information on patients from settings across the continuum of care, in order to inform treatment decisions based on comprehensive up-to-date information. In addition, technology solutions can support providers' ability to effectively manage care transitions and address care gaps that may arise between settings.
- **Assessment and Risk Stratification.** Providers must be able to assess health status across patient populations and identify high-cost/high-risk patients most likely to benefit

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[15] PwC Health Research Institute. (2010). Designing the health IT backbone for ACOs Part I: Hospitals look to meaningful use and health information exchanges to guide them. Retrieved from: http://www.himss.org/files/HIMSSorg/content/files/Code%20209%20PWC%20Designing%20the%20Health%20IT%20backbone%20for%20ACOs.pdf

[16] Center for Medicare and Medicaid Services. (2013). "Evaluation of CMMI Accountable Care Organization Initiatives: Effect of Pioneer ACOs on Medicare Spending in the First Year." Retrieved from http://innovation.cms.gov/Files/reports/PioneerACOEvalReport1.pdf

[17] For more information, see: https://www.cchit.org/aco-hit-framework

from more intensive care management, using aggregated information from multiple data sources. In order to understand and monitor total cost of care, accountable care organizations need access to financial data from across payers, as well as business intelligence tools to analyze this data.

- **Cohort Management.** Technology tools can help providers take a systematic approach to implementing relevant interventions for high-risk patients, while effectively targeting routine reminders and notifications about preventive care. Important tools for care teams include electronic shared care plans that allow clinicians and patients to access a common source of information on care goals and interventions, as well as clinical decision support tools which can identify gaps in care and recommend interventions according to evidence-based guidelines.
- **Engaging Patients and Caregivers.** Providers can leverage technology tools to more effectively engage patients in their own care, increase patient self-activation through educational resources and self-management tools, and capture patient generated information about health outcomes and satisfaction to inform care decisions.
- **Reporting.** Organizations that must comply with required reporting of quality and financial metrics under accountable care arrangements need automated channels for electronic reporting to minimize administrative burden.

The discussion below highlights current trends in the adoption of health IT tools and services, the IT-enabled capabilities needed to support providers within accountable care arrangements, and challenges facing provider organizations. It also discusses some of the crucial non-technical considerations which accountable care organizations must address to ensure effective implementation of IT solutions.

Electronic Health Record Adoption

The EHR is a crucial tool in the value-based care environment, enabling providers to deliver safer, evidence-based care; electronically capture and share patient information with other clinicians; and measure quality performance. In recent years, funding available under the EHR Incentive program established by the American Recovery and Reinvestment Act has driven substantial investment among both hospitals and ambulatory physician practices to make the transition from paper to digital records.[18] A recent study released by the Center for Disease Control in January 2014, conducted by the National Center for Health Statistics,[19] illustrates these trends:

- In 2013, 78 percent of office-based physicians used any type of EHR system, up from 18 percent in 2001.
- In 2013, 48 percent of office-based physicians reported having a system that met the criteria for a basic system, up from 11 percent in 2006. The percentage of physicians with

[18] For more information, see: http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/Certification.html

[19] National Center for Health Statistics. (2014). *Use and Characteristics of Electronic Health Record Systems Among Office-based Physician Practices: United States, 2001–2013* (NCHS Data Brief No. 143). Washington, DC. Retrieved from http://www.cdc.gov/nchs/data/databriefs/db143.pdf

basic systems by state ranged from 21 percent in New Jersey to 83 percent in North Dakota.

- In 2013, 69 percent of office-based physicians reported that they intended to participate (i.e., they planned to apply or already had applied) in the EHR Incentive Program. About 13 percent of all office-based physicians reported that they both intended to participate in meaningful use incentives and had EHR systems with the capabilities to support 14 of the Stage 2 Core Set objectives for meaningful use.

On the hospital side, adoption of EHRs has also jumped dramatically, from only nine percent in 2008 to more than 80 percent of hospitals attesting to use of certified EHRs in 2012, according to data released by ONC in March 2013.[20] While many are concerned about the readiness of both ambulatory practices and hospitals to meet the increasing standards of the EHR Incentive Program, particularly in the areas of patient engagement and transitions of care, the trends are promising.

While adoption has increased, challenges around interoperability between EHR systems continue. These challenges impact accountable care organizations especially, where integration across participating providers' EHR systems is a key strategy for meeting cost and quality goals. The U.S. Government Accountability Office (GAO) published a report in March 2014, citing the importance of interoperable health IT systems to a more coordinated healthcare system, and calling for prioritized actions and milestones by federal agencies to accelerate progress toward this end.[21]

Accountable care organizations are addressing issues associated with bringing together disparate EHR systems in different ways. Some, like Illinois-based integrated delivery network OSF HealthCare System, are limiting the participation in their CMS Pioneer ACO, as well as in their new commercial accountable care venture, to their own network of affiliated providers, all using an Epic EHR platform. Others, like Hartford, Connecticut-based St. Francis HealthCare Partners ACO, a participant in the MSSP program which launched in an environment with 24 different EHRs in use by participating organizations, are considering how to incrementally move provider organizations to the same EHR at some point in the future.[22] In nearby Farmington, Connecticut, a large primary care group, ProHealth Physicians, runs several accountable care arrangements where all of their practices are using the same EHR system.[23]

For many accountable care organizations, however, convergence on a single EHR platform across a wide range of participating providers is unlikely. These organizations are seeking to drive adoption of EHRs while at the same time managing the challenges of conducting care

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[20] Office of the National Coordinator for Health IT. *Adoption of Electronic Health Record Systems among U.S. Non-federal Acute Care Hospitals: 2008 – 2012* (ONC Data Brief No. 9). Retrieved from http://www.healthit.gov/sites/default/files/oncdatabrief9final.pdf

[21] Government Accountability Office. (2014). Electronic Health Records: HHS Strategy to Address Information Exchange Challenges Lacks Specific Prioritized Actions and Milestones (GAO 14-242). Retrieved from http://www.gao.gov/assets/670/661846.pdf

[22] DeGaspari, J. (2014). A Hospital Embraces Accountable Care. *Healthcare Informatics.* Retrieved from http://www.healthcare-informatics.com/article/hospital-embraces-accountable-care

[23] Lynch, J. (December 5 2013). Testimony before Accountable Care Workgroup, Health IT Policy Federal Advisory Committee, U.S. Department of Health and Human Services. Retrieved from http://www.healthit.gov/facas/sites/faca/files/120513ACWHearing_Lynch.pdf

coordination and quality measurements tasks across dozens of EHR systems. Catholic Medical Partners in western New York, a partnership between a large (900+) network of independent practicing physicians and Catholic Health System (comprised of three hospitals, two nursing homes and a home health agency), is participating in the Medicare Shared Savings Program. The ACO's member practices include EHRs from 20 different vendors as well as some practices that have still not adopted an EHR.[24] To share information across the disparate EHR systems, Catholic Medical Partners is using the health information exchange services of HEALTHeLINK, which was also the lead grantee for the Western New York Beacon Community, one of 17 grantees of the Beacon Community Program under HITECH.[25]

Health Information Exchange Services

Health information exchange allows patients, doctors, nurses, pharmacists, other health care providers, to appropriately access and securely share a patient's vital medical information electronically—improving the speed, quality, safety and cost of patient care. Robust HIE is critical to conducting effective care coordination within an ACO's immediate network, as well as being able to receive information on care that patients receive from providers outside of the network. HIE platforms that are able to normalize and aggregate clinical data across settings can also help accountable care organizations analyze data on the patient populations they are seeking to understand, especially where this data can be integrated with claims information from payers.

There are an increasing number of ways that health information exchange can be implemented and used by organizations participating in accountable care arrangements:

- Regional or statewide health information exchange organizations (HIOs), providing HIE services as a shared service platform across a defined geography, and with a multi-organizational governance structure. HIE services provided at a regional or state level vary and can include one or many of the following:
    - A repository of patient health records for bidirectional exchange with interfaces to participating organizations' EHRs;
    - A record locator service (RLS), with a master patient index (MPI) and an integration engine;
    - Automated event notification services;
    - Health information exchange service providers (HISPs) that enable Direct exchange between EHRs certified to ONC 2014 Edition certification criteria;[26] and
    - Provider directory services, in an aggregated model, or in an orchestrator model, as demonstrated through the California Trust Framework[27] and the National Association for Trusted Exchange.[28]

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[24] Leventhal, R. (2014). The 2014 Healthcare Informatics Innovator Awards First Place Winner: Catholic Medical Partners. *Healthcare Informatics.* Retrieved from http://www.healthcare-informatics.com/article/2014-healthcare-informatics-innovator-awards-first-place-winner-catholic-medical-partners

[25] For more information, see: http://www.healthit.gov/policy-researchers-implementers/beacon-community-program

[26] For more information, see: http://www.healthit.gov/policy-researchers-implementers/direct-project

[27] For more information, see: https://cheq.wikispaces.com/IWG+Pilot

[28] For more information, see: http://nate-trust.org/

- Private "enterprise" HIE networks with point-to-point interfaces that typically connect multiple sites owned or affiliated with one organization, but at times are set up to serve multiple organizations using different instances of the same EHR product.
- eHealth Exchange[29] participation, where organizations, having signed the Data Use and Reciprocal Support Agreement (DURSA), and other agreements, implement technology using defined specifications for query and retrieval of health records in order to exchange with other eHealth Exchange members, which include federal government agencies and other large institutions.
- Direct Exchange using an embedded HISP within an EHR to route a Direct message to another EHR within the same EHR HISP, or between other EHR HISPs, as part of a trust community, such as DirectTrust.[30]
- A shared EHR model of HIE, where all of the participating organizations are using the same instance of one EHR, in a hosted environment.
- CommonWell Health Alliance participation, where organizations using an EHR or other technology produced by one of the member vendors of CommonWell Alliance are using services developed by the Alliance to connect to other organizations.[31]

ACOs' strategic choices about how to invest in HIE services are influenced by a number of factors, including existing technology capabilities, the degree to which HIE services are available within a region, and the degree to which ACOs believe their specific business objectives can be met by available services. For instance, in a region where there is a history of collaboration across competing health systems, such as in Maine, a statewide HIO infrastructure, supported by access to the eHealth Exchange for interstate HIE needs, can provide a strong backbone for supporting multiple ACOs. In this environment, the addition of other HIE methods, while introducing competition, may threaten the sustainability of existing infrastructure.

In urban markets, fierce competition in a fee-for-service healthcare market has often inhibited collaboration around shared services or joint investments. In these communities, a patchwork of different HIE models may serve to improve coordination of care between organizations, depending on the EHR landscape and other organizational factors.

As a first step for care coordination, many communities are successfully deploying electronic alerting services which notify a designated primary care provider when a patient is admitted or discharged from a hospital. Based on admission, discharge, and transfer (ADT) data feeds routinely generated by hospital IT systems, this strategy can offer a high impact, relatively low cost way for organizations to more effectively manage care for attributed patients covered under risk-based contracts.

Finally, EHR and web-based Direct exchange services coordinated through health information service providers (HISP) are offering a way for providers to drive exchange across providers with different EHRs as well as non-EHR users with access to a web portal. Some of Oregon's Medicaid Coordinated Care Organizations (CCOs) are using the Direct standards through the first state-run DirectTrust accredited HISP, CareAccord, to share information. The CareAccord

[29] For more information, see: http://healthewayinc.org/index.php/exchange
[30] For more information, see: http://www.directtrust.org/
[31] For more information, see: http://www.commonwellalliance.org/

web portal can facilitate care coordination across a community with disparate EHRs, and with organizations without EHRs.[32] Western New York's HEALTHeLINK is taking a similar approach to using Direct exchange to connect providers with and without EHRs.

Connectivity across the Care Continuum

As part of their HIE strategy, entities working under accountable care arrangements also need to determine how they will support clinical integration and care coordination across the full ecosystem of healthcare and community services. For instance, behavioral health and long-term/post-acute care providers are essential partners in the care of high-risk/high-cost patients that accountable care organizations are seeking to identify and manage. However, in many cases these providers were not eligible to participate in the EHR Incentive Program, and lag ambulatory practices and hospitals in the adoption of health IT tools and participation in health information exchange solutions.

As a result, providers are developing innovative solutions to working with these partners. Quality Independent Physicians (QIP) in Kentucky, an ACO participating in the Medicare Shared Savings Program, is coordinating care between long-term care provider organizations and hospitals in order to improve care transitions and reduce hospital readmissions. QIP is providing a HIPAA compliant mobile messaging application for their care coordinators, visiting nurses, and in-office clinicians to use on smart phones, tablets, or computers to text and email documents and messages between care settings. Secure mobile messaging and web-based Direct Exchange are content neutral as long as they are used for HIPAA-allowed purposes.

Beyond these providers, accountable care organizations must look to providers such as physical or occupational therapists, as well as community-based social service providers that can influence patient health outcomes. Nurse educators, nutritionists, social and human services agency caseworkers, and in-home care providers will need to have electronic communication tools to ensure a patient's health needs are identified and addressed in the most timely and effective manner possible.

Predictive and Retrospective Analytics

Before ACOs can apply care management strategies in a cost-effective manner, they need to identify the patients who will benefit most from care coordination interventions. Retrospective analytics based on claims data has been used successfully to identify high-risk patients, usually with a focus on chronic disease or high utilization, especially around hospitalization. Bronx, New York-based Montefiore ACO, a top performer in the Pioneer program, uses claims data to conduct risk stratification and cites the use of data as the driver behind its costs savings and quality gains.[33]

Optimally over time, predictive modeling from clinical data and other community data will help to identify high-risk and complex patients before they have significant hospital usage. Using predictors such as dual diagnoses of certain conditions, medication histories, housing status, and

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[32] For more information, see: https://www.careaccord.org/direct-secure-messaging/overview.shtml

[33] Punke, H. What Makes an ACO in the Bronx One of the Top-Performing Pioneers? *Becker's Hospital Review.* Retrieved from http://www.beckershospitalreview.com/accountable-care-organizations/what-makes-an-aco-in-the-bronx-one-of-the-top-performing-pioneers.html

patient submitted health assessments including behavioral health indicators, organizations will be able to more effectively target appropriate care management strategies to at-risk patients.

While accountable care arrangements have offered providers access to claims data to inform care, such as the Medicare claims shared with participants in the Medicare Shared Savings and Pioneer ACO Programs, few accountable care organizations have access to comprehensive, reliable claims data needed to support effective risk stratification across their entire patient populations. For instance, claims data received directly from health plans who are structuring their own accountable care arrangements can yield less than satisfactory results in predictive analysis for identification of high-risk patients, due to insufficient claims data and missing or inconsistent use of diagnostic codes by providers.[34]

Moreover, while a majority of states are now looking at developing all-payer claims databases (APCDs), which would aggregate claims data across all payers in a state, less than a third currently have an APCD in place or under development. Half of those only allow de-identified patient information to be collected in the APCD, though the trend may be shifting for states to allow for the collection of patient identifiers.[35] As noted in the Bangor case study later in this report, Maine passed legislation in 2014 changing the restrictions on their APCD to allow for the collection of identified data at the patient level.

Although the delay of ICD-10 for at least another year by Congress will ease some pressure on providers who are struggling to deal with all of the changes brought on by federal and state health reforms, some feel the stall could impact accountable care organizations' needs. In an April 2014 letter to CMS Administrator Marilyn Tavenner, the Coalition for ICD-10 stated that the greater accuracy and specificity of ICD-10 is key to the success of value-based purchasing arrangements.[36] Accountable care organizations functionally ready for providers to use ICD-10 in advance of the mandate may want to invest in analytic tools with the capability for electronic mapping between ICD-9 and ICD-10, for research, quality measurement, and risk analysis purposes.

Over time, organizations participating in accountable care arrangements will need to increasingly look towards developing systems that can ingest and organize data from community sources (such as housing status), environmental sources (air quality, for instance), and from claims (paid, denied, secondary insurance) in order to better manage care of the whole person. They will also need to combine different sets of data to improve business processes, such as patient satisfaction survey data, and wait times for scheduling appointments.

Quality Reporting and Measurement Tools

As quality reporting and measurement tools continue to evolve, providers are reporting challenges around extracting consistent clinical quality data from EHRs, particularly within the context of aggregating reports across different EHR platforms for the purposes of accountable

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[34] California Healthcare Foundation. (2011). *Predicting the Financial Risks of Seriously Ill Patients.* Retrieved from http://www.chcf.org/~/media/MEDIA%20LIBRARY%20Files/PDF/P/PDF%20PredictiveModelingRiskStratification.pdf
[35] APCD Council. (2013). *APCD Legislation: Review of Current Practices and Critical Elements.* Retrieved from https://apcdcouncil.org/sites/apcdcouncil.org/files/APCD%20Council_APCD%20Legislation_November%202013.pdf
[36] Coalition for ICD-10. (April 11 2014). "Letter to CMS Administrator Tavenner." Retrieved from http://coalitionforicd10.wordpress.com/2014/03/26/letter-from-the-coalition-for-icd-10/

care. Not unlike the difficulty in providing HIE services at a reasonable cost across a region where multiple EHR products are being used, providing analytic measurement tools across a patchwork of EHRs can be very costly due to the number of interfaces required to address variability in how data is captured in different products. Provider organizations also face difficulties managing different reporting structures when they are involved in multiple accountable care and practice transformation initiatives. Aligning measures across incentive programs whenever possible can reduce the reporting burden and encourage broader participation of providers in multi-payer quality improvement programs.[37]

However, even with better alignment of measures, the format in which they are being captured and calculated electronically may be slightly different between different EHRs. Although EHRs certified to the 2014 Edition of ONC certification criteria are required to collect a number of electronic clinical quality measures (eCQMs) for reporting in standard formats, EHR vendors may ultimately implement these quality measures in different ways. These inconsistencies may require substantial manual work at the practice level, or the use of translational software tools, to report at the organizational level.

A common goal for clinical quality reporting is outlined in the National Quality Forum's Quality Data Model (QDM),[38] where clinical concepts are described in standard formats to enable electronic clinical quality measurement. In the QDM, eCQMs are mapped to the Health Quality Measurement Format (HQMF)[39] for standardization of the measure's structure, metadata, definitions and logic. Health Level Seven International (HL7) has also mapped the electronic measures in the QDM to the Quality Reporting Document Architecture (QRDA), which is a constraint on the HL7 Clinical Document Architecture (CDA).[40] EHRs certified to 2014 standards should have the capability to extract reports for both patient level measures (QRDA Category 1) and population level measures (QRDA Category 3). However, standardizing such reporting through an analytics technology platform is not something that can be expected of ACOs in the near future.

Provider buy-in is a fundamental element in the development of measures across accountable care partners, as is trust in the organization's internal IT staff or analytics vendor to accurately parse and translate data for comparison. Finally, ACOs must be able to trust any data intermediaries charged with public reporting of cost and quality results, whether quasi-governmental or nonprofit entities.

Tools to Engage Patients in Managing their Care

In addition to supporting providers with more advanced IT tools, organizations accountable for the care of a population are also seeking to empower patients to manage their own care more effectively. Tools and services such as in-home monitoring devices linked to the primary care provider's EHR and patient portals optimized to deliver patient education are helping provider

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[37] For more information, see: http://www.buyingvalue.org/resources/
[38] For more information, see: http://www.healthit.gov/sites/default/files/qdm_dec2013.pdf
[39] For more information, see: http://www.healthit.gov/sites/default/files/qdm_hqmf_templates_dec2013.pdf
[40] For more information, see: http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/Downloads/Guide_QRDA_2014eCQM.pdf

organizations reach beyond clinic walls to engage patients outside of traditional face-to-face encounters.

In Hackensack, New Jersey, the HackensackAlliance, an ACO participating in the Medicare Shared Savings Program, is providing 4G tablets to patients with chronic heart failure, chronic obstructive pulmonary disease, and/or diabetes, to help them work with their nurse care navigators to manage their symptoms. The tablets, programmed to alert patients to weigh themselves, test their blood sugar, and take their medications, also send alerts to the care manager if patients have not recorded their results on schedule. The notification that a patient might be out of compliance with her care plan will trigger action on the part of the care management team so a team member can contact the patient and determine if there is a problem that needs immediate attention by the primary care provider. The tablets are also loaded with educational information about ways to manage chronic disease through healthy lifestyle decisions.

The HackensackAlliance tablet program, while still in a pilot mode, is showing strong indicators of success in reducing readmissions to the hospital; only eight percent of the pilot participants were readmitted, compared to 28 percent in a control group. In discussing the reduction in readmissions, Dr. Morey Menacker, CEO of Hackensack Alliance stated, "It's a dramatic change to a patient's quality of life. You can't put a cost on that."[41]

Recent pilots established as part of the Personal Health Records (PHR) Ignite[42] project, funded by ONC, have demonstrated how mobile devices and web-based patient portals using Direct exchange can enable patients to communicate with providers and manage their personal health information across multiple providers. In addition, the federally sponsored Blue Button initiative has developed technical standards and trust policies[43] to allow patients to download their information from different systems in a structured format.

Analysts are predicting staggering growth in the global mobile health market, to an estimated $11.8 billion by 2018.[44] By some estimates, productivity gains from the use of remote monitoring technologies and other mobile solutions in managing chronic diseases may produce cost savings of as much as $200 billion over the next quarter century.[45] In response to these trends, national health plans have been acquiring and developing consumer-facing technologies to embed in their accountable care arrangements.[46] Speaking at the Health Information

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[41] Punke, H. (2013). One ACO's High-Tech Approach to Care Coordination. *Becker's Hospital Review.* Retrieved from http://www.beckershospitalreview.com/accountable-care-organizations/one-aco-s-high-tech-approach-to-care-coordination.html

[42] Research Triangle Institute. (2014). Health IT projects administered by RTI International expand health information exchange to include patients [Press Release]. Retrieved from http://www.rti.org/newsroom/news.cfm?obj=3007285C-FFF4-53D1-768937A7722CB67D

[43] For more information, see: http://bluebuttonplus.org/

[44] Global Data Healthcare. (2012). mHealth: Healthcare Goes Mobile [Press Release]. Retrieved from http://healthcare.globaldata.com/media-center/press-releases/medical-devices/mhealth-healthcare-goes-mobile

[45] West, D. (2012). How Mobile Devices are Transforming Healthcare. *Issues in Technology Innovation* (No. 18). The Brookings Institution. Washington, DC. Retrieved from http://www.brookings.edu/~/media/research/files/papers/2012/5/22%20mobile%20health%20west/22%20mobile%20health%20west.pdf

[46] Deloitte Center for Health Solutions. (2012). mHealth in an mWorld: How mobile technology is transforming health care. Retrieved from http://www.deloitte.com/assets/Dcom-

Management Systems Society (HIMSS) annual meeting in 2014, Aetna CEO Mark Bertolini stated "Aetna's going to have two businesses, one about ACOs and one about creating and thriving in consumer health experiences. Creatively destroying the current business model and making a new one can have a big impact on healthcare costs."[47]

Governance Considerations around Technology and Data Sharing

Establishing the technology infrastructure required to support accountable care arrangements can represent a significant investment and cooperating providers must consider governance approaches that ensure widespread buy-in across participants. Accountable care entities that are hospital or health system-based can often use the existing organization and board of directors of the hospital to provide governance for the ACO or accountable care entity. In these cases, organizations can usually leverage existing IT, data management, clinical improvement and quality reporting committees. However, lead organizations must ensure that any smaller partners are effectively included in this structure.

Physician-led ACOs, which now account for more than 50 percent of lead ACO organizations,[48] must often form a new organization with a board or committee structure that holds responsibility for the administrative, fiduciary, and clinical operations. In these cases, accountable care entities are likely to have a number of committees working in a variety of areas including clinical transformation activities, policy development, IT planning, quality reporting and measurement, and financial management.

Policy Issues

Providers working in accountable care arrangements must ensure participants have the necessary agreements and safeguards in place to exchange information in compliance with federal and state laws. While these policies may vary from organization to organization, the following topics are important for organizations to consider:

- **Privacy and Security.** All organizations within an accountable care arrangement must have appropriate privacy and security policies in place that will elicit confidence and protect patients, providers, and the organizations participating in the shared risk arrangement. Notices of practices and policies need to be developed to inform patients about how their data is being used in an accountable care arrangement.
- **Data Governance within the Accountable Care Entity.** Policies and procedures to clarify how data will be used must be in place across participating organizations. Stakeholders may be concerned that data could be used to try to improve the marketing position of one partner, even within the accountable care arrangement. This can be especially true if there is one large hospital partners with several smaller hospital(s), or if a hospital partners with independent provider practices.

UnitedStates/Local%20Assets/Documents/us_chs_2012_mhealth_HowMobileTechnologyIsTransformingHealthCare_032213.pdf

[47] Comstock, J. (2014). Aetna's two future businesses: Consumer health and ACOs. *MobiHealthNews.* Retrieved from http://mobihealthnews.com/30236/aetnas-two-future-businesses-consumer-health-and-acos/

[48] Muhlestein, D. (2013). Continued Growth Of Public And Private Accountable Care Organizations. *Health Affairs Blog.* Retrieved from http://healthaffairs.org/blog/2013/02/19/continued-growth-of-public-and-private-accountable-care-organizations/

- **Data Sharing with Community Partners.** Providers may be wary of sharing clinical data with providers outside of those organizations with whom they have a direct business relationship. Policies, such as those contained in a participation agreement with an organization providing health information exchange services, must be in place to ensure that consistent and timely access to standardized health information can be securely shared between all authorized individuals and organizations including primary care providers, specialists, hospitals, mental health and substance abuse services, long-term and post-acute care providers, home and community-based services, and other providers.
- **Patient Matching Policies.** Aligning policies around how patients are matched within health IT systems will help improve patient matching rates, eliminate false negatives and reduce the potential for introducing possible duplicate records. For instance, some organizations collect complete social security numbers (SSN) and match them within their systems, while others collect only the last four digits of the SSN, or do not collect it at all.
- **Consent Models.** Depending on whether or not a consent policy has been implemented at a statewide level, ACOs may need to work with partner organizations to clarify and align policies when there is variability between organizations for opting out and opting in for information sharing. Providers also need to understand what is required under separate policies around substance abuse and mental health information.

Coordinating Community Organizations for Wraparound Services

While many accountable care organizations are still focused on building relationships within traditional healthcare networks, developing relationships with a broader set of community service providers is important for addressing the needs of high risk patients. The Camden Coalition, which has focused on Medicaid and uninsured populations over the last nine years, holds a monthly Care Management Committee meeting that includes social workers and other community service providers from across the city. The staff has also built close relationships with emergency room physicians, hospitalists, specialists, social workers, and nurse discharge planners across the city. The linkage between healthcare providers and organizations providing services within the community is a foundational element of providing high quality care at lower cost to high-risk patients. For example, communication between housing programs and nurse discharge planners can help ensure a smooth transition from the hospital into a stable housing situation, lowering the risk of a hospital readmission.

Conclusion

Today, both the accountable care and health IT landscape are evolving in parallel, with shifting provider needs driving rapid innovation in the health IT space. Yet, while providers are focused on how to unlock value in the healthcare system and succeed in accountable care models by improving care coordination across organizations, interoperability challenges between electronic systems continue to inhibit progress. As providers grapple with these issues, shared community assets are emerging in many markets to address challenges and deliver the services providers are demanding. Below, two case studies offer insights into how these issues are being addressed in two markets—Bangor, Maine, and Austin, Texas—where a range of health IT solutions are supporting communities that have been nationally recognized as leaders in making the transition to value-based payment.

Case Study: Bangor, Maine

Community Description

Maine is one of the states often cited as being at the forefront of health system transformation efforts, in part due to robust health IT infrastructure across the state. Maine has a statewide health information exchange, HealthInfoNet, and has demonstrated high levels of EHR adoption and compliance with meaningful use requirements.[49] In 2010, Bangor, Maine was selected as one of 17 grantees in the ONC Beacon Community Program. In addition to health IT investments, Maine healthcare providers have come together over the years to work on numerous joint efforts to improve the quality of care delivered across the state. As repeated several times during interviews for this report, Maine's small size allows for enduring professional and community relationships that help support collaboration.

The foundation laid during the Bangor Beacon Community project led directly to the formation of Beacon Health LLC, a participant in Medicare Pioneer ACO program. Eastern Maine Healthcare Systems (EMHS), the lead grantee for the Bangor Beacon Community, retains majority ownership of Beacon Health LLC. Yet this is just one of several vehicles in the Bangor region being used to pull together partners and structure accountable care arrangements. For instance, Penobscot Community Health Center (PCHC), another lead partner in the Beacon Community, is providing leadership on other accountable care arrangements within the region. Overall, about 40 percent of practices in the state are participating in one of several primary care health home pilots, with both EMHS and PCHC acting as lead participants in those programs.

Similar to many parts of the country, Maine is witnessing significant consolidation among healthcare providers, with practices being purchased by hospital systems. Several people who were interviewed for this case study mentioned that there were fewer and fewer "small players" and independent physician practices in Maine. According to one estimate, approximately 60 percent of providers in Maine are employed by larger organizations such as hospital practices or federally qualified health centers (FQHCs); within the Beacon Health ACO, approximately 70 percent of participating providers are employed by a large organization. The hospital system environment in Maine is also becoming more competitive, with MaineHealth, based in Portland, and EMHS, based in Bangor, both expanding their statewide presence. Bangor itself is a highly competitive market, and while EMHS remains the largest system, St. Joseph Hospital and Penobscot Community Health Center are strong competitors in the healthcare marketplace. Consolidation among both practices and smaller hospitals and increasing competition across the healthcare landscape and has led to some tension in existing community partnerships.

While the Beacon Community grant money provided seed funding in the Bangor area for building some of the necessary health IT infrastructure to support accountable care arrangements, there are still gaps that need to be addressed. To support accountable care contracts, stakeholders are seeking to establish new data collection and analytics capabilities, ensure delivery of relevant clinical data at the point of care, deploy predictive modeling techniques, and enable streamlined electronic measure reporting. Stakeholders recognize the

[49] For more information, see: http://www.govhealthit.com/news/maine-tops-states-provider-rate-ehrs-meaningful-use

need for more mature and sophisticated health information exchange services and health IT tools to successfully implement the population health improvement concepts required to succeed under value-based payment models.

Existing HIE Activity

Maine HealthInfoNet

HealthInfoNet is an independent, nonprofit organization, providing health information exchange services for the State of Maine.[50] HealthInfoNet has on-boarded all of the hospitals in the state as well as many provider practices, including most of the practices in Bangor. Clinical information available through HealthInfoNet includes the following:

- Patient Identifier and Demographics
- Encounter History
- Vital Signs
- Laboratory and Microbiology Results
- Radiology Reports
- Adverse Reactions/Allergies
- Medication History (Clinical and Claims)
- Diagnosis/Conditions/Problems (Primary and Secondary)
- Immunizations
- Dictated/Transcribed Documents

Daily use of HealthInfoNet by providers has been increasing, with the HIE currently receiving 16,000 – 18,000 queries for information per month, many from ambulatory practices. Yet practices still face challenges integrating HealthInfoNet services into their workflows. A key barrier is that HealthInfoNet is accessed through a web portal with separate logins and passwords, and not embedded into the EHR environment. Cost for full connectivity to HealthInfoNet is also a factor, especially for smaller organizations.

HealthInfoNet supports care teams that are part of accountable care arrangements in several ways. In addition to full access to HealthInfoNet to query patient information, care teams can receive notifications when patients linked to that team are admitted or discharged from a hospital or skilled nursing facility, or have laboratory or radiology tests made available. HealthInfoNet can provide these notifications to care teams' work email accounts either in real time, or on a schedule. In these cases, the emails are not encrypted, and therefore do not include personally identifiable information in the notification, but instead contain a secure link to the full patient record from within the HealthInfoNet web portal. HealthInfoNet has also begun incorporating real time emergency department use and inpatient utilization risk scores into the web portal.

Payer-based care teams, for example, care teams deployed under the MaineCares Health Home Initiative overseen by the state Medicaid program, can receive Direct email notifications with information about individuals covered under their plans for key patient events as well. These

[50] For more information, see: http://www.hinfonet.org/about-us

care teams are set up to receive messages via Direct, because payers are not able to directly access the HealthInfoNet repository due to state regulations.

HealthInfoNet continues to work with providers to identify other services to support care management, and recently added the capability to host care plans from different providers, so that providers and care managers linked to a patient can access each other's plans. In the future, HealthInfoNet plans to develop the capacity to enable sharing of a single care plan across care teams.

Data and Quality Reporting

Capturing and analyzing data is essential for the predictive modeling and reporting functions that organizations need to succeed in the accountable care environment. A number of organizations involved in data collection and quality reporting in Maine have developed capabilities around evaluating healthcare quality based on claims and are now adding clinical data. Conversations between these organizations continue to evolve around data management, data use agreements, and governance issues. In some ways, Maine's early progress in this area has created a more complicated environment that now needs to be restructured in a coherent way to facilitate the use of both clinical and claims data to manage population health.

Northern New England Accountable Care Collaborative

The Northern New England Accountable Care Collaborative (NNEACC) was founded by EMHS, MaineHealth, Dartmouth Hitchcock, and Fletcher Allen,[51] organizations which currently represent two MSSP ACOs and two Pioneer ACOs. By coming together, these organizations sought to quickly share learnings through cross-state quality improvement workgroups, build out their IT capability gaps at a lower cost, and recoup their investment by scaling their model to other regional and national organizations.

NNEACC started with the goal of using claims data, augmented by some clinical data, to determine risk for patients covered through accountable care arrangements. Tools developed so far include a day-to-day care coordination tool, as well as physician and financial benchmarking and tracking applications.

Patient event information captured by HealthInfoNet for notifications can also support risk-based stratification and modeling approaches. HealthInfoNet sends ADT and laboratory feeds on attributed populations for both Beacon Health LLC and MaineHealth ACO to NNEACC in near real-time to support risk management analytics solutions.

Maine Health Data Organization

The Maine Health Data Organization (MHDO) is a quasi-governmental organization established in 2006 that houses Maine's all-payer all-claims database.[52] Although it is a state agency, it has a diverse, independent board of stakeholders. Originally MHDO only collected claims information from commercial payers, but they are now able to include Medicaid and Medicare data as well. In addition, hospitals submit data on 28 procedures, and aggregate quality metrics are compiled

[51] For more information, see: http://nneacc.com/
[52] For more information, see: https://mhdo.maine.gov/

based on that data. Recently passed legislation will allow MHDO to collect and release data with personal health information (PHI), providing additional data that will be accessible to accountable care entities to use in risk analysis and modeling.

Stakeholders noted that MHDO is facing many of the challenges common to APCDs, including delays in the collection and sharing of information from the MHDO database of up to six months at times. In addition, without PHI, data from MHDO has not been as useful for modeling as other data sets and is challenging to use for improvement purposes.

Maine Health Management Coalition

Formed in 1993, Maine Health Management Coalition (MHMC) is a non-profit organization representing public and private employers, hospitals, health plans, and doctors working together to publicly report on the quality and value of care.[53] MHMC gathers claims from all commercial plans, 40 percent of which include full PHI. MHMC also receives MaineCare (Medicaid) and Medicare claims under the qualified entity program, which allows them to access standardized extracts of Medicare claims data under Parts A, B, and D for the evaluation of the performance of providers of services and suppliers.[54]

MHMC makes quality rankings for hospitals and primary care physicians available at their Web site, www.getbettermaine.org based upon National Committee for Quality Assurance (NCQA) and Bridges to Excellence (BTE) clinical quality measures that are voluntarily reported by providers. Three of the four largest public purchasers in Maine have been using ratings from www.getbettermaine.org to inform a tiered pricing structure based on quality and safety, and in 2012 a cost element was added to the state employee contracts. In addition, MHMC is working with payers and healthcare providers to adjudicate shared savings under accountable care contracts.

MHMC is leading an effort around measure alignment as part of Maine's State Innovation Model (SIM) work, an initiative supporting new payment models at the state level overseen by CMMI. MHMC has convened the major health systems, non-hospital providers, commercial payers, MaineCare, and large purchasers, to identify roughly 20 – 40 measures that could serve as the basis for reporting under accountable care arrangements across participants. As a first step, stakeholders conducted an inventory of current measures and found that, of almost 300 total measures providers were currently reporting on, only about 50 were common to more than one payer. Stakeholders have discussed using the Medicare ACO and Maine Accountable Community measures as a starting place, but health systems do not have the ability to report on all the current CMS measures for commercial plans at this time. Alternative suggestions have included starting with claims based measures and moving towards CMS clinical measures as reporting systems become more sophisticated.

[53] For more information, see: http://www.mehmc.org
[54] For more information, see: https://www.qemedicaredata.org

Accountable Care Arrangements and Related Initiatives

The Bangor area is host to multiple value-based payment initiatives including ACOs participating in both the Pioneer model and the Medicare Shared Saving Program, commercial accountable care contracts, and several other federal and state programs.

MaineCare Accountable Communities

Maine is launching a new accountable care program for the MaineCare Medicaid population beginning in 2014. Through Accountable Communities, MaineCare engages in shared savings arrangements with provider organizations delivering care to a specified population.[55] Accountable Communities demonstrating cost savings and meeting quality standards share in savings generated under the model.

Accountable Communities are built around four key strategies:

- Shared savings based on quality performance
- Practice-level transformation building on other PCMH and Health Home initiatives
- Coordination across the continuum of care
- Community-led innovation

As of May 2014, two applicants will be providing coverage for the Bangor hospital service area, Beacon Health LLC and Patient First Partnership, LLC led by Penobscot Community Health Center. The Beacon Health proposal covers the Bangor HSA[56] while Patient First intends to cover multiple hospital service areas, and includes 12,000 Medicaid beneficiaries. MaineCare Accountable Community grantees receive a Deloitte actuarial analysis based on the HSA populations they will serve to use as the baseline cost analysis and the state provides patient attribution data and feedback on how each Accountable Community is doing by quarter.

The Accountable Community program represents Maine's next step to transition away from Medicaid fee-for-service payment. The program also represents a potential opportunity for HealthInfoNet, as participating ambulatory providers and FQHCs seek new solutions to track their patients across the care continuum.

Health Homes Initiatives

Since 2010 Maine has supported primary care practices across the state seeking to implement patient-centered medical homes. "Stage A" of the Maine Health Homes Initiative focused on 85 primary care practices delivering advanced primary care around chronic disease, while Stage B was launched in 2014 and focuses on the rollout of a behavioral health home with just over 25 behavioral health organizations.

Participating practices in the Health Homes Initiative initially received a per-member-per-month fee from both Medicaid and several commercial payers. Since 2012, Medicare has also participated in providing care management fees to participating practices through the federal MAPCP demonstration. MAPCP introduced ten multi-disciplinary community care teams across

[55] For more information, see: http://www.maine.gov/dhhs/oms/vbp/accountable.html
[56] For more information, see: http://www.maine.gov/dhhs/oms/pdfs_doc/vbp/AC/AC_list_2_2014.pdf

the state to bolster care management efforts in practices. HealthInfoNet supports these teams in managing high cost/high need patients through real-time access to clinical data and ADT feeds. Eastern Maine Home Care and Penobscot Community Health Center, the two sites for community care teams in Bangor, both have access to HealthInfoNet. The MAPCP program is due to expire at the end of 2014.[57]

Maine Quality Counts provides quality improvement support for these PCMH efforts, including overseeing the community care team model [58] for the MAPCP demonstration.

Key Organizations in Bangor

Two organizations—Beacon Health LLC, a partnership led by Eastern Maine Healthcare Systems (EMHS), and Penobscot Community Health Center (PCHC), the largest FQHC in Maine—are at the center of accountable care efforts in Bangor.

Beacon Health LLC

Beacon Health LLC, which grew out of the Bangor Beacon Community Program, is developing a statewide network to manage population health through accountable care arrangements. While EMHS is the primary owner of Beacon Health LLC, 18 additional organizations participate as strategic partners or have a financial stake in the organization. Beacon Health LLC began as a Pioneer ACO with 9,000 lives in 2012, and saw $2 million in savings during the first year of the program. The Pioneer grew to cover 14,000 lives in 2013 through expanded partnerships. Today, 50 percent of the covered lives under Beacon Health are cared for by EMHS and its employed providers, while the other 50 percent are divided among 18 other partners. Approximately half of the Medicare Pioneer lives are designated as dual eligible for both Medicaid and Medicare.[59] Beacon Health is using their experience in the Pioneer ACO program to better define a care management strategy that can be effectively translated to commercial populations.

At the time of the interviews for this case study, in addition to the Pioneer ACO, Beacon Health LLC had relationships with two commercial plans: an Aetna accountable care contract covering state employees and a shared savings contract with Cigna that does not include downside risk. These programs and contracts, along with the EMHS employee health plan (Beacon Health's only full risk population) represent approximately 40,000 covered lives. Beacon Health continues to pursue conversations with commercial plans to expand their footprint and is a participant in the MaineCare Accountable Communities program.

Under the Beacon Community project, Bangor providers faced relatively few barriers to aggregating clinical data across ambulatory practices, as the three largest participants, Eastern Maine Health System (EMHS), St. Joseph, and Penobscot Community Health Center (PCHC), shared the same EHR vendor, GE Centricity. Across the Beacon Health partners, GE Centricity

[57] Our View: Pilot program focuses on health, not sick care. (2014 March 16). *Portland Press Herald.* Retrieved from http://www.pressherald.com/2014/03/16/our_view__pilot_program_focuses_on_health__not_sick_care_/

[58] Levey, N. In healthcare, what makes Maine different? (2014 March 19) *Los Angeles Times*. http://www.latimes.com/nation/la-na-healthcare-collaboration-20140319-dto-htmlstory.html

[59] For more information, see: https://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/Downloads/DualEligibleDefinitions.pdf

is still the predominant EHR, but there are now eight additional EHRs represented, as listed below:

Table 2: EHR Vendors for Beacon Health Partners

EHR	Organizational Name
Centricity	Blue Hill Memorial Hospital
Centricity	Charles A. Dean Memorial Hospital
Centricity	Central Maine Medical Center
Centricity CPS	Down East Community Hospital
Centricity	Eastern Maine Medical Center
Cerner	Eastern Maine Medical Center
CompuGroup	Fish River Rural Health
SuccessEHS	Health Access Network
Centricity	Inland Hospital
AthenaHealth	Katahdin Valley Health Center
Meditech	Maine Coast Memorial Hospital
eClinicalWorks	Mount Desert Island Hospital
AllScripts	Mercy Hospital
eClinicalWorks	Northern Maine Medical Center
NextGen	Sebasticook Family Doctors
Centricity CPS	St. Joseph Ambulatory Care, Inc.
Centricity	Sebasticook Valley Health
Centricity	The Aroostook Medical Center
Centricity	Three Rivers Family Practice

As use of an EHR is required of all Beacon Health partners, stakeholders have discussed whether it might be possible over time to consolidate the number of EHRs.

All of the EMHS sites are patient centered medical homes, and most of the Beacon Health partner organizations are either already accredited medical homes or on their way to accreditation, as required under their contract with Beacon Health. Beacon Health expects to achieve NCQA case management accreditation status in 2014.[60]

Care Management. As is true of many organizations implementing multiple risk-based or incentive programs, different levels of case management or other services may be targeted to different groups of patients. Depending on program requirements set by different payers, such as specific services Beacon Health must deliver, or performance targets included in a given contract, Beacon Health seeks to tailor additional care coordination services to those patients eligible for services.

Beacon Health embeds case managers at larger practice sites, while some of the smaller clinics share the services of a single case manager; however, accountability is centralized through a

[60] For more information, see: http://www.ncqa.org/Programs/Accreditation/CaseManagementCM.aspx

director and 3 regional managers which oversee approximately 60 case managers. These care managers rely on tools that provide access to patient data to inform their work, including Meridios, an analytics tool available within GE Centricity sites, and HealthInfoNet.

Using Data for Quality Improvement. Beacon Health's governance structure includes a Population Health Group modeled on quality improvement processes that EMHS' flagship health system, Eastern Maine Medical Center (EMMC), has had in place for 15 years. This group is comprised of medical directors, practice management leaders from all organizations, and where possible, an IT representative from each organization. A Performance Improvement Committee under this group focuses on sharing quality metrics data through regular structured meetings designed to offer opportunities for shared learning and best practices.[61]

The Population Health Group continues to face challenges associated with the diversity of EHRs used by practices in the ACO, both for formal reporting and for quality improvement activities under the Performance Improvement Committee. Limitations in the built-in reporting tools for EHRs (or difficulty acquiring reporting tools that are only sold as costly add-ons) pose challenges to being able to extract and share information electronically, leaving some partners still manually entering EHR information into spreadsheets to be able to participate in quality improvement activities.

Reporting requirements for a wide range of quality measures that are often similar but not precisely equivalent is a major challenge. Beacon Health is currently working to standardize quality measures across programs, and plans to capture all measures electronically in the future. For instance, while Beacon Health is using the adult Pioneer ACO metrics for accountable care contracts to the extent possible, it had to develop other metrics for pediatrics and OB/GYN, as well as for some commercial insurers who want to have uniform contracts across states in which they operate. Beacon Health is currently using CMS' Group Practice Reporting Option (GPRO), a web application created by CMS for the Physician Quality Reporting System (PQRS), to complete reporting requirements for the Pioneer ACO program, as many of the EHR systems being used are not able to report electronically.

Ensuring that performance results are being reported accurately across programs is resource-intensive; Beacon Health currently employs a small team that is focused solely on managing an audit process for its reporting activities. While staff has electronic access to many of the participating sites, especially those that are on Centricity, in other cases staff must conduct on-site visits, and use tools specific to different EHRs. Overall, the budget for information services represents about a third of Beacon Health's overall budget.

Penobscot Community Health Center

Penobscot Community Health Center (PCHC) is the largest FQHC in Maine, offering primary care, specialty care, separate pediatric and geriatric practices, and laboratory services across multiple sites. Approximately one-third of its patients are Medicare beneficiaries, one-third Medicaid, and the remainder is self-pay or covered by a commercial plan. Along with EMHS, PCHC is one of the key healthcare organizations in the Bangor healthcare landscape.

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[61] For more information, see: http://www.emhs.org/Document-library/Beacon-Health/Beacon-Health-Population-Committee.aspx

PCHC was part of the Bangor Beacon Community, and joined the MSSP program as part of the January 2014 cohort, together with several other FQHCs in Maine. They are also engaged in an accountable care partnership with Cigna that was announced in 2012.[62] Finally, PCHC will be participating in the MaineCare Accountable Community Program, and serves as a site for one of the MAPCP community care teams.

PCHC works closely with HealthInfoNet for HIE and care management services, with real-time ADT notifications for inpatient and ED admission/discharges, final lab and radiology results, and skilled nursing facility discharges. PCHC purchased Meridios as part of the Bangor Beacon project, but ultimately decided to use their own analytics tools and discontinued using Meridios after the Bangor Beacon grant ended. Today, the PCHC internal data team builds its own reports, and shares forms and other tools with other organizations.

Future Health IT/HIE Services Planned

As one of the first "testing" states to move forward under CMMI's State Innovation Model, Maine will pursue a number of new opportunities to develop the information infrastructure for accountable care over the coming years. Maine's plan calls for new incentives to onboard up to 20 new behavioral health organizations to HealthInfoNet by 2016. SIM will also provide funding to deliver patient event notifications based on automated ADT feeds to MaineCare coordination managers. Finally, funding has also been approved to begin to explore a statewide patient portal through HealthInfoNet.

In addition to health information exchange and care coordination support, HealthInfoNet is developing analytics and risk management solutions using clinical data residing in the HIE. A new product line, developed with HBI Solutions and Stanford University researchers, uses real time data from the HIE and claims data from multiple sources to provide population health metrics, key performance indicators for hospitals and providers, and real-time risk models for clinics providing care management. HealthInfoNet has piloted this solution with four health systems and is currently pursuing several initial agreements with providers.

Beacon Health is exploring a number of options to automate regular performance measurement across partners and replace current processes which are time consuming and rely on spreadsheets. For instance, various cloud-based solutions could allow Beacon Health to extract and normalize data from disparate EHRs to populate a searchable disease registry. Going forward, Beacon Health plans to reinvest shared savings in technology infrastructure, particularly around patient-facing applications such as mobile monitoring devices and smart phone applications.

Finally, state officials in Maine are also looking at the Federal Communications Commission (FCC) Healthcare Connect[63] program as a way to leverage federal funds to provide broadband connectivity to more providers and make the connection to HIN more affordable, particularly for rural providers.

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[62] Spoerl, B. (2012 April 9). Cigna On Pace to Hit Target Goal of 100 Accountable Care Initiatives by 2014. *Becker's Hospital Review.* Retrieved from http://www.beckershospitalreview.com/hospital-physician-relationships/cigna-on-pace-to-hit-target-goal-of-100-accountable-care-initiatives-by-2014.html

[63] For more information, see: http://www.fcc.gov/document/healthcare-connect-fund-fact-sheet

Case Study: Austin, Texas

Community Description

Austin, the capital of Texas, is located primarily in Travis County, near the geographic center of the state. In 2012, the estimated population of the city was 842,592, the estimated population of the metro area was 1,834,303, and the estimated population of the state was 26.06 million.[64]

The hospital landscape in Austin is dominated by two large non-profit hospital systems. Seton Family of Hospitals (also known as Seton Healthcare Family) is an operating unit of the Ascension healthcare system, the largest Catholic healthcare system in the United States. St. David's HealthCare is a nonprofit system administered under contract by Hospital Corporation of America. The two systems, when combined, controlled more than 95 percent of the 2,214 general hospital beds in Austin, in 2012.[65] As of January 2014, the Texas Medical Board identified 3,268 licensed physicians in Travis County. Because of the rural nature of most of the county, most of the physicians are located in Austin.

Travis County voters, to improve access and quality of healthcare to eligible residents, created Central Health, the central Texas healthcare district, as a governmental entity in 2004.[66] With the legal obligation to provide indigent care within Travis County, Central Health is funded primarily through property taxes and is governed by a board of managers, appointed by the Austin City Council and the Travis County Commissioners Court. Central Health owns the large public hospital, University Medical Center at Brackenridge, which is administered under a contract with the Seton Family of Hospitals.

A number of different value-based payment models have emerged in the Austin, Texas healthcare market in recent years. The accountable care environment includes a former Pioneer ACO, a Medicare Shared Savings Program partnership, numerous Patient Centered Medical Homes, and participation in other quality-related programs such as Bridges to Excellence and the Physician Quality Reporting System. In addition, there is a fairly mature EHR infrastructure with significant adoption of electronic health records by physicians and hospitals, with some of those connected through a community-based health information exchange organization. Nonetheless, the Austin healthcare industry continues to struggle with a unified, community-wide vision for health information technology due to a combination of competitive pressures and historical economic dynamics. Furthermore, the expansion of certain accountable care payment models in their current programmatic forms may be limited, due to low historical Medicare costs and significant current growth in hospital capacity that affects the calculation of shared savings.

Austin's community-based health information exchange organization is called the Integrated Care Collaboration, and is primarily focused on facilitating the exchange of data among the healthcare providers providing care to indigent patients.

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[64] US Census Bureau.
[65] Texas DSHS 2012 Hospital List. Retrieved from http://www.dshs.state.tx.us/chs/hosp/hosp2.shtm
[66] For more information, see: http://www.traviscountyhd.org/

Existing HIE Activities

There are a number of health IT and HIE activities occurring in the Austin area, some of which are associated with organizations involved with accountable care payment models.

State Health Information Exchange

The Texas Health Services Authority (THSA), under contract with the Texas Health and Human Services Commission (HHSC), serves as a convening entity to ensure broad input from stakeholders, such as patients and other healthcare consumers, physicians, hospitals, and health plans, on the implementation of HIE in Texas.

The THSA was created by the Texas Legislature in 2007 as a public private partnership and legally structured as a nonprofit corporation to support the improvement of the Texas healthcare system by promoting and coordinating HIE and health IT throughout the state. The ONC State HIE Cooperative Agreement provided financial support for THSA until that program ended in early 2014, and an additional $5 million in funding was allocated by the Texas Legislature in 2013.

The stated mission of the Texas state HIE program is to enable improvements in the quality and efficiency of the Texas healthcare sector by establishing an electronic HIE infrastructure for the state. The goals of the Texas state HIE program include the delivery of private, secure, and reliable HIE services to all Texas patients and providers through local HIE networks where the capacity exists, and through contracts administered from the state level where it does not.

The Texas state HIE program is being implemented through three core strategies:

- General state-level operations administered jointly by THSA and HHSC to support a transparent and collaborative governance structure to coordinate the implementation of HIE in Texas, develop policies and guidelines, and provide statewide HIE services;
- Local HIE Grant Program administered by HHSC with support by THSA to partially fund planning, development, and operations of local and regional HIE networks; and
- "White space" initiatives administered by THSA to provide HIE connectivity through health information service providers in regions of the state without local or regional HIEs.

The Texas Local HIE Grant Program provides partial funding for the development and operation of local HIE initiatives and networks to support higher quality, safer, and more efficient healthcare. Twelve local, community-based HIEs[67] serving the majority of Texas' population receive funding through the Program to enable healthcare providers to securely exchange patient information with each other within an HIE's local network, across networks statewide, and ultimately even nationwide.

[67] For more information, see: http://www.hietexas.org/local-hies/hie-service-areas-and-info

Community Health Information Exchange

The Integrated Care Collaborative (ICC) was established in 1997 as a nonprofit alliance of healthcare providers in the Austin community, dedicated to the collection, analysis and sharing of health information with the goal of improving the efficiency of care delivered to the uninsured in Central Texas.[68] The ICC is governed by a Board of Directors representing a specific number of stakeholder constituencies, including two consumer board positions, and has been providing HIE services to the Central Texas community since 2002 via the ICare System. The participants in the ICC include health and social services providers, payers and purchasers, including hospital systems, healthcare networks, community health centers, clinics, government agencies, nonprofit organizations, individual providers, and others. Advisory committees to the Board include Finance, IT, Analytics, as well as a Physician Advisory Board and a Management Committee with representation from County Collaboratives (47 Texas counties are served by the ICC).

The ICare regional HIE system enables the analysis of clinical data for the identification of gaps in clinical care and the support of programs to improve health outcomes for vulnerable populations. Supplemented by the state HIE grant funding, ICC has been financially supported by the major Austin hospital systems and indigent care providers and remains focused on exchanging data on the uninsured and Medicaid clients.

The ICC has now developed the next generation ICare platform (ICare 2.0), based on open source HIE technology. Along with ICare 2.0, the ICC also offers HISP services for secure messaging using the Direct standards called Texas Direct. ICare, based on an opt-in model of consent, connects electronic health records across multiple organizations and is accessible through a web-based provider portal. The portal gives providers access to a patient's aggregate medical record.

Specific ICare technical services include the following:

- Facilitation of exchange of patient clinical summary data between disparate care delivery organizations and systems (between different EHRs and public health systems, and for quality reporting)
- Facilitation of structured lab orders and results delivery
- Web-based provider and patient portals
- Facilitation of e-prescribing and exchange of medication history between pharmacies and providers
- Allowing users to check eligibility for Medicaid services
- Allowing users to meet meaningful use standards for community data exchange

The ICC includes an analytic layer that is intended to support the use of evidence and data to bring about transformative changes in the healthcare system. The use of quantitative data and analytics is intended to improve the delivery of healthcare services, resulting in more effective and efficient care delivery. The purpose of the ICC Data Analytics platform is to convert data into actionable information for providers in their quality improvement efforts, allowing ICC members to pursue effective strategies in providing the right care at the right time to the right

[68] For more information, see: http://icc-centex.org/

patients. When combined with financial or economic data, analysis based on ROI calculations can assist in resource allocation.

Electronic Health Record Landscape

There is a relatively high level of adoption of EHRs in the Austin market, both among physicians and hospitals, particularly those involved with the larger systems. Austin Regional Clinic (a large, multi-specialty physician group with more than 250 clinicians), Lone Star Circle of Care (a large FQHC network), and the Seton Family of Hospitals all have EHRs, although full adoption and implementation across all of the organizations remains underway. There are several efforts to attempt to harmonize the EHR adoption patterns and drive convergence toward a relatively small number of different EHR platforms.

Lone Star Circle of Care is a network of more than 25 community health centers in the Central Texas area, with more than one hundred affiliated clinicians. They also run a subsidiary organization called Centex Systems Support Services that operates as an IT consulting firm providing implementation and technical support services for several different EHR platforms. The physician organizations affiliated with the Seton Family of Hospitals offer similar implementation and support services for affiliated physicians that also have the intended net effect of creating some convergence toward a relatively small number of EHR platforms. The primary ambulatory EHRs being used in the Austin market include Allscripts (most public clinics, including Lone Star Circle of Care clinics); Epic (Austin Regional Clinic); and eClinicalWorks and AthenaHealth (Seton-affiliated physicians). The primary EHRs being used in the Austin hospital market include Cerner (Seton Family of Hospitals), and Meditech (St. David's hospitals).

Accountable Care Arrangements and Related Initiatives

A number of the major players in the Austin healthcare ecosystem have engaged in accountable care arrangements over the last several years, including Medicare ACOs and commercial accountable care arrangements. Key activities undertaken by participants in accountable care payment models in the Austin market include data aggregation, patient outreach, nurse navigator services, and advance care coordination services for high-risk patients.

Patient-Centered Medical Homes

Beginning in early 2011, the Texas Employees Retirement System (ERS; the state agency that administers the state employee benefits programs including the health insurance benefit) initiated a Patient-Centered Medical Home (PCMH) pilot program with several locations throughout the state, including a large multi-specialty group in Austin. With four PCMH pilots including approximately 45,000 state employees, ERS estimates the program saved the state health plan over $11 million in FY2012.[69] Originally launched by Blue Cross Blue Shield of Texas (BCBSTX), which held the contract with ERS to administer the state employee health benefit plan, the PCMH program is now administered by UnitedHealthCare, the current plan administrator.

[69] Texas Employees Retirement System. (2013). Cost Management and Fraud Report. Retrieved from http://www.ers.state.tx.us/About_ERS/Reports/2013_Cost_Management_Report/

The ERS pilot program couples aggressive care coordination by participating physicians with extensive feedback from the ERS plan administrator on several quality and patient satisfaction measures. Practices get a per-patient-per-month care management fee and share in whatever savings are achieved if they hit the cost and quality benchmarks. The fees and shared savings are negotiated between the individual practices and the ERS plan administrator.

The information and health services infrastructure used by the larger of the Austin-based PCMH pilots included:

- A data warehouse supplied by data from ERS and the clinic's own EHR;
- A patient navigation service that identified gaps in care through the data warehouse and scheduled appointments with patients to address gaps in care; and
- An intensive primary care clinic for the patients with the most complex care needs, through which primary care physicians were paid a supplement on top of their claims billing to spend as much time with patients as needed to manage the care.

Also, of particular note, contrary to the conventional wisdom that providers do not adopt different workflows or use different tools for patients associated with different payers, key participants associated with a major Austin-based PCMH initiative report that the PCMH information and services infrastructure is only brought to bear on patients who are within the PCMH program. In addition to ERS, a number of private payers have also started supporting PCMH initiatives in Austin. Each private payer PCMH program utilizes a different attribution methodology, making it difficult for providers to know which patients might be covered under risk-based arrangements. It is unclear how this lack of clarity might impact decisions around using the PCMH infrastructure for more patients.

Other Health Care Quality Measurement Initiatives

In addition to participating in publicly and privately sponsored PCMH programs, some Austin healthcare providers also participate in programs administered by Bridges to Excellence and the Physician Quality Reporting System. The technology and services required to participate in these programs is generally limited to internal use of an EHR and manual reporting supported by statistical or analytics software and databases.

Medicaid Delivery System Reform Incentive Program

In late 2011, Texas received approval to implement a Medicaid 1115 waiver through which certain supplemental hospital payments were transformed and managed care was expanded. The new supplemental funding flows into an uncompensated care pool and into the Delivery System Reform Incentive Program (DSRIP) pool, to incentivize hospitals and other providers to transform their service delivery practices to improve quality, health status, patient experience, coordination, and cost-effectiveness. To be part of the DSRIP pool, a Medicaid provider must be part of a Regional Health Partnership (RHP).

Participants within an RHP include governmental entities providing public funds known as intergovernmental transfers (IGT) as non-Federal match for the DSRIP funds, Medicaid providers, and other stakeholders. Each RHP has developed a regional plan identifying partners, community needs, proposed projects, and funding distribution. Each partnership must have one

anchoring entity, which acts as a primary point of contact for the Texas Health and Human Services Commission for the RHP and is responsible for seeking regional stakeholder engagement and coordinating development of the regional plan.[70]

Response from the Texas delivery system to the new RHP program was enthusiastic, with more than 1,200 projects submitted for potential funding. Ultimately, 20 RHPs across the state were formed. Receipt of DSRIP funds requires reporting a number of different measures, including clinical outcomes at later stages of the program. Projects to support the development or expansion of health information exchange projects were proposed within many of the RHP applications and planning activities are beginning to occur in some regions. Central Health is the anchor organization of the Austin Regional Health Partnership.

Lead Organizations

Seton Health Alliance

The Seton Family of Hospitals, Austin Regional Clinic, and Lone Star Circle of Care partnered to form the Seton Health Alliance, which was one of the original 32 Pioneer ACOs. Overall, the Seton Health Alliance network includes 14 hospitals, four community health centers, and over 30 outpatient facilities.

Key strategies and activities being implemented by the Seton Health Alliance include:

- Emphasis on care coordination facilitated by primary care providers
- Focus on prevention and wellness
- Reduction of duplicative tests, procedures and admissions and re-admissions to the hospital, as well as the number of visits to the emergency room
- Special services designed to assist those with chronic, critical health conditions
- Coordination of care along the entire continuum of care—from the primary care physician's office to the hospital to admission to a skilled nursing facility or home

Like some other Pioneer ACOs, the Seton Health Alliance shifted from the Pioneer ACO program to the Medicare Shared Savings Program after the first year. Local stakeholders involved with the Seton Health Alliance indicated that Austin was already a low-cost, low-utilization market for Medicare, leaving little opportunity to reduce already low spending levels.[71] The Seton Health Alliance continues to participate in the Medicare Shared Savings Program, although local stakeholders with significant involvement have indicated that, given the low historical Medicare utilization in the region and the significant growth in the health services infrastructure (especially new hospital beds), it is unlikely that there will be significant profit opportunity associated with the MSSP. UnitedHealth Group has since partnered with the Seton Health Alliance on a similar shared-savings model.

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[70] For more information, see: http://www.hhsc.state.tx.us/1115-Waiver-Overview.shtml

[71] Bunis, D. (2013). Pioneer Accountable Care Organization First-Year Results Include Savings and Losses. *CQ HealthBeat.* Retrieved from http://www.commonwealthfund.org/Newsletters/Washington-Health-Policy-in-Review/2013/Jul/July-22-2013/Pioneer-ACO-First-Year-Results.aspx

Community Care Collaborative

As part of the new Austin Regional Health Partnership, Central Health, Seton Family of Hospitals and a number of different public and nonprofit physician groups in the Austin area have established the Community Care Collaborative (CCC) to provide high-quality, efficient care to indigent residents of the community.[72] The CCC is an integrated delivery system in Travis County, a multi-institutional, multi- provider system of healthcare envisioned to provide a coordinated continuum of services to a defined patient population. Through the CCC, healthcare providers in Travis County will join together to provide patient centered care through a "no wrong door" approach. Wherever a current or eligible patient presents for care, the system will provide care and navigation services to ensure that individuals receive appropriate levels of services and are connected to a medical home. The system will have a coordinated continuum of services that is easily navigated by and feels seamless to the patient. The overarching goal of the CCC is to provide high quality, cost effective, patient centered care that improves health outcomes through expanded care coordination, types of care, and patient management.

The CCC will manage the care of Travis County residents who are uninsured, living at or below 200 percent of the Federal Poverty Level, and who qualify for services. This system of care will incorporate new capabilities and services that shift from a focus of treating illness to emphasizing the prevention of illness, management of chronic diseases, and the promotion of health. This system is intended to support collaboration among providers, care managers and navigators who will work in partnership with the patient toward a shared goal of improved health.[73] The CCC is not without its detractors. St. David's Health System, the other major hospital system in the Austin community is not participating in the CCC and has been vocally critical of the arrangement, claiming that they were left out of the process.[74]

Texas Institute for Healthcare Quality and Efficiency

During the 82nd Regular Legislative Session in 2011, the Texas Legislature passed Senate Bill 7, which established the Texas Institute of Health Care Quality and Efficiency (Institute) for the purpose of identifying and promoting evidence-based approaches to "improve healthcare quality, accountability, education, and cost containment in this state." The work of the Institute is independent of any state agency or other body. For administrative efficiency, the Institute is attached to the Texas Health and Human Services Commission and is supported primarily by staff in the Health Policy and Clinical Services area. The Institute is charged to study and issue recommendations in three broad areas:

- Improving the quality and efficiency of healthcare delivery.
- Improving the reporting, organization, and transparency of healthcare information.

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[72] For more information, see: http://www.centralhealth.net/file/Community%20Care%20Collaborative%20One%20Page%20Overview%20FINAL.pdf

[73] For more information, see: http://communitycarecollaborative.net/

[74] Public Comment to Region 7 RHP Plan. (2012 December 18). Letter from David Huffstutler, President and CEO, St. David's Health HealthCare. http://www.legis.state.tx.us/tlodocs/83R/handouts/C2102013021410301/03a46f9c-2a82-4080-9c9a-72708b1ca550.PDF

- Supporting the implementation of innovative healthcare collaborative payment and delivery systems under Chapter 848, Insurance Code.

In addition to its state-level work associated with healthcare quality, which is relevant to the emergence and operation of accountable care models, the Institute facilitated a planning summit for the Regional Health Partnerships formed under the 1115 waiver.[75] To date, the Institute has not been active in health IT or HIE plans, but there is strong interest among staff of the institute to do so in the future.

Future Planning

As part of the work of the Community Care Collaborative, the region is undergoing a community-wide health IT assessment in order to determine which elements of the local health IT and HIE infrastructure will be used to support care for the uninsured and all residents in the future. The community health IT assessment is being coordinated by Central Health. Through the community health IT assessment, information has been collected on all of the EHRs in common use in the Austin market, particularly by public clinics. It appears likely that one technology strategy that emerges from this effort will be an attempt to drive EHR use among the participating providers toward a small number of different EHR systems in order to support easier interoperability and maintenance. There are two different HIE platforms being considered as part of the community health IT assessment: ICC's ICare (based on Mirth), and the internal HIE platform used by Seton (dbMotion). Although ICC's ICare already has a community-wide footprint, there seems to be some concern that Lone Star Circle of Care, the large FQHC network in the area, has too much influence in its control.

[75] For more information, see: http://www.ihcqe.org/

Barriers and Challenges Found in Case Studies

Interviews for both the Bangor and the Austin case studies pointed to a number of barriers and challenges for accountable care organizations. Several key themes from the case studies are highlighted below.

- **Barriers to the use of HIE**. Austin reported several barriers to the adoption of community-wide HIE services. Major hospital systems continue to be concerned about the competitive implications of broad-based exchange, while some smaller hospitals and physician groups believe that they will not directly benefit from investing in community-wide, broad-based HIE. In Maine, the lack of full participation from providers across the state in the use of HealthInfoNet has been challenging, although participation is growing. The cost to smaller organizations is cited as a barrier for some ambulatory providers, and some health systems have not prioritized the onboarding of their employed physician practices.
- **Limited savings opportunities in low-cost areas**. Some features of accountable care models may make their intended incentives less attractive in the Austin market than elsewhere. Low historical Medicare costs, combined with significant recent health services expansion, particularly in hospital expansion, has led to baseline costs (and thus savings targets) that may be unrealistic in the current environment.
- **Lack of standardization across quality measures.** The number of quality measures, and the slight differences between very similar measures, threaten to overwhelm providers and jeopardize their participation in new models. Maine is working to align measures required by CMS with measures required by commercial plans as part of work under the SIM grant, but national payers may be reluctant to adjust their program measures to align with a specific state's preferences.
- **Lack of a state-level provider directory.** The lack of a statewide provider directory presents challenges for many aspects of HIE, and is particularly challenging for the use of Direct with a broad network of trusted users within an accountable care community. The lack of provider directories within the Direct Project rollout was cited as a barrier at a regional level as well.
- **Lags in receiving claims data.** Several comments were made during the research for both studies about how lag times in getting claims data from CMS are challenging for organizations trying to conduct timely analytics on populations of attributed patients for Medicare ACOs. One commenter noted: "It is like driving down the road looking out your rearview mirror."
- **Barriers to exchanging behavioral health data.** There are significant challenges around sharing behavioral health information; some are due to federal and state laws while others may stem from a cultural hesitancy for providers to share this information. Recent legislative changes in Maine are addressing these challenges for providers in some larger organizations.

Conclusion

Emerging value-based payment models are being implemented in numerous ways, with different levels of shared risk between payers and provider organizations being tested through various Medicare and Medicaid accountable care models as well as initiatives underway through the commercial sector. By 2015, it is anticipated that several large employers across the country will be structuring new accountable care models through third party administrator health plans, and many of the nation's largest insurers are on record as saying they intend to expand their accountable care contracts dramatically in the next few years.

Hand in hand with the restructuring of healthcare payment in accountable care models are efforts to restructure many parts of the healthcare delivery system. New care models in which the right level of care is provided at the right place and the right time to ensure better health outcomes for the individual are essential for accountable care. Yet changing the healthcare delivery system to return to a strong primary care system supported by robust technology-enabled infrastructure will be a long-term process. Organizations adopting new technology solutions must proceed by incremental steps and ensure the right training and educational resources are in place to smooth the transition for patients, providers, and other stakeholders.

Intense effort and support is also needed on the part of government to advance the success of accountable care endeavors through effective health IT and HIE strategies. At both federal and state levels, governments must balance appropriate incentives, including grants and pilot programs that help to spur innovation in the use of health IT, with targeted requirements and penalties.

Measurement of health outcomes, for individuals and for groups of patients, is a core capability for accountable care organizations, and there may be a gap between the needs of the healthcare sector and the readiness of vendors in the health IT market to meet those needs. Advances in key areas such as predictive analytics and clinical decision support must be studied and shared widely; peer-to-peer learning at all levels will be critical for spreading knowledge and measuring results.

Adoption of new technology and electronic processes will not drive the transition to value-based payment alone—the success of new modes of care delivery will ultimately rely on providers and patients working together to achieve better health outcomes through a more efficient, patient-centric delivery system. Yet evolving technology solutions, driven by increasingly robust stakeholder demand, will continue to be a crucial element for realizing this vision.