SUPPORTING ACCOUNTABLE CARE: CRITICAL INFORMATION TECHNOLOGY COMPONENTS

eHEALTH INITIATIVE

ABOUT eHEALTH INITIATIVE

eHealth Initiative (eHI) is a Washington D.C.-based, independent, non-profit organization whose mission is to drive improvements in the quality, safety and efficiency of healthcare through information and information technology. eHI is the only national organization that represents all of the stakeholders in the health industry. Working with its membership, eHI advocates for the use of health IT that is practical, sustainable and addresses stakeholder needs, particularly those of patients.

ACCOUNTABLE CARE COUNCIL

The Accountable Care Council (Council) is a multi-stakeholder group, representative of eHI members and accountable care organizations (ACOs). The Council currently consists of more than 150 participating members including accountable care organizations, health professionals and systems, HIEs, vendors, associations and payers from around the country. The focus of the Council is on assessing the necessary health information technology (health IT) infrastructure required to support ACO models, in an effort to improve the quality, safety and efficiency of health services and care.

PURPOSE

This report is a resource outlining the key information technology functionalities supporting various accountable care models, and it also highlights the top challenges and opportunities facing ACOs related to the implementation of health IT.

FORMATION OF THE DOCUMENT

Throughout 2013, the Council met on a monthly basis to explore case studies presented by various ACOs, including: Aetna, MedCHI Network Services, New West Physicians, Colorado Medicaid, Virtua Health, Baylor Quality Alliance and Sharp Healthcare. These case studies provided an overview of the IT infrastructures and capabilities, as well as the data and analytic needs, of various accountable care models. Based on these case studies and the Council's expertise, the Council, led by Rebecca Jones, Program Manager, eHealth Initiative, developed this report through a multi-stakeholder, consensus-driven process.

INTENDED AUDIENCES

This document is intended to inform a diverse group of stakeholders who are improving health services, care or outcomes through the use of health information technology and are implementing or considering developing an ACO model in order to improve health. This includes, but is not limited to: clinicians, consumer and patient groups, employers and health purchasers, health plans, health information technology suppliers, hospitals, laboratories, pharmaceutical and medical device manufacturers, pharmacies, public health agencies, quality improvement organizations, standards development organizations and state, regional and community-based organizations.

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INTRODUCTION

In 2010, the Patient Protection and Affordable Care Act (ACA) was passed to implement reforms across the healthcare system aimed at improving access to, affordability and quality of healthcare in the United States. In an attempt to overcome the adverse effects of siloed, episode-based care under the fee-for-service reimbursement model and align incentives around quality, outcome and costs of care, the ACA introduced new value-based delivery models includingaccountable care organizations (ACOs). Broadly defined as a group of health care professionals and organizations that are integrated across disparate settings into a unified network, ACOs require an integrated technology infrastructure to manage patient population, coordinate care across the continuum, and share financial risk for the beneficiaries that are assigned to them. Because accountable care models seek to improve the health of entire patient populations, they typically involve a wide range of stakeholders, including hospitals, physicians, labs, payers, specialty and primary care clinicians, home health and hospice care. In order to reduce costs, and improve quality and outcomes, providers within an ACO will need an integrated view of each patient within their population across the entire health ecosystem, extending beyond their own care settings.

The wide range of stakeholders both within and outside an ACO need to act in a coordinated manner with one another to provide collaborative and efficient care. From the time that the Centers for Medicare & Medicaid Services (CMS) rolled out pilot ACO programs, various models of accountable care have proliferated through federal payment mechanisms focused on Medicare and Medicaid populations and within the private sector. Currently, around 500 ACOs are in operation in United States. Types of ACOs include public (Medicare – under the CMS or Medicaid/Children's Health Insurance Program), and private (commercial payer). Public or private ACOs can be physician-based, hospital or health system-based. ACOs can vary by financial structure and incentives, geography, size, clinician population, patient population, attribution method and more.

Formation of an ACO requires provider leadership, vision, commitment and a culture change around how care is delivered. To enable efficient and effective care delivery and improve clinical and financial outcomes within an ACO, it is important to gather, integrate, exchange and analyze data from various sources including, but not limited to, clinical, claims, financial, demographic, patient and public health. Integration and analysis of these various data will lead to improved care coordination and quality metrics as well as increased patient engagement, outreach and access. A robust health IT infrastructure enables data gathering and integration. The basis for the infrastructure could include a clinical data warehouse, a health information exchange (HIE) or cloud-based data integration. This paper outlines a number of health IT capabilities that support accountable care models of care delivery in reducing costs and improving quality and outcomes.

Health Information Technology (HIT) Infrastructure Components that Enable Data Integration

I. HIT Components for Data Integration

To create a unified clinical network, ACOs must utilize data from multiple sources such as imaging systems, lab data systems, disease registries, patient reported data, genomics data, at home medical devices, as well as claims, financial, clinical and administrative data from various settings along the entire continuum of care. In addition, ACOs may be made up of providers who are not part of the same care delivery organization (i.e. freestanding specialty clinics, independent practices, specialty hospitals, community hospitals) and data from these multiple sources need to be meaningfully exchanged. Data integration capabilities are an important element of an ACO. Combined together, these data sources enable ACOs to continuously monitor provider performance and patient outcomes at both the individual and population level as well as many other key indicators such as provider performance, cost of service, etc. There are a number of information technology features that support the collection of these data, including:

A. Electronic health record

An electronic health record (EHR) is essential to an ACO. EHRs collect, maintain and share patient information and health records that are needed to coordinate care in an ACO. EHRs enable an ACO to define and classify patients based on various parameters within the patient population. Additionally, EHRs provide additional clinical support to care professionals that is aimed at improving care coordination and cost savings. It is challenging for ACOs to effectively collect, manage, analyze and share patient data when all clinicians, and other participants within the network, including social services, may not have an EHR.

B. Master Patient Index

ACOs should have access to the technology capability supporting a Master Patient Index (MPI) to manage patient identity. This functionality allows the ACO to identify the patients for whom they are accountable, and also to cross-link and identify a patient's medical records from the various professionals and other entities participating in the ACO.

C. Data Normalization and Terminology Standards

ACOs often bring together healthcare professionals that use different terminology for the same medical procedures and conditions. For example, for the same patient, one physician may diagnose and document hypertension while another may diagnose and document elevated blood pressure, and a third may diagnose high blood pressure. Variance in terminologies creates challenges in data integration and analysis. Within an ACO, it is important that data is normalized, or in other words, that consistent terminology is used to enhance the ability of the ACO to manage the health of the population. One technology solution to normalize terminology is data mapping or linking, which maps terminology variations to standardized medical vocabulary or codes, such as ICD (coding for diagnoses), LOINC

(coding for labs), SNOMED (core medical terminology) or CPT (coding for procedures and services). Data normalization allows for apples to apples comparisons of patients with the same conditions, as well as their treatments, costs and outcomes. Terminology standards facilitate uniform understanding of medical results to be utilized in the delivery of care or in outcomes management, and help to improve clinical decision support.

II. Interoperability and Health Information Exchange Systems

Each participant within an ACO can have different IT infrastructures, various EHR systems, numerous other applications and other information technologies. In addition, patients may see multiple providers within and outside of an ACO so each EHR only includes a subset of the information for a given patient, making it difficult for participants within an ACO to share patient information because their technologies may not be interoperable. ACOs need to establish Health Information Exchange Systems or direct messaging that enable the integration of these disparate systems and the bringing together of the full set of available data about a patient, and allow for the sharing of information between the ACO participants for coordinated care delivery.

A. Public and Private HIEs and ONC DIRECT

A Health Information Exchange (HIE) is an entity that allows professionals and other entities to share clinical information with each other to improve care coordination. An HIE receives patient related data from various providers within an ACO and enables linking and easy sharing of the information between the providers, who are capable of sharing information with the HIE and its participants, including primary care clinicians, hospitals, pharmacy, labs, payers, home health, public health and others.

HIEs can be structured as either public or private. A public HIE is a third-party entity that enables the sharing of clinical information between non-affiliated organizations. Public HIEs also allow for ACOs to gather information on their patients when care is provided by clinicians outside of the ACO. A private HIE enables the sharing of information within one organization and its affiliated organizations.

Many smaller ACOs may use public HIEs to facilitate exchange between the ACO participants. However, larger more established ACOs may have developed and implemented their own in-house private HIE, which require larger financial and technology investments than the expense might be for a public HIE.

With Meaningful Use Stage 2, a large number of physicians will be assigned Direct Messaging emails to enable secure messaging. This Direct communications can be used for exchanging information point-to-point, including referrals, transitions of care and progress notes.

B. Data storage and exchange

HIE technology supporting ACOs can vary by the data storage models. An HIE that stores all health information that is received by the HIE in a centralized location is referred to as a centralized data storage model HIE. HIEs with a centralized data storage model can serve as a data warehouse for the ACO, since all the patient information is stored in one central location. Data exchange is enabled through the data repository, housed within the HIE.

In contrast, a federated data storage model is one in which HIE participants store data in individual databases within their own organizations, and the HIE acts as a conduit for exchanging or sharing data among participants. Since no information is housed within the HIE, ACOs utilizing this type of HIE may need their own data repository, such as an enterprise data warehouse to serve as a centralized storage location for patient health information from the participating clinicians and other entities. Data exchange in this type of HIE is accomplished using query/response mode. Enabled by technology, query/response allows the HIE to push queried information from clinician A to clinician B. This ideally happens in real time or near real time such enabling providers to access relevant clinical information at point of care.

HIEs also can utilize a hybrid data storage model, which incorporates a mix of both centralized and federated data storage model architectures.

a.) Data transport standards

In order to send and receive messages easily and efficiently within an ACO, HIEs must structure messages in such a way that all participants in the ACO can easily decipher their meaning and content. Messaging standards make it possible for different computer systems to extract the same messages across the spectrum, regardless of local specification. As previously mentioned, one such standard is the Direct standard. The Direct Project focuses on the technical standards and services necessary to securely push content from a sender to a receiver without exchanging the actual content.

b.) Consent management

Federal and state regulations provide privacy protections to patients who do not wish to have their information shared with multiple clinicians and/or organizations. For example, depending on the state or organization, patients can either opt in to participate and have their information shared by the HIE, or opt out. To comply with these privacy regulations, many ACOs and HIEs implement and use consent management technology to help manage patient consent, privacy and information sharing preferences. Furthermore, ACOs must take precautions to protect sensitive information, including mental health data, chemical dependency data and other protected patient health information to comply with federal and state regulations.

HIT Components for Analyzing the Data

Accessing patient data from many health professionals participating in an ACO is essential to achieving the goals of accountable care. However, it is only one part of the equation. The data is not actionable if it is not appropriately analyzed and utilized to coordinate and manage patient care, measure quality, costs and outcomes for improvement, inform patient care decisions, improve public health, and manage clinical and financial risk. Analytics are critical to understanding and extracting meaning from the data. Additionally, in striving for continuous improvement, ACOs should implement best practices, gained understandings from clinical effectiveness studies and real-time patient data entry at the point of care.

I.   Outcomes & Quality Measurement and Reporting

Health IT enables ACOs to use data to measure quality and advance quality improvement efforts, identify gaps in care, and effectively manage the health of a population. It is important that ACOs have the capability to analyze claims, clinical and other patient related data, and to measure quality.

Most ACOs, depending on the federal, state or commercial contracts, are required to measure and report on specified clinical quality measures. Technology functionalities enable ACOs to mine and extract specific data points to measure quality and patient outcomes, and identify gaps in care. To help communicate results from these analyses to clinicians and staff, some analytic engines display this information on dashboards in an easy to read format, showcasing relevant information about provider, organization and enterprise performance related to quality, cost and outcomes. Analytics engines can provide information by condition, patient and clinician, easily highlighting areas of success and opportunities for improvement. Additionally, technology can help ACOs to calculate clinical quality measures required by CMS and commercial payers using clinical data and mathematical algorithms. Technology can also be used to electronically report those clinical quality measures (as well as financial measures) internally and externally, to CMS and/or another appropriate entity. Although reporting clinical quality measures is critical for regulatory compliance, patient progress is best determined from the clinical outcomes. Insights gleaned from health IT, data and analytics can help to drive improvements in outcomes.

II.   Predictive Analytics

Predictive analytics is an advanced form of analytics that predict which patients are likely to have poor clinical outcomes, are at risk to develop certain medical conditions or be readmitted to the hospital, and thus stratify patients by risk using various patient related data. Using this predictive information, ACOs can classify and target their outreach to specific group of at-risk patients to focus on preventive care, design and implement evidence based clinical intervention, schedule appointments, provide education and more.

III.   Risk Management

Accountable care represents a shift from episode-based care to population health management. In an accountable care model, reimbursement is typically determined by covered lives rather than individual episodes of care. In most accountable care models, negotiation with payers, health professionals and

other entities transition from annual rate negotiation, to longer, more sustainable value-based contracts. It is critical that adequate technology and data integration capabilities are in place to provide information needed to sustain this transformation.

A. Clinical and Financial Risk

Data can be collected and analyzed to provide insights into quality of care and clinical outcomes, and to help manage clinical and financial risk. For example, ACOs can create analytical models to predict which patients are at risk of developing certain conditions, for readmission to hospital within 30 days and general risks for mortality among others. Using this information, an ACO can predict patients' expected cost utilization. Additionally healthcare payers in an ACO are able to use analytics to measure clinicians' clinical performance and identify areas for efficiency improvement and savings.

B. Revenue Cycle Management

Depending on their contractual arrangements with federal, state and commercial payers, ACOs gain financial incentives for providing high quality care with optimal outcomes at low cost using the gains-sharing or financial penalty model. Given the importance of effective financial management, many ACOs leverage revenue cycle management technology to ensure adequate payment, and manage claims processing, payment and revenue. This technology can also be used to manage financial incentives and penalties that ACOs receive for meeting or failing to meet quality and cost measures.

C. Referral Management

Referral management technologies allow health professionals within the ACO to track and manage patients as they are referred. This technology enables a referring clinician to receive electronic updates about a patient's clinical test results, condition and progress, and can enable the integration of this information into the referring clinician's internal patient information system. Additionally, this technology can facilitate communication through electronic messaging to multiple health professionals. Referral management technology improves care coordination and continuity among clinicians and other health professionals as patients move through the ACO ecosystem. It is important for health professionals to be aware and understand their role as an ACO participant to optimize the effectiveness of such technologies.

Referral management technology also is important to manage the risk of patients visiting clinicians outside of the ACO. This is a financial and clinical risk for ACOs, as health professionals not participating in the ACO do not necessarily have incentives that are aligned with those of the ACO providers. This results in ACOs losing the incentives when their patients go outside of the ACO. Referral management technology can help to ensure that patients are referred to health professionals participating within the ACO minimizing this risk.

HIT Components that Influence Patient Care Delivery

Implementation of well-developed IT systems and functionalities can positively influence overall patient care by helping to reduce errors, alert clinicians to gaps in care, trigger certain drug interactions or medical conditions, help support medication adherence efforts, recommend treatments, suggest diagnoses and improve medication management. Some of these technologies include:

I. Medication Management

Medication management is a critical function for ACOs that involves the prescribing, ordering, dispensing, administering and monitoring of prescription drugs to patients. A number of health IT functionalities support medication management:

A. Electronic Prescribing

Electronic prescribing (e-prescribing) is the electronic generation and transmission of a medical prescription. A more accurate and effective way of prescribing medication, e-prescribing takes the place of paper prescriptions. Many EHRs have the capability to support e-prescribing as a function of the EHR. Additionally, e-prescribing can check prescriptions against insurance formularies, which is a Meaningful Use Stage 2 requirement of ACA, and is also helpful to clinicians as formularies often vary from one healthcare setting to another. E-prescribing can also record medication history information so that adherence information can be maintained about each patient. This information can be used by clinicians to identify non-adherence and other medication issues and complications.

B. Medication Reconciliation

Medication reconciliation is the process by which a complete and accurate list of all medications prescribed to and/or being taken by a patient is compared against new medications being prescribed. This functionality can be integrated with the EHR and also with clinical decision support tools to provide medication information and alerts, and inform medication decisions.

II. Clinical Decision Support

Clinical decision support (CDS) provides clinicians with evidence-based medical and person-specific information at the point of care to enable sound healthcare decisions. CDS includes a variety of tools to enhance decision-making at the point of care. These tools include computerized alerts and reminders to healthcare professionals and patients, evidence-based clinical guidelines, patient data reports and summaries, documentation templates and diagnostic support.

III. Patient Registries

In order to manage the health of their populations, ACOs utilize patient registries or similar capabilities to track and manage patients with or at risk of specific conditions at both the patient and population level. In addition to listing patients with high clinical risk or specific conditions or diagnoses, the registries can also include information about the patients' health status, past treatments, and health professionals who have treated the patients. If integrated with other information systems, like laboratory information systems or EHRs, registries can also provide alerts to inform healthcare providers of their patient's conditions and any gaps in care. In an ACO, it is important that registries aggregate such information from all participating entities, providers and payers, whether within or outside an ACO. New solutions are emerging, which provide similar and expanded capabilities to registries. In light of the onset of accountable care, this is a focus of innovation for many companies.

IV. Patient engagement and outreach

ACOs represent a shift to more patient-centered care, and thus it is important that patients be actively engaged in their care. Health IT enables ACOs to better engage patients and to make healthier and more cost effective healthcare decisions. Patient outreach and engagement technologies help to improve patient experience and satisfaction, which is critical to the success of an ACO. There are a number of health IT functionalities that help ACOs with patient education, engagement and outreach, including the following:

V. Patient Web Portal

A patient web portal is a web-based technology platform where patients can access medical information, such as lab results, and communicate with their healthcare professionals. Other functions of a web portal can include: scheduling features, appointment reminders, sending and receiving messages to and from clinicians, and maintaining patient health records. The patient health record includes patient-reported information about his/her lab and test results, condition and symptoms.

A. Telehealth

Telehealth is a technology feature that can be used to facilitate remote monitoring of patients to maintain continuity and convenience of care, especially in rural areas. For example, telehealth would enable patients to have virtual visits with providers in place of in person visit when appropriate. Telehealth also includes home monitoring devices.

B. Mobile Health

Mobile health is mobile enabled technology, which can be patient or clinician facing apps and include medical devices. Some mobile medical apps enable patients to take an active role in managing their health. Examples of such mobile health technologies include wellness and fitness apps that track exercise or calories, a mobile device that measures oxygen levels by breathing into the phone, and enable communication between the and patient. These are growing in popularity for patients who are managing chronic conditions such as diabetes, asthma, and behavioral health disorders.

C.   Social Media

Social media based communication can be an effective way to enhance patient engagement and communication within larger patient community. While some health professionals may be reluctant to use social media as a communication tool to reach patients, social networks are a wonderful forum for patients and families to connect with other patients and families (particularly for children with special healthcare needs or rare conditions) with similar conditions, and to learn about their health.

CHALLENGES AND BARRIERS IN FORMING EFFECTIVE HIT

While information and technology plays a vital role in supporting the implementation and success of account-able care delivery, ACOs face a number of challenges and barriers in order to effectively optimize technology use. Below is an outline of the three most significant challenges facing ACOs related to the use of data, ana-lytics and technology. This information is based on seven case studies presented to and discussed by eHealth Initiative's Accountable Care Council from various ACOs across the country. These ACOs varied by payer type, financial incentive structure, clinician and patient populations, geography and level of maturity. However, it was apparent that all of the ACOs struggled with the following commonly identified challenges.

I. Quality of Data

In order to effectively manage the health of a population, ACOs should be able to trust that the data being used to inform care decisions and control costs is timely, accurate and complete. Analytics and other tech-nology tools are oftentimes only as good as the data they analyze. The quality of data entered into EHRs and other information systems is in large part dependent on reliability of healthcare professionals entry and accuracy of patient information. In addition, there are significant amounts of data needed that may not be available in a digitized format, or the "owner" of the data may not be willing or able to share the data in a timely fashion. Payers and healthcare professionals both struggle with the consequences of incomplete information.

II. Interoperability

ACOs bring together various healthcare stakeholders from across the continuum of care, including health plans, health systems, labs and other care entities. While this collaboration enhances care coordination and quality, it causes significant interoperability issues, as these entities utilize different technologies pro-vided and supported by various technology vendors. The lack of widespread implementation of common technologies and uniform data standards is a barrier to enhancing interoperability. EHRs are one of the important sources of digitized data. Many EHR vendors have implemented the requirements to achieve 2014 Certification under the EHR Incentive Programs. There are a number of important interoperability improvements included in the criteria aimed at enabling improved interoperability and data sharing across stakeholders.

III. Cultural, System and Workflow Issues

Although ACOs are aimed at improving care coordination, quality and controlling costs, providers contin-ue to operate in the fee-for-service model of reimbursement. It is a challenge for ACO leaders to effec-tively engage participating clinicians to integrate technology into their workflows and change the way they deliver healthcare services from reactive, uncoordinated episode-based care to proactive, highly coordinated, team-driven population health management. Furthermore, patients and health professionals are adjusting to the use of electronic health records and other technologies, and understanding the value of data transparency and innovation. Until there is a true system-wide transformation and culture shift, change management will be critical to the success of ACOs.

Opportunities Ahead in Establishing HIT for Accountable Care

There are a number of opportunities for improvement that would allow ACOs to excel and achieve their desired results. Efforts are required at an enterprise level, by law-makers, technology developers, vendors, health professionals and other entities, payers and patients to achieve real improvements. Three significant HIT opportunities for improvement across the industry in 2014 that would allow ACOs to effectively reduce costs and improve quality of care include:

I. Address Interoperability Challenges

Effective care coordination across departments and institutions is a foundational element of a successful ACO. Care coordination cannot be achieved without the electronic exchange of health data between clinicians, payers, patients and other key stakeholders. Interoperability between various health IT systems is a key challenge to effective data exchange and care coordination, and one that represents an opportunity for improvement in 2014.

II. Accelerate Standards Adoption

To enhance interoperability and reduce challenges associated with inoperable systems, the development, refinement and adoption of data and transport standards and their associated implementation guides should be accelerated. Doing so can help ensure that data is maintained in a standardized format, improving the ability to consistently exchange information between systems and health professionals and other entities.

III. Patient and Family Engagement

For ACOs to achieve their desired results, patients must be actively engaged to take accountability for their health. ACOs have an opportunity in 2014 to utilize new and innovative technologies to better engage and interact with patients.

CONCLUSION

The healthcare industry is undergoing unprecedented changes. Reform and other market forces are driving new care and payment models that assess the value of care delivered, not the volume. The success and sustainability of healthcare organizations depend on its ability to achieve positive, cost-effective outcomes that benefit both the health of your patients and your business. Successfully transitioning to accountable care requires a fundamental shift in how organizations think about, deliver and pay for healthcare. At the same time, we are seeing significant adoption of health information technology.   In addition, new innovative technologies are being introduced which support accountable care models. Analysis and study are needed to assess the new care models, identify best practices and best determine how technology can be leveraged to support these models to better coordinate and improve care and outcomes..

As the healthcare industry continues to adopt technology and transition to population health management, effective leadership and change management will remain critical. It is clear that information and technology are essential enablers to the success of ACOs and other value-based care delivery models. Data show that the ACO care delivery model continues to grow, in addition to the emergence of other population health models. The foundation of these new care delivery models is care coordination. Data and technology are critical to providing information to ACO participants, influencing patient care, enhancing patient engagement and achieving the goals of accountable care.