Encore Health Resources

Enterprise Data in Healthcare

An Untapped Asset for Performance Improvement Analysis and Measurement

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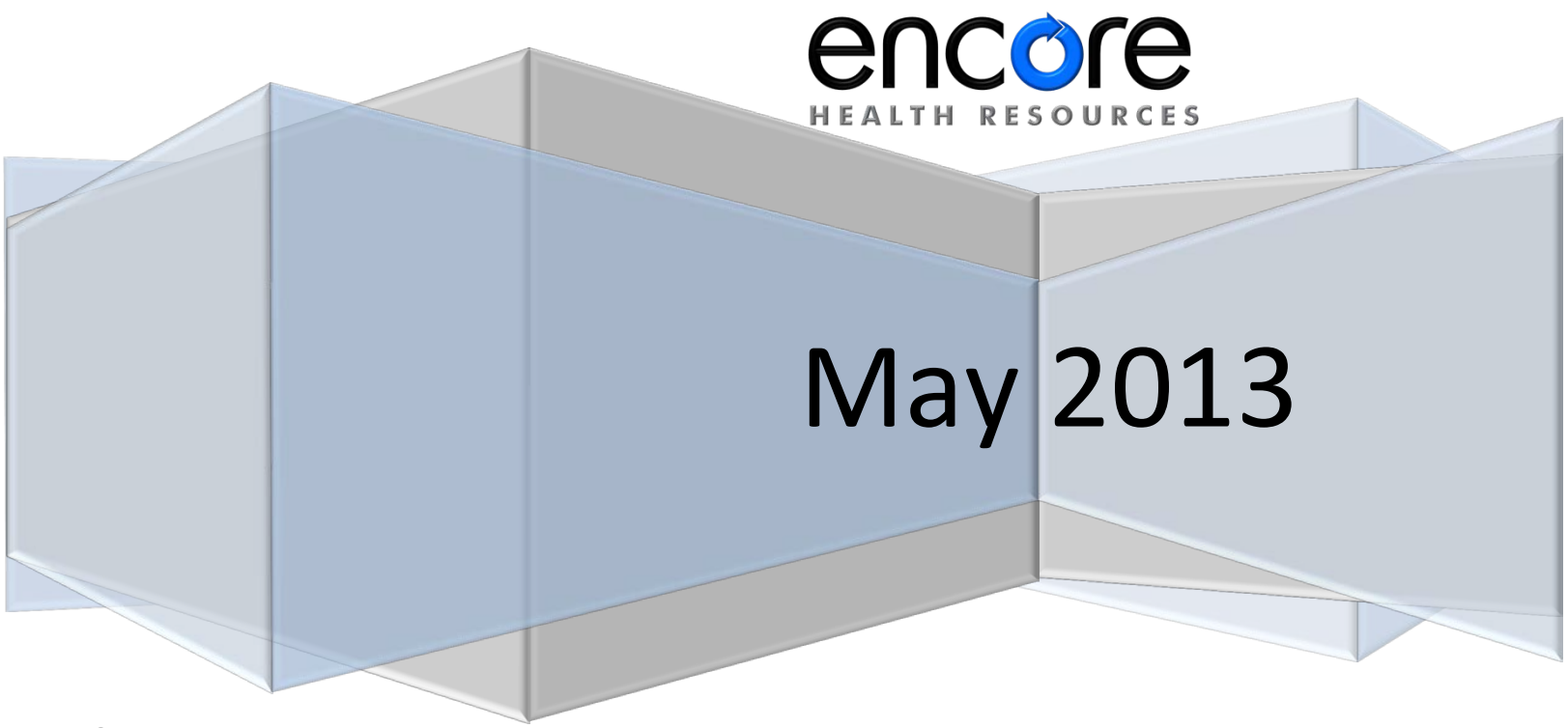

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Background

Electronic health records (EHR) gained a huge boost with the introduction of the Health Information Technology for Economic and Clinical Health Act (HITECH) in 2009. Eligible hospital and provider organizations are implementing certified EHRs with an understandable focus on complying with Meaningful Use (MU) criteria to qualify for the sizeable incentive payments. Much has been theorized – and to some extent documented[1] – about the value EHRs provide in terms of improved quality and efficiency. However, while EHRs do provide value in and of themselves, there are two subsequent and essential aspects of EHR adoption that bend the value curve up significantly – interoperability / connectivity and re-use of collected data.

While organizations are implementing EHRs, care delivery and reimbursement models are also changing. The journey from volume to value is underway with various programs – ACO Pioneer, Medicare Shared Savings, Bundled Payments, Clinical Integration, Patient-Centered Medical Homes – offering different configurations of holding providers accountable for the outcomes of care or overall health of a defined population. Further, this accountability for outcomes is tied to reimbursement. These new models require current, population-based information about cost, quality and satisfaction to ensure interventions and health management are effectively focused.

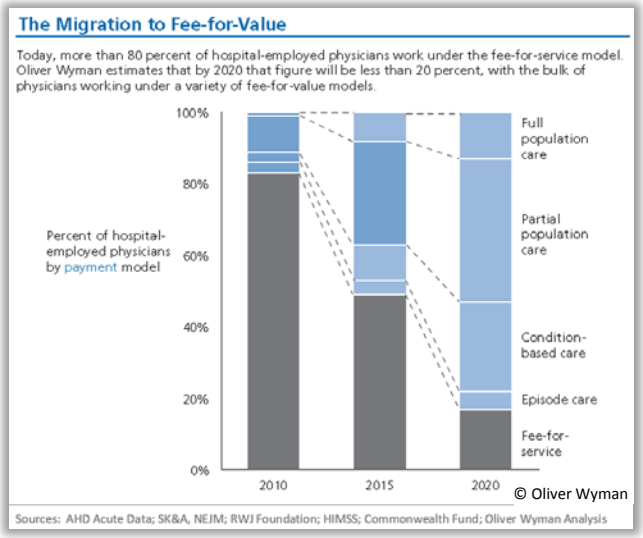

Figure 1. The Migration to Fee-for-Value[2]

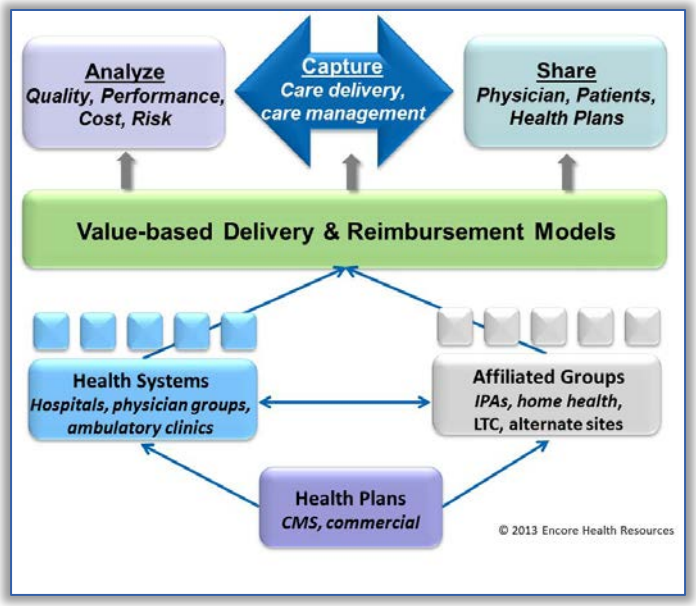

Figure 2. New Models Require New Capabilities

Healthcare is at the nexus of the biggest data collection effort ever undertaken with the biggest demand for information ever experienced. While healthcare has always been "data rich and information poor,"[3] the real financial impact of not having current, accurate information about cost, quality and satisfaction is raising awareness that the data collected in EHRs across all care settings has additional value. And that data in other systems – scheduling, practice management, patient accounting, materials management, time and attendance, general ledger – must be combined with the clinical data across all care settings to provide a holistic view of how an organization is performing. And, to ensure that the right data is available in the right format at the right time, EHR workflow and implementation design must factor in these data re-use requirements. Healthcare as an industry is embracing the notion that data is a valuable asset that must be nurtured, managed and protected.

Harnessing the intrinsic value of data across a healthcare enterprise is a journey, though, and not a task. It requires the perspective of time and the realization that the foundation established today must be sound, extensible and scalable. It also requires the recognition that leveraging data as an enterprise asset is not only about technology; people and process are equally important and perhaps more difficult to align. And while there are certain fundamentals that apply to all organizations, any approach to managing enterprise data must fit the size, scope and culture of an organization.

Current State Data Environment

Despite the current focus on implementing a common EHR across an enterprise, it is highly unlikely that any one organization will have a completely homogenous application environment. In fact, given the maturation and adoption of healthcare data interoperability standards, replacing existing viable applications to achieve a "one vendor" environment may sub-optimize some functions and fail to deliver expected value. And even if an organization has embraced a single vendor, facility-specific implementation options often introduce a level of variability in how the application is implemented and used.

A sound enterprise data strategy recognizes, embraces and accounts for a heterogeneous application, and therefore data, environment. It establishes a logical framework that allows data from disparate sources to combine together appropriately to support various information needs. This can span the spectrum from eMeasure calculation in support of regulatory reporting mandates to analytics highlighting opportunities for process efficiency to predictive algorithms identifying patients at risk for falls or non-compliance with a medication regimen.

As integrated, coordinated care delivery models proliferate, it will mean combining data with partners in accountable care to manage and measure the health of a population.

Historically, the complexity and cost of trying to combine data from disparate sources in meaningful ways prevented many organizations from making the attempt. It is hard; and the return on effort (let alone the return on investment) was not apparent. This left largely fallow the data collected in the portfolio of applications – an under-used, under-appreciated asset. With the rapidly evolving shift from fee-for-service (FFS) to fee-for-value (FFV), organizations need the data trapped in these systems to measure performance, highlight opportunities for improvement and track progress. Additionally, the financial risk posed by FFV-type reimbursement demands that a well-run healthcare organization have a full picture of the status of patients in the populations it manages. Failure to accurately understand which patients need close management and then track their status can readily erase already razor-thin operating margins.

Driving Value from Data Assets

Creating value from existing data requires forethought and planning. As previously mentioned, it is a journey not a task. Simply extracting data from various systems and storing it on the same physical device just creates a data "dump;" a hodge-podge of disconnected fragments unable to meaningfully combine; a Tower of Babel unable to communicate with each other.[4] While there is a finite set of data elements (as vast as it might be), there is a significant percentage that can be collected multiple times in different systems, in different formats. Forcing consistency from one source system to the next could obviate the purpose of the source system. (Of course, ensuring consistency of data entry within a single system is a different issue and frequently necessary.) Most (if not all) commercial off-the shelf (COTS) applications have not adopted (until recently) the available standard healthcare terminologies (e.g., LOINC, RX Norm, SNOMED CT). And while most healthcare applications do transmit and receive transactions according to Health Level Seven (HL7) standards, these standards, unfortunately have some degree of latitude in implementation. So the structure of a transaction (e.g., lab order) can vary while the content of that transaction (e.g., the code used to define lab test) is likely proprietary to the organization and lab system. So two lab order transactions for the exact same test but originating in different systems can have a different transaction structure and completely different content; the result is confusion.

Retail stores routinely take an inventory of their assets – counting and cataloguing the merchandise they have on hand. Data is a valuable asset that also requires an inventory. Healthcare organizations need to understand what data they have, where it originates, how it is used in the source system (i.e., why it was collected in the first place) and how frequently it is refreshed. That's one end of the spectrum. They also need to define – not exhaustively but as comprehensively as possible – what information is needed for reporting, measurement, analytics and so forth. These two bookends begin to define the framework required to standardize and integrate the available data.

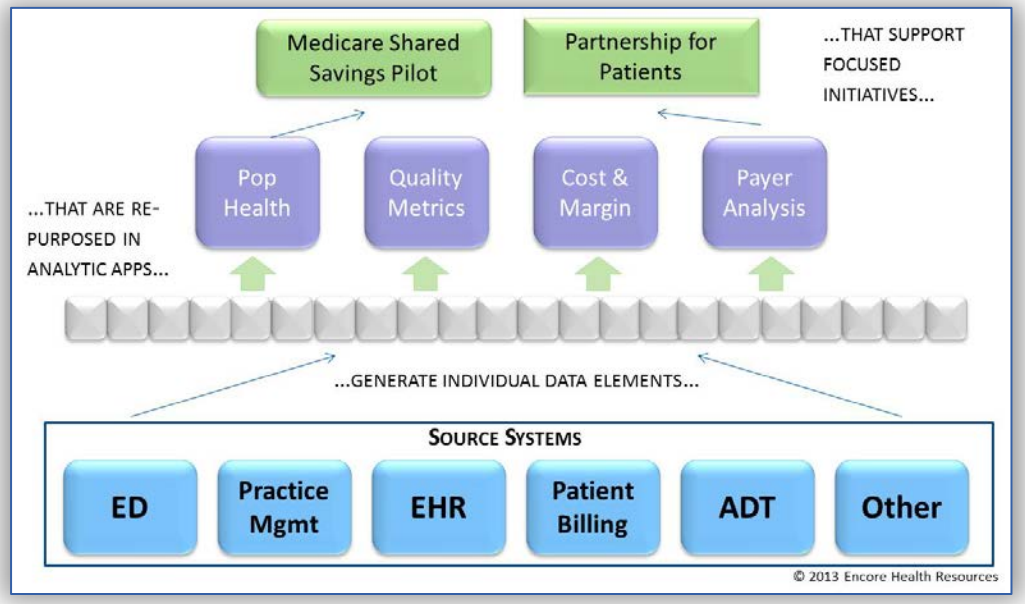

Figure 2. A "chain of trust" needs to be created from source system through all secondary uses.

Reliable, accurate and timely data is highly valued. From source (i.e., point of capture) to use (e.g., eMeasure) it is essential that a chain of trust is created so both the producers of the data and the consumers of the data are confident it is appropriately used and accurate for its purpose. Decisions based on old or inaccurate information can lead an organization off course. Data used at odds with the intent of its collection can lead to erroneous decisions. The wealth of data collected across an enterprise needs to be appropriately, consistently and accurately brought together – integrated – to provide timely and reliable information. The data chain of trust from source to integration needs to be clear and documented; the resulting integrated view can then be considered the "source of truth" for information to support the reporting, measurement and analytics needs of an organization.

Data Governance – An Emerging Necessity in Data-savvy Healthcare Organizations

Data Governance can be defined as:

… the discipline of formally organizing and managing data and information assets across an organization from a business, technical, and administrative perspective for the purpose of managing data as an asset, driving information quality, and optimizing data outcomes that enhances decision making.[5]

The same data element (e.g., patient date of birth) can be collected (i.e., entered by a person) into more than one system. Many systems have master files that define codes for data such as physician, department or discharge disposition. When each system existed unconnected to other systems and when data was not being re-purposed to support the new care delivery and reimbursement models, inconsistencies in the same data across multiple systems was not evident – nor did it matter (much). But with the rapidly evolving need to leverage data as an asset to support organizational performance in the shift to FFV, these inconsistencies need to be identified and addressed. This requires data governance.

The Data Governance Institute identifies four drivers that cause organizations to adopt a formal data governance discipline:[6]

1. The organization gets so large that traditional management isn't able to address data-related cross-functional activities.
2. The organization's data systems get so complicated that traditional management isn't able to address data-related cross-functional activities.
3. The organization's Data Architects, SOA teams, or other horizontally-focused groups need the support of a cross-functional program that takes an enterprise (rather than confined) view of data concerns and choices.
4. Regulation, compliance, or contractual requirements call for formal Data Governance.

All four situations currently apply to healthcare. Yet, data governance is a relatively new discipline in the healthcare provider space. While analytics and reporting have used data from different systems for many years, there hasn't been a driving need to ensure consistency or accuracy. The shift from FFS to FFV brings into stark relief the need for reliable data that measures quality, patient safety, cost of care, margin and productivity – and not just in the acute care setting but across the continuum of care.

Many organizations are now considering or in the process of building an enterprise data warehouse (EDW) for the purpose of integrating data to support the performance measurement needed in a FFV world. Absent data governance the likelihood that an EDW will succeed is small. Organizations must be confident that the data represented in the EDW is reliable and accurate; data governance provides the structure and process to ensure the needed reliability and accuracy. Without data governance, the implemented technology functions exactly as designed – but the information emanating from the technology may be suspect. The result may be the classic "the operation was a success but the patient died" scenario.

Organizational Awareness	Risk Management
Organizational Awareness is defined as a strong recognition of data as an enterprise asset and the consequences associated with data mismanagement	Risk Management is defined as the ability of an organization to identify, prioritize, manage, and mitigate risk throughout the organization
Stewardship	**Data Quality**
Stewardship is a systematic approach designed to ensure custodial care of data for data asset enhancement and organizational control	Data Quality is defined as the degree to which an enterprise ensures its core information assets achieve and sustain an appropriate level of accuracy and consistency across its lines of services, functional areas, and processes
Information Lifecycle Management	**Security/Privacy/Compliance**
Information Lifecycle Management is defined as a systematic policy-based approach to information collection, use, retention, and deletion	Security, privacy and compliance are defined as the degree to which an enterprise has addressed controls (policies, processes, and technologies) to protect its data from misuse
Metadata Management	**Audit & Reporting**
Literally data about data, Metadata Management is a systematic approach to creating and maintaining all relevant attributes of data created and stored within the enterprise	The enterprise's processes for monitoring and measuring the data value, risks, and efficacy of governance

Figure 3. Components of Data Governance

There are multiple components that compose robust, enterprise-wide data governance. As data governance is new to many healthcare organizations, not all components need to be addressed to start a useful data governance process. Typically organizations find great value in starting with just organizational awareness, stewardship and data quality – with potentially a light touch on information lifecycle management to contain the proliferation of "rogue" datasets.

A cross-functional data governance structure and process helps an organization harness the value from its data assets. This is not an IT function nor is it a department in the organizational hierarchy. Rather, data governance brings together the key stakeholders from quality, finance, administration, IT and others to make decisions on how data should be captured, standardized, used and secured. It documents, by data element, what systems capture the data. It makes decisions on how to rationalize inconsistencies in data that is allegedly the same. It governs how the data can be used to ensure appropriate access, security and patient privacy. And if needed data is not captured in the way that is usable (or not captured at all) it identifies the need for potential changes in work flow and system implementation and engages the right stakeholders to effect the required modifications.

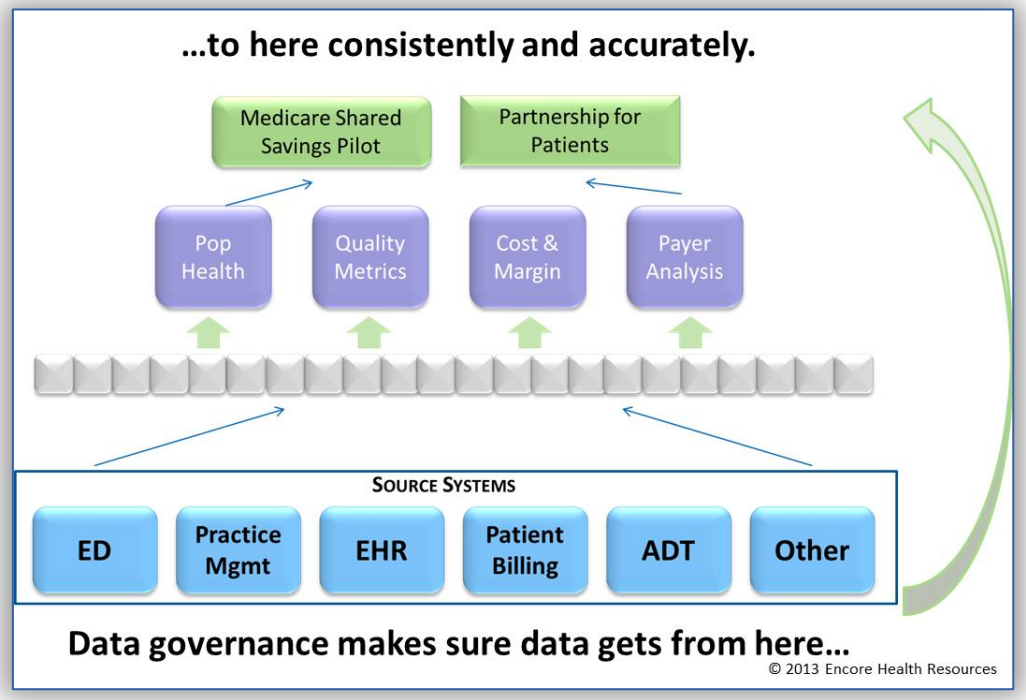

Figure 4.
Data governance ensures that data captured in source systems is consistently and accurately available for measurement and analytics used to support focused organizational initiatives.

To highlight the need for data governance in healthcare organizations, consider one common data element in just the physician office and hospital settings – patient date of birth. This data element is typically captured in the following systems:

- Scheduling
- ADT
- OR
- ED
- EHR (ambulatory and acute)
- Practice Management
- Patient Accounting

If an organization has systems from more than one vendor – which is common in integrated delivery networks formed via merger – there could be a "times 2" or "times 3" next to each line. The format for date of birth can vary from system to system:

- Mm/dd/yyyy
- Mon-dd-yyyy
- Yyyymmdd
- Free text
- And so on…

And, of course, there is always the risk that the data can be mis-keyed resulting in multiple values of date of birth for an individual patient. Often, the patient date of birth that supports billing will likely be accurate – else the claim would be rejected – but there is no guarantee the date of birth will be accurate and consistent across the enterprise.

Data governance examines the different formats in the various source systems, determines which source should be used for what type of reporting or analytics, documents these decisions, and finally, communicates the information to all concerned. It may determine the "standard" format for enterprise reporting and determine how each source system data element is converted, or mapped, to that standard. So, no matter how the data is entered, when used in enterprise analytics and measurement, the data is always represented in the same format.

Differences in format for patient date of birth may not have the most earth shattering consequences – but imagine the issues that might arise from inconsistencies in how a lab value, medication dosage or diagnosis is captured. If even the most mundane data offers complexities in data capture, the stakes are even higher for data critical to measuring quality and patient outcomes. Data governance provides the structure and process to an organization so it can confidently utilize the data captured in the myriad of source systems for measurement, reporting, analytics and prediction.

Enterprise Data – Ensuring Success

When healthcare provider organizations consider implementing an EDW, the phrase "go big or go home" is probably not the best approach. The healthcare landscape is littered with EDWs that cost millions and failed to deliver the anticipated value. Most often these repositories became "data landfills" where data was literally "dumped" – with neither governance to determine how the data would be rationalized and used, nor clear intent of the metrics and analytics it would drive. A better implementation approach is "plan big, implement iteratively." (True, not as catchy…)

The demand for information about organizational performance is on the rise. Not only do organizations need to know their cost, margin, quality outcomes and patient safety rates for their inpatients, new care delivery and reimbursement models require the same information across defined populations of people – not all of whom might be patients at the current time. And the needed information isn't contained within a single source system. Rather, new levels of data integration must be achieved to provide correlations between quality, patient safety, cost and productivity. This is an absolute requirement in a FFV model. The need to integrate data is driving the surge in interest in EDWs.

Ensuring a successful EDW implementation requires both the vision to understand its likely uses in the future and the wisdom to plot a roadmap that will incrementally deliver value to the organization while minimizing risk – but moving ever closer to the vision. To begin, identify all the various organizational needs for analytics, prioritize them through a consensus-building process, determine level of complexity and effort – and then pick two or three that will deliver big benefits and meet pressing needs. Design the overall analytics environment, then start implementing to meet these initial needs.

This process should:

- Clearly articulate the clinical and business need of each initiative;
- Define the user scenarios – who needs to see the information in what context to drive what kinds of decisions?
- Decompose the scenarios and identify the types of data – as granularly as possible – needed to support the analysis and measurement
- For each type of data, identify the source system(s) – and this is where data governance enters the picture:
  - who enters it
  - when
  - why
  - how frequently
  - is it structured?
    - if structured, is it expressed via standard or proprietary terminology?
    - if unstructured, can it be transformed into structured data?
  - If needed data is not currently captured in any system, begin a process to determine how the capture of the data can be introduced into the workflow of the role most likely to encounter it
- Identify the master data[7]

Implementing an EDW does not necessarily mean building the data warehouse uniquely for the organization. There are multiple approaches to consider – and the roadmap might start with one approach and evolve to another as needs change and analytics skills mature. An organization might start with one or more "purpose-built" commercial analytics applications that extract data from source systems and provide some level of ad hoc analysis in addition to the structured application; then evolve to a more robust, sophisticated "semi-custom" environment that is either located at the data center or provided "in the cloud."

EDW Approach	Delivery	Data Model	ETL	Presentation Layer
COTS (commercial off the shelf)	• SaaS[8] • Premised	• Included as part of the application	• Included as part of application • Customer must make data available to the application	• Included as part of the application; might have some flexibility in formatting.
Semi-custom	• Premised • Cloud-based	• Pre-defined with option for local extensions	• Can leverage ETL from other implementations but typically modified for specific customer • Cloud-based options will have more pre-packaged options	• Developed for the organization; might leverage templates designed for the specific data model.
Custom	• Premised	• Proprietary to the organization	• Built from scratch to support the proprietary model	• Built from scratch for the organization.
Hybrid	• Cloud-based	• Pre-defined	• Combination of pre-packaged and site-specific	• Leverages analytics from COTS applications and amends with site-specific analytics and dashboards.

Figure 5. Optional enterprise data warehouse approaches

One aspect of enterprise data planning often overlooked is the need for health information exchange (HIE) capabilities. While states and regions are taking advantage of Federal funding to build data exchanges for defined geographical areas, healthcare organizations themselves need the ability to move data across their own organization; and perhaps with their partners in coordinated care delivery. It is important to distinguish between HIEs as a noun that describes an entity, and the verb that describes the activity of moving data.

While the primary purpose of HIEs (the noun) is to make available a longitudinal view of a patient (i.e., bringing together data from various systems and providers, and presenting it to a provider at the point of care), an important secondary purpose is making the data available to the EDW capabilities for an organization (the verb). Absent this vital "plumbing" – based on national transaction and vocabulary standards – data will continue to be "locked" in the source systems; untapped organizational assets.

The same iterative approach applies to implementing data governance. Other industries embraced data governance disciplines over the past several decades. They have matured into a structure and process that supports current needs. As healthcare provider organizations begin to adopt data governance, the structure and process will adapt. It is advisable to start with just enough governance to address initial needs. Creating an overly large and burdensome bureaucracy before the organization realizes its first benefits from data governance will not lead to success. As with most things, demonstrating success before asking for time commitments is the surest path to acceptance and driving long-term value.

Begin with the End in Mind

"…to begin each day, task, or project with a clear vision of your desired direction and destination, and then continue by flexing your proactive muscles to make things happen."[9]

Meaningful use, as previously mentioned, is driving a huge boost of EHR implementations focused on realizing incentive payments for hospitals and eligible providers. A side benefit of ubiquitous EHR adoption is a mountain of clinical data ripe for re-purposing to measure performance and help the healthcare industry identify opportunities for improvements in quality, safety and cost. While there are unmovable deadlines associated with achieving MU compliance, the secondary benefits of re-purposing the data should not be forgotten. As organizations fully realize EHR adoption, they will next turn to how they can drive additional value to their organizations through analytics, measurement and prediction. So it is critical that the requirements for the use of data captured in EHRs beyond the treatment of patients in real time be considered in EHR implementation planning and execution.

It is unreasonable to expect that all future needs can be anticipated while implementing an EHR. But there are current pressing needs for information that are going unmet – particularly in the FFV drive to link outcomes with cost of care. And it is known that eMeasures will eventually replace the current abstracted measures that support various programs (e.g., Inpatient Quality Reporting (IQR), The Joint Commission Core Measures).[10]

The audit requirements for Meaningful Use are another area where thoughtful planning will ensure the appropriate data is available to support MU compliance reporting (e.g., percentage CPOE orders). It should be noted that measuring compliance with MU requirements should be a consideration in how data is captured – and master data defined (e.g., provider roles) – in designing an EHR implementation. Simply following the EHR vendor's standard implementation does not guarantee the required data will be available to support compliance audits. Understanding how each compliance metric needs to be calculated and then tying the data need for the calculation back to how it is captured is essential. Without this pre-planning, proving MU compliance can be a challenge.

Finally, organizations are also beginning to enter at-risk contracting arrangements with commercial payers for defined populations of patients. It is anticipated that these trends will continue and mature into the future. So planning how to meet these information needs now will set the right course for an organization. This planning will not only influence EHR design and implementation planning (or optimization, for organizations with existing EHRs) but also determine requirements for the collection and use of enterprise data into an EDW – and the corresponding data governance.

"Beginning with the end in mind" means identifying what needs to be measured; what needs to be analyzed. This in turn drives both EHR implementation plans and requirements to re-purpose the data as a valuable asset to support ongoing performance improvement. This also keeps an organization focused on the "what" and "why" of analytics and measurement (i.e., what needs to be measured and why it needs to be measured), rather than the "how" (i.e., technology). Purpose should drive technology decisions, not the other way around.

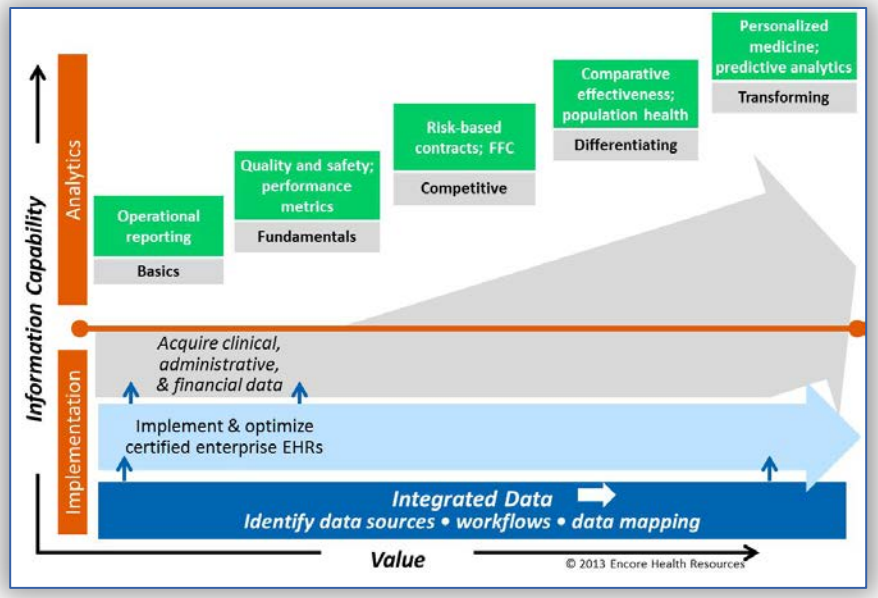

Figure 6. Focus on the ability to re-purpose data and increasing informatics maturity drives additional value from EHR implementations.

Buy-in and support from senior leaders and key stakeholders is also essential. Putting in place EDW capabilities of any kind will only drive value if the organization – from top to bottom – is aligned and committed to using the enterprise asset. If "one-off" efforts are allowed to proliferate after the organization has committed to enterprise data, then the investment is diminished and the efficacy of using a single source of truth eliminated. Recognize that different stakeholders and different purposes will require different ways to view and manipulate the information. This "front end" use of the EDW capabilities demands appropriate flexibility. But there should be only one way to acquire the data from the source systems – determined through the data governance process.

Also recognize that an organization's maturity with using analytics will evolve over time. And as it evolves, will require a shifting mix of skill sets to support the needs of the organization.

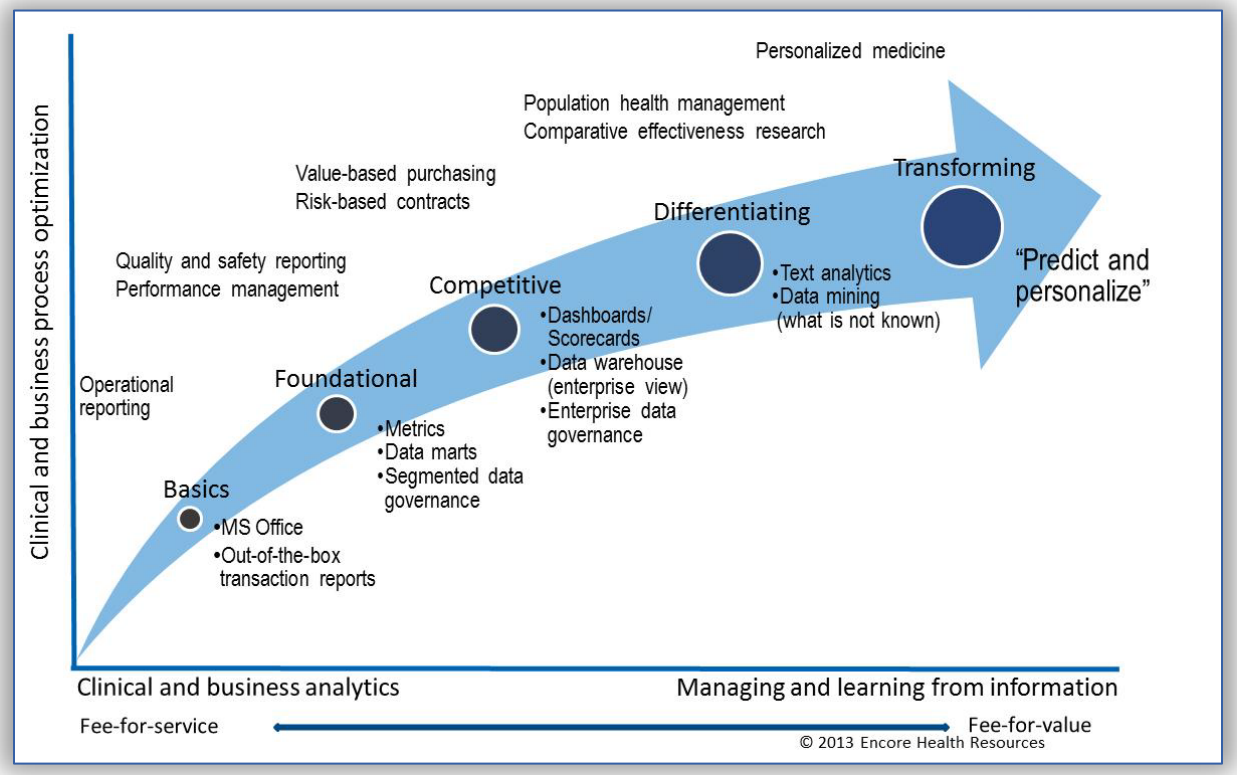

Figure 7. Encore's Health Analytics Maturity Model

The Encore Health Analytics Maturity Model[11] defines the five stages of evolving sophistication in the application of analytics to performance improvement. Most organizations do not fit neatly in a single maturity level; most are evolving their capabilities at different rates driven by the dictates of evolving care delivery and reimbursement models – but progressing up the curve to "competitive" will be a critical success factor in the future. Many will strive for "differentiating;" a few will attain "transforming."

Maturity Levels	Business Perspective		Analytics Perspective	Data Sources & Quality
5	Transforming	• Modeling financial opportunities based on value and quality for populations for global capitation; predict behaviors and risk (clinical and financial).	• Predictive analytics, interventions tailored to genetic profile; simulation and advanced modeling; complex algorithms and text analytics.	• Combine multiple external data sources (e.g., census) and genomics with enterprise data. • Highest level of trust in all sources of data, algorithms/logic and calculations in order to act.
4	Differentiating	• Comparative effectiveness analytics; outcomes analysis based on interventions and guidelines; population health management.	• Basic modeling; knowledge based logic; data mining. • Advancing correlation and pattern recognition and basic modeling; ad hoc queries; crosses all care settings.	• Add non-acute data sources from inside and outside the organization. • Highest level of trust in all sources of data, algorithms/logic and calculations in order to act.
3	Competitive	• Supports value-based purchasing and risk-based contracts. Begin to correlate cost and quality.	• Emerging trends, calculated inclusion/exclusion criteria for populations; computation focused on compliance to established processes and thresholds; advancing logic and multiple attributes.	• Enterprise data warehouse populated with multiple acute care-based source systems. • High level of trust in source, algorithms/logic and calculations in order to act.
2	Fundamentals	• Quality and safety reporting; regulatory metrics (e.g., IQR, MU, PQRS, HEDIS); performance management.	• Advanced counts, measures and lists; moderate logic and attributes.	• Data marts created from selected data. • Improving level of trust in sources of data and results calculations.
1	Basics	• Ad hoc report requests; day to day hospital and organization operations.	• Basic counts, measures or lists; minimum logic and attributes.	• Transaction system databases. • Quality often unknown.

Figure 8. Each level in the health analytics maturity journey encompasses business, analytics and data needs.

Of critical importance in advancing up the analytics maturity curve is tying business and clinical needs to the purpose of the analytics. This cannot just be about "cool stuff;" analytics needs to drive benefits to the overall performance of the organization. It is also necessary to understand the linkage between clinical and business value, the type of analytics required to support that value and the data sources and quality required to support the analytics. This circles back to the increasing importance of data governance in healthcare organizations.

Each level of maturity not only has technology requirements – such as business intelligence (BI) tools – but also corresponding skill set requirements. Most organizations currently have a variety of analysts who focus on quality or financial data and create reports for the board, executives and other key stakeholders (or at least individuals who perform this function as part of their broader job). These skills will need to be enhanced as the technology available to support analysis becomes more sophisticated and as the need to integrate data to create correlated views of quality, safety and cost increases. Collaboration between financial and clinical experts is mandatory.

Increasing informatics maturity not only requires knowledge of how to leverage the increasingly sophisticated technology, but knowledge of how to manipulate and interpret the information in a meaningful way. While end users of information – executives, department heads, physicians, nurses – should be able to quite readily grasp what a dashboard or report is telling them, the staff who define these outputs need to ensure the appropriateness of the information and presentation. As more and more data is aggregated and integrated and that data is mined and manipulated with increasingly sophisticated BI tools, organizations will need staff with new skill sets. This will require a new breed of consultative staff that bridges the gap between the clinical and technical – individuals with their feet in both worlds with the communication skills to be able to translate clinical needs to technologists and technical realities (that result in requirements compromise) back to clinicians.

Maturity Level	Requirements	Skill Sets	Technology
5 – Transforming	Sophisticated data mining technology and predictive rules engine. Statistical and healthcare economics knowledge to define predictive.	• Health economist	• Text analytics • Data mining
4 – Differentiating	Robust statistical and data visualization tools; additional publically available data on population health status to correlate with populations.	• Bio-statistician	• EMPI • Statistical analysis tools • Data visualization tool
3 – Competitive	Interactive analytic tools that support drill down; real-time monitoring of data validity with systems in place to suspend suspect data and then get it corrected.	• Clinical informaticist • Data modeler	• Dashboard tool • Master data management • Data profiling
2 – Foundational	Commercial packages that support regulatory reporting; enhanced report writer; establish industry standard vocabularies.	• Analysts (clinical, financial, business) • ETL	• Business intelligence tool
1 – Basics	Running reports out of transaction system applications; simple reports developed in MS Office tools (or similar).	• Report writer	• Nothing additional required

Figure 9. Maturing analytics capabilities requires expanded skills and technology

Conclusion

The promise of analytics in healthcare provider organizations has been long in coming. Awash in a sea of disconnected data, organizations have struggled with how to understand the relationship between quality, safety, productivity and cost. Despite the performance dashboards that proliferated over the past two decades, rarely has it been feasible – or necessary – to integrate clinical, administrative and financial data across care settings to identify opportunities for action. The shifting landscape of care delivery and reimbursement models has launched a fresh focus on leveraging enterprise data as a valuable asset to drive performance improvement. FFV models require that organizations understand not only what it costs to deliver care but what specific outcomes are the result of that care. And as FFV continues to evolve, the metrics will extend beyond care outcomes to measures of overall population health and wellness. Organizations will need to demonstrate they are delivering high quality clinical outcomes when treating patients and keeping people well.

To survive and thrive in this changing healthcare landscape, organizations need to define a plan now for how to harness the untapped value in the data across their enterprise. They need to build the skills, processes and enabling technology that turns data into information that can be used to drive new levels of performance. The best time to start this journey to harness the value in enterprise data is when planning EHR implementations. It is never too late, however, to define a need for particular data and re-engineer part of an already implemented system to ensure its capture. It is critical to start, however. "The longest journey begins with the first step." The time to start the enterprise data journey is now.

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