Enhancing the Value of your EHR:
Optimization and Beyond

An emids+encore Point of View

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The healthcare industry is in the waning years of a massive effort of ubiquitous electronic health record (EHR)[1] adoption. Literally billions of dollars have been spent by providers on EHRs. These same providers have cumulatively received billions of dollars (though far less than the overall industry spend[2]) in federal incentive payments. As of the end of 2016, 92% of hospitals and 78% of providers[3] have implemented EHRs. But this is just the beginning of the journey. The demands of payment reform to demonstrate quality and other dynamic changes in healthcare delivery require ongoing focus on improving the use of EHRs. This is often referred to as "optimization".

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Optimization – currently one of the most frequently used buzz words in healthcare information technology (HIT). A recent survey by KPMG cited EHR optimization as the top priority for CIOs in 2017 and beyond.[4] But what is "optimization"? A Google search finds this definition:

"The action of making the best or most effective use of a situation or resource."

emids+encore contends that EHR optimization covers a range of possible activities, from improving how implemented capabilities are used to turning on new functions to layering additional capabilities on top of the EHR platform. Some argue that optimization only covers improving the use of currently implemented capabilities and that other activities are new projects. We believe this is a distinction without a difference but to avoid having the word "optimization" be a barrier to this topic, we will, instead, use the phrase "enhancing value". To guide the discussion of how organizations can enhance the value of their EHR, we have defined an "Enhancing EHR Value" (EEV) framework:

THE FRAMEWORK FOR ENHANCING EHR VALUE (EEV)		
	Category	*Examples*
Improve Implemented	Workflows	Nursing documentation, number of clicks for orders
	Functionality	Complex order sets, clinical decision support
Introduce	Unused capabilities	Telehealth, EHR modules outside the phase 1 scope
	New	APIs to leverage consumer data, enable touchscreen
Data Considerations: Quality, Reporting, Regulations, Interfaces, Research…		

Figure 1 – Enhancing EHR Value Framework

This paper defines the attributes of each component of the EEV framework, provides examples of common areas of focus, and suggests how your organization can begin enhancing the value of your EHR. Most importantly, we also describe how to quantify the value to your organization so you can rationally justify this additional effort. Many organizations are weary from the pressures associated with bringing a new EHR live; the last thing these executives want to do is allocate even more money to the EHR. However, implementing an EHR is just the beginning. It needs ongoing attention and budget to deliver the full potential of its value.

IMPROVING WHAT IS IMPLEMENTED

Decisions made at the start of an EHR implementation can later turn out to be not quite on target. This is predictable. You really don't know how the new EHR will work in all situations in your organization. Inevitably during the implementation process, you will discover that some workflows are clunky or, to keep the project on track for the target go-live date, need to gloss over some functionality. The thinking is "we'll come back to that during optimization." Essentially, once you are live you need to go back and "fix" things that you couldn't have known about prior to going live. (Yes, it's a bit circular.) Lack of attention to the issues that are being logged to your Help Desk or even recognized during the implementation process will result in growing dissatisfaction. Even if your physicians were over-the-moon ecstatic with your EHR decision, day-to-day reality can switch that response to less than satisfied.

There are two types of activities for this type of EEV – workflow and functionality. Often, despite best intentions, some workflows end up taking more time without commensurate benefit. (It is true that when implementing an EHR some work gets shifted "upstream" in the process resulting in a task taking more time for a provider or registrar (for example) but driving overall efficiency in the process.) Either this isn't recognized until after go-live or the decision is made to defer addressing it until "optimization." Also, complex aspects of functionality with the potential to slow down the implementation process are also often deferred until "optimization". Some examples of each of these are provided below, but there is a key point to keep in mind – incremental changes that demonstrate improvement rapidly are more effective than a longer process that tries to design the "perfect" workflow with no evidence of relief to the end users for months – or years.

Workflow

Even before go-live, you may hear from providers and staff about "clunky" workflows that can lead to inefficiencies, dissatisfaction, lost revenue, and unintended consequences impacting patient safety. But regardless if the EHR has just gone live or has been in place for several years, there is almost always opportunity to streamline workflow.

For example, Carolinas Healthcare revised nursing documentation workflow in their mature EHR implementation with measurable results.[5] With nursing informatics leading the charge, they reduced documentation time by 20% and improved on time medication administration by 14%. Additionally, they improved the quality of their assessments and saved annual licensing fees for third party tools.

Clinical documentation must meet reimbursement requirements, be as easy to use as possible, and prove the value of care.

Medication reconciliation is a common "problematic" workflow. As this is an important activity and metric for a variety of regulatory programs, all organizations need to do it but getting it right can be difficult. Since the discharge process requires accurate information about the patient's medications on admission, time must be dedicated both to obtaining this information in the pre-admit process and verifying it in admission. Workflow must be designed to reinforce proper intake of medication information at the "front end" to enable the discharge to proceed smoothly with accurate information.

Another example of problematic workflow is computerized provider order entry (CPOE). Hailed as one of the time saving, patient safety improving features of EHRs, the process, if not implemented properly, can be labor-intensive and discourage physicians from using the EHR. Frequently, during implementation, hundreds of order sets are defined. While this may appear to be a benefit, in practice, this represents the classic "too many clicks" problem – physicians have to page through hundreds of options to find the right order set. Getting consensus on a core order set that meets most needs for a particular diagnosis or intervention hones down order sets to a manageable number. This encourages use, saves time, and has the "unintended benefit" of standardizing care to an agreed-on best practice.

One final example is clinical documentation; this has direct bearing on reimbursement in addition to being a key source of clinician dissatisfaction. Whether fee-for-service or value-based care, every organization must have the appropriate documentation to either support the level of billing or prove the value of care. Documentation needs to be structured in such a way to support both, since you can't ask clinicians to document differently based on patient insurance coverage. And the approach to documentation needs to enable rather than inhibit clinician workflow. Plus, the requirement for multi-disciplinary documentation for value-based care presents an even more complex challenge. It is important to note that improving documentation isn't an "IT issue"; it is an operational and process challenge.

Functionality

As the pressure to go live by a specific date rises, organizations decide to delay some functionality until phase 2 – the "optimization phase." These are often related to more complex aspects of care – such as chemotherapy ordering. So while an organization may implement the Oncology module of their EHR at go-live, this one piece of functionality may not be turned on. Sometimes a piece of functionality – such as the use of order sets – is active with go-live but not populated with content to support all specialties. For example, dialysis order sets are complex and tedious to build, so the use of order sets for this particular condition may be delayed.

Another reason organizations delay a particular piece of functionality may be related to change management. For example, the unused piece of functionality may require everyone to use automated guidelines in a standard way. Since a guideline includes more than just orders, it affects many activities. The effort to convince, cajole, or coerce everyone to comply may require more time than available before go-live.

The alerts from clinical decision support (CDS) capabilities often create "alert fatigue", so the functionality is turned off during the EHR's initial implementation. This in turn can result in a rise in adverse events.[6] For CDS to be effective, organizations must analyze the clinical content and workflow and work with clinicians to determine the most critical decision support rules to implement. Often, this analysis can't occur until several months after go-live when enough data is available to determine where to focus this vital functionality and when providers understand how the system functions as part of their clinical day.

Measuring value

The value of improving an implemented EHR can be the trickiest to measure, as you are improving things you're already doing. But the organization can measure improvements in physician satisfaction, efficiency (getting rid of those "clunky" workflows), and potentially even patient satisfaction. Before beginning an improvement effort, consider conducting surveys to identify the most pressing pain points (if these aren't already obvious from Help Desk tickets) and then additional surveys once changes are implemented.

But there are also opportunities to improve reimbursement through better documentation. One example is improving risk-adjustment for Medicare Accountable Care Organizations (ACOs); ensuring an accurate (and not understated) risk score correlates to correct reimbursement for your managed population.[7] You can also measure reimbursement before and after implementing a clinical documentation initiative.

UNUSED CAPABILITIES

There is only so much capacity for change that an organization can absorb in the typical go-live. This often leaves capabilities inherent in your new EHR unused – there wasn't time to configure them, define the workflow, or manage the change. But this is an area that can yield significant tangible benefits (e.g., additional revenue, a more complete patient record) with no additional licensing costs and minimal implementation resources.

Sometimes organizations license more EHR modules than they have time to implement before the initial go-live. Often certain specialty modules – such as those that support transplant, cardiology, or oncology – are completely dropped from the implementation plan. The organization paid for these unused modules in the initial license fees and continues to pay for them through the annual maintenance fees yet they are unimplemented. In addition, the care patients receive in these specialties is not included in the overall patient record. So there is value to the organization both in using what has been paid for and creating a complete patient record.

One example of a functionality that can increase reimbursement is asynchronous telehealth capabilities. Patients are seeking access to physician advice on their own terms and schedules. Physicians are seeking ways to improve patient engagement while not overwhelming their schedule. Telehealth offers the opportunity for patients to engage virtually with their physicians and for physicians to receive compensation for that care. Absent telehealth options, physicians spend part of everyday returning phone calls – often playing "telephone tag" (and wasting time) until finally connecting with the patient. Physicians are not compensated for these phone calls, and the time window for completing them is constrained.

Many EHRs support the ability for asynchronous "electronic visits" initiated through the patient portal, documented in the EHR, available to physicians for responding as their schedule permits (though almost always the same day), and – quite importantly – reimbursable. Providing this means of interacting with physicians can be a great patient satisfier as an alternative method to communicate with their provider. Medicare, Medicaid, and commercial payers all offer reimbursement for a variety of telehealth services.[8] Providing more flexibility and increasing reimbursement can also enhance physician satisfaction.[9]

Telehealth can also support more efficient care delivery in various value-based care scenarios. For example, post-op visits for bundled payments can often be conducted via telehealth once the initial post-op visit is conducted in person. In a healthcare reimbursement environment continuing to evolve to fee-for-value, telehealth visits can be a cost-effective means of increasing patient access and staying on top of patients requiring follow-up.

This bottom-line advantage to telehealth justifies the time to educate physicians and train staff to encourage patients to use the portal.

Measuring Value

The approach to measuring the value associated with "turning on" unused functionality is fairly straightforward, and in fact likely follows your current process for any new project:

- Define a work plan
- Estimate the resource effort (likely all internal resources – but perhaps a small external assist may be needed)
- Calculate the cost
- Estimate the benefits, such as reimbursement change or process improvement

NEW

Driven by certification requirements, EHR vendors are slowly adding application programming interfaces (APIs) to their products. In interviews at HIMSS17,[10] several vendor CEOs described their efforts to transform their previously closed applications into an EHR platform. For example, Allscripts has certified thousands of developers to create applications that, through the APIs, run on top of the Allscripts EHR. Cerner, Epic, and athenahealth have similar approaches. APIs can add functions missing from the EHR (e.g., sub-specialty documentation templates) and improve the user experience by layering on a new user interface for specific functions. They can also provide the data sharing and interoperability value-based care requires that is not native to most existing EHRs.[11]

Organizations do not need to develop these applications themselves – though some organizations that have in-house software development capabilities are doing that. With EHR vendor support, a market of add-on applications built using the available APIs is emerging. This is new territory for the EHR market, but the successful use of APIs in other industries is a harbinger of what might be accomplished in healthcare. For example, popular travel websites like Kayak leverage APIs with airline reservation systems to present travel options.

For example, one organization is leveraging APIs in a pilot project to replace keyboards and mice with touchscreen entry. This isn't changing the EHR at all but layering on a new user interface to improve overall user satisfaction.

In addition, consumer-oriented apps that leverage healthcare data via APIs are a market primed for growth. In fact, it could be the lever to disrupt the EHR market entirely, according to Dr. Joel Selanikio.[12] Providing consumers access to their own health data, combined with other information about nutrition, exercise, or even artificial intelligence-assisted self-diagnosis could dramatically change the way healthcare is delivered.

Measuring Value

This area of EEV is definitely treading new ground. Quantifiable value statements may not be readily obvious. This EEV category is a good candidate for defining a hypothesis and then testing in a pilot. The impact of innovation can be difficult to predict, as not all efforts will result in a home run. But certainly the ability to layer new capabilities that improve the user experience, enable interoperability, and add missing functions to the EHR is far less disruptive and expensive than completely replacing the current system to address these issues.

CONCLUSION

EHR implementation is the start, not the end, of a journey. Enhancing and demonstrating both the qualitative and quantitative benefits of efforts that enhance the value of your EHR is a continuous process.

MEASURING ENHANCED EHR VALUE			
	Category	*Example Benefit(s)*	*Example Metrics*
Improve Implemented	Workflows	· Physician satisfaction · Efficiency · Patient satisfaction · Risk adjustment	· Higher adoption rates · Increased reimbursement · ADEs avoided · Survey results · Reduction in help desk tickets
	Functionality		
Introduce	Unused capabilities	· Physician satisfaction · Patient satisfaction · More complete pt record	· Survey results · Elimination of 3rd party software
	New	· Adoption · Patient engagement	· Survey results · Better patient outcomes
Data Considerations: Quality, Reporting, Regulations, Interfaces, Research…			

Figure 2: Ways of Measuring EEV

To make the best use of your time and resources, your organization should define a repeatable process with multi-stakeholder input and governance to identify and prioritize EEV initiatives.

EEV initiatives should be part of a repeatable process with multi-stakeholder input and governance.

The inexorable drive to payment reform through value-based care will continue to place demands on how you use your EHR – both to support evidence-based best practices and collect data needed to measure quality. Clinical decision support capabilities must be monitored to balance optimal patient safety with demands on clinician time from over-alerting. Patients are increasingly looking for more frictionless ways to interact with their providers. And the voices of clinicians must be heeded to find a better balance between time spent using the EHR and time spent with patients. EHRs are an important part of 21st century healthcare. But the work is just starting.

APPENDIX – ADDITIONAL READING

- "Chief Information Officers Roundtable: The challenges are getting tougher", Modern Healthcare, April 1, 2017

- "Preparing for MACRA: Plan ahead to avoid the pitfalls", Warbird Consulting Partners, 2017

- "Value for Healthcare: Laying the foundation for health system transformation", World Economic Forum, 2017

- "Crossing the health IT chasm: considerations and policy recommendations to overcome current challenges and enable value-based care", Journal of the American Medical Informatics Association, February 13, 2017

- "Why EHR optimization is on the to-do list of most CIOs", Health Data Management, April 4, 2017

- "Leveraging health information technology to achieve the "triple aim" of healthcare reform", Journal of the American Medical Informatics Association, April 16, 2015

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