



Clinical Content: The Essential Currency of Clinical Information Systems

Volume II

The Evolution of Clinical Content and Documentation

A large, high-resolution image of a single water droplet falling into a pool of water, creating concentric ripples. The droplet is perfectly spherical and positioned in the center of the frame. The ripples spread outwards from the point of impact, creating a series of overlapping circles. The water is a deep, vibrant blue, and the lighting is soft, highlighting the texture of the water and the clarity of the droplet.

Effective adoption and use of Clinical Information Systems depend on these systems' ability to deliver high-quality, evidence-based clinical content at the point of care to support clinical decisions.

Introduction

Hospital executives will face significant and complex challenges over the next 5 to 10 years that include a shortage of experienced clinicians, an on-going demand to improve patient safety, an explosion of medical knowledge without the infrastructure to support dissemination and integration into practice, and reimbursement methods based on the ability to consistently deliver evidence-based care. The Electronic Medical Record (EMR) is frequently proposed as a solution that will assist organizations in meeting these challenges.

In January, 2006, a HIMSS Analytics white paper indicated that more than half of the 3,917 U.S. hospitals included in their analysis had initiated an EMR foundation. They defined the foundation as a clinical data repository that integrates multiple ancillary systems and is populated with a core set of patient information that may include laboratory values, radiology reports, patient medications, and demographic information.¹

We believe an increase in clinical quality and safety is more likely to occur when organizations advance to the implementation of clinical documentation, real time clinical decision support, and Computerized Provider Order Entry (CPOE). At the time of their evaluation, HIMSS Analytics estimated that less than 15% of U.S. hospitals had achieved this level of EMR implementation.¹

Several researchers have explored why U.S. hospitals have been slow to implement the EMR and why clinicians have been hesitant to adopt information systems as part of the care delivery process. The purpose of this white paper is to discuss ways EMR tools, specifically clinical documentation combined with nursing content, can be used to address these challenges facing healthcare executives. In addition, we will explore common myths associated with the EMR and discuss effective implementation strategies based on Deloitte's experience in providing services to our clients

Nursing Shortage

The American Hospital Association projects that the shortage of Registered Nurses will grow to more than 700,000 full time nursing positions by the year 2015. This translates to a 30% vacancy rate for full time nursing positions required to staff U.S. hospitals within the next 7 years (S&P Healthcare Industry survey).²

The issue becomes more complex when we examine the influx of graduate nurses into clinical practice. The major drop in the nurse population is among those under the age of 35. In 1980,

40.5% of RNs were under the age of 35 compared to just 16.4% in 2004.³ The average age for a nurse practicing today is 46.8 years, and as these nurses retire, they will be replaced by younger and less experienced nurses.

Education is an important variable as well. The majority of nurses are prepared at the Associates Degree or Diploma level.⁴ Yet research indicates that a higher ratio of nurses with a Bachelors Degree results in lower risk-adjusted 30-day mortality and failure to rescue.⁴ Chiefs of Nursing indicate that one of their major concerns is that due to the nursing shortage, inexperienced nurses may be placed in positions that typically would be staffed by more experienced practitioners.⁵

Essentially, the nursing shortage has two components; less nurses available in the marketplace than what is required to staff U.S. hospitals, and a significant nursing population that has only foundational nursing education and/or limited clinical experience. While the EMR will not solve all of these issues, there are tools within the EMR that can potentially improve nursing work flow and help close the impending experience gap.

Numerous publications have reviewed the impact of automated clinical documentation tools on nursing work flow. In general, the literature indicates that the time for a nurse to document electronically is equal to or greater than the time to document on paper until nurses become familiar with the tools.⁶ Research conducted in settings where EMRs have been operational for some time report increased productivity.⁷ A university hospital in Heidelberg, Germany reports significant improvement in documentation quantity and quality.⁸ EMR vendors are making significant strides in improving nurse documentation efficiency through better integration of their applications and more intelligent documentation tools. Examples of this include Within Defined Limits (WDL) documentation methods, shared information between the electronic medication administration record (eMAR) and documentation flowsheets, and templates that pull previously documented patient data into summary level reports. Evidence-based content is now available to create interdisciplinary care plan goals and interventions. Clinicians use the plans to document goal progress as they navigate through their work flow.

One of the significant benefits of automated clinical documentation is the ability to bring information and knowledge to the clinician at the appropriate time to help guide decision-making and actions. The tools become more complex

when they include EMR vendor functionality and clinical content. Examples include administration instructions that display on the eMAR to support medication administration, patient risk scores that automatically calculate and suggest interventions based on the score, and automated patient care plans that provide evidence-based goals and interventions.

An organization implementing the EMR has the choice of whether or not to design and implement these tools and what content to embed within the tool. Organizations that recognize the importance these tools can play in bridging the experience gap will likely devote significant time to developing this content. There are organizations that have chosen to defer content development until the optimization phase of their project which often occurs months to years after original activation. Organizations may be better served to devote time during the initial implementation to develop nursing content as it will help close the impending experience gap and advance nursing practice within the organization. Furthermore, with careful design, it is possible to capture nursing data and show the link between nursing care and patient outcomes.

Increased Patient Safety

A major driver for the EMR is to improve patient safety with a strong focus on the ordering and medication management processes, where a high percentage of errors that lead to patient harm occur.⁹ The tools within the EMR that support these processes include Computerized Physician Order Entry (CPOE), the electronic Medication Administration Record (eMAR) and real time clinical decision support. Effective implementation of these tools requires accurate and up to date patient information to include allergies, height, weight, current medications, and active medical problems, all of which need to be captured within the clinical documentation application. Our experience indicates that in the rush to implement CPOE, organizations do not devote the time and effort to ensure that this core set of information is complete and updated at regular intervals. As part of the EMR design, organizations should establish clear accountability for capturing and maintaining this information, determine the frequency for updates, and develop reports or real time surveillance methods to monitor compliance with the established standards. Devoting time to improving the accuracy of this information during the early stages of clinical documentation implementation is time well spent since it is key to improving patient safety.

A second tool within the EMR that can significantly improve patient safety, but often receives little attention during system design, is patient summary reports. These reports can play a significant role in improving patient hand-offs that

occur at the time of transfer, discharge and shift change.

Well designed patient summary reports should pull a consistent set of patient-specific information from the various applications and display it so one of two things can occur; the clinician can get an up to date picture of what is going on with the patient, or the clinician can see if there is something that must be acted upon. One of the most effective designs we have seen was for sign out reports to support physician hand-off communications (residents and hospitalists) that included a free text area for what follow-up was required from the previous shift.

Information Overload

Over the past twenty years, there has been an explosion in the amount of clinical research available to clinicians via individual studies and referential databases. The literature reports that 58% of practitioners seek information several times per week, but that the number one barrier is lack of time.¹⁰ To remain current, individual clinicians or organizations must cull through the information, discern what may be an effective practice for them, and modify the tools that they use to guide practice on a regular basis. Most organizations manage this challenge by creating an infrastructure and committing several resources.

According to Mary L. McHugh, "The amount and complexity of information available for clinical situations can easily exceed the ability of an unaided nurse to use that information clinically...Unassisted, people cannot do that work with an acceptable degree of consistency." ⁵ Early EMR's supported clinicians by providing links to evidence-based information often provided through third party vendors. While this was a step in the right direction it still required clinicians to access the link, read the information and decide how to proceed. Access to information improved but variability within clinical practice remained.

If information overload is to be addressed, more needs to be done than bringing relevant clinical information to clinicians. The information needs to be synthesized so they can use it effectively. Moreover, the information needs to be patient-specific to help take the guess work out of determining what is relevant. Tools within the EMR such as the patient care plan, clinical pathways, guidelines and documentation templates should provide the foundation for codifying clinical research and new practices. These tools serve to remind, prompt and guide busy clinicians in their work. Current users indicate that implementing these tools can yield real benefits in terms of increased delivery of care based on guidelines.¹¹

Reimbursement Based on Evidence-based Care Metrics

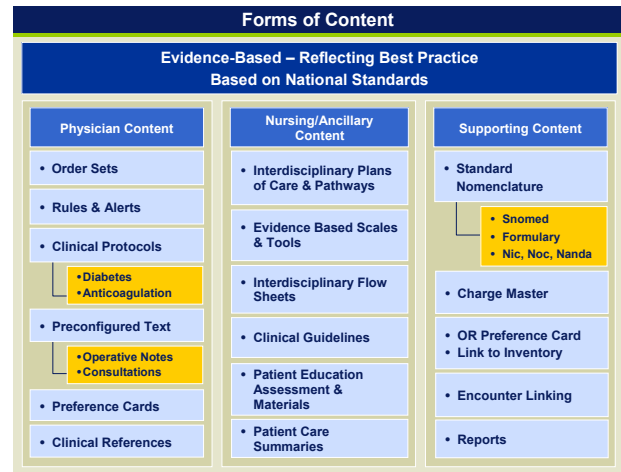
For years the health care industry has struggled with how to evaluate hospitals and provide reimbursement based on the organization's ability to demonstrate the delivery of high quality care through clinical outcomes data. The Center for Medicare Services (CMS) turned the concept of pay for performance into a reality by providing bonus payments to top tier performers for disease specific evidence-based care metrics. The CMS program presents a significant challenge for organizations along two fronts; the ability to consistently deliver evidence-based care, and the ability to collect and report the information. It is not uncommon for organizations to devote several full time resources to the effort of reviewing paper-based charts, abstracting data, and providing "care reminders" to clinicians for patients that meet the guideline criteria.

A majority of the organizations with an advanced EMR have built order sets that incorporate the evidence-based practices, designed clinical documentation tools to capture the metric information, and built reports that summarize the required metric information across their eligible patient population. A few of the more sophisticated organizations are developing real-time surveillance tools that monitor the delivery of these evidence-based practices and identify outliers so that interventions can occur within the CMS specified timeframes. The Veterans Health Administration uses routine performance monitoring within its EMR and has substantially better quality of care when compared to a national sample.¹²

The Evolution of Clinical Documentation and Clinical Content

It is clear to us that a well-designed EMR can help position hospital executives to deal with many of the current and future challenges that face healthcare providers. However, the EMR is not a static technology and continues to evolve in response to external market demands, a growing body of evidence around patient safety, and the results shown by organizations that continue to push EMR design to realize clinical quality improvements.

The definition of clinical content in the EMR may be unclear. The graphic below outlines the nature of clinical content used to support physicians, nurses and disciplines. Increasingly, the focus is on evidence-based content that reflects effective practice.



It is our point of view that automated clinical documentation design and the increased focus on nursing clinical content has been primarily in response to changing market demands and the growing body of patient safety research. Coupled with the experience of early adopter organizations there have been significant changes in how the design and implementation of automated clinical documentation and clinical content development is approached.

Below, we have outlined several evolutionary phases of clinical documentation. You can see from these phases some ways clinical needs and market demands have impacted the direction of technology development. The drive toward evidence-based practice (Phase III) is the point at which content became important in the design of clinical documentation tools. The use of content has expanded and now influences an increasing number of components within the EMR to include assessment scales, care plans and order sets.

Phase I – Automate Current Practice

Early EMR designs were strongly influenced by a need to control the escalating cost of healthcare and a primary objective was to improve hospital billing practices. The primary purpose of electronic clinical documentation was to capture information to support the billing process. Clinical decision support was in its infancy stages and focused on reducing duplicate testing and providing cost-effective alternatives to expensive therapies.

The technology to support clinical documentation was a shell and the most common design approach was to take the existing paper-based documentation tools and automate them within the software application. Integration between clinician tools and between applications generally did not exist. The end result was a practitioner-centric and task-oriented record that replicated the documentation "silos" that existed within the paper-based record.

Phase II – Guide Clinicians Toward Safe and Effective Care

In 2001, clinical quality took a significant step forward with the publication of “To Err is Human” from the Institute on Medicine that continues to influence how healthcare is viewed and delivered within the US.¹³ The book strongly encouraged EMR adoption and focused on providing clinicians with a core set of patient information that would be available to support real-time clinical decision making. Electronic clinical documentation tools were pushed to the next level in an effort to provide a “source of truth” for patient information – this required integration between clinicians and care settings. Clinical decision support became more patient-focused and utilized the core set of patient information to identify potential patient safety issues such as drug-allergy interactions and drug to drug interactions.

Clinical system design shifted from automating existing paper-based clinical documentation tools to developing evidence-based content that was automated within the EMR tools. Examples of this include automated order sets, patient risk assessments, patient care plans and links to external evidence. Another example was the automation of care guidelines to support the prevention of complications in the hospitalized patient.

Early adopter organizations often went through resource intensive efforts to internally develop, validate and automate evidence-based content. These efforts were compounded by the lack of experience with designs to support clinician work flow and the need to map paper-based content to automated tools. EMR vendors quickly recognized the need to jump start their client’s internal development efforts and began to provide pre-configured content, however the source for this content was often customer based as opposed to true evidence-based.

Phase III – Provide Evidence-based Care

The CMS Quality Initiatives and their impact on provider reimbursement are strongly influencing the current phase of EMR development. Organizations implementing the EMR are spending significant time on designing clinical documentation tools, automating evidence-based content and designing reports to support these initiatives. The goal is to provide consistent delivery of evidence-based practices, have the ability to measure and report specific interventions on a real-time basis, and have strong documentation of any pre-existing conditions.

Lessons learned from the previous phase by organizations that attempted to develop and manage content internally led to the emergence of the content vendor as an important collaborator

within any EMR effort. The core competencies that the content vendor should provide are the ability to distill much of the clinical evidence into effective practices, regular updates to the content as new evidence emerges, an infrastructure to support content validation, and the ability to integrate with EMR vendor functionality. Clinical content vendors are currently differentiated on the last two core competencies – their ability to support content validation and the ease with which their content can be automated within a given EMR vendors’ system.

Clinical system design is shifting from provider-centric tools to tools that support interdisciplinary care with integration between order sets, care plans, documentation, and patient education. The design process has also shifted and requires a more integrated approach between the clinician groups specifically physicians, nursing, pharmacists, and therapists. Clinical documentation tools are work flow based in the ongoing effort to support real time capture of patient information and bring evidence to the clinician as part of the care delivery process.

Phase IV – Support Disease and Condition Management

The next phase of EMR development will be targeted toward patient populations with chronic disease which consume the greatest percentage of healthcare resources. The major challenge of this phase will be to focus on disease or condition management and design documentation tools that are simple to use yet capture and present complex data to support care for a specific patient population.¹⁴ The two EMR tools that will likely emerge as central to this effort are the clinical pathway and disease- or condition-specific patient summary reports.

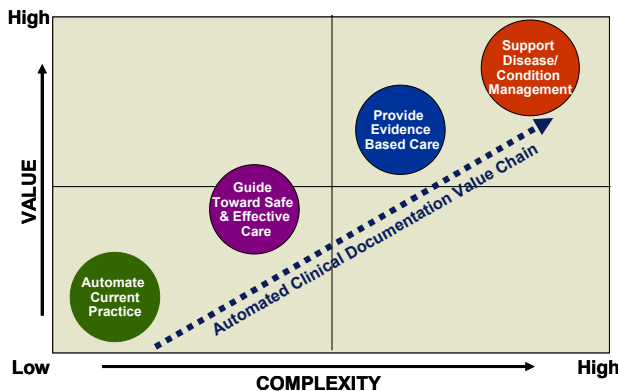
The disease- or condition-specific clinical pathway outlines the interventions and plan of care for a patient and integrates tools that are currently built in isolation such as order sets, care plans, documentation tools, and patient education. Many clinical disciplines will use the pathway as the tool to guide care and subsequent documentation. Patients become part of the process as they are able to see their goals and interventions for a specific timeframe within the pathway. The pathway will change the view from how care is delivered to what the care team is going to do together with the patient on this day or during this visit. The pathway will support caregivers in preventing complications by consistently driving effective practice. This still requires critical thinking skills on the part of the clinicians to apply the content at appropriate points based on the patient’s progression. Within this model clinical content provides the roadmap from the disease to the expected outcomes and variance from the map can now be measured.^{15,16}

The enhanced use of rules and alerts also has the potential to guide the clinician to the right tools. If the patient has a certain diagnosis with specific assessment findings, then the EMR can create the appropriate recommendations for the clinician. These recommendations may be contained within the patient care plan or may be presented within a special flow sheet.

Disease- or condition-specific patient summary reports will pull together the critical pieces of information that must be monitored over time for a given disease. This information should include intervention history, medications, test results and patient physiologic response to these interventions. The result is a tool that the clinician can use to manage care for chronic diseases across care settings.¹⁴

Management tools can help a clinician move toward a surveillance model of process and practice variation that should help them ensure that assessments and subsequent evidence-based practices/interventions are being implemented within the appropriate timeframes. Variations from the standard practice can be identified and the appropriate clinicians can be messaged.

A visual summary of the evolutionary phases of clinical documentation and clinical content can be seen below. As we have discussed, the value of clinical documentation has increased through each phase of the value chain from simply automating current practice to supporting disease and condition management.



EMR Myths

External market drivers and the results achieved by early adopter organizations continue to influence the design of automated clinical documentation and clinical content. We have found that there are several myths that surround the design of automated clinical documentation and the benefits from using clinical content.

EMR Myth #1: Evidence-based clinical content directly leads to practice standardization

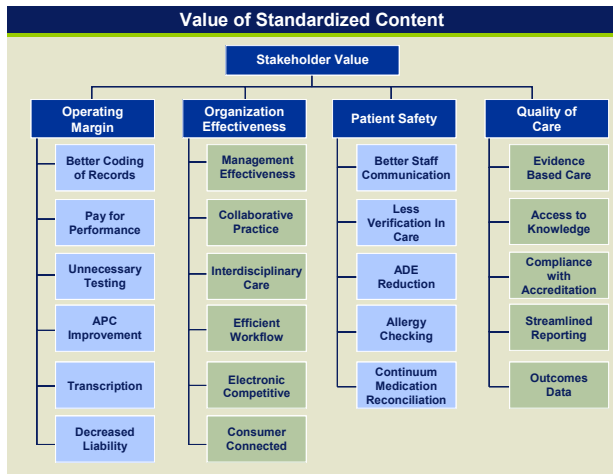
Evidence-based clinical content is derived from nursing and discipline research and includes effective practice information on how to care for a patient with a specific medical or nursing diagnosis. The source of the evidence-based content can be internal where the organization has invested the time to research and develop the content (care plan or clinical pathway) or external where the content is provided by a third party vendor that specializes in research and content development. It has been our experience that very few organizations have developed sufficient evidence-based content and must rely on a third party vendor to supplement their internal efforts.

The content is used to populate tools within the EMR such as interdisciplinary care plans, patient education or documentation flowsheets. This requires a process and resources to review and validate what information will ultimately be used to populate the EMR tools. Evidence-based clinical content provides the “what” for patient assessments, care plans and patient education tools.

Standardizing clinical practice requires that in addition to the “what”, organizations define the work flow, accountability within the work flow, and the policies and procedures that govern the work flow. For example, if an organization decides that it wants to standardize care of the patient on a ventilator it must develop ventilator management order sets, documentation tools and an interdisciplinary care plan – all of which are content based. However, to standardize practice, the organization must also define the associated work flows, scope of practice for each clinician group, who is accountable for completing patient assessments and interventions, and what patient information should be monitored and presented in a summary level format. These decisions are made as part of process and EMR design.

Evidence-based content guides the clinician to do the right thing and EMR functionality can guide the clinician to do it at the right time and with the right patient. Standardizing practice requires an evidence base for changing current practice, strong clinical leadership, clinician-focused work flows, clear accountability, and a culture that supports the change.¹⁷

As seen below, the value of standardization can be far-reaching. Standardized content can impact operating margin, organizational effectiveness, patient safety and quality of care. Standardization requires significant consensus-building among clinicians. The emphasis is appropriately placed on improved patient safety and quality through the use of effective practices. Clinicians can embrace change when it leads to documented effective practice and has a favorable impact on patient safety.



EMR Myth #2: Out-of-the-box evidence-based clinical content is effective for clinicians and significantly reduces the design and build effort

Organizations implementing an EMR today use a combination of internal and third party content to cover the vast majority of their patient population. This is a result of the experiences from early adopter organizations who reported issues with resource requirements, the timeframe to complete, and the ability to manage updates to clinical content over time. Significant time was consumed by researching, filtering and grading evidence. Evidence grading is important and complex as not all evidence is equal or relevant.

Purchasing evidence-based content from a third party vendor can reduce the timeframe for content development, help to reduce some of the political issues, and reduce the effort to manage content updates. As the customer base for the larger EMR vendors continues to grow, it is now common for the vendors to provide clinical content for interdisciplinary care plans, patient education tools and clinical documentation as part of their product. The basis for this content may be their customer base or relationships with third party content vendors. Organizations that purchase content from a third party should explore the effort required to populate the EMR tools as there is a broad spectrum that ranges from being able to directly import the content to having to completely design and build the content so that it will work within the EMR application.

Third party vendor selection takes time and should be based on strong criteria. The clinicians who will be involved in the care plan/pathway work need to be involved in the vendor selection. It is imperative that nursing leadership, specifically the CNO, be actively involved in the process and support the decision for the selected content vendor. The composition of the vendor selection group should be influenced by the level of clinical integration the organization is driving toward. Organizations that are moving toward an

interdisciplinary care model may choose the same third party vendor for order sets and care plans so that the evidence-based content supports the level of integration they are trying to achieve. Below is a table that identifies important criteria for third party content vendor selection.

Criteria for Third Party Content Selection – Care Plans		
No	Yes	Criteria
	√	Vendor reputation and stability
	√	Clinical credibility (sources, evaluation methods, review credentials)
	√	Established partnership with the EMR vendor
	√	Client base and references
	√	Character and frequency of updates
	√	Importability to the EMR
	√	Availability of tools used for version control
	√	Impact and ease of customizing
	√	Presentation and usability by the end user
	√	Ability to meet patient population requirements, eg., adult vs pediatrics
	√	Full price of licensure and updated versions

Once the evidence-based content source is defined, the process of reviewing, selecting and vetting the content is initiated. As clinical content establishes the standards for future clinical practice this process must be owned by practicing clinicians. The content review and validation process is part of the EMR clinical governance model. The workgroups within the governance model and the workgroup membership also varies based on the extent to which they want to move toward an interdisciplinary care model.

EMR Myth # 3: EMR tools were designed to support true interdisciplinary care

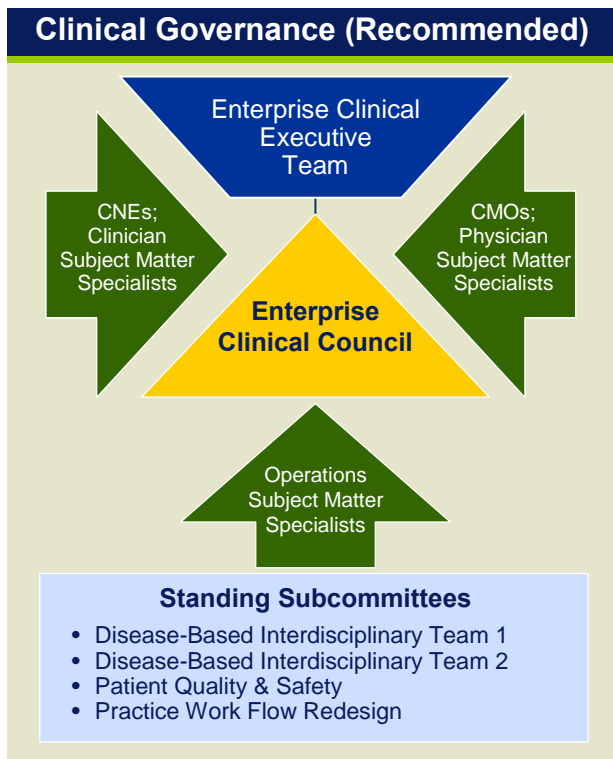
The traditional model for EMR design is to meet with the individual clinician groups to design and validate their documentation tools with little integration between the tools. Exceptions to this include patient allergies, problem list and the eMAR where there was clear recognition of the need for all clinicians to document on a central record to support patient safety.

A significant drawback to this model is that since the tools are developed in isolation the clinicians are generally not aware of what is being documented by another clinician group and the content within the tools. In simplistic terms, a physician may not be aware of what is in the nursing care plan that is being used to guide nursing care for the patient.

Organizations that choose a more integrated model to support interdisciplinary care usually develop clinical documentation tools and clinical content using teams that have representation from the multiple clinician groups. The team designs the tools and content to support care for a patient with a specific condition or disease. For example, a clinician group is brought together to design the orders, clinical pathway or care plan

and documentation tools that support care of the patient with diabetes. Representation on the design team would include endocrinologists, internal medicine physicians, nurses, dieticians, and others that are generally involved in the care of the diabetic patient. This is not to say that separate meetings with the physicians to define order set content or with the nurses to define care plan content do not occur, but at various points in the development process the interdisciplinary group comes together to review the process and content for care of a specific patient type.

An automated clinical pathway that includes orders, interventions, and expected outcomes for a given condition or disease would be the ideal tool to support interdisciplinary care, however very few EMR vendors have the functionality to support this model. Below is a sample functional model to support this level of clinician and content integration.



In our experience, organizations that choose to develop EMR documentation tools and clinical content with a low level of clinician and content integration must conduct additional design reviews to make sure that they are meeting the CMS and other quality initiatives which require a higher level of integration between physician orders and clinical documentation to achieve the defined metrics.

EMR Myth #4: We must design separate documentation tools for all clinical specialties

There is clear recognition and we have seen evidence to support that, to achieve clinician adoption, the EMR tools must be designed to support clinician work flow and reduce the duplicate documentation that exists within the paper based world. This requirement has, by some, been translated into the need to design separate documentation tools for each nursing specialty area, i.e., medical, surgical, intensive care, maternal-child. Moreover, clinical documentation design using this approach focuses on what is different between the clinical specialties. The end build includes multiple documentation tools that share several of the same components and have some components that are unique to their specialty. Unfortunately, it has been our experience that this model for clinical documentation design is time consuming, complex and can lead to confusion when a clinician tries to determine what documentation tool is the most appropriate for a particular patient type or level of care.

An alternative approach is to design clinical documentation tools by focusing on the commonalities across the clinical specialties and providing different levels of detail within the same tool that the nurse can choose to use or not based on the patient's unique requirements. An example of this is a neurosurgery patient where the nurse will need to assess the patient's neurological status at a more detailed level than what would be required of a general surgery patient. The same tool can be designed to support assessment for both patients. It has been our experience that there are very few clinical specialties that require unique documentation tools based on their assessment requirements, for example psychiatric, labor & delivery, and the therapies. It is much easier to add more detail to an existing tool or to create a new tool where there is truly a unique requirement than it is to take a complex design with multiple documentation tools and try to simplify it post-implementation. This also supports the concept of a single common data model that can be used to monitor patient outcomes based upon clinical interventions and assessments.

EMR Myth #5: Automating clinical documentation improves the quality of patient information and decreases the time to document

Studies indicate that entry of vital signs into an EMR cuts the documentation error rate by more than half.¹⁸ Also, EMR implementation can improve clinical quality by providing clinicians with access to patient information at the point of decision making. However, this statement, while true, can mislead an organization into believing that by simply implementing the EMR, their current issues around data quality will be resolved.

As part of EMR work flow design, organizations need to spend the time and energy to clearly define who is accountable for collecting, reviewing and verifying critical pieces of patient information that provide the foundation for real time clinical decision support, such as patient allergies, weight, medication history, and medical problem list. The medical problem list is a key part of improving clinician communication during patient transitions between care settings. In addition, current EMR systems have the ability to provide recommendations for order sets based on patient problems. Organizations that have not historically maintained a medical problem list should consider implementing the problem list in advance of EMR implementation.

It has been our experience that the initial organizational response to pushing for this level of accountability in clinical documentation is to say that everyone is accountable. Unfortunately, the end result is that there are unclear expectations and assumptions around who will collect and update patient information leading to a higher probability of incomplete or inaccurate data. Clinical documentation design should include discussions with clinical leadership to define levels of accountability (collect, review, validate) for the critical pieces of patient information.

During EMR planning it is not uncommon to hear that there is an expectation within the executive team that automated clinical documentation will lead to a reduction in the time it takes for clinicians to complete documentation. There is very little evidence to support this. In fact, the evidence we have seen is that the time required to complete documentation will initially increase as the clinicians learn the new work flows and how to use the EMR tools. The benefits of automated clinical documentation, if designed correctly, are to decrease duplication, increase the completeness of documentation, improve the quality of documentation, provide clinicians with a core set of patient information to support decision making, and provide the basis for real time clinical decision support.

EMR Myth # 6: We should focus on quality improvements during the post implementation phase

During pre-implementation planning, organizations will debate the extent to which process and quality improvement will drive their EMR implementation. There are multiple choices that include clinical transformation, select process improvements based on their internal quality agenda and implementation of the applications with a focus on quality post-implementation. The organizations that have been most effective with EMR implementation led with quality and a critical part of the strategy for clinician adoption is to focus on the quality improvements.

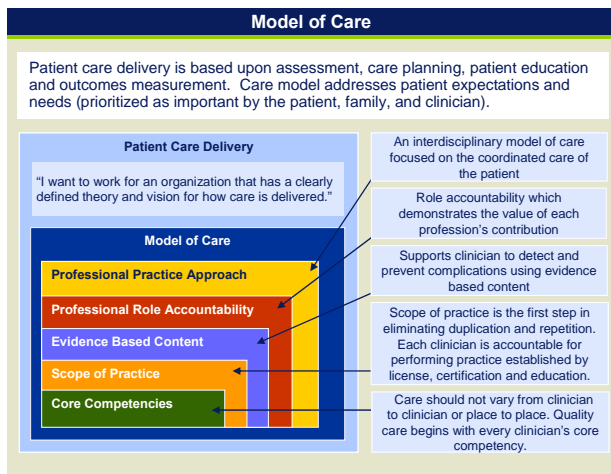
Consequently, we believe that organizations should lead with quality.

It is important to define which priority quality improvements the organization wants to achieve as opposed to a vague statement. The quality improvements can be externally driven (JCAHO National Patient Safety Goals, CMS HQ's) or based on the organizations internal quality agenda. We have seen that selecting three to five areas for performance improvement as part of the EMR implementation and then working with the Quality Committee, clinical leadership, and application leads to realize this agenda has been a very effective. Increasingly, organizations identify the care of a patient with a specific condition or disease as the improvement area and utilize an interdisciplinary group to develop tools to support care of that patient. The tools generally include an order set, care plan or clinical pathway, disease- or condition-specific summary report, and metrics that will be monitored to demonstrate improvement.

The important point is to utilize the EMR as an opportunity to improve quality and identify select improvement areas that the organization will focus on. Organizations that choose to wait until post-implementation may find that the clinicians question the value associated with their initial implementation efforts.

The Requirement for Leadership and Culture Change

The pivotal role of leadership, including the CNO, and the impact of organizational culture on the effectiveness of the EMR implementation is not a myth. Leadership must establish the quality and safety agenda and instill a sense of urgency by articulating the impact on the patient, the staff, and the organization if the quality and safety agenda is not met. Leadership needs to create the vision for what the organization wants to achieve and identify the principles that will guide the organization toward that vision. It is most important to articulate a model of care for the organization that outlines the guiding principles and sets the expectation that the patient is at the center of care delivery. The vision and guiding principles must focus on what is most appropriate for the organization as opposed to a single facility in those sites that are multi-entities. Patient safety and clinician competency need to be the first priority (see Model of Care below).



As part of the vision, leadership needs to communicate that evidence and effective practice will be a guiding force in the EMR design. Patient care is significantly improved when disciplines interact to plan and provide care. Integrating practice is a challenge for clinicians and leaders need to make the expectation of interdisciplinary practice very explicit. Interdisciplinary care is most effectively supported by an integrated EMR and clinical content so that documentation redundancy can be significantly reduced and clinician communication enhanced.

Significant culture change cannot be achieved without individual accountability for competence, and collective accountability for creating an environment where practice advancement is a priority. Leadership must actively raise the bar and hold individual practitioners accountable for behaviors that the organization has identified as essential to support safe and compassionate patient care.

We cannot stress enough how important it is that the chief clinicians in the organization develop, and effectively articulate, the clinical direction, which includes:

- **Defining the patient/family's role in care delivery** – This helps clinicians design the electronic assessment tools so that the patient's story can be easily accessed and understood by all clinicians. It also helps clinicians understand the importance of completing documentation on the computer at the bedside and involving the patient in collection of clinical information. Integrating the patient and family into shift report and goal setting requires new skills for clinicians, and leadership must provide forums for clinicians to learn and experiment with new communication techniques to support this practice change. Documentation tools that summarize the patient's status need to be

designed so that bedside report can be supported with all of the necessary information at the nurse's fingertips.

- **Defining the level of interdisciplinary practice** - When interdisciplinary practice is an objective, documentation tools and care plans will be designed in an integrated way so that clinicians from all disciplines can document and plan patient care using the same tool. Redundant documentation can then be reduced. However, this advancement requires that nurses and disciplines are conscious of each other's scopes of practice and trust the level of competency and specialized knowledge/skills that each discipline brings to the table.
- **Establishing a culture of care planning** - When a hospital uses evidence to create automated care plans, it is making a significant investment in the development of an EMR tool that will guide the nurse and disciplines toward effective practice in the care of a patient with a specific condition or diagnosis. A return on this investment is only realized if clinical leadership instills the value of using care plans to guide clinical practice.⁶ Adherence to the new standards of care and intervening with clinicians who bypass the process is required until this practice improvement becomes part of the organizational culture.

We have found that culture change can be instilled by driving decision making down to the departments and clinical specialties so that they can make key decisions related to practice, content and the design of the automated documentation tools. This process can bring clinicians together around the thing they value most, designing the clinical care they deliver. When clinician teams are organized to design the content of flow sheets and other electronic tools, these individuals can also become committed to the outcome and gain a deep understanding of the EMR in the process

Essential Steps in the Clinical Content Design and Implementation Process

Organizations often enter the clinical documentation design phase without a clear sense of what they want to develop and rely on the EMR vendor tools to guide them. Taking the time to establish a vision and clinical documentation strategy prior to beginning the journey toward automated clinical documentation can be achieved in a few steps that can help make the road more easy to navigate.

- **Assess current culture and practice** to identify the level of clinical documentation completeness and standardization, the importance of care planning in the current environment, and the extent to which care plans and clinical pathways are developed and evidence-based. The assessment needs to determine the extent to which interdisciplinary practice is present and scopes of practice are defined and understood.
- **Develop an interdisciplinary governance structure** where the content and practice strategies can be developed by clinical leaders from across the organization. This system-wide oversight group can lead nursing and discipline participation in the design, implementation and proficient use of the new documentation tools and contribute to work flow redesign.
- **Develop objectives and guiding principles** that define what the organization wants to achieve through EMR implementation and the principles that establish the boundaries around how the new EMR will be designed and used.
- **Define the care delivery model and identify quality improvement targets** to include the patient/family role in the care delivery process, interdisciplinary approach, level of clinician integration and the three to five areas the organization will focus on for quality improvement, i.e., hand-off communications, results follow-up, execution of IHI bundles, etc.
- **Define content strategy** to include the scope, source, resource requirements, process to develop, test and validate the tools, and methods to monitor adoption and data quality. A vendor selection process needs to be undertaken if a third party content vendor is desired.
- **Define content prioritization based on quality & safety improvement targets and high volume care.** This includes the patient populations and nursing diagnoses that will be covered, the timeframe for development and validation, and the resource requirements to support.
- **Define the methodology that will be used** to customize content for the organization. This includes pre-customizing care plans so that teams can expedite their work; assembling teams based on specialty experience, knowledge and skills, prioritizing team activity based on volume & nature of care plans,

orienting teams to “virtual” meeting processes (webinars), defining ground rules for team conduct and preparing care plans to review by the larger clinical organization.

- **Develop a Clinical Content Team** that can support the governance structure and the content development teams. Clinical experience, knowledge and skills and organizational familiarity are most useful among the team members. Members need to be computer savvy and thoroughly oriented to the 3rd party vendor content and functionality. Clinical Documentation certification on the organization’s software can be a benefit. This team orients each content team, pre-customizes the care plans for each team, sends out meeting notices and web links and prepares drafts as care plans evolve.
- **Communication** throughout all stages of the process cannot be overemphasized. The process is complex and keeping people informed at each step can help reduce resistance to change and enable clinicians to engage with design and implementation activities.

Summary

EMR tools, specifically clinical documentation combined with nursing content, can help address a significant challenge facing healthcare executives. The nursing shortage is a reality but automated tools can improve nursing work flow and close the experience gap. The tools can bring information to the nurse at the point of care to inform and educate as well as expedite the care process. The EMR should be designed to support safety by providing evidence-based care plans and pathways. Information should be organized around the patient’s diagnoses through summary reports and knowledge should be synthesized so that nurses are not overwhelmed by information that does not apply.

Clinicians are challenged by CMS, other payers and stakeholders to deliver evidence-based care and to collect and report information related to the results of that care. The EMR is essential to quantifying the results. Without it, manual auditing is the only alternative, which is an expense that can no longer be justified.

In this paper, we have shared insights about the evolution of clinical documentation and content in an effort to clarify the objectives of each evolutionary phase and to help the reader consider their direction for clinical documentation and content going forward. The technology is evolving quickly and it can be useful to thoughtfully consider all that is needed from automation so

that the development can be leveraged to its fullest.

Through the discussion of typical myths about EMRs, we have explored the assumptions that many healthcare leaders have expressed as they make decisions around the development of an EMR. The exploration is intended to be candid and to provide accurate perspectives about the effort involved in creating evidence-based tools. We make a number of suggestions to enhance the design and implementation process to help leaders better understand some of the steps they can take to increase the likelihood of achieving their objectives. Finally, we have emphasized clinician practice, leadership and culture change because these aspects influence an organization's capacity to fully adopt automated approaches to clinical documentation.

In conclusion, the journey to achieve significant benefits from clinical documentation in your EMR will be challenging, but we believe the rewards will be worth the effort. The evolution of the technology has been the result of many who have gone before. The lessons that have been learned continue to improve the implementation process and enable healthcare organizations to improve the patient experience and achieve consistent, reliable and safe patient care.

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