

Considerations for Adding Third Party Content to the Electronic Health Record

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Abstract

Installation of an integrated electronic health record is a time consuming, labor intensive task. Organizations frequently turn to third party content to assist in defining content, completing the build, establishing clinical guidelines, improving documentation, decreasing variation in practice, and measuring success in patient care improvement. However, third party content provides some challenges to the build and maintenance, as well as end user understanding and adoption planning. Considerations for managing third party content for clinical, pharmacy, order set, and discharge instruction content are reviewed with recommendations for clinical adoption and technical build.

Overview

Installation of an integrated electronic health record (HER) is a time consuming, labor intensive task. Many EHR vendors offer unlimited customization through a platform for record build that allows the healthcare organization to tailor each record. Each record is built from the bottom up with input from the clinical users, analysis from unit to unit, review of clinical best practices, billing, pay for performance requirements, and review of requirements from the Center for Medicare and Medicaid Services (CMS), The Joint Commission, Institute for Safe Medication Practices (ISMP) and other federal, state, local, or organization specific initiatives. Examples include: designation as a trauma, heart, or stroke center, emergency management guidelines, state funding for child health care, and specific local insurers guidelines for reimbursement.

This is a painstaking process. For example, charting flow sheets are built and validated for each department. Defining the rows that populate the flow sheets can vary from unit to unit creating a lack of integration. This labor intensive process includes significant work hours from the clinical teams, physicians, nursing, pharmacy and laboratory, and radiology as well as prolonged build time for each record by the IT teams.

To reduce this effort, many integrated software vendors have aligned with third party content providers which supply content that can be directly imported or used for record build. The clinical content provided is evidenced-based, reviewed at defined intervals by accepted experts, and compliant with updated best practices and warnings.

Clinical content for nursing and other professionals can provide a theoretical basis for assessment, practice guidelines, care planning, as well as actual documentation data. In many systems these are referred to as rows and responses. Pharmacy content presents weekly updated reviewed medication content, as well as medication interaction checking and warnings. Order Set content providers offer current clinical evidenced based healthcare order set choices to assist the providers in their management of the patient while using an EHR. Discharge instruction content is available to be

linked into the patient's electronic health record and provide instructions and disease information in the patient's reading language and reading level.

With so much to offer, organizations frequently turn to third party content to assist in establishing clinical guidelines, improving documentation, decreasing variation in practice, and measuring success in patient care improvement. However, third party content does provide some challenges to the build and maintenance, as well as end user understanding and adoption planning.

Challenges

Clinical Documentation

Theory Agreement

Some clinical documentation content is built on the work of noted nursing theorists, most notably the work of Marjory Gordon on Functional Health Patterns for assessment. This work gave rise to Nursing Diagnoses and Clinical Practice Goals for care plans. While healthcare professionals will have had some formal education about this during school, most organizations have not integrated this or any other theory into their documentation. Current documentation in many organizations follows a head to toe assessment with a focus on treatments given. The introduction of the EHR with unknown or unfamiliar clinical content without prior change in organizational theory, terminology, and use, results in confusion for the end users. This results in much project and support time spent explaining the change in documentation. Educators of the software with no clinical knowledge spend valuable time keeping the class on track as the clinicians' struggle to find the terminology and assessment they use currently.

Clinical champions must recognize early that this clinical theory change will take time. In addition to specific education, it is helpful aids are changes to the current paper documentation and encourage reinforcement of the change by immediate supervisors. These strategies are instituted before the project and are ongoing until go live.

Practice Model versus Medical Model

Clinical documentation content often focuses on the inpatient clinical needs, acute care of adults, pediatrics, critical care, and more recently, neonatal, and obstetric care. The primary assessment focuses on the functional health patterns and establishes goals in line with the Practice Model. However, many departments, most notably emergency departments, practice is more aligned with the Medical Model. A focused assessment related to the patient's chief complaint is completed. Tests and treatments are based on that focused assessment. The challenge is to provide emergency room documentation that will integrate with the documentation for the entire hospital stay, while allowing for a focused assessment and documentation in a more rapid time frame.

Vendors now offer a number of ways to specialize row documentation on a template by department. Development of the specialty department templates can be eased by including the needs of those departments in the overall clinical build and limiting the list of rows that can be added. Because many systems allow rows to be linked to one another, having unnecessary rows present can be a burden to the end users in problem focused departments. Carefully review the number of rows that

must be linked for successful documentation. Include the specialty departments in those decisions. For instance, most critical care units, emergency departments, and telemetry units have patients on a monitor.

One organization had the pulse rate row pull in a row of rhythm (apical or radial pulse; regular or Irregular). This was not sufficient for those units where the cardiac rhythm is documented from the patient's cardiac monitor. The cardiac rhythm was documented elsewhere under ECG rhythm. Additionally, the repetitive use of the word rhythm was confusing for the clinicians. With forethought to placement and display names, the templates can be built to meet the needs of both types of departments.

WNL and WDL Charting by Exception

Many organizations' documentation tools were developed based on the need to identify compliance with federal, state, and Joint Commission guidelines. Organizations needed to prove that clinicians documented specific assessments and events. In efforts to assure compliance, end users were rewarded for completing each check box or line in their documentation. As a result, many end users of paper or current online tools will identify they "need to fill in every blank".

Many third party products emphasize focusing on the current problem and goals. To that end, they introduced "Within Normal Limits" (WNL) or "Within Defined Limits" (WDL) terminology. The end users can select one of these choices if the patient assessment meets the defined criteria of normal. When criteria are not met, the choice is "WNL or WDL Except". In that case, the user will be presented with a number of rows to document the exception.

Early education to this new terminology and charting philosophy is important. End users often are heard to say "I don't agree with this definition of WDL." Because of their disagreement with the definition, clinicians will sometimes add a note to their documentation, or select the WDL Except and make comments in the additional rows. This will increase end user frustration. Also, reporting across the organization becomes more difficult, because information in notes is not discrete reportable data.

To reduce these risks, the clinical champions must carefully consider and publish the rationale behind the use of normal or defined limits. The organization must clearly support the use of the normal and defined limits for documentation even before the installation of the EHR.

Care must be taken to change the paradigm from charting on every line, to assuring that the clinician has charted appropriately. In the professional documentation and communication model, this is easily discussed but can be more difficult to review and enforce. A manager reviewing a chart may need to have knowledge that the patient did not have a specific problem or finding to review the charting completely.

Build Considerations

Clinical Content is generally delivered in spreadsheet disk format for import into an organizations system. Consideration should be given to numbering and naming conventions prior to importing to the system. Some software vendors have placed starter documentation rows in their system for

standard uses, e.g. temperature and pulse. Additional enhanced content may also be in a system which the vendor found to be useful by other clients. The numbering of the content must be outside either range and there should be a large range for periodic updates. This caution extends to care plan goals and problem lists. Many of the rows will already be linked to goals and problems.

The clinical team does a full review of the rows, concepts, goals, etc. Requested changes can be accommodated with caution. Changes to a row can be made by copying the row, making the necessary changes, then re-numbering and re-naming the row with an identifier of the organization and the row base. For example, XYZ cardiac content row 999302244 (where XYZ is the name of the content company and 999 is the corresponding number on a keypad for XYZ) when copied for use by ABC Medical Center, becomes ABC cardiac content row 222302244. It is important to reference in every care plan or concept the new row and change to the same numbering and naming convention as listed in the example.

Because upgrades will be received by spreadsheet to the clinical content, it is important to make the standard rows available to be upgraded without overwriting rows that have the organization's preferred data. To do this, most software allows you to "hide" the rows not being used from the content vendor. This has three positive effects. First, because the upgrades are based in evidenced based practice and best practices, improvements are accepted into your system without overriding the organization preferred data. Second, it allows time for the clinical champions to review and accept or reject the changes. Third, it "hides" rows not sanctioned by the organization from the end users.

This "hiding" of unsanctioned rows is not only useful for the third party content, but also for the unused standard and enhanced vendor content. The end users, as well as application coordinators, are not presented with possible unapproved conflicting choices.

The vendor may also offer an item in the flowsheet row record that indicates the row is vendor or third party content. When the content is customized, build a third option in that item, your organization name. This allows the same naming and numbering convention to continue. When it is time for an upgrade, an export spreadsheet of the rows with your organizational changes can be sorted and compared with the upgraded data. The upgrade data might now be the same as the organizations data and the row might revert to standard content. If the organization's row is still unique, it can be sorted out of the import quickly, so data is not over written.

When the clinical team completes their content work before the charting templates are built, it verifies that from unit to unit, the same sanctioned rows will be used throughout the organization. This enhances the accuracy of reporting and the quality of care plan development based in evidenced based practice.

Maintenance and ownership of the clinical documentation content is best limited to no more than two individuals who have unlimited access to the clinical content decision makers. Additional choices and rows are moderated through a clinical content committee with organization wide membership. The clinical content team is also responsible for ongoing education of changes made to the content.

Medication Content

Medication content can be particularly useful. New medications, new generics, dosing, and packaging are in constant flux. Even if your organization has a very defined formulary, medications not on formulary need to be available to the end users to enter into the list of medications the patients are currently taking and to be available for the providers to prescribe on discharge. Access to the formulary and all medications can be controlled through preference lists to display the appropriate list to the end users.

Alerts

Most software vendors offer a series of alerts and medication checks. Some choose to have one level of alerts for the emergency department and another level for inpatients. However, some pharmacy content is delivered with its own set of alerts and interaction checking.

Alert fatigue results when the end user is presented with numerous inconsequential alerts while ordering. One example is displaying a duplicate alert for any medication mixture with normal saline. Because providers received an alert each time any medication mixed with normal saline, a saline flush, or an intravenous infusion of normal saline was ordered, the providers began to ignore all alerts, including significant interactions and duplications. Particularly before instituting computerized physician order entry, all alerts provided by the content vendor should be reviewed and only significant alerts should display to end users.

Order Set Content

Order Set content provides current evidence-based clinical content for paper and electronic health records. Order Set content vendors can supply both their own software for managing the order sets and interfaces to the electronic health record. Because each order must be identified, a full interface requires a considerable amount of bandwidth; as a result many organizations find it more expedient to maintain both systems.

As expected, Order Set content provides the lab orders, medication orders, nursing orders, etc. More importantly, it provides important alerts to be added to the orders to highlight particular areas for concern. In addition to the alerts, URL's to the evidence base and best practices are provided that can be added to the online order set for the end user to reference at the time of order.

Design Considerations

Prior to build of any order sets, the design and layout of the order sets needs consideration. Consistency throughout the organization provides the expectation that a specific type of order is available in that order set for the end users.

The order sets for OB should not vary in design and layout from Critical Care or Telemetry. While some headings might not exist in some order sets, the end users should expect that each order set will be in the same heading order. Also, the appropriate list will appear under the heading for the unit. Below is an example of order sets for OB, Critical Care, and a Telemetry Unit that indicate how the heading order would remain the same while the list for each heading might change. When a heading is not needed for a particular order set, the heading will be omitted. End users then know that the topic has been covered.

Admission Order Set	OB	Critical Care	Telemetry
Diagnosis	Pregnancy Related List Order	Critical Care Related List Order	Chest Pain related
Attending/Admitting Physician	Same Order	Same Order	Same Order
Code Status	Same Order	Same Order	Same Order
Vital Signs and Monitoring	Includes fetal monitoring	Includes cardiac monitoring	Includes Telemetry monitoring
Diet	Ice chips	NPO and Tube feeds	Cardiac and Diabetic
Hydration and Fluids	IV access saline lock	List of maintenance and bolus fluids	IV access saline lock
Medication by classes			
Analgesia Orals	None	None	Nitroglycerin and acetaminophen
Analgesia Parenteral	None	Parenteral List	None
Analgesia Epidural	Medication and Parameters	None	None
Anxiolytics	None	Anxiolytics List	Anxiolytics List
Vasopressors	None	Vasopressor List	None
Lab Tests	CBC RH	CBC, CMP, Liver Function, Cardiac Markers, Type and Screen for Transfusion	CBC, BMP, Cardiac Markers
Cardiovascular Tests	None	Bedside Transesophageal Echo	Stress Test Panels
Consultants	Lactation	Surgery	Social Work

Ownership and Validation

Ownership of the order set content may already be held in the clinical arena, often under the offices of the Chief Medical Officer or Patient Care Quality. Typically, a team that spans departments and has the authority to assign validation of the content throughout the organization already exists. While the build of order sets is often scheduled toward the end of build, this does not mean that order set validation should wait until the end of the installation.

Strong clinician core teams that understand the design and function of online order sets are needed. Their role is to assure that specialty and sub-specialty validation of the order sets meet the organizational design and clinical imperatives. This team must also hold authority with the clinicians to complete validation of their assigned order sets. Clinician review assures that all orders on the order sets have been built in the software system for use.

Because most vendors offer end user customization, this clinician team can reinforce that additional order sets may not require build, as the end user will customize the chest pain order set to meet the needs of their patient population.

Build and Build Ownership

If the above steps are well thought out, the build for the information technology team is much easier. It is important that all technology teams have a liaison with both the clinical teams and the orders team to assure the correct order is being placed. Testing of the order sets by the clinicians is necessary before go live to assure the expected order and all expected outcomes take place.

Building order sets are often owned by many build teams. All teams must have access and understanding of the order set design and layout, as well as updates from the clinical owner for validated updates to the order sets in production. The consistent use of a naming convention for all order sets is necessary for clarity and easy selection by the end users.

Discharge Instructions

Many organizations are already using content from vendors that offer discharge instructions, medication instructions, and disease overviews for patients. The content is well known and frequently updated. The content can be made available in a variety of reading levels and languages.

When used in an integrated EHR, the discharge instructions are made available on a separate server. The data bases are large and the instructions are customized and saved for each patient. A separate server may be needed to provide rapid access and to save the customizations while maintaining system performance.

However, only one set of instructions can be added to the system. One organization realized significant savings when the emergency department and the outpatient clinics approved one set of discharge instructions, saving considerable yearly costs.

As part of their content, the discharge instruction vendors are well known for online medication and disease overviews for the professional clinician as well. Through the same server, this information can be linked to your software vendor, providing added value with online information. While the end user is in the patient chart, they can link to the reference material and back to ordering for the patient.

Conclusion

Third Party Content provides evidenced based, reviewed, and updated data to be used with your organization's software vendor. With early planning and clinical input, this content can significantly shorten build time and assure integration of patient data, while improving the end user experience.

For more information about HER integration or VCS please email us at vcs@getvitalized.com or call us at 610.444.1233. More information about the services and solutions offered by VCS can be found at our website www.getvitalized.com.