

EHR Workflow Toolkit

For

Physician Practices

Developed by:

Margret Amatayakul,

MBA, RHIA, CHPS, CPHT, CPEHR, FHIMSS

Margret\A Consulting, LLC

Overview, Purpose, and Process of EHR Workflow Toolkit

Overview

Addressing workflow changes has been described as vital to EHR success. More thorough planning, including establishing goals and documenting workflows, has been cited by virtually every organization that has adopted an EHR as the #1 task they wished they had done more of in advance. In discussing the Federal incentives for making meaningful use of certified EHR technology, David Blumenthal, the U.S. National Coordinator for Health IT between 2009 and 2011, observed: “It’s not the technology that’s important, but its effect. Meaningful use is not a technology project, but a change management project. Components of meaningful use include sociology, psychology, behavior change, and the mobilization of levers to change complex systems and improve their performance.”

With such a transformative change, how workflows are understood and redesigned must also change. Most workflow documentation is focused on the manufacturing principles of following “man and machine.” This approach does not address the fundamental way clinicians need to use the EHR at the point of service to make patient care decisions. Sam Bierstock, MD, has coined the term “thoughtflow” to distinguish between understanding how clinicians *work*, and how they *think* – and then work. Dr. Bierstock notes that “vendors long have developed systems based on presumption about the way clinicians work, but without a clear understanding of how clinicians think.” He believes that “although workflows are complex and varied, they can be observed, described, measured, and addressed.”¹

Purpose

Workflow documentation alone will not change the EHR marketplace. But establishing goals and attending to workflows can help organizations improve their chances for successful selection, implementation, and adoption of EHR. While the following steps should begin prior to selecting an EHR,

¹ Ball, M.J. and S. Bierstock. 2007 (Summer). Clinician use of enabling technology: Creating a new healthcare system through the use of enabling technologies requires changes on a profound scale. *Journal of Health Information Management* 21(3):68-71. http://www.himss.org/content/files/jhim/21_3/14_features_Technology.pdf

goal setting and workflow documentation is beneficial at any entry point. *Goal setting and workflow documentation:*

- Helps create informed consumers by focusing on the usability of products vis a vis current workflows rather than only price and personality of the sales force.
- Initiates change management because understanding current practice metrics and workflows creates “ah ha” moments where users see for themselves opportunities for better support.
- Aids in developing a performance-based request for proposal (RFP) that seeks information on *how* the product performs standard functions, again with respect to current workflows, rather than serving merely as a validation that standard functions exist.
- Focuses due diligence in product selection by helping to evaluate whether the product can meet the organization’s established goals and workflow needs.
- Provides leverage during contract negotiation, wherein specific product deficits are addressed through terms for future upgrades or concessions in price and payment schedule.
- Supports implementation with scenarios and scripts for system configuration and testing based upon well-designed workflows and improved processes.
- Serve as training tools so that the user understands not only how to navigate around the computer screen but how thought processes and workflow are impacted.
- Enables identification of successes and rapid attention to course correction in comparison to baseline data and workflows.

Process

This EHR Workflow Toolkit includes the following tools to help organizations document goals and workflows to achieve better success with their EHR selection, implementation, and adoption:

1. Overview, Purpose, and Process supplies information to motivate and provide background for goal setting and workflow documentation. It also includes:
 - a. Glossary of terms
 - b. Getting started on workflow documentation
 - c. Orientation to the tools
2. SMART goal Setting describes the importance of and techniques for establishing specific, measurable objectives for what the EHR should do for your practice. It includes:
 - a. Writing SMART goals
 - b. Change management
 - c. Monitoring goal achievement
3. Orientation to Workflow Documentation addresses:
 - a. Key ambulatory processes
 - b. Workflow documentation
 - c. Baseline data collection
 - d. Forms and reports collection
 - e. Workflow documentation validation
 - f. Workflow redesign
4. Workflow Documentation Tools are provided on accompanying spreadsheet

Glossary of Terms

Process is the manner in which work to be completed to achieve a particular result is performed.

Example: Select a drug and write a prescription for a patient.

Workflow is the sequence of steps and hand-offs taken within a process.

Example: 1. Diagnose patient's condition, 2. Identify class of drugs to treat condition, 3. Review current medications and allergies, 4. Consider whether medication list is up-to-date, 5. Identify specific drug, 6. Consider any contraindications, 7. Look up alternative drugs choices if necessary 8. Check if drug is on formulary for patient, . . .

Process mapping is the documentation of the process and its workflow.

Example: The above steps can be illustrated via a flowchart, use case, or other tool.

Flowchart is one tool commonly used to document process mapping. It is the tool used in this Toolkit.

Process redesign refers to the action taken to review current workflows and processes to make applicable changes that enable organizational goals to be achieved.

Certified EHR technology refers to an EHR that has been certified to meet Federal requirements for earning meaningful use incentives. Criteria for certification (see following) represent minimum capabilities EHR technology needs to include and have properly implemented to achieve certification. Additional functionality may be necessary or of interest to individual organizations.

Criteria for Federally-Approved Certification of EHR Technology

General EHR Certification Criteria

- Drug-drug, drug-allergy interaction checks, with ability to adjust notifications
- Drug-formulary checks
- Maintain up-to-date problem list
- Maintain active medication list
- Maintain active medication allergy list
- Record and chart vital signs, calculate BMI, plot and display growth charts
- Record, modify and retrieve smoking status
- Receive lab test results in structured format and display in human readable format; electronically attribute, associate, or link a lab test result to a lab order or patient record
- Generate patient lists from problem list, medication list, demographics, lab test results
- Medication reconciliation (enable user to electronically compare ≥ 2 medication lists)
- Submission to immunization registries
- Record, modify, retrieve and submit syndrome-based public health surveillance information
- Patient-specific education resources
- Automated measure calculation (for each percentage-based measure generate a report of numerator, denominator and %)
- Access controls
- Emergency access
- Automatic log-off
- Record actions in audit log and generate audit log for specific time period and sort elements
- Integrity (create message digest, verify information exchanged has not been altered, and detect alteration of audit logs)
- Authentication
- General encryption
- Encryption when exchanging health information
- Optional, accounting of disclosures

Specific Criteria for Ambulatory EHR

- Computerized provider order entry for medications, lab, radiology/imaging
- E-prescribing
- Record demographics, including preferred language, gender, race, ethnicity, date of birth
- Patient reminders for preventive or follow-up care according to patient preferences based on problem list, medication list, medication allergy list, demographics, and lab test results
- Clinical decision support (implement rules in addition to D-D and D-A and automatically generate in real time notifications and care suggestions)
- Electronic copy of health information of (at a minimum diagnostic test results, problem list, medication list, and medication allergy list) in human readable format; and on electronic media or through other electronic means
- Timely access to clinical information (at a minimum online access to lab test results, problem list, medication list, and medication allergy list)
- Clinical summaries for each office visit
- Exchange (transmit and receive) clinical information and patient summary record
- Calculate and submit all core clinical messages specified by CMS for eligible professionals and, at a minimum, three additional clinical quality measures

From: U.S. Department of Health and Human Services (HHS): 45 CFR 170 Subpart B. Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Records Technology, Final Rule, July 28, 2010.

Selection (of EHR) is the process undertaken to acquire an EHR for an organization, considering any special requirements, pricing, support, and other factors.

Implementation (of EHR) is the process of installing hardware and software, configuring the software to organizational requirements, testing, training, and supporting new users during “go-live.”

Adoption (of EHR) refers to the actual utilization of the EHR functions for all intended purposes.

Meaningful use (of EHR) is the description given to the Federal incentive program for adoption of EHR in a manner that can be measured as specified by the Centers for Medicare and Medicaid Services (CMS).

Optimization (of EHR) refers to making the best use possible of the technology.

Goals refer to specific and measurable statements describing the expected results of adopting an EHR.

Expectations refer to the communications and behaviors taken to ensure that goals are being met.

Getting Started on Workflow Documentation

Whether the organization is in the early stages of planning or already has an EHR, there are opportunities for making workflows and processes more smooth and supportive of achieving the organization's goals. At whatever point it is recognized that workflow documentation would be helpful, the following steps should be taken:

1. Obtain agreement that workflow documentation is important to achieve organizational goals; specify and commit the resources to perform process mapping and redesign.
2. Review and refine organizational goals with respect to the EHR. See **SMART Goal Setting**.
3. Identify the processes to be documented. See **Key Ambulatory EHR Processes**.
4. Identify individuals who actually perform the process to conduct the mapping. For small practices, this is likely to be everyone in the practice. For larger practices, representatives from all disciplines should map their processes and all others should be able to review and validate them. The intent should be to find any and all workarounds, variations, areas at risk for errors, delays, redundancies, etc. This should be done in a manner that removes bias and blame. These are not productive for redesigning workflows.
 - a. An initial pass at documenting workflows may be accomplished by giving individuals a pad of sticky notes and asking them to write down on a separate note in the pad every task they perform, including and especially any decision-making, times of uncertainty or questions, and alternative paths that could be taken given the context of the patient situation. Once a process has been documented in this manner, the sticky notes can be put on a blank wall or large piece of paper for others to review and document variations or steps that may have been overlooked initially.
 - b. If physicians are reluctant to perform the initial pass at mapping their processes, a nurse or other staff member can shadow the physician to document the workflow. However, the physician should review and validate it.
5. Document the current workflows for all processes associated with EHR. See **Workflow Documentation**. If the organization is just starting its journey to EHR, this will largely be paper-based workflows. If the organization is in the process of implementing the EHR but has not gone live, it is best to document the paper-based workflows first then evaluate them in light of what changes the EHR may bring about. If the organization has been using the EHR for a while but is not getting good adoption or wants to optimize use, the current state should reflect the workflows as currently performed with the EHR, including and especially any workflows that revert back to paper.
6. Decide whether to collect baseline performance data relative to the key processes and utilize the **Baseline Data Collection** component of the Workflow Documentation tool. During current

process mapping, many organizations want to take a sample of the volume of work performed in order to later measure progress towards its goals. For example,

A three-physician practice with three medical assistants (MA) wanted to reduce the time it took to process refill requests and better adhere to the renewal protocol for its patients in order to improve patient safety. The current process entailed the MAs taking turns at randomly performing the function for all three physicians. In doing a thorough data collection process, they found that refill processing took 20 minutes on average, one MA referred many more renewal approvals to the physicians than the other two, another MA was not taking her fair share of requests to process, most requests took 6 hours in elapsed time from receipt to response, each MA processed the paperwork in a significantly different fashion (i.e., one filed the requests in the patients' charts, another threw them away as soon as the approval was faxed back to the pharmacy, and the third kept them in a draw for a month and then discarded them), and finally, each MA followed a slightly different protocol for approval – seemingly based on initial training in another office or in school. The physicians also found that they, themselves, varied in their prescribing and renewal approval patterns. For example, one physician found that she was always allowing the maximum number of refills whereas the other two were more judicious. They also found that they were less strict than their MAs about renewal approvals and wanted their MAs to know that they were grateful for them following the protocol better than they were about this.

Although the physicians were preparing to adopt EHR, the practice immediately was able to make some improvements through standardization and policy changes. They continued their initial data collection to ensure this was happening. The MAs themselves contributed ideas for improvement and began to look forward to adoption of EHR. The physicians also recognized that once they had the EHR, the time spent on refill processing would be significantly reduced. As such, they set the expectation that each MA would use this time for performing follow up telephone calls with patients. Once the EHR was implemented, the MAs were asked to document the follow up calls in the EHR. Each month a list of patients that had no follow up documentation was created for more intense follow up and coaching of the MA if warranted. In this way, the physicians were able to monitor the new activity – assuming that the refill processing and other time savings were enabling this new task to be performed.

7. Collect forms and reports for use in evaluating features and functions of the EHR and for use in system configuration (see **Forms and Reports Collection**).
8. Validate the current process maps – after a few days to reflect upon their completeness and accuracy, across different individuals performing the same process, and by different departments performing similar processes. Capture the variations on the current maps. See **Workflow Documentation Validation**.
9. Redesign and document the redesigned workflows. The **Workflow Redesign** tool identifies things to look for in current workflows that could be redesigned. Document the revised workflow so that it is available to refer back to during EHR implementation, when upgrades are introduced, and to train users. There are two sub-steps in redesign:
 - a. Evaluate the current workflows to determine if there are issues that need to be addressed. Attempt to redesign the workflow still in the paper environment and by anticipating how the EHR would help improve the situation. Many experts recommend

- fixing “broken” workflows before adopting automation, but some changes cannot be effectively made until EHR is adopted. (If workflow is being evaluated after EHR implementation, consider what types of changes are feasible with the EHR.) It may be necessary to look for the root cause of a problem associated with a less-than-desirable workflow. Root cause refers to the underlying reason something is not working. For example, the root cause of a fever in a patient may be any number of illnesses or conditions. Other tests or further examinations are often necessary to determine the right diagnosis. The same is true for workflow issues.
- b. Evaluate the current workflow in light of changes necessitated by the impending EHR so long as the change brought about by the EHR is acceptable and the risk of introducing unintended consequences is low – and will be monitored.
10. Implement the new workflow. If feasible, test the new workflow in actual practice. If not feasible to conduct a test, monitor use of the new workflow during the first few days of use and modify as necessary. Use the workflow documentation to train new users. Incorporate the new workflow into policy and procedure documentation. Monitor goal achievement and consider workflow changes as necessary if course correction is needed. See **Change Management** and **Monitoring Goal Achievement**.

SMART Goal Setting

A **goal** is a specific, intended result of a strategy. But to be useful, goals must be **Specific, Measurable, Attainable, Realistic, and Timely** (often referred to as SMART).

Writing SMART Goals

Goals are not always easy to write or get adopted. Organizations often start out with statements of overarching platitudes, such as “save money” or “improve quality.” While outlining such general objectives is very helpful, moving to SMART goals helps an organization establish expectations for their achievement. The figure below provides a template for helping to write SMART goals, including suggesting that “who,” “what,” “why,” “how,” and “when” be considered in the process.

	Goal Elements	Sample Scenario	
		<i>The EHR will</i>	
Who	S pecific	Reduce provider dictation	
What	M easurable	by 50%	by 85%
Why	A chievable	To reduce transcription expense and earn M.U. incentives	
How	R ealistic	Using EHR templates for capturing structured data	
When	T ime-based	by Yr 1	by Yr 2

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The example in the SMART goal template may be one relating to overarching objectives of “saving money” and “contributing to profitability.” As there are potentially a number of ways to achieve such overarching objectives, organizations need to get more specific about those that are most relevant to the focus of the project (i.e., EHR). One goal that is very common for EHR is to save money through reducing transcription expense. But conceivably there could be a variety of ways to save money in transcription. In addition, while it may seem inconceivable that providers would not see their role in this goal without being explicit, it is known that weaning providers off dictation to achieve reduction in transcription expense is a major undertaking. There is also another reason to reduce dictation, which may be even more important today, and that is to earn the Federal incentives for making meaningful use of EHR. While there are new technologies that begin to produce structured data from narrative notes, such as discrete reportable transcription (DRT) and digital pens, these technologies are not main stream and limited in scope.

As a result, the final statement of the goal should focus on who (e.g., providers) will do what (e.g., reduce dictation) and why (e.g., to reduce transcription expense and earn incentives). In some organizations, the sequence for why providers should undertake such an enormous change may be more politically acceptable if switched around to earning incentives and reducing transcription

expense. How goals are stated can be important in how well they are received by all stakeholders. For some, the incentives may be the current “hot button” and may be more palatable; alternatively, others may believe the ongoing value of reducing transcription expense will actually exceed the value of the incentives, so that would be the primary focus of the goal. SMART goals further call for a statement that supports the fact that the goal is realistic – how will the goal be achieved, what support will be provided? In this example, templates in the EHR will substitute for the dictation/transcription and aid in capturing structured data. To ensure the goal is measurable and time-based, realistic milestones have been included: providers are expected to reduce dictation by 50 percent in the first year and 85 percent in the second year. Collectively, the goal statement may read:

To reduce transcription expense and earn incentives, providers will reduce dictation by 50 percent within one year and 85 percent within two years of using EHR templates for capturing structured data.

A final note on writing SMART goals is that organizations often begin by describing not only the 30,000 foot view of benefits but by describing goals for the EHR *project* rather than the *outcome* of the project. For example, organizations may say their goals are to acquire an EHR that yields the best value, is easy to use, can be implemented in time to earn maximum incentives, limits productivity losses, etc. Having goals for the project can be very helpful, but they are not goals for outcomes of adopting an EHR. Goals for ongoing utilization of the EHR, or the reason to acquire the EHR, need to be established and monitored in order to assure that the project will have value.

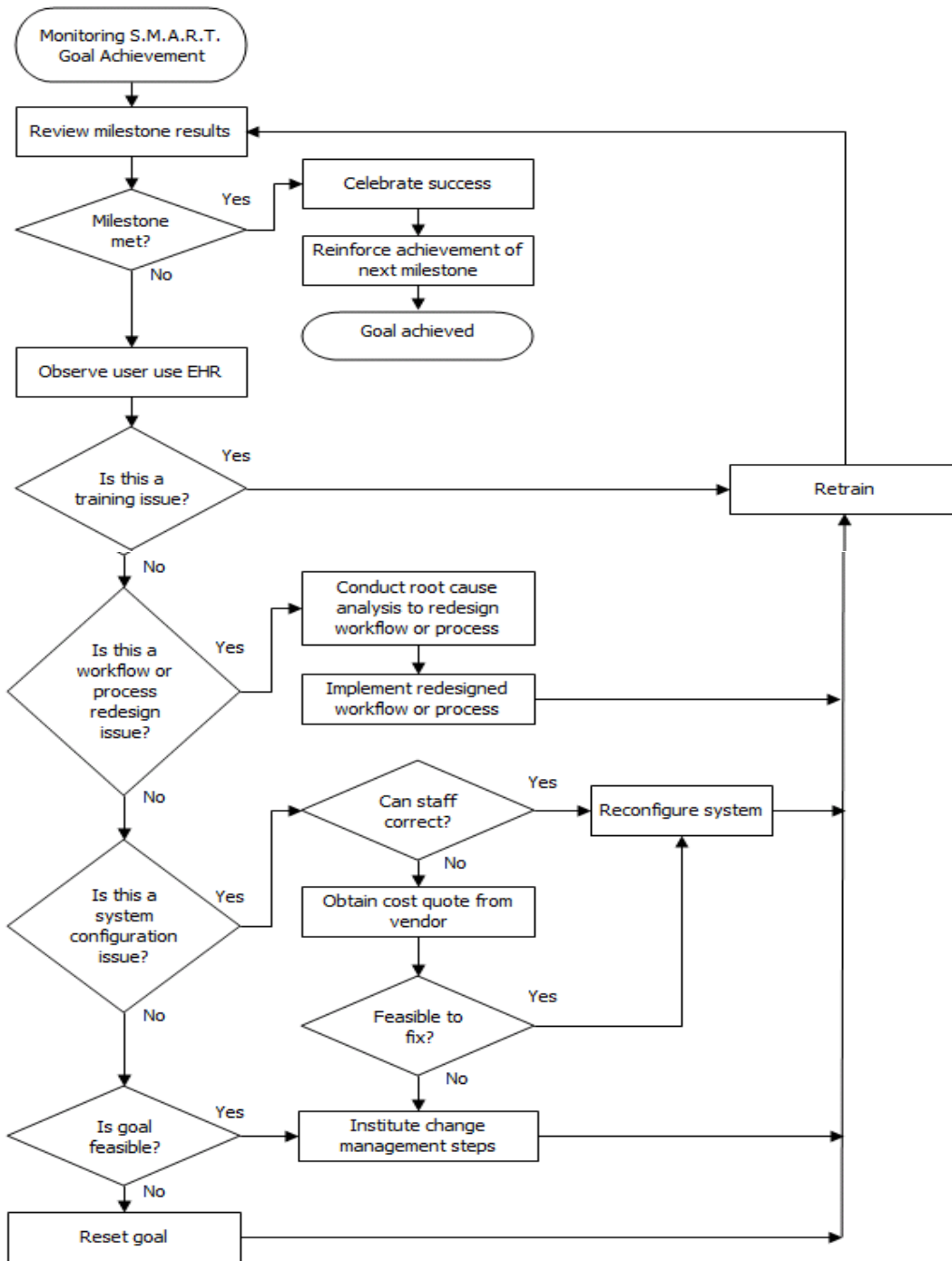
Change Management

The process of setting SMART goals is highly educational because it requires sufficient knowledge about what an EHR can do for the organization and how it fits into everyday workflows. Goals, however, must be set by the stakeholders responsible for achieving them. Goals set by a practice administrator or EHR project manager are not internalized by those whose use of the EHR drives whether goals are achieved or not. Goal setting initiates change management. By articulating what the EHR is expected to do for the organization, individual users will begin to “own” the EHR. It no longer is “only” a Federal mandate (which actually is a voluntary acceptance of incentives or later sanctions) or a necessity for doing business in current times. Along with mapping current workflows, goal setting creates the desire for more streamlined processes and assurance that patient care outcomes are the best they can be.

Monitoring Goal Achievement

As suggested above, however, goal setting can be resisted due to fear of failure. Part of the process of setting goals must be the assurance that users will be aided in every step toward fulfilling the desired state. Bias and blame must be put aside. Sometimes this requires the culture of the organization’s leadership to shift to one that is more nurturing and supportive – while still requiring accountability for ones’ actions.

The following flowchart is an effective means to reassure users the steps that will be taken to monitor goal achievement and take appropriate steps to support their achievement – or even to change the goal if it is later determined to be not feasible to attain.



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Orientation to Workflow Documentation

Key Ambulatory Processes

A helpful way to think about what goals an organization wants to achieve is to consider the key processes it performs. This is also necessary for initiating workflow documentation.

Key processes that may be performed by an ambulatory care organization are listed in the table on the next page. Not every organization will perform all processes. Some organizations may group the processes differently or call them something else. In some cases the organization may prefer to split some of the processes that are listed in the table as one. The table is a starter set of processes which an organization can use to build its own list. The list of key processes may appear very long. But, it is amazing just how many processes an organization must perform! In addition, breaking down the processes into small “packages” makes workflow documentation easier to manage.

Note that the list of key processes is also set up as a table that helps capture goals, baseline metrics, and – later – outcomes. Any given organization can decide whether to use the table as is or to record their goals elsewhere. The level of detail may also vary among organizations using this table. A few examples of how an organization may use this table are provided below:

Key Processes	EHR Goals	Baseline Metrics	Outcomes (Mo. 3)	Outcomes (Mo. 6)
Typical VISIT-RELATED PROCESSES (Clinical Decision Support and Documentation included in all processes)				
Pre-visit registration and scheduling	Reduce time by 75% using pt portal	2 FTE	15%	
Insurance verification	Reduce denials by 50% by verifying 100% of pts Collect 90% co-pays at time of visit	2% denials 40% of co-pays collected	0 change 70%	
Health maintenance	Improve cancer screening by 30% in two years	25% of pts cancer screening documented	32% (7% increase)	
Visit summary	Complete 95% of pts' documentation by conclusion of visit and supply every pt with paper or electronic visit summary generated from EHR	90% of dictation completed end of day 8% completed within one wk. 2% completed within one mo.	65% end of visit 5% end of day <1% in one wk	
NON-VISIT RELATED PROCESSES				
Results review and management	97% of all results reported to pt via secure email/pt portal in one day of receipt	90% abnormal results in 3 days 30% normal results	98% 75%	

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Key Processes	EHR Goals	Baseline Metrics	Outcomes
Typical VISIT-RELATED PROCESSES (Clinical Decision Support and Documentation included in all processes)			
1. Pre-visit registration, scheduling, insurance verification			
2. Check-in			
3. Patient intake			
4. Chart review			
5. Medical history interview			
6. Physical examination			
7. Assessment			
8. Diagnosis			
9. Care planning			
10. Health maintenance			
11. Staff tasking/back office orders			
12. Procedure			
13. Prescribing/samples			
14. Lab/radiology ordering			
15. Coding			
16. Charge capture and billing			
17. Referral management			
18. Patient instructions			
19. Visit summary			
20. Check out			
SPECIAL TYPES OF VISITS			
21. Nurse only visit			
22. Same day/urgent visit			
23. Annual physical exam			
24. Occupational medicine			
25. Consultation			
26. Other: _____			
NON-VISIT RELATED PROCESSES			
27. Results review and management			
28. No show management			
29. Prescription refill/renewal requests			
30. Other phone calls/email			
31. Patient follow up/recall			
32. Release of information			
33. Forms completion			
34. Patient document management			
35. Chronic disease management			
36. Quality improvement			
37. Required reporting			
38. Pay for performance			

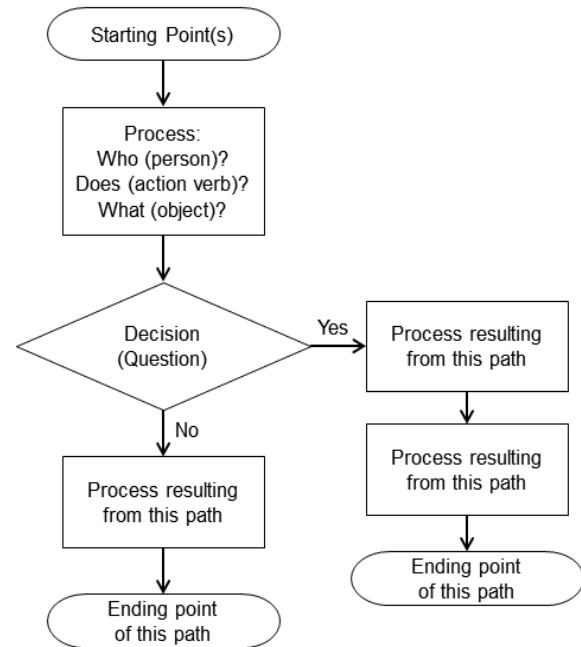
Key Processes	EHR Goals	Baseline Metrics	Outcomes
39. Patient self-management/PHR			
40. Clinical trials			

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Workflow Documentation Tools

There are a variety of workflow documentation tools. The most widely used tool for documenting clinical workflows associated with EHR adoption is the **flowchart**. The flowchart has three basic symbols:

Ovals designate **boundaries**. For any process there is at least one starting point and one ending point, and there may be more. For example, in a medication refill process, one clinic may find it only gets calls from patients, another may get a few calls from patients (“Call from patient [5%]”) but the majority of requests come via a fax from the pharmacy (“Fax from pharmacy [94%]”). The annotation can include indicators of volume. Also note that there is a 1% remainder in these examples. This may represent a variation that is very small. The organization should decide whether the variation is small but critically important and worth mapping, or not material and not worth mapping. The ending points for a refill process may include, as examples, “MA faxes approval to pharmacy” and “MA calls patient to schedule appointment.”



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Rectangles explain the **process steps** in short sentences. Each rectangle should identify the **person** performing the step (unless the same person performs all parts of the workflow). Do not put the name of the individual, as this will change over time; it is better to put credential (e.g., MA, RN, MD) than generic title (e.g., “nurse,” “provider”) as many processes have limitations in who can perform them. The **action** being performed is described via an action verb. The action must be explained relative to an **object**. The object may be a specific data element, document, person, etc. For example, “MA reviews chart.” This simple statement may be sufficient for some processes, but not all. While it has all three components of who does what, it is not very specific. What is the MA reviewing in the chart? There could be great variation (e.g., current medication list and date of last appointment, or these plus lab results for out of range values). What is being reviewed or not reviewed could have significant impact on results. There could also be variation in what is available for review (e.g., some charts may not have a consolidated medication list and the MA has to review the last several visit notes). These are the elements important to “tease out” and where the workflow documentation provides its greatest value.

Diamond shapes are **decision points**. Any time there is more than one path due to variations, patient response, choices to be made, etc. a decision needs to be illustrated. Decisions must have at least two

paths, and there can be more. The paths from the decision points must be labeled. Each path then must either conclude or be routed back to the main path. Decision points frequently occur where there are

thought processes involved in the workflow. These are also the most difficult to map because, to the person performing the process they are so intuitive that they are often not considered for process mapping; and to someone else they cannot be visualized. However, it is the decision points that are most important in evaluating and using an EHR. In addition to variations that result in different pathways, some variations may only relate to a given step. For example, in the illustration below, if there are three different things people do with the fax from the pharmacy, they can be shown by numbering the different ways: 1-discards, 2-keeps for a week, and 3-files in the chart.

In addition to these three basic symbols, there are a number of **special symbols** available for use. For example, a parallelogram may be used to describe inputs to a process (or “sub-boundaries”), as in the illustration here, and also is used to signify a manual process in comparison to an automated process. Another commonly used symbol is the document symbol, illustrated in the annotation “Document in chart.” However, it is much more important to get the content of the workflow complete and accurate than to worry about what symbols are used, other than the process and diamond symbols.

Standard workflow templates are sometimes sought by organizations to help them “kick start” the workflow documentation process. The value of studying the organization’s workflows, identifying improvements that can be made immediately, revealing the nature of decision making and associated benefits – as well as to recognize where there are control points and the need to apply professional judgment when using an EHR, and anticipating changes with EHR would be lost. In fact, it is these results that provide the greatest value of workflow documentation. The standard template is not how the organization performs the process today, nor how any given EHR would support a new workflow.

Guiding questions, however, can have value to jog organizational memory and ensure that the workflow being documented includes all aspects of the process. As such, the spreadsheet accompanying this Toolkit description does provide “guiding questions” to help organizations completely and accurately document their workflows.

Alternative process mapping tools for documenting workflows also exist. The flowchart tool described above is the most commonly used tool. Often a “picture is worth a thousand words.” However it is also recognized that other forms of tools can be helpful. For instance, where variation is anticipated, drafting workflows using **sticky notes** is actually recommended. The note placed horizontally can signify a process, and when placed at an angle can signify a decision point. Different people performing the same process can use different colored sticky notes to post their variations if the notes are affixed to a wall or large piece of paper. (Exam room table paper makes a great way to document for all to see and can then be rolled up and put away.) From a very practical perspective, these are all the symbols one needs to perform very effective workflow and process mapping and there is no need to translate these into formal symbols if not desired.

Adjunct documentation may also be appropriate. For example, where “MA reviews chart” is not very specific, detailing everything reviewed may be more easily accommodated by reference to a specific protocol that is attached to the flowchart: “MA reviews chart against protocol attached.”

Automated tools to document a flowchart are available. If the flowchart is preferred because it needs to be shared with the EHR vendor or the organization wants to use it subsequently for a policy and procedure manual and/or training manual, then documenting the flowchart in electronic form is

necessary. The symbols are available directly in the Microsoft Office applications of Word, PowerPoint, and Excel. This Toolkit recommends creating flowcharts in either Excel, as supplied in the attached, or PowerPoint. There also a number of commercial flowchart drawing applications that can be purchased. Whatever tools are used, keeping the drawing simple and the content rich make for a much more usable result.

Narrative format is a final option for some organizations. Physicians in particular may not want to spend time drawing a flowchart (although they do tend to find them easier to review when someone else draws the first draft). Some physicians, however, have been known to document a narrative description of a workflow. While the decision points do not “pop out” of a narrative as easily as in a flowchart, the narrative form is certainly better than nothing. Decision points then should be illustrated by indentions.

Baseline Data Collection

Many organizations that want to utilize SMART goals to monitor their success with EHR will benefit from some formal baseline data collection. However, such data collection can be time-consuming and prone to error. Some organizations are not accustomed to the use of performance measures and may find the baseline data collection to be another significant change that may be resisted as part of the EHR itself. Alternatively, the Federal program for earning incentives for making meaningful use of certified EHR technology does require performance measurement – ideally accomplished as a by-product of EHR documentation. As this is anticipated, more organizations are deciding to collect baseline data as a means to promote more accountability and achieve better results from the EHR.

Sampling is probably the best way to collect baseline data. Samples should be performed for a short, but representative, period of time. For instance, three months prior to acquiring an EHR, the organization may distribute a tally sheet to each person to tally the number of instances of a task or event, start and stop times of performing a task, or other information applicable to the process. This should be done for one task only. When a week’s worth of data or a month of collecting data every other day or every third day is accomplished and the person performs more than one task, data collection for the first task can be stopped and data collection for another task started.

What data are collected should relate directly to the goals for the EHR. In fact, the data collection can serve to fine tune the goal metrics. For example, if it is found that dictation of visit notes is completed by the end of the day virtually 100 percent of the time, a goal to reduce dictation by 85 percent within the first 3 months of using an EHR may seem to be very feasible. However, if the dictation being performed is only for the most complicated cases and handwritten notes are made in the remaining charts, then the goal to reduce dictation by 85 percent may not be feasible or may require a longer period of time in which to be accomplished.

Collecting qualitative information is more difficult than readily collecting quantifiable information. Measuring the quality of care, patient safety, user satisfaction, and other less quantifiable process elements can be very difficult. In many cases, precise definitions of what these mean do not exist. In

addition, patient outcomes are often not known to an organization. A patient seen today and given a prescription may take the medication, get well, and not return for years. Alternatively, the patient may not fill the prescription and get better anyway and not return; or fill the prescription, take the medication, not get better, and go to a different provider. Just the same, improving patient outcomes is

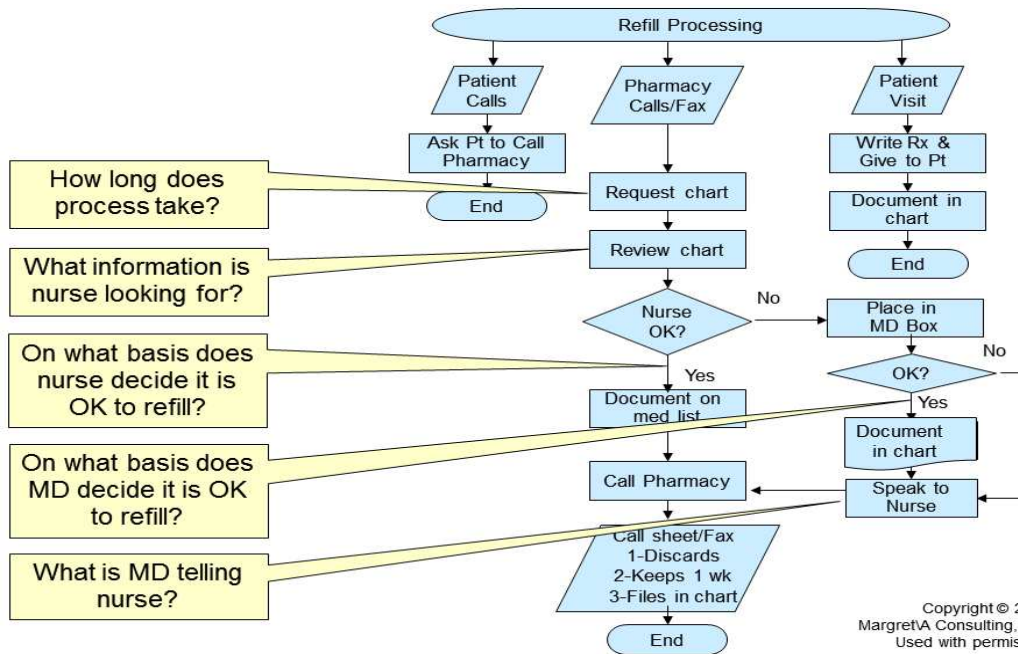
a primary reason for the current focus on EHR. As a starting point, organizations may already be collecting National Quality Forum (NQF) approved measures for the CMS Physician Quality Reporting System, NCQA HEDIS reporting to insurance companies, etc. It is certainly feasible to establish goals to improve with respect to these measures, report on additional measures, or measure outcomes associated with process measures. Again, taking a manageable number of measures is important or the organization becomes overwhelmed with measurement rather than patient care.

Forms and Reports Collection

As workflows are documented it is very helpful to collect the forms, reports, and other documents associated with each task. The primary purpose of this collection is to capture a record of what data are being used by the organization in order to ensure that all data needs are ultimately accommodated in the EHR. However, organizations often find additional value from the collection process. They find out-of-date forms, several different versions of forms, or that they could consolidate forms. They also recognize that they are being required to complete many forms from different organizations that generally seek the same type of information. Finally, organizations find reports that are currently compiled but not used, or that they wish they could have but the work effort to generate them is too great. By starting early to identify such issues, forms can be updated, consolidated, eliminated, etc. Also, communications with schools, employers, etc. can begin to urge them to accept standard, electronically generated information. EHR products being considered can be evaluated as to whether they can produce desired reports, which also will entail weighing whether collecting the structured data to generate the report is worth the effort.

Workflow Documentation Validation

Validating the initial documentation of a process is important. Once an initial map is documented, it is a good idea to step back and reflect on whether it truly is complete and accurate. For example, in the illustration below, there are at least five questions one can ask with respect to the map in its current state. Once these are answered and the map adjusted, it will have greater value. For example, knowing on what basis the nurse can approve a refill could be a protocol an organization wants to have reflected in its EHR.



The following **Workflow Documentation Validation Checklist** may be helpful in guiding workflow documentation validation:

- Is the scope of the process appropriate for EHR workflow documentation?
- Are these all the tasks performed in this process?
- Does the map focus on information flow or only the chart or the person? Are all sources of input and uses of information identified?
- Are all alternative paths illustrated, such as flows following different sources of data?
- Are clinical decision-making tasks performed mentally included?
- Are some tasks performed only occasionally? Are they included? What triggers their performance?
- Are there tasks performed differently *by* different people or *for* different people? If so, are the variations included or more than one map made?
- Are some tasks performed outside of this process, but impact its boundary?
- Are there some tasks identified that really are not a part of this process, and could be dropped or placed at the boundary?
- What tasks are critical? That is, if not performed, the process is meaningless; or must be included in any new EHR adopted? Are they included?
- Were all associated forms, reports, job descriptions, policies, and procedures collected?
- Did you collect baseline data if desired? Do you have benchmark data for comparison? Do you have plans to acquire such?

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Workflow Redesign

Documenting current workflows should provide valuable insights into today's practices that will create a desire for EHR, possible opportunities for some early process improvements, and the means to be a more informed consumer in approaching the EHR vendor marketplace. Ultimately, however, the organization should evaluate the workflows from the perspective of how they may change or need to

change with the EHR (or any other change that has been made as a result of process improvement).

The following **Workflow Evaluation Checklist** can help identify ways in which workflows could be redesigned. These should be considered along with the organization's own observations about how a workflow may be improved upon as well as changes that are suggested by the EHR being acquired. Bear in mind that the intent is not to change for the sake of change, but only to improve upon an existing issue or make an accommodation for use of the technology that will ultimately improve the overall operations and outcomes for the organization.

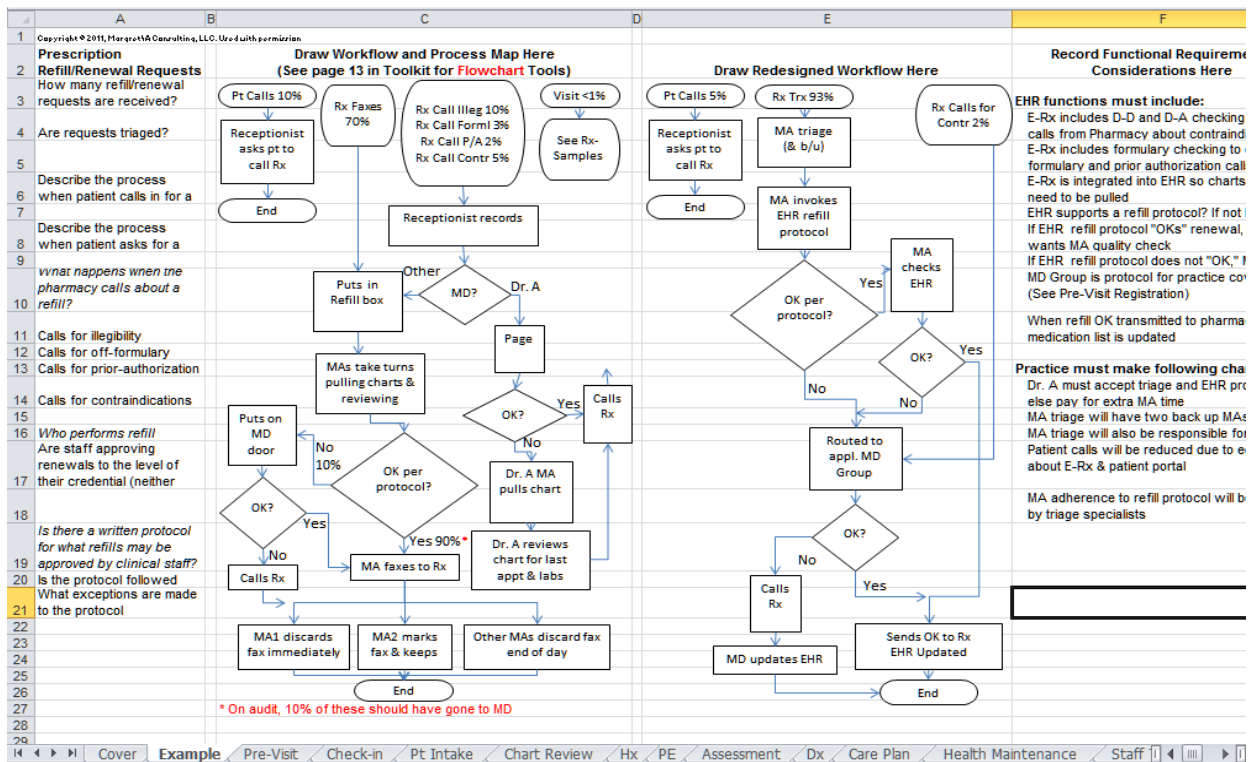
- Are there any parts of the current process that present risk to the clinic?
 - Variation in practice
 - Action not documented in chart (e.g., excessive/inconsistent use of "sticky" notes)
 - Incomplete documentation (in chart, on orders, for communications)
 - Inadequate security (e.g., prescription pads, sample drugs, access to information)
 - Lack of documented policy
 - Delays in provision of care over which clinic has no control
 - Loss/misplacement of documents resulting in duplicate testing, lost charges, payment denials
 - Role ambiguity
 - Other
- Are there any parts of the current process that may result in significant loss of productivity?
 - Unnecessary phone calls
 - Waiting for chart or other information
 - Unnecessary steps
 - Delays due to manual procedures that do not impact quality of care or patient safety
 - Other
- Are there any aspects of the process you believe are particularly prone to error? Why?
 - Lack of training
 - Lack of time
 - Lack of documented procedure
 - Lack of staff
 - Lack of quality controls
 - Lack of information
 - Other
- Are there any aspects of the process in which you would like to see other improvement, given the opportunity presented by an EHR?
 - Eliminate bottlenecks, backtracking
 - Reduce rework due to errors
 - Reduce duplication of effort
 - Reduce number of steps/time
 - Adopt new models of care planning (e.g., standing orders, medical home)
 - Improve chronic care management (e.g., patient recall, home monitoring, disease management)
 - Improve compliance (e.g., ABN, E&M coding, HIPAA/HITECH, meaningful use incentives, etc.)
 - Adopt proactive preventative care practices
 - Adopt/improve value-driven care processes (e.g., generic drug utilization)
 - Support consumer empowerment (e.g., PHR, automated self-assessment, report cards)
 - Improve quality measurement and reporting
 - Improve health plan contract negotiation
 - Improve patient safety reporting (e.g., post-market drug surveillance, communicable disease)
 - Adopt new revenue opportunities (e.g., medical concierge, alternative therapies)
 - Other

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Once applicable changes in workflows are identified, the workflow documentation should be adjusted. Most organizations find it helpful to redraw the flowchart in its “to be” form. This becomes the organization’s standard procedure and makes an excellent training tool. Maintaining it in electronic format enables any future adjustments to be easily documented.

Workflow Documentation Tools on Accompanying Spreadsheet

The following clip from the accompanying spreadsheet shows how the spreadsheet may be used. Alternatively, you may use “sticky notes” or flowchart software for the documentation and only use the guiding questions to assure completeness of the documentation. (Please note part of the spreadsheet is cut off to fit in here. To view the entire example, see the worksheet in the accompanying workbook.)



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