

HIMSS EMR Usability Evaluation Guide

For Clinicians' Practices



Goal of this Guide

This document has been prepared as an aid to practices engaged in selection of an electronic medical record (EMR) system. While formal, professionally conducted, usability evaluations can provide in-depth product comparisons this may not be a practical consideration for small to medium size practices. This guide outlines some basic steps to include in a vendor selection process that will help practices evaluate EMR usability based on current usability recommendations and best practices. While the target audience of this guide is smaller practices, the steps outlined in this document can also be used by large practices and healthcare institutions.



Seven Steps to Evaluate an EMR's Usability

The steps listed here for use during your EMR selection process will assist you in selecting the most “usable” EMR

- 1) Engage your users from the start.
- 2) Consider practice goals.
- 3) Include usability questions in your Request for Proposal (RFP); solicit responses from multiple vendors.
- 4) Review available survey data.
- 5) Perform usability tests with your final two or three EMR product contenders.
- 6) Observe other similar practices using the products (may be done sooner).
- 7) Discuss your findings with the vendor(s) before making a final decision.



Together, these steps will identify issues you need to discuss with the vendor before making your final decision, greatly increasing user buy-in and smooth implementation of the selected EMR.

1) Engage Your Users from the Start

Engage your users from the beginning of the process.

The first steps are *defining the EMR requirements for your practice* and *identifying potential products that might meet your needs*. Do not select a system simply based on the recommendations of colleagues. Provide incentives to physicians to engage in the process and include nurses, medical assistants, medical records staff and all others who will use the system. Ensure that your product review and selection team is composed of true end users who will actually be using the system and not just personnel who make IT purchasing decisions. Assemble a representative team who will:



- * **Review and contribute to development of requirements**
- * **Identify practice goals and/or key areas for workflow improvements**
- * **Collectively develop an understanding of “usability”** (incl. efficiency, effectiveness & satisfaction)
- * **Attend multiple vendor demonstrations**
- * **Craft clinical scenarios to be used to assess usability of the selected products**
- * **Create and conduct usability tests**
- * **Collect lessons learned from peers in other practices who have adopted EMRs**
- * **Participate in site visits to observe other practices with the systems under consideration**
- * **Communicate with their peers in the practice regarding project progress**
- * **Gather feedback from their peers on key issues**
- * **Solicit guidance from your REC and professional organizations**
- * **Contact RECs for guidance**
- * **Contact your State and/or National Academy for guidance**

2) Consider Practice Goals

Consider what goals are most important to your practice when adopting an EMR and how these goals relate to usability. For example, are you especially concerned about:

- Improving the efficiency of telephone prescription refill requests?
- Physician satisfaction with an electronic clinical documentation process?
- Ability to effectively use patient encounter data for clinical outcomes analysis and patient outreach?
- How much training will be required for physicians and others to become adept with the system?



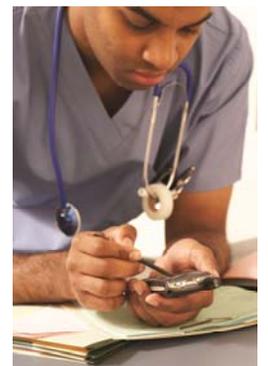
Document your key concerns and share them with the whole team. These primary goals should become the drivers for how you evaluate usability. Think about simple baseline measures related to your goals. For example, efficiency is typically measured by how long it takes to perform sample tasks during a usability test. Satisfaction and concerns can be assessed with questions included in a post usability test questionnaire. Ease of learning can be assessed by having users attempt the same scenario/task with a number of “test tasks” and objectively measure learning based on the number of attempts and measures such as time to completion and success rate.



Consider looking at your current practice goals regardless of whether you have a paper-only process or use some combination paper and digital means of managing your practice.

Use these as a baseline measure for comparison with the various EMR products you may be reviewing. When looking at factors such as how long it takes to complete specific tasks, be sure to look at the bigger picture and the benefits that are the result of the EMR versions of these tasks (such as the ability to review results or enter orders from home, data entry, and use of clinical decision support components).

Depending on the specific nature of effectiveness concerns, targeted questions may be appended to the usability test scenarios (answered after the scenario has been completed) or included in the overall questionnaire to be filled out after the full test has been completed. Usability testing is discussed in a subsequent section of this document, with sample scenarios and usability questions provided in the appendices.



3) Include Usability Questions in Your RFP

Drafting a Request for Proposal (RFP) for EMR vendor candidates is something you may do yourself or with the assistance of a consultant or your REC. In addition to the usual questions regarding functionality, security, technology, and interoperability, it can be enlightening to include some questions about usability.



In general, these questions should try to elicit information about the type and formality of usability activities the vendor has undertaken themselves as part of the development and evolution of their product. Asking about the qualifications of their staff and for access to sample usability test results can be very instructive. The purpose of the RFP usability questions is to help you develop a general feel for where each vendor stands. A company that can show it has embraced usability practices in design and development will stand out and will be better positioned to meet your needs over time, as well as compete in the evolving EMR marketplace.



Sample questions along with the types of responses you should be hoping for (as well as some red flags to watch out for) can be found on the [HIMSS EMR Usability Evaluation Toolkit landing page](#). Note that even if the vendors you are considering have well-established formal usability practices, you should still perform your own informal test, as discussed in a subsequent section. Performing your own test is the only way you will know if the product will meet the needs of your practice and your users.



4) Review Available Survey Data

Various forms of survey data regarding specific EMR systems are available free of charge from organizations such as KLAS (www.klasresearch.com) and the American Academy of Family Physicians (AAFP) (www.aafp.org). Check also with professional organizations for your specialty to see what they may have to offer.



Keep in mind that the data currently available to the public is all gathered through informal, non-scientific means. Most information available is simple user satisfaction data collected from healthcare managers rather than directly from clinical users. Organizations are only just beginning to provide information regarding perceived efficiency and effectiveness of EMRs.



Use this data to help formulate your questions, but do not allow it to override your own assessment based on your practice goals. In the future, there may be a nationally regulated process in place that will provide formal usability evaluations of EMRs and other clinical systems, with ratings published publicly.



5) Perform Usability Testing

Perform a usability test of the final two or three products on your list. This can be done using fairly simple methods. These will not be scientific studies, but an adequately structured means of collecting valuable insights from a cross-section of your users specifically related to product usability.



A) Create a representative set of clinical scenarios that include all essential tasks: visit documentation, order entry, maintenance of problem and medication lists, practice workflow involving multiple users, inter-practice communication and so forth. Consider a mix of frequent tasks along with highly important and complex tasks. Define for each scenario what it means for the participant to successfully complete the task.

Unless you are expecting to use dictation only for progress notes, it is also important to include template creation and customization in your test scenarios. The vendor will probably tell you that they provide a library of templates, and they will provide a service to help you customize them as necessary. However, templates created by someone other than yourself or your practice often will not meet your specific needs; also, using the template tools will help you assess their ease of use. You need to test template creation to determine if:



- *You or an assigned internal staff member can create new templates or modify those provided with reasonable ease*

AND

- *You can easily modify the content pulled in by a template “on the fly” when using it to document a specific patient case.*

Include with each scenario a set of task-specific questions for the test participant to answer after they have completed the test scenario. Focus these questions on efficiency, effectiveness and satisfaction as well as usability concerns you might have related to the specific task. See Appendix B for some sample scenarios that might be useful in a primary care practice.

B) Request that your vendor support this activity; currently this is not a common request that they receive but it will become increasingly so. Provide them with a list of the scenarios you would like to test but not the scenario details; it will defeat the purpose of the test if they set up templates to perfectly match your test cases. You will also need to provide them with a list of the test patients (e.g. “45-year-old Hispanic female with history of diabetes and hypertension”) and background data (e.g. prior test results) that will be needed to support your scenarios. Request that the vendor representative have a means of resetting the test data in between participants so that they each have the same experience with the system during testing.



C) Schedule a set of representative users from your practice to participate in a one-on-one test of the EMR. It is essential that the test be hands-on (not a demonstration) by your clinic users (not vendor representatives).

D) Prepare a post-test questionnaire to be filled out by the users who participate in the testing after they have completed all the scenarios. These will be general questions that capture their overall experience with the software. Include a simple rating scale for each question so that the data can be easily aggregated across all the participants. A sample post-test questionnaire can be found on the EHR Usability Evaluation Toolkit landing page.

E) Prior to the usability testing, invite all expected participants to a system demonstration by the vendor; allow as many questions as needed.

F) Conduct the usability test. The basic elements of a simple usability test are as follows:

- *Have the vendor set up a workstation with access to their test or demonstration system they have prepared for your scenarios.*
- *Assign a member of your usability team to be the test facilitator. The role of the facilitator is to:*
 - ✓ Provide each participant with the test scenarios and basic instructions.
 - ✓ Record the time it takes for the participant to complete each scenario using consistent starting and stopping points.
 - ✓ Record key comments made by the user during the test without interrupting or asking them questions.
 - ✓ Record whether the participant was able to successfully complete each scenario.
 - ✓ Track common errors made by participants (if obvious to the facilitator).
 - ✓ Provide each participant with the post-test questionnaire at the end of the test.
- *Schedule your participants to come one at a time to participate in the usability test.*
- *If possible, test multi-user workflow scenarios (e.g. telephone prescription refill) with separate users performing each role. This will give you the best sense of how the system operates in a collaborative environment. If not possible, have every participant perform all roles in the scenario for their test session.*
- *Instruct the participants to attempt to perform the scenarios without assistance, “thinking out loud” as they go. The vendor representative should provide technical assistance only (for example, if the system crashes, resetting the data for each participant).*
- *The participant should answer scenario specific questions as each scenario is completed, and fill out the general questionnaire at the very end.*
- *You may also want to verbally debrief each participant when they are done for overall comments and impressions.*



Your organization might want to consider engaging a usability specialist to assist in planning and conducting the usability test. Check with your REC or the Usability Professionals Association for resources that are available in your area.

6) Observe Other Similar Practices

Make plans to observe at least two similar practices using the product(s) you are considering. This can be done any time after you have narrowed your EMRs of interest down to the final few (before or after usability testing). If you do not have relationships with any such practices, your REC or professional association may be able to help you locate them and/or provide contacts. If the vendor provides you with practices to visit, keep in mind that these will be a biased selection (although there is still information that can be learned).



Arrange to take a team of at least one physician, one nurse and one medical assistant and/or medical office staff when visiting a practice; these may be staff you expect to serve as your most expert users. Ask for your team to be able to observe their counterparts working with the system for at least a couple of hours. Each team member should go prepared with a checklist of questions or issues that have arisen so far in your usability evaluation process that relate to their own work.

Arrange for a meeting or luncheon afterward with a few of their users so that questions can be asked from your checklists or that came up during observation. Find out what challenges their users have had learning and customizing the system. How long did it take them to be fully “up to speed?” What was easy or difficult to learn? What workarounds have they had to develop and why? What tasks do they find frustrating due to system inefficiencies or complicated design? What kinds of errors do they find are too easy to make? What problems do they have in multi-user workflows?



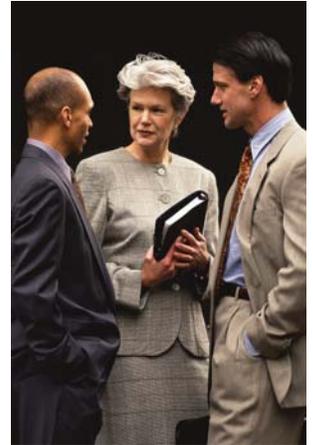
7) Discuss Your Findings with the Vendor(s)

After the usability test and practice observation you will need time to aggregate your results and discuss them as a team. Identify the issues that came up repeatedly, scored poorly in the questionnaires, or generated special concerns. Prioritize your list based on how serious of an issue you believe each item to be for your practice.

Meet with your vendor one more time and give them an opportunity to address your concerns. In some cases, there may be a much easier way to accomplish tasks than your users discovered. Give them a chance to show you. In other cases, they may be able to tell you about enhancements that will be included in an upcoming release that may resolve particular problems.

Ask them how the issues you identified align with difficulties other customers report. How will they incorporate this information into their product improvement process? Also ask them for clarification if needed on any of their responses to the RFP usability questions. If they do not have robust usability practices and a usability team in place yet, they may be in the process of ramping up this capability.

Whatever product you choose, offer to participate in future usability studies and user-centered design activities the vendor conducts – it will give you direct input to product improvements and improve the likelihood of their success as well as your own.



More Resources

It is our hope that this guide has outlined some of the basic steps to include in a vendor selection process that will help your practice evaluate EMR usability based on current usability recommendations and best practices. HIMSS has more usability, user experience, and user-centered design resources that can assist your practice.

HIMSS Usability Maturity Model & Assessment Tool: The HIMSS Usability Maturity Model measures how well your organization incorporates usability and other user-centered design (UCD) principles into its development and strategic planning processes. The five phase model provides a common vocabulary for the healthcare & healthcare IT industry to quantify their UCD efforts both internally and externally to the marketplace. The assessment tool allows you to measure your organization's current phase of usability maturity and provides practical actions your organization can take to move to the next phase.

HIMSS HIT User Experience Resource Library: In addition to the EMR user experience and usability, there are user experience issues/ opportunities across all technologies associated with the modern delivery of healthcare. The HIMSS User Experience Resource Library allows you to explore the role of user experience, usability & user-centered design in:

ACOs | Ambulatory Settings | Clinical & Business Intelligence | Clinical Informatics | Clinical Decision Support | Consumer Health | EHRs | Health Business Solutions | Health Information Exchange | Health Insurance Marketplaces | ICD-10 | Innovation | mHealth | Patient Engagement | Payors & Health Plans | Pharma & Life Sciences | Privacy & Security | Quality & Patient Safety | Rural Health

HIMSS HIT User Experience Community: The mission of the HIT User Experience community is to foster the design, development, production, and optimization of health information technology devices, systems and processes that lead to improved outcomes for patients, providers, and vendors. Become a member of the community to interact with your peers and help lead the healthcare industry's effort to incorporate user-centered design into its actions and processes.

Learn more at: <http://www.himss.org/library/user-experience>