Electronic Health Record Optimization
Strategies to Help Organizations Maximize Benefits and Minimize Burdens

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How Will This Toolkit Help Me?
Learning Objectives:
1. Identify leadership, system, and individual strategies to optimize EHR use
2. Explain the importance of teamwork in implementing and using the EHR in your practice
3. Describe how your practice can leverage EHR data to improve overall workflows

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Introduction

Electronic health records (EHRs) have profoundly changed the practice of medicine and are often perceived as both a blessing and a burden by the clinicians who use them. Decisions made in the design, regulation, implementation, and individual use of the EHR contribute to its benefits and challenges. In this toolkit, we present strategies that health care delivery organizations can deploy to maximize the benefits and minimize the burdens of EHR use, along with Success Stories from organizations that have made progress in optimizing their EHR.

Nine STEPS to Optimize EHR Use in Your Practice

1. Align Leadership and Clinician EHR Users
2. Stop Doing Unnecessary EHR Work
3. Optimize Hardware and Built-Environment Solutions
4. Optimize Software Solutions
5. Reduce the Burden of Order Entry and Documentation
6. Optimize Teamwork
7. Optimize Clinician User Skills with the EHR
8. Optimize Information Flow Throughout the Health System
9. Leverage EHR-Use Data
1 Align Leadership and Clinician EHR Users

EHR implementation is most successful when leadership and end users are working together toward the same goal. For example, if leadership directs the IT department to prioritize security without considering the added physician burden, time is wasted and taken away from patient care.

Helpful Organizational Strategies to Reach Alignment

| Institute shared accountability, wherein institutional leaders share accountability for multiple organizational goals rather than having accountability siloed to only their particular domain. Read more about Creating the Organizational Foundation for Joy in Medicine and the Joy in Medicine CEO Consortium blog post in Health Affairs.¹ |
| Regularly measure overall clinician satisfaction/burnout, as well as satisfaction specific to EHR use. |
| Include EHR-use metrics on the organization’s data dashboard (see STEP 8). |
| Consider time trade-offs: if new work will be required of clinicians, then consider what existing work can be made more efficient, delegated, or eliminated. |
| Include practicing physicians and other health professionals in all decisions regarding implementation, training, and metrics. |
| Train and support a core team of clinician informaticists. |
| Value the users’ training time and be sure it continues after go-live. |

Q&A

Why is shared accountability valuable?

When individual leaders and practicing clinicians within an organization have different goals, a harmful “us-versus-them” dynamic can develop between those charged with creating organizational policy and implementing the EHR and those charged with using the EHR. Intentional organizational actions can minimize this harmful dynamic by aligning values and goals.

It can be helpful to create opportunities for clinicians and leaders to work toward shared values and goals impacted by the EHR implementation. Aligning these goals helps teams work more effectively together.

Shared goals include:

- Optimizing the patient experience
- Ensuring patient safety
- Minimizing errors
- Improving quality outcomes
- Increasing patient access
- Increasing financial viability of the organization
What are some measures for shared accountability?

In a shared accountability framework, the annual performance review of the Chief Executive Officer (CEO), Chief Medical Information Officer (CMIO), Chief Medical Officer (CMO), Chief Compliance Officer, and other leaders might be driven, at least in part, by the overall satisfaction/burnout scores of the workforce.

Proposed EHR metrics that reflect practice efficiency may be influenced by additional measures such as:

- Total EHR time
- Work outside of work
- Time on documentation
- Time on prescriptions
- Inbox time
- Teamwork for orders
- Amount of undivided attention patients receive from physicians during an encounter.

Other overall organizational goals may also be included, such as increased physician productivity, retention, and recruitment.

How is shared accountability helpful?

Shared accountability protects an organization against suboptimization around a single value at the expense of other organizational values.

When Chief Compliance Officers are responsible, in part, for the ability of clinicians to be productive and to find meaning in their work, decisions will be made differently than when their only responsibility is to protect the organization from an audit failure.

Can you give an example of an organization that implemented shared accountability?

At Atrius Health, the CEO asks his board to hold him accountable for his workforce's satisfaction scores. He, in turn, holds his executive leadership accountable for these same measures. Because of this shared accountability, the team saw the need to deploy a "SWAT Team" to reduce clinician dissatisfaction with implementing and using their EHR.

The SWAT Team is a high-touch training program at the practice level. Designed and led by Internal Medicine and IT leadership, Atrius Health implemented the SWAT Team and several other strategies to optimize the EHR. They lead service-line-initiated EHR optimization, such as inbox reduction strategies, annual wellness documentation, and refill automation.

What tools are available to measure overall clinician satisfaction?

Several validated tools are available, including the Mini-Z Burnout Assessment, the Well-Being Index (WBI), and the Maslach Burnout Inventory (MBI).

For more information on the Mini-Z Burnout Assessment, visit the AMA's Practice Transformation page and click "Measure."

What tools are available to measure clinician satisfaction with their EHR?

The Mini-Z Burnout Assessment asks specific questions related to EHR burden. It includes these responses in the aggregate scoring for the Mini-Z as well as the subscale for work pace and EHR burden.
For more information on the Mini-Z Burnout Assessment, visit the AMA’s Practice Transformation page and click “Measure.”

Several years after implementing our EHR, I am still working several hours more each day. Is that unusual?

Many physicians have found that tasks that previously required a few seconds to accomplish—such as verbally requesting a test or checking off desired labs on a checklist—now take several minutes in the EHR. Furthermore, work previously done by receptionists, medical records clerks, clinical support team members, and others has now often shifted to the physician following an EHR implementation.

It is important to be honest and transparent about time. Expecting that the workday will be lengthened to accommodate new or slower work can be counterproductive to an organization’s long-term goals of improved patient quality and satisfaction as well as physician recruitment and retention.

What type of clinician should we include on our EHR committees?

While it may intuitively seem reasonable to invite clinicians who are “computer experts” to lead health IT implementation and optimization efforts, some organizations have found it best to include “master clinicians” who are less adept with the EHR as well. Involving master clinicians allows the institutional focus to remain squarely on supporting excellent clinical care and prevents policy tilting toward those clinicians who are more comfortable with technology. Respected clinicians are also much more likely to gain support from colleagues for the improvements they implement.

Some organizations have found it helpful to engage clinicians who struggle with EHR use to help the organization understand the optimal interface for the majority of clinicians.

How can clinician informaticists help?

A clinician informaticist, who is not necessarily responsible for achieving the narrow goal of implementing an EHR, but is involved in realizing the larger vision of improving and transforming care using an EHR, can help bridge the clinical and technical worlds.

For example, the clinician informaticist can collaborate with master clinicians to assess common workflows and consider whether current or emerging software solutions exist to improve the workflow or achieve a better result via a new process. Examples include:

• Evaluating protocols and software to automate medication renewals
• Auto-scheduling of follow-up visits
• Self-scheduling and reminders via a patient portal
• Auto-delivery of results to patients via a patient portal
• Use of a patient portal, kiosk, or other software to capture patient-recorded history

When should we schedule training—during the workday or after hours?

Some organizations find it best to provide continued training during the workday rather than after office hours.

Providing workday training (with explicit forgiveness of productivity goals) also signals to clinicians that such work is important. At-the-elbow support can be worth the effort when a change is made or the organization identifies an opportunity for optimization. Sending tip sheets or email updates only work if clinicians have the time and mental energy to read them.
Who should we include in training?

The clerical and clinical support teams need to learn optimal EHR use along with the guided introduction on new upgrades and functionality. Training both clerical and clinical teams yields an opportunity to optimize the team approach to documentation and to have clear handoffs.

For example, Atrius Health found it useful to engage their medical secretaries, medical assistants (MAs), nurses, advanced practice clinicians, and physicians in training to use the EHR more efficiently in the provision of Annual Wellness Visits.

Stop Doing Unnecessary EHR Work

Uncovering and getting rid of any unnecessary work is essential. Eliminating tasks and processes that detract from patient care is crucial for successful EHR optimization.

Consider your unique practice environment. Are you getting too many alerts? Are you still at the workstation when screens time out? Remedying unnecessary EHR work can run the gamut from simplifying login to minimizing alerts to streamlining order entry. Work with your colleagues, IT, leadership, and any other stakeholders to rectify these issues.

Some unnecessary work may be the result of your compliance or IT department overinterpreting rules “just to be safe.” Leadership should consider de-implementing processes or requirements that add little or no value to patients and their care teams.

Table 1 covers considerations for EHR work to eliminate or change and is part of the AMA STEPS Forward™ “Getting Rid of Stupid Stuff” toolkit.

Table 1. Potential EHR De-Implementation Actions
<table>
<thead>
<tr>
<th>Opportunity to act</th>
<th>De-implementation action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimize alerts</td>
<td>• Retain only those alerts with evidence of a favorable cost–benefit ratio</td>
</tr>
<tr>
<td>Simplify login</td>
<td>• Simplify and streamline login process, leveraging options like single sign-on, RFID proximity identification, bioidentification (fingerprint, facial recognition, etc)</td>
</tr>
<tr>
<td>Extend time before auto-logout</td>
<td>• Extend time for auto-logout depending on workstation location and security</td>
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</tbody>
</table>
| Decrease password-related burdens, including revalidation | • Extend the intervals for password reset requirements  
• Help users create passwords that are both strong and easy to remember (i.e., by allowing special characters and spaces and by allowing longer passwords that can be passphrases).  
• Use password manager software  
• Identify ways to reduce unnecessary requirements for users to reenter username/password when already signed in to EHR or to send prescriptions  
  
  *Note: Organizations may choose to keep this requirement in place for opioid prescriptions* |
<table>
<thead>
<tr>
<th><strong>Reduce clicks and hard-stops in ordering</strong></th>
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<tbody>
<tr>
<td>• Reduce requirements for the input of excessive clinical data before ordering a test</td>
</tr>
<tr>
<td>• Eliminate attesting to possible pregnancy in males or women over 60 years old</td>
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</table>

<table>
<thead>
<tr>
<th><strong>Reduce note bloat</strong></th>
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<tbody>
<tr>
<td>• Reduce links embedded in visit note documentation templates that automatically pull in data from other parts of EHR, contributing to note bloat, but adding little if any actual clinical value</td>
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<table>
<thead>
<tr>
<th><strong>Reduce in-basket notifications for test results</strong></th>
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<tbody>
<tr>
<td>• Stop sending notifications for tests ordered that do not yet have results or have test results not ordered by the physician in question</td>
</tr>
<tr>
<td>• Stop sending notifications for reports generated by the recipient of the notification</td>
</tr>
<tr>
<td>• Eliminate multiple notifications of the same test result or consultation note</td>
</tr>
<tr>
<td>• Auto-release normal and abnormal test results to the patient-facing portal with embedded or linked patient-friendly explanations</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Simplify order entry processes</strong></th>
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</thead>
<tbody>
<tr>
<td>• Auto-populate discrete data fields if the information already exists in EHR (eg, if a team member has entered the date of “last menstrual period,” optimize your technology, so no one has to reenter that data into the order for a pap smear)</td>
</tr>
</tbody>
</table>
Allow verbal orders

- Allow verbal orders in low-risk and crisis situations as legally permitted

Reduce signature requirements

- Eliminate signature requirements for forms that do not legally require a physician signature
- Remove order requirements for low-risk activities that do not legally require a physician signature (ear wash, fingerstick glucose, oximetry)
- Do away with "challenge questions" to electronically sign orders when the user is already logged in and actively using the EHR

Reduce attestations required daily or every time one logs in

- Eliminate actions as allowed by state or federal requirements (ie, for privacy protection attestation) that occur on a daily or every-time-one-logs-in basis (ie, consider whether or not an annual attestation is sufficient)

De-Implementation Checklist
This document will help you identify then get rid of burdensome EHR tasks or processes.
(PDF, 126 KB)

3 Optimize Hardware and Built-Environment Solutions

Many institutions struggle after implementing an EHR because of an inadequate investment in hardware or physical workspace optimization. Examples of changes that can improve patient care and workflow—and could even save 15-30 minutes per team member per day—include:

- Implementing flow stations where clinical support team members and physicians are seated side-by-side
- Installing widescreen monitors (eg, 24 inches)
- Having networked printers in every exam room
- Optimizing the user sign-in process with technology such as radiofrequency identification (eg, badge readers)
- Optimizing exam rooms for team documentation and information-sharing

Q&A

How does the co-location of team members save time?

The medical assistant or nurse can turn to the physician and, in real-time, convey information or ask questions. Co-location facilitates and encourages in-person communication, eliminating the need for time-consuming electronic messaging. HealthPartners in Minneapolis has found that co-location saves 30 minutes of physician time per day.
How can exam rooms be optimized for collaborative visits?

Design exam rooms with space for an additional team member who helps with team documentation. The design may include a place for side-by-side seating of the physician and assistant or space for utilizing stand-up mobile computer stations.

How can exam rooms be designed for information sharing among the team and with the patient?

Design exam rooms to include semi-circular desks that allow face-to-face interactions between the patient and the physician while still maintaining access to the computer screen. An alternative might be strategically mounted wall screens.

### Optimize Software Solutions

Having certain functions integrated within the EHR can improve workflow and efficiency, for example:

- **e-Prescribe controlled substances.** Support physicians e-prescribe controlled substances instead of printing prescriptions, if allowed by state law.
- **Patient photos.** Capture patient photos to facilitate recognition of the patient and their story upon opening the record. The clerical team can capture the photo at arrival or check-in. In some applications, patients can upload their own photos using kiosks or a mobile patient portal.
- **After-visit summary.** Use the after-visit summary that is given to patients to record patient education.
- **Patient access.** Encourage patients to access their medical record and visit notes because when a patient has access to the entire note, this precludes the need to repeat instructions in an after-visit summary.
- **EHR fit for purpose and person.** Optimize EHR use and configuration to filter large amounts of information for the particular task and user.
- **Patient portal.** Encourage patients to sign up for and use the patient portal. When used effectively, patient portals can reduce workload and increase efficiency for physicians and the care team by transferring routine administrative tasks from the care team to the patient.

### Q&A

First, I document the visit in the EHR, and then I must re-document much of this into the after-visit summary for the patient. How can I avoid this re-work?

Some clinicians populate the entire Assessment and Plan while in the exam room using speech recognition, which allows the patient to hear the plan while it is being written. The output can then be directed both to the after-visit summary and the physician’s progress note.

Two tips for working with speech recognition are (1) to look at the patient and not the screen and (2) to change your tense from third-person to second-person. Doing these 2 things enables both your verbal and written advice to synchronize, thus saving time and reinforcing the take-home messages.

What are some examples of optimizing EHR configuration?

There are many examples to consider:

- Configuring the EHR to simplify and collate disease-specific metrics to reduce “searching” through the chart. May not be available with all EHRs.
- Using the EHR for problem-based charting, meaning sequential plans can be viewed easily over months for 1 disease. May not be available with all EHRs.
- Combining vitals, labs, patient-reported outcomes, and medications in graphical flow sheets—all in one view.

*Some circumstances may require the use of third-party tools for these functions.*
• Deploying chart filters to focus on specific parts of the patient chart to reduce scrolling.

• Using APSO notes (replacing SOAP notes) puts ASSESSMENTS and PLANS at the top of the note to reduce scrolling.

• Linking to “my last progress note” can reduce searching and bring up continuity concerns from the patient’s last visit.

• Using the Health Maintenance module and assigning tasks to other team members and other departments (eg, gynecology, gastrointestinal, pediatrics, medical specialties).

Can states’ Prescription Drug Monitoring Programs (PDMPs) be integrated into my EHR so I can check controlled substance history without leaving the chart?

Several organizations, such as the University of Colorado and MedStar Health (the DC-Maryland region), have integrated their state’s PDMP within their EHR, enhancing efficiency and precluding the need to sign in and out of multiple programs. Achieving this level of integration is not without challenges; it requires local programming and can be vulnerable if the state changes its PDMP vendor.

Each state's PDMP is different, which may result in additional software or hardware changes and costs to support PDMP-integration into your EHR. You should first consult with your EHR vendor and ask to see a demonstration of the EHR with an integrated PDMP.

Reduce the Burden of Order Entry and Documentation

The clerical burden associated with EHR use is one of the most significant drivers of professional dissatisfaction and burnout among physicians. Physicians spend nearly 2 hours on EHR and desk work for every 1 hour of direct face time with patients. On top of this, physicians typically take 1 to 2 hours of inbox and documentation work home every night.

Table 2. Solutions for Reducing Order Entry and Documentation Burdens
<table>
<thead>
<tr>
<th>Overarching</th>
<th>Specific actions</th>
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| Team order entry | • Use paper checklists for communicating physician-ordered tests to clerical team members, who then key these orders into the EHR.  
• Use standing orders for common tests and immunizations, allowing clinical support team members to close care gaps without additional, redundant data entry work on the part of the physician. |
| Team documentation | • Develop a team documentation model fit to your practice. Organizations that have implemented team documentation have found increased satisfaction for patients, physicians, and other care team members; most organizations have also found that this improves their financial bottom line. |
| Other documentation assistance types | • Engage a transcriptionist to take dictation.  
• Use speech recognition software, either separately or as part of a hybrid model with a transcriptionist who edits and formats the software’s output for readability. |

**Q&A**

**How can we implement standing orders without generating an actual order for the physician to sign?**

Some organizations have defined standing orders as organizational policies rather than an EHR function. For example, Atrius Health has a policy to centrally “order” influenza vaccines by protocol. The nurses document per the standing order listed in the organization's flu vaccine policy but no longer manually enter the actual “standing order” in their EHR. Making organizational changes such as this is key to removing unnecessary double work, double documentation, and “note bloat.”

**Which other team members are allowed to enter orders on behalf of the physician?**

All members of the care team, including nurses, credentialed medical assistants (MAs), or non-credentialed staff members, can enter orders in the EHR, as requested by the physician. Additionally, no Medicare EHR incentive program requires computerized provider order entry (CPOE). Clinical and clerical team members can pend or send orders per the physician's instruction (ie, as conveyed verbally or through a written checklist), as long as this is consistent with state and institutional policies."
Our compliance officer tells us that physicians must enter all orders and billing codes. Is this accurate?

While the physician is responsible for making the clinical diagnosis and selecting the level of service, there is no requirement that the physician physically enters the billing and diagnosis codes into the computer.

How much physician time does team order entry save per day?

Some practices indicate that team order entry directly saves 30-60 minutes per day. Completing all of the orders for a patient can take 2 to 5 minutes per patient. An organization can use EHR-audit data to calculate the amount of time spent by physicians on order entry.

Team order entry also saves time indirectly by facilitating the implementation of pre-visit laboratory testing. Labs and other tests performed before the visit eliminate the need for inbox review and post-visit results reporting, saving another hour or more per day.

How does having another team member in the room with the physician save time during information-gathering?

Suppose the physician needs additional information during the patient visit, such as the results of a previous imaging study or the patient’s prior medication use history. In that case, the medical assistant or nurse can find that information and verbally communicate it or pull it up for the physician’s review. Physicians don’t need to break their interaction with the patient or break their concentration to hunt for this information.

How does having another team member in the room with the physician save time on visit note documentation and other administrative tasks?

A time-motion study found that physicians spend over one-third of their time in the exam room with patients doing computer tasks. In-room teamwork can eliminate most of the physician's computer tasks.

I’ve heard that the medical assistant or nurse must sign in and out of clinical and clerical roles. Is this true?

The Joint Commission states that “each organization should develop a policy/procedure regarding processes associated with personnel providing documentation assistance. Policies may include proper log-in procedures (such as prohibition of documentation assistants from using the physician or LIP’s log-in), the scope of documentation that may be entered, requirements for physician review of information and orders entered by the documentation assistant, and the order entry and submission process.” To the best of our knowledge, there are no CMS requirements for team members to sign in and out of roles.

What other forms of documentation assistance are available?

Other forms of assistance include:

- Dictation to transcriptionist
- Speech recognition software
- Hybrid speech recognition–transcriptionist approach

We work with medical students. Does the faculty have to re-document any Evaluation and Management (E/M) service documentation entered by the medical student for Medicare patients?

No. CMS documentation requirements changed in 2018 and now allow teaching physicians to “verify” any student components of E/M services, rather than re-documenting the work, as long as this is consistent with state and institutional policies.
Isn't dictation to a transcriptionist too costly?

Many EHRs were implemented with the expectation that costs for transcriptionist services would decrease. Organizations should consider that when physicians are responsible for data entry (either manually or with the help of voice recognition software), the costs of reduced productivity and access to care outweigh the cost of transcriptionist services.

There are also hidden costs associated with poorly configured or difficult-to-decipher notes, including greater time needed to develop situational awareness and a greater chance for errors.

Will speech recognition software save time?

Speech recognition software has received mixed reviews. Some find it a time-saver compared to typing, while others find it more time-consuming—and therefore costlier—than dictation to a transcriptionist.

Some potential challenges of speech recognition software to consider are:

• Additional time required for clinicians to proofread and edit output errors
• Difficulties in subsequently understanding documentation that contains errors that the clinician did not catch at the time of data entry
• Difficulties in reading text that was not formatted for ease of review

Some organizations take a hybrid approach. In this model, the clinician dictates into a speech recognition software program, and the output is then edited and formatted for readability by a transcriptionist.

What about using mobile devices with speech recognition software?

Some organizations have found that this can add flexibility, mobility, and improved functionality to the documentation process.

Our notes are long and difficult to read. It is hard to find the few nuggets of useful information in a colleague's lengthy note. How can we improve our notes and include the most helpful information?

There are a few topics to consider:

• Documentation templates, auto-text, and smart phrases streamline the documentation process. There may be circumstances where such boilerplate text is helpful, but organizations may want to reconsider the value to patient care such text output provides. Organizations and physicians should also be cautious to verify auto-populated data to avoid documentation and other errors that could increase liability.
• A longer note is not necessarily better, more defensible, or more compliant than a shorter note. Longer notes composed primarily of generic text and tick-box documentation can contribute to a hazardous care environment by adding to the cognitive work of sorting through the note for important information and conditioning clinicians to engage with patients in a more generic fashion.
• Some EHRs include features that allow a user to collapse or hide sections that may not add to the clinical history, for example, text added to a note for regulatory or billing purposes.

A combination of narrative and coded data is optimal. Whatever documentation model you choose must capture both the patient's story and discrete (coded) data. A delicate balance by thoughtful clinicians is vital.
Why is narrative data important?

Narrative data tells the story of the patient. Patient stories help us understand the struggle, the challenges, the suffering, and the disease burden for a particular patient. Over-designing the EHR to emphasize clicks and checklists obliterates the patient’s story and makes it more difficult to customize care to the individual patient.

Why is coded data important?

Coded, discrete data is fundamental to spotting patterns, running reports, improving quality, improving consistency, and removing gaps in care. Some health IT experts predict that artificial intelligence and natural language parsing will reduce the need for clinicians to create coded data.

Optimize Teamwork

It is seldom the safest, most efficient, or best business model that assigns new work created by EHR implementation to the physician. Sharing EHR tasks across a well-trained team allows multiple individuals to contribute to the effort and preserves physician resources for work for which they are uniquely trained—medical decision-making and relationship-building.

Components of optimal teamwork could consist of:

- **Effective inbox management.** An unmanageable inbox is a safety hazard for patient care, as well as a driver of physician burnout, reduction of clinic hours, or exit from the practice.⁹
- **Medication reconciliation by other care team members.** Others besides the physician, such as a pharmacy technician, pharmacist, medical assistant, or nurse, can perform medication reconciliation before the physician sees patients.
- **Leveraging the patient portal.** Patient portals can improve the efficiency of results reporting and other communication with the patient. When empowered to communicate with patients and research patient questions before involving the physician, the clinical support team can manage the patient portal.
- **Updated rooming protocols.** Empower clinical support team members by expanding their roles in medication reconciliation, agenda-setting, care gap closure, and quality metric documentation (see the AMA STEPS Forward™ Expanded Rooming and Discharge toolkit). Modify the rooming protocol so that the patient is not automatically put on the exam table but in a chair adjacent to the desk to facilitate face-to-face conversation.
- **Printing selected information for each visit.** There are still uses for paper in an electronic environment. The goal is to provide efficient and excellent patient care, not to be completely paperless. Some physicians find it useful for the clerical or clinical support team to print out a few key sources of information, such as the medication list and/or the last problem list for each visit. A team workflow like this supports practice efficiency and reduces the cognitive workload of medical decision-making.

Q&A

I frequently receive copies of tests ordered by another physician that I do not need to review. Is there a way to turn this feature off?

Some organizations have significantly reduced physician time on inbox work by turning off automatic notifications of test results ordered by other clinicians, hospital reports, and other indirect communications. Additionally, some test notifications become a safety concern as the responsibility for addressing an abnormal result may be unclear.

At the University of Colorado, the primary design principle is single delivery of test results (ie, delivery of the test results to a single team) for 2 reasons:

1. To decrease message volume
2. To avoid diffusion of responsibility (and increasing the risk that no one responds to a test result because it is assumed someone else will respond)

Adding a colleague as a test result recipient to be friendly is strongly discouraged unless a specific action is requested.

Our physicians routinely have 50-100 inbox messages per day. What are some other ways that we can reduce this volume of work?

Consider the following strategies to support this work:

- **Empower teamwork.** Empower a nurse or medical assistant—rather than the physician—to be the first responder to the inbox, passing on to the physician only the minority of messages that require the physician’s engagement, and doing so via the more efficient format of verbal messaging.

- **Use standing orders.** Clinical support team members can renew medications by standard protocols, precluding the need to route renewal requests through the physician. **Synchronized, bundled renewals** of stable chronic medications will relieve a large amount of the prescription renewal burden for the team.

- **Encourage verbal messaging.** In-person communication between physician and team can significantly reduce the volume of inbox messages and save time. In-person communication can be facilitated by **co-location** or by setting aside 5 to 10 minutes at the start or end of each session for the nurse or medical assistant to go over messages with the physician.

- **Analyze high-volume tasks.** Use **team huddles** or **regular meetings** to strengthen team culture and agree to eliminate or use alternate communication methods.

- **Revise the information flow between specialties and primary care.** Review the automated feeds from hospitals, emergency rooms, and other sources of inbox items to eliminate waste and duplication and increase the value of inbox content. Then delegate inbox responsibilities within the local team.

- **Evaluate inbox message sources.** If many inbox messages represent contacts from patients requesting test results, consider this an opportunity to improve processes. For example, **pre-visit lab testing** allows patients to receive lab results in person at the time of their visit and obviates the need for patients to contact the practice for results.

**When can we start medication reconciliation?**

Some organizations find it effective to do this via a phone call 1 or 2 days before the patient’s appointment.

**Can we engage our patients in medication reconciliation at check-in?**

Yes. The receptionist can print the patient’s medication list at check-in and ask the patient to update it while in the waiting room or exam room. It is often easier for patients to review their medicines listed on a piece of paper while a team member is viewing the same list on the computer screen.

Patient-initiated **medication reconciliation** can also be done electronically from a kiosk or with a handheld tablet in the waiting area or in advance of the visit via the patient portal.

**Is there any requirement that only the physician perform medication reconciliation?**

No. The latest Joint Commission National Patient Safety Goals for Ambulatory Health Care say that during medication reconciliation, “a qualified individual, identified by the organization, does the comparison” between the medications or list of medications the patient brought to the visit and the medications the organization has ordered for the patient.10

You can find a summary of the scope of practice laws for medical assistants by state here.
Should every clinician perform comprehensive medication reconciliation at each patient visit?

Some organizations recognize the risk inherent in a clinician reconciling medications with which they are not familiar. In these settings, a clinician reconciles the medications they are responsible for and acknowledges (but does not modify) the other medications.

Should all patient messages go directly to the physician? Our physicians are already overwhelmed with inbox work and are concerned that patient portal use will increase their inbox work.

It is inefficient to designate the physician as the first responder to the patient portal. For greater efficiency, another team member, such as a nurse or medical assistant, can review messages, manage them by protocol, perform research as needed, and then review in person with the physician those messages that require the physician's input.

We've had some patients write lengthy portal messages covering multiple issues, which can be challenging to sort out. How can we handle messages like these?

Consider some of these suggestions for managing lengthy portal messages:

- Some organizations have found it helpful to limit the length of the patient's inbound communication to encourage proper use of the portal and direct more extensive discussion to a more appropriate encounter (eg, a phone or in-person visit). Others have found that it is better not to apply a word limit.

- In the words of one physician, “If a patient writes 'please read these 12 websites and let me know what you think,' my response is ‘You are very thoughtful about your care! Please bring the most useful pages to our next visit so we can discuss this complicated issue in person.’” Directing patients to science-based websites that often end in .edu, .org, or .gov may be helpful.

- Review the length of time that a message can remain active in the portal. Patients sometimes use old messages to start a new conversation, which can cause confusion as the message header does not convey the most recent content.

Some of our patients are not interested in using the portal. Is there anything we can do to increase engagement?

Consider the following suggestions to increase engagement:

- Make enrollment easy. Some clinics routinely help patients enroll in the patient portal during check-in or check-out. For example, at the Ambulatory Practice of the Future at the Massachusetts General Hospital, automatic kiosks for check-in have freed up time for the receptionist to help patients enroll in the patient portal. The team has found that sometimes it just takes a little extra encouragement and assistance—it takes just 30 seconds to sign up for the portal. For patients who may initially feel reluctant, a few words from their physician can help them develop a better sense of how helpful the patient portal is to themselves and their care team.

- Start the login process during the visit. In some practices, a clinician or assistant will close the EHR and log into the portal sign-up page while in the exam room. The team member then leaves the room and lets the patient complete the sign-up process on the spot.

- Nudge with a text message. Other organizations have built functionality within the EHR such that a team member clicks a button while they are with a patient, and the EHR sends the patient a text message prompting them to sign up right then and there.

- Reinforce the benefits. Ask teams to tell their patients that portal use is preferred and allows the team to respond to patients' needs more efficiently.

- Engage family members. In many EHRs, a patient may designate a proxy so that family members can access the portal and help coordinate a patient's care. Setting up a standardized process during check-in or check-out when a patient can designate a proxy can help.

- Recognize that the portal is not for everyone. Some patients will not want to use it.
How can the printed medication list be helpful?

A print copy of the medication list for use in the exam room allows for quick review and re-review while speaking with the patient or considering other data fields in the EHR.

How can the printed last progress note be helpful?

A print copy of the last progress note can lead to less back and forth between screens when in the room with the patient. It also facilitates a connection between the current visit and the prior visit.

Are the paper checklists or questionnaires scanned into the chart?

No, use checklists and patient questionnaires to be more efficient, decrease the care team’s work, and increase patient engagement, but do not feel the need to scan these paper documents into the record.

Are there other examples of printed information that can improve workflow?

Consider using these printed documents to improve workflow:

- Patient Health Questionnaire (PHQ)-9: Some organizations ask patients receiving anti-depressants to complete a PHQ-9 at each visit while in the waiting or exam room. Engaging patients this way can help the care team track their progress.
- Pain questionnaire: Patients can be asked to diagram and characterize their pain on paper.
- Vaccine information statement (VIS): This can be given to patients due for vaccines upon check-in, allowing patients time to read about the immunizations that will be recommended.

7 Optimize User Skills With the EHR

EHRs are powerful tools that take some time and training to master. Users learn best hands-on, so at-the-elbow support at the time of a major software change is beneficial. Users also learn best from their peers and within the context of their own team.
How can we facilitate peer-to-peer learning?

Consider these options for peer-to-peer learning:

- Include a time to share tips and tricks at each department meeting.
- Conduct training by physicians for physicians in the optimal use of the EHR. In larger organizations, this is often segmented by specialty (i.e., internists train other internists, surgeons train other surgeons). A general surgeon can train multiple types of surgeons, and an internist can train multiple subspecialties within internal medicine.

How can we facilitate learning within the practice team?

Consider training the practice as a unit in a new EHR functionality or workflow. In this way, the clerical team, medical assistants, nurses, and physicians can work out the physical and virtual workflows, handoffs, communication pathways, and task distribution.

How can we identify users most in need of intensive training?

Some organizations use EHR-use data to identify clinicians who would benefit from intensive training.

Such training might involve learning how to create a patient overview report, use the auto-correct dictionary, customize smart phrases, use reminders, and use the Social History field to track something personal about a patient.

Optimize Information Flow Throughout the Health System

Some organizations have begun to rethink how information flows throughout the entire health system. Rather than assuming it is preferable or safer to send all information to all potentially relevant parties, these organizations recognize the value of parsimonious information sharing.

Information overload contributes to cognitive workloads, work-after-work, and a hazardous environment for medical decision-making. Not every element of care needs to flow through the EHR, and not every element of care in the EHR needs to be performed by the physician.

What are some examples of reducing information flow that organizations have instituted?

Consider some of the following examples to implement in your practice:

- Send test results only to the ordering physician, and do not routinely send to all other physicians involved in the patient’s care or to the primary care physician. This includes sending hospital test results and daily notes to ambulatory physicians. Sending test results to multiple physicians creates confusion, ambiguity about responsibility for responding to the result, and contributes to unmanageable information overload. It also clutters the inbox with test results for which the receiving physician may not have the knowledge or responsibility to respond. More is not always better in some cases.
- Not all referral notes are of clinical utility to the other physicians involved in the patient’s care. Some organizations, therefore, do not routinely send all referral notes back to the referring physician. These organizations allow these notes to be proactively pulled rather than reflexively pushed.
Some EHRs allow the physician to individually turn on or off notification for tests other physicians have ordered on a mutual patient.

Leverage EHR-Use Data

Measure EHR-use data and track these metrics on the institution's data dashboard. Many EHRs provide access to EHR-use data, such as Lights On Network® in Cerner or Provider Efficiency Profile or Signal in Epic. Other EHR vendors may offer EHR-use data as well. EHR-use metrics include:

- **Work-after-work.** Also known as “pajama time,” this measurement counts the hours the physician is logged into the EHR on nights, weekends, and while on vacation. See Figure 1, Figure 2, and Figure 3 for examples of how work-after-work may impact different physicians.
- **Click counts.** Whether you count clicks per task or clicks per day, tracking and following click data can be useful for identifying opportunities for improvement in EHR set-up, workflows, user training, or accessibility. For example, Atrius Health has found that using a widescreen view saves over 300,000 clicks per day within their organization.
- **Teamwork.** This metric shows the percentage of total keystrokes for a patient visit that the physician performs. A lower score here is generally optimal.

Below are examples of work-after-work data for 3 physicians in the same specialty.

**Figure 1. Work-After-Work: Physician A**
Physician A has 1 hour of work-after-work for every 1 hour of scheduled patient time.

*Image courtesy of Palo Alto Medical Foundation.*

**Figure 2. Work-After-Work: Physician B**
Physician B has 0.25 hours of work-after-work for every 1 hour of scheduled patient time.
Figure 3. Work-After-Work: Physician C
Physician C has 1.5 hours of work-after-work for every 1 hour of scheduled patient time.

The department chair or clinic manager who reviews this data may choose to “go and see” each of these physicians in action to identify best practices that can be more widely shared and gauge the potential for utilizing peer mentors in optimal EHR use.
We just turned on our EHR's EHR-use data. How can we use it?

This data can be used at a high level to understand where clinical resources are being directed. For example, an organization can identify the amount of time their physicians are doing inbox and documentation work during personal time, then develop organizational countermeasures to reduce this time.

The organization can also use this data to identify especially efficient individuals from whom others can learn; alternatively, the data can identify those in need of assistance and for whom increased staffing, training, or both may be prudent.

Why measure work-after-work?

This measure highlights one of the main work-life balance issues associated with EHR use. As its other common name, “pajama time,” indicates, this is work often done at night.

An organization that minimizes work-after-work will very likely have lower burnout rates, which is associated with higher patient safety and satisfaction, better care quality, and better financial success. Data illustrating minimal work-after-work in an organization can be influential in workforce recruitment and retention.

How can “click counts” be used?

This measure can guide local changes, such as badge login in place of keyboard login or to identify optimal pathways for high-volume tasks.

Poor usability is a key criticism of EHR, and this metric is an objective measure that can drive improvements at the local, institutional, and vendor levels. What starts with one physician can grow into organizational change.

How can the “Teamwork” measure be used?

You can use this measure to track the impact of workflow innovations such as team documentation, team order entry, and expanded rooming and discharge protocols.

Conclusion

EHRs can be powerful tools for improving patient care, practice efficiency, and professional satisfaction. Achieving these goals requires effort, beginning at the leadership level. Intentional organizational and individual efforts to leverage the power of the EHR while preserving time and cognitive focus for relationship-building and complex medical decision-making can create a safer, more effective, and more rewarding care environment.

Further Reading

Videos and Webinars


Article Information

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About the AMA Professional Satisfaction and Practice Sustainability Group

The AMA Professional Satisfaction and Practice Sustainability group has been tasked with developing and promoting innovative strategies that create sustainable practices. Leveraging findings from the 2013 AMA/RAND Health study, “Factors affecting physician professional satisfaction and their implications for patient care, health systems and health policy,” and other research sources, the group developed a series of practice transformation strategies. Each has the potential to reduce or eliminate inefficiency in broader office-based physician practices and improve health outcomes, increase operational productivity, and reduce health care costs.

References: