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Migrating Workflows From Paper To Your EHR

In documenting his practice's migration to an EHR, Dr. David Smith found that, "The single area that requires the highest level of attention during the planning and deployment of an electronic medical record is practice workflow."¹ In addition, a Medical Records Institute survey found that most responding practices adopt an electronic health record to improve clinical processes or workflow efficiency.² However, many practices implement an EHR with little workflow planning. Issues include little or no documentation of existing paper workflows as well as limited staff understanding of how high volume work flows (e.g. in-house labs) will be documented in the EHR.

The result can be havoc when a site goes live with their EHR. In fact, we've found that lack of thorough workflow planning is one of the biggest reasons for avoidable losses in productivity and extended work days. As one practice administrator on the east coast commented, "Since we didn't map out most of our EHR workflows before we went live, we had to figure out a lot of them as we went along."

As a result, documentation for some EHR workflows, like reports from so-called non-interfaced labs which came back on paper vs. electronically had to be figured out via trial and error in the middle of office visits. This created long waits for patients and bottlenecks that lasted for weeks. In addition, in their quest to figure out how to enter results for in-house labs, some nursing staff at the site entered the data in one part of the EHR e.g. the so-called workflow module while others entered data directly into individual patient EHR visit notes, creating more confusion and delays for physicians looking for lab results. While most EHR's will automatically "populate" or fill in results that are entered into one part of the record into other sections, variations exist.

Workflows are defined as a series of actions to produce a desired outcome, e.g. a referral. Begin by itemizing your 15 high volume workflows. They might include referrals, messaging, ordering labs, rooming patients, triage and advice, ordering procedures, scheduling, new medication order, medication refills, physician encounter notes, lab results, and procedure results.

Start by posting a paper workflow documentation form on a flip chart in the staff lunch room. See Table 1. for a sample workflow documentation form. Itemize sequential steps in each workflow including which staff member completes a given task in the process. Keep it simple. Noting an estimate of time for each task is

¹ Smith, D, MD, & Newell, L. M. (2002). A Physician's Perspective: Deploying The EMR. *Journal of Healthcare Information Management*;16:2, 71-79.

² Medical Records Institute. *Sixth Annual Survey of Electronic Health Record Trends and Usage for 2004*. (2004). Retrieved July 28, 2006 from: <http://www.medrecinst.com/uploadedFiles/resources/EHR%20SURVEY%20Results-2004-Web.pdf>

useful, but not required. Solicit staff input regarding the sequence of steps or details that may need to be added regarding a given step. Be sure to get support from key physicians before mapping workflows. Repeated communication from key physicians and practice manager about the importance of understanding workflows will ensure staff participation. A paper workflow sequence for diagnostic procedure results might be documented as follows:

1. Results received by clerk
 - electronic, fax, courier, mail, phone
2. Clerk gives results to Nurse/MA
3. Nurse/MA gets chart and attaches results
4. Nurse/MA gives results and chart to physician
5. Physician reviews results
6. Physician documents follow-up if required in chart
7. Physician signs off on results
 - initial and date
8. Nurse/MA reconciles that results received
 - Match with patient and physician
 - Note that results received in tickler file, log book, etc
9. Nurse/physician informs patient
 - phone, letter, at scheduled follow-up appointment

After input has been collected to complete documentation of each step, decide whether the process needs to be improved. After abandoning their initial EHR, Riverton Family Health Center conducted workflow analysis and process redesign before proceeding with a second implementation that was successful. Ricky

Table 1. Sample Workflow Form

Name of Workflow:	
<i>We're seeking input from staff regarding the steps in the workflow noted above. Indicate who does what task, e.g. MA/Nurse takes vital signs. If you think a step is missing, simply add it in the comments section Your input matters! Please attach a copy of paper forms currently used for each activity. Thanks.</i>	
Workflow Task	Comments
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Dyson, practice manager found mapping out and then improving workflows to be "tremendously helpful. We reviewed the ways our paper work flowed and found that our charts were rotating into black holes. It made a

huge difference to examine exactly how we worked together.”³ See the April, 2006 Practice Management News article, *Avoiding Common Pitfalls of EHR Implementation*, for more details regarding redesigning workflows.

After this step, the EHR implementation team and vendor staff can determine how paper workflows can be migrated to your EHR. For example, tests may be ordered for both interfaced labs e.g. CBC, and non-interfaced labs, e.g. a pertussis test that needs to be sent to a health department lab. How will non-interfaced labs be documented in your EHR? While most EHRs enable users to make entries in a variety of ways, to avoid confusion, staff should be trained on one way to document a given workflow step vs. every way that a task could be documented. See Table 2. Procedure Results Workflow: Paper and EHR for a sample worksheet to map paper and electronic workflows.

Table 2. Procedure Results Workflow: Paper & EHR	
<i>Paper Workflow Steps</i>	<i>EHR Workflow Steps</i>
1. Results received by clerk -electronic, fax, courier, mail, phone	1. Results received by clerk -electronic, fax, courier, mail, phone (Same as paper)
2. Clerk gives results to Nurse/MA	2. Clerk gives results to physician
3. Nurse/MA pulls chart and attaches results	3. Physician reviews results and if necessary views clinical information in patient's EHR
4. Nurse/MA gives results and chart to physician	4. Physician signs off on paper results document and notes whether or not to have results scanned into EHR (initials and date)
5. Physician reviews results	5. Physician tasks follow-up (if needed) to Nurse/MA in EHR workflow module
6. Physician documents follow-up if required in chart	6. Physician puts paper results into filing bin for Nurse/MA
7. Physician signs off on results (initials and date)	7. Nurse/MA reconciles results with order and marks as completed in EHR external procedure template
8. Nurse/MA reconciles that results received -Match with patient and physician -Note that results received in tickler file, log book, etc.	8. Nurse/MA files paper results document to be scanned or shredded
9. Nurse/physician informs patient -phone, letter, or at scheduled follow-up appointment	9. Nurse/physician informs patient -phone, letter (may be generated from EHR), or at scheduled follow-up appointment
10. Nurse/MA returns chart to medical records	10. Medical records staff scans or shreds paper results document

Enumerating workflows requires input from all staff and support from key physicians and managers. While staff often feel that they don't have time to document workflows, invariably, we've found it to be an essential learning process that forms the foundation for successful implementation. Benefits include the following:

³ News Feature:DOQ-IT Brings Hope and Structure to Riverton Family Health Center. (2006, May 17). Retrieved July, 26, 2006, from <http://www.medqic.org/dcs/ContentServer?cid=1147808147360&pagename=Medqic/MQNews/NewsFeatureTemplate&c=MQNews>

1. The workflow document serves as a practical EHR training tool and on-the-job quick reference for staff.
2. Staff are usually surprised at the volume of tasks in addition to their own required to complete a given workflow. The result is a better understanding of the complexity of workflows and appreciation of the contribution of others.
3. Specifying EHR workflow tasks enables more consistent data entry by staff as well as better data retrieval
4. The process builds robust staff communication regarding required EHR workflow changes and their rationale
5. Defining workflows assists in EHR system development (e.g. standards for order entry, data collection, content for templates, and what documents to scan)

To summarize, workflow planning is an essential process in EHR migration. Start by identifying paper based workflows as a group, redesigning workflows as needed and then mapping out EHR workflows. See also Table 3.

Table 3. Migrating to EHR Workflows

1. ⇔	2. ⇔	3. ⇔	4. ⇔	5.
Post workflow form on flipchart in staff lunch room (see figure 1.)	Solicit staff input regarding individual workflow steps and copies of forms currently used for paper workflows	EHR implementation team reviews and finalizes paper workflow, e.g. order labs	Redesign workflow as needed	EHR implementation team, including superusers, works with vendor to identify EHR workflow.