Workflow mapping:
a tool for achieving meaningful use

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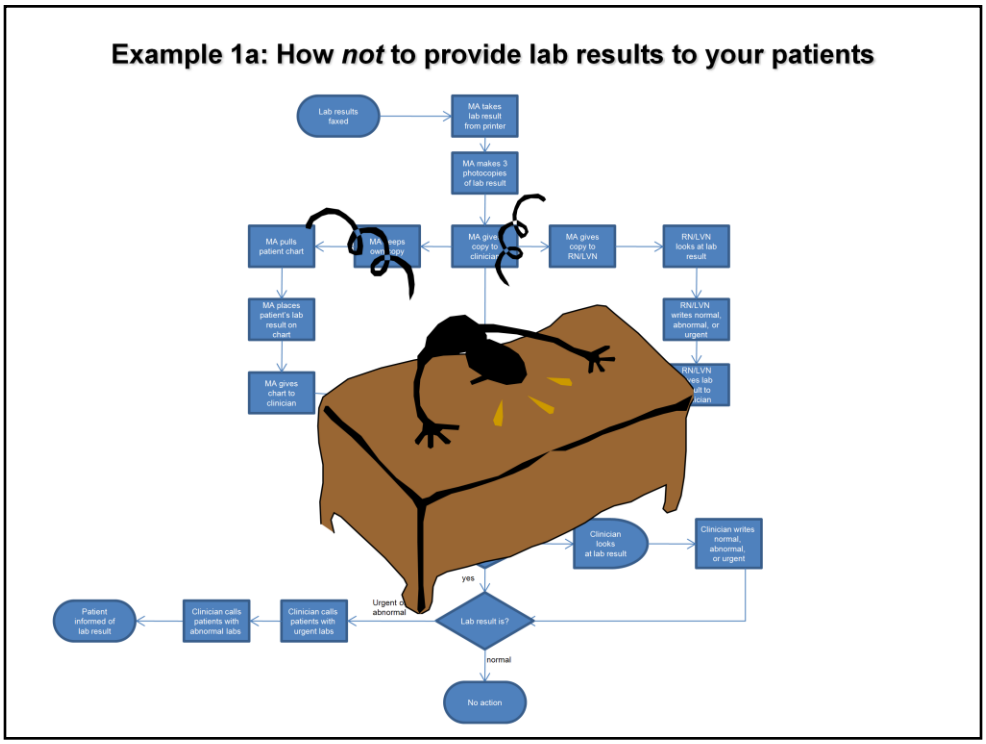
Goals

- **Explain workflow mapping**
- **Discuss why workflow mapping is useful prior to and after EHR implementation**
- **Demonstrate how to create workflow maps**
- **Review some meaningful use workflow examples**

This lesson is designed to be a simple overview of workflow mapping and how it helps practices implement an EHR. There is already a wealth of resources written on the subject of workflow mapping or workflow analysis and how it relates to EHR implementation, but few practices have the luxury of time or an extra staff person to sift through all the documents out there. Some practices choose to hire an outside consultant to help with workflow analysis but with a little guidance, workflow mapping can be performed by the practice themselves.

With that in mind, this presentation will explain what workflow mapping is, discuss the benefits of workflow mapping prior to and after EHR implementation, and demonstrate how to create workflow maps. We will also cover a few example workflows that can help practices achieve specific meaningful requirements for their EHR.

We feel that workflow mapping is essential for a smooth transition from paper to all electronic. Although this presentation primarily focuses on workflow mapping and EHR implementation, workflow mapping has many benefits beyond EHR implementation which we will discuss.



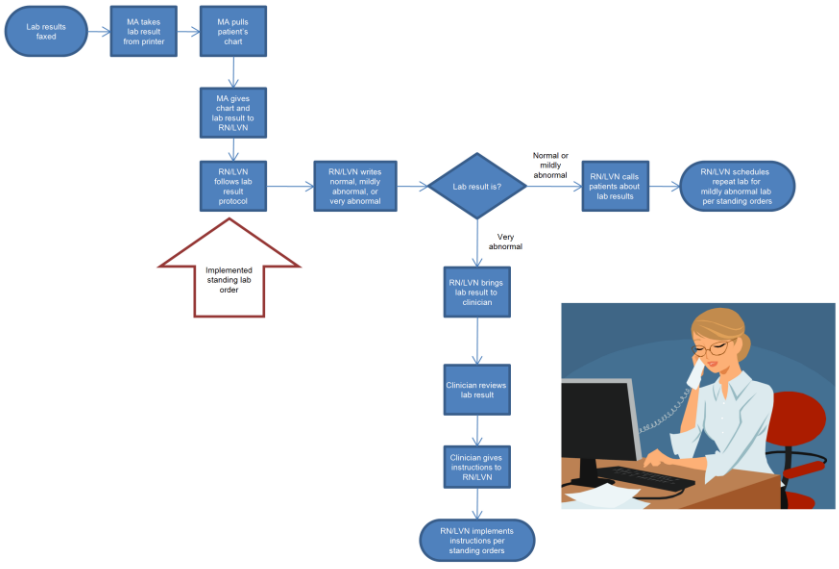
Here is a process that many practices are familiar with: following up with patients and their lab results. Some of you may be grumbling as you think about how frustrating this process can be sometimes. Many practices will probably rank lab results follow-up as the most or one of the most common problems they deal with on a regular basis.

One practice was very aware of the problems around lab result follow-up. They tried different things ways to fix the problems but encountered many failed attempts at improving something. It wasn't until they mapped out the process from beginning to end that they actually figured out the main cause of the problem.

At this practice, when a lab result was faxed to the printer, the MA would receive the fax and make three copies of the result. The MA would then give one copy to the RN/LVN, one copy to the Clinician and keep one for themselves. The MA would then retrieve the patient's chart and puts their copy of the lab result on the chart and places the chart on the Clinician's desk. The RN/LVN looks at their copy of the lab result and writes normal, abnormal, or urgent on it, then places it on the Clinician's desk. The Clinician now has all three copies of a lab result. At some point in the day or night, the Clinician has to sort through all the labs and calls patients with abnormal labs. Patients never learn about lab results that come back normal.

This is a perfect example of how workflow mapping can provide some insight on how things are currently done. After this practice mapped out the process, they realized that the Clinician received three copies of a single lab result whether the result was normal or abnormal.

Example 1b: Lab result follow-up after workflow mapping



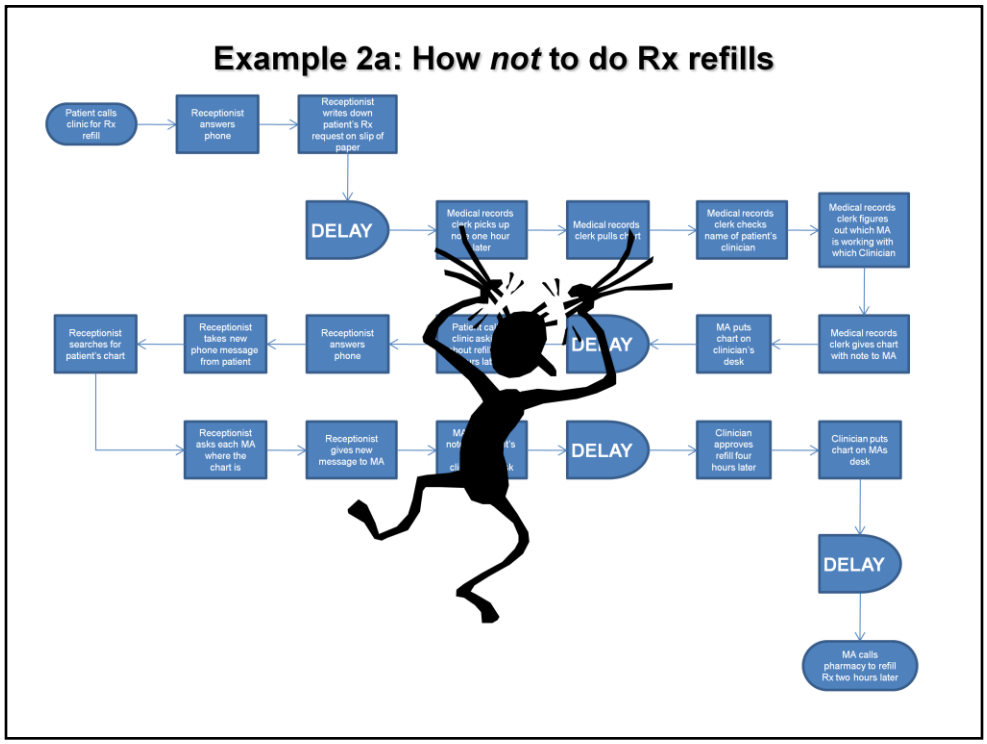
The practice changed the way lab results were handled by writing protocols for the RN to handle lab results.

This is the same practice's new improved process. You can visually see the difference between the new process and the former process, look at how many fewer steps are involved in the new process.

RN/LVNs at the practice now have standing orders for handling lab results. When the results are faxed to the printer, the MA still picks up the lab result, but instead of making 3 copies, the MA hands the lab result to the RN/LVN along with the patient's chart. The RN/LVN contacts patients for normal or mildly abnormal labs. The RN/LVN brings very abnormal results to the Clinician's attention. The Clinician instructs the RN on how to handle the lab result and the RN carries out the orders.

After mapping out the process, this practice was able to see where the waste occurred in the old way of doing things. By eliminating steps that did not add value to the process, like making three copies of the lab result, and implementing protocols for RN/LVNs to follow, the practice was able to inform patients of normal lab results which did not happen previously.

The process on the screen is how the practice envisioned lab result follow up in a paper chart environment. This workflow will change once this practice goes to EHR.



Here is another example of a process with a bad workflow.

Prescription refills are another common headache for practices. This example covers incoming phone calls for prescription refills.

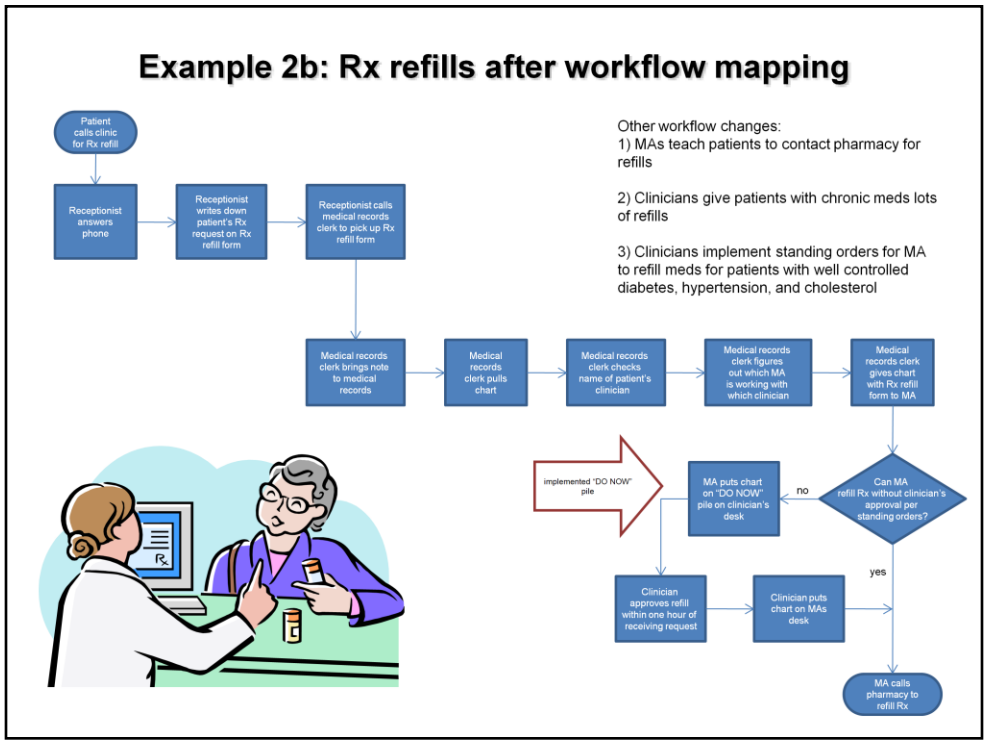
At this practice, the receptionist would take the incoming phone call and write down the patient's request on a tiny slip of paper. The slip of paper would somehow make it's way to medical records and a clerk would pull the patient's chart after an hour has passed.

The medical records clerk then has to figure out which MA is working with which Clinician and gives the chart to the correct MA. The MA puts the chart on a stack on the Clinician's desk. The Clinician is too busy to do anything at the moment.

The same patient calls the clinic 2 hours later asking if the refill has been faxed to the pharmacy. The receptionist takes down another note to put on the chart. The receptionist doesn't know where the chart is so they have to ask all the MAs who has the chart. The receptionist gives the note to the correct MA who puts the new note on the chart sitting on the Clinician's desk 4 hours later, the Clinician approves the refill and puts the chart on the MAs desk. 2 hours later, that MA calls in the prescription to the pharmacy. No one informs the patient that the refill has been approved.

There is a different but similar workflow for faxes coming from the pharmacy for refills.

A lot of time was wasted spent looking for the chart and there was a huge delay in the patient getting a prescription refilled.



After analyzing their workflow map of the prescription refill process, this practice created protocols for Rx refills and 3 major changes to the process

1)MAs began teaching patients about contacting the pharmacy directly for refills rather than the practice and teaching patients how to read labels on medication bottles to know how many refills are left and that the Clinician does not need to be contacted if there are refills left

2)Clinicians started giving patients with chronic medications plenty of refills

3)Clinicians wrote standing orders for MAs to do refills without checking with Clinician for patient's with well-controlled diabetes, hypertension, and cholesterol.

These three changes did not fix the workflow directly, but reduced the number of refills that had to go through the bad workflow by 60%. For the other 40%, the MA placed refill requests on a separate "DO NOW" pile on the Clinician's desk, instead of on the stack already there. It became a practice expectation that the Clinician would authorize refills within an hour of it coming to their desk)to avoid extra phone calls from the pharmacy).

People in the practice are happy and patients are happy because there is less delay in getting refills.

In the previous two examples, we showed you how workflow mapping helps improve process in the paper chart world. Now many of you are probably asking yourselves how does fixing a process pre-EHR help for the post-EHR world? The answer is because the protocols have been done and they are just as relevant for the post-EHR world in reducing Clinician time and reducing patient delay in getting refills, lab results, you name it.

In the post-EHR world, there would have to be rules about which inboxes prescription refills would be routed to so that Clinicians would not get everything in their inboxes. That would require front desk staff to learn the protocols. Having the protocols already in place before EHR implementation can help practices maximize their use of the EHR.

What is a workflow map?

- **A visual representation of a process**
  - **A process is a series of actions, steps, or tasks performed in a certain order to achieve a certain result**
- **Defines the beginning of a process, the end of a process, and all the steps in-between**
- **Defines who does what in the process**
- **A measurement of what *IS***

Before we go into reasons for doing workflow mapping, the first thing we need to cover is “what is a workflow map.”

If some of you are drawing a blank to what a workflow map is, don’t worry, they are not as complicated as they sound. Some of you may already be familiar with workflow mapping but may know it as a different name. Workflow mapping, flowcharting, workflow analysis, clinical review process are a few different terms people use to describe a method of visually representing a process.

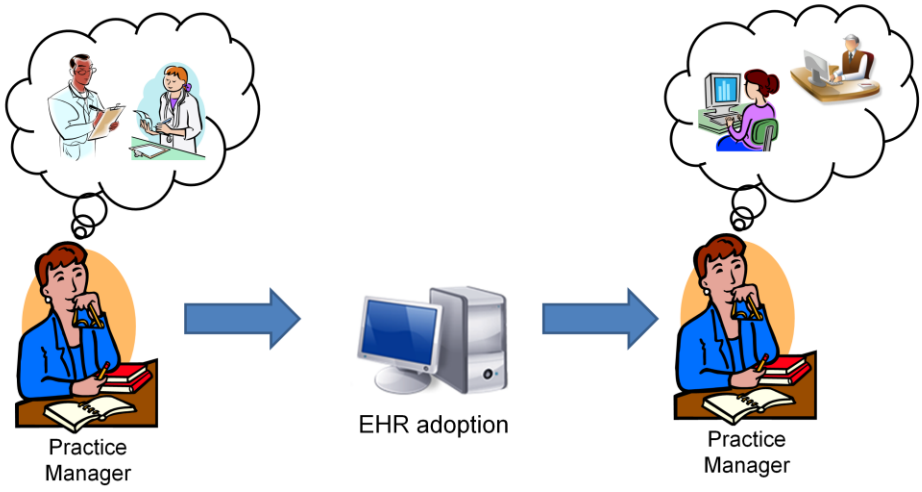
In a process, a series of actions, steps, or tasks are performed in a certain order to achieve a certain result. There are many processes within a practice that are repeated on a daily basis such as registering patients for their appointments, rooming patients, refilling medications, answering telephones, and many more. The steps in each process usually follow some kind of sequential order.

Workflow maps let you graphically see how work is currently done in your practice. Workflow maps use symbols along with words to show how certain things get done in the practice. Workflow maps can also be used to show how certain things move through a practice like patients or a paper form.

Workflow maps give practices an easy and quick way to see the entire process from beginning to end and all the steps that occur in between. Workflow maps also show who performs each task.

When doing workflow mapping, it is okay if your practice workflows are chaotic. If your workflows in the practice are problematic, encounter lots of delays, or have double work, make sure to show it on your workflow map. Workflow maps can only provide insight to why things happen, or in some cases why things don’t happen, if you represent your current processes as IS.

Workflows before implementing EHR are different from those after



Workflow mapping pre-EHR reveals inefficiencies and waste

- **Workflow mapping helps practices**
  - **Identify inefficiencies, waste, and dangers**
  - **Eliminate wasteful steps**
  - **Streamline complicated workflows**
  - **Standardize how work is done**
- **Example 1 (lab results): workflow mapping uncovered unnecessary steps that could easily be eliminated, making life easier for physicians and staff**
- **Example 2 (rx refills): workflow mapping showed that big changes were needed to eliminate waste and reduce patient delays**

When people are working through the process trying to get from point A to point B, they usually do not have time to stop in between steps and think “gee, I wonder if this step is really necessary.” It’s when they step back and really look at the process as a whole, they can see the inefficiencies in the process.

Workflow maps can help staff identify inefficiencies, waste, and potential dangers in the process that they may not have realized existed such as delays, bottlenecks, and processes that lead to dead ends.

Workflow maps can help eliminate wasteful steps. Complicated workflows can be streamlined and standardized.

In example 1a lab result follow-up, workflow mapping helped the practice figure out that the MA was making 3 copies of the same lab result. This was determined to be an unnecessary step that could easily be eliminated. The practice also saw that there was a bottle neck in work for the Clinician who eventually ended up with all 3 copies of the lab result.

In the practice’s new lab result process, the MA no longer makes 3 copies of the lab result, instead she gives it to the RN/LVN with the chart. The RN/LVN also now follows protocols instead of always giving the result to the Clinician. Life is much easier for physicians and staff.

In example 2 for Rx refills, workflow mapping showed that there were a lot of delays in the patient getting their meds refilled and a lot of running around finding people and charts. The practice reduced the volume of meds that needed to be refilled by training MAs to educate patients on contacting the pharmacy about refills and eliminated a few delays. The process was able to be streamlined.

Workflow mapping pre-EHR: Tailor EHR to meet practice needs

- **Mapping out processes before EHR implementation helps practices decide how to use the EHR**
- **Workflow mapping demonstrates what protocols and standing orders are needed to redistribute work**
- **Workflow maps help practices work with their EHR vendor so that the vendor understands how each person will use the EHR**
- **Examples 1 and 2: protocols and standing orders written pre-EHR adoption delineate who does what, which facilitates implementation of the EHR**

Some of the reasons for purchasing an EHR are they will improve patient safety and care, make visits better for the patient, increase productivity for Clinicians, and increase revenue for the practice. But if your office processes are not working well currently, an EHR will not be the miracle cure for all your practice's problems. Getting used to the new technology has been shown to disrupt workflows and decrease productivity. All the advertised benefits to having an EHR come after a practice has figured out their workflows.

Optimizing your paper workflows can help prepare for EHR implementation because it helps the practice develop strategies to make the work go better. In examples 1 and 2 protocols and standing orders were written prior to EHR adoption to help the practice figure out who needs to do what in the workflow.

For the lab result workflow, the RN and Clinician were doing duplicative work by having to review the lab result to see if it was abnormal or normal. The protocol helped delineate job descriptions better.

The protocols and standing orders that were developed to improve paper workflows are just as applicable for computer workflows. These protocols and standing orders help practices determine how they are going to actually use the HER.

A practice cannot take full advantage of all the functionalities of the EHR if the clinic is unsure of its workflow goals.

Many EHRs come with features that can be customized in a specific way or features that can be turned off completely. Knowing all the capabilities of your EMR and then aligning it with how you want work to get done can greatly increase productivity.

The better a practice understands how to use the EHR can facilitate communication with the EHR vendor. If the EHR vendor knows that there is a protocol for nurses to handle lab results that are normal or mildly abnormal, the EHR could potentially be built so that lab results that meet the criteria of "normal or abnormal" based on the protocol are sent directly to the nurses inbox rather than to the Clinician who would then have to forward it on to the nurse, this will save time.

Workflow mapping post-EHR: EHR is a huge change

- Going from paper to EHR changes every single thing in a practice
- Roles will change
  - What will medical records clerks do?
  - Medical assistants will enter vital signs electronically and provide more services in the rooming process
  - Clinicians will type progress notes and use templates
  - E-prescribing often shifts all refill work to Clinicians' inboxes
- Example 2 (rx refill): Post-EHR workflow can be set up so that Clinicians do not handle every refill. This depends on pre-EHR workflow redesign

When you implement a change in your practice, every aspect of your practice will be touched, and possibly changed in some way.

Switching to an all electronic systems is not as simple as replacing paper with a computer. All workflows which relied on the use of a paper chart will be affected. All processes that included writing something down in the chart, pulling a paper chart, printing out documents to place in the chart will change!

Not only will the tasks involved with the process change, but the people who perform will need to learn how to do things differently. Your practice will need to think about how roles will change.

That full time person your practice hired to pull and file charts will no longer need to do that since all patient records will be obtained from the computer.
Medical assistants will need to enter vital signs electronically and provide more services during the rooming process, things that they may not have learned in their training because it was never a part of their job in the past.

Clinicians will no longer be able to handwrite notes. They will need to learn how to type, and type quickly, or how to use templates to chart.

E-prescribing of medications will also put a lot more refill work on the Clinician's plate as refills are sent to Clinician inboxes.

In example 2 (the prescription refill process)
Performing workflow mapping after EHR implementation is just as beneficial to a practice as it is before.

Workflows post-EHR: shows practices how best to use EHR

- **EHR implementation tends to push work back onto the Clinician. Workflow mapping can prevent this**
- **Workflow mapping helps staff look at entire process and think how their work fits into a larger system**
- **Workflow maps help practices decide which personnel they need post-EHR**
- **Example 1 (lab results): If a practice does not have a RN or LVN, Clinicians need to review all labs. If the practice wants to delegate lab review to another team member, the practice would need a RN or LVN because MAs cannot review labs. Also, the practice will not need a medical records person.**

If my practice was in the midst of adopting an HER, I would not want to waste time figuring out how I could best use the HER. After your practice has adopted the HER, doing workflow mapping can show practices the best ways to use the HER.

EHR implementation tends to push a lot of work back onto the Clinician and workflow mapping can prevent this. In example 1b, the MA receives a physical copy of the lab result that she can pass to the nurse. After the HER arrives, lab results are sent electronically from the lab to the Clinicians inbox

Who's involved with workflow mapping?

- **One designated person**
  - **Oversees the team and keeps tasks on track**
  - **Understands all aspects of the process in detail**
  - **Drafts the initial workflow map**
- **The team**
  - **Decides what processes to map**
  - **Everyone involved in a workflow should be part of the mapping process**
  - **Discusses accuracy of the workflow map after it's been drafted**
  - **Perfects the process and maps it out**

We feel that workflow mapping is a team activity but some aspects of workflow mapping will need to be distributed to specific members of the team. We broke this slide up into the responsibilities of one designated person and then the responsibilities of the team. We describe the role of the designated person before that of the team because one person begins the workflow mapping process and the team ends the process.

One person will need to take on the role of EHR implementation leader who oversees the team and keeps the team on track. This person will most likely be the medical director of a practice, another member of the practice management team such as a nurse or operations manager, or it may be a physician interested in quality improvement. This person will need to be able to leverage changes in the practice.

The EHR implementation lead will have to choose a team to do workflow mapping. If a team already exists in the practice like a quality improvement committee, that team can be the EHR implementation team. If no team currently exists in the practice, the EHR implementation lead will have to form one. When forming a team, it is very important that it is a multidisciplinary team, meaning that staff who work in different areas should of the practice should be included, for example front office, back office, etc.

If your practice is quite small, like a 2-3 doc practice with 1 MA, 1 RN and an operations manager, your team should include the entire staff.

If your practice is a little larger, choose people who are interested in EHR implementation to be on your team.

The team will need to agree on which process to map out first.

One person on the team, not necessarily the team leader, will need to understand the process that has been chosen to be mapped in detail. This same person ideally would also be responsible for drafting the initial workflow map.

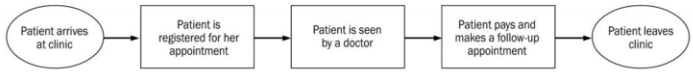
The mapping process may go quicker if the person designated to draft the initial work is very familiar with the process. For example, if your team wanted to map out the patient rooming process, the best person to map out the process would be an MA since they have the most experience with the process.

After the initial workflow is mapped, the team will reconvene to discuss the accuracy of the map, discuss potential changes to improve the process, and then map out the new improved process.

Types of workflow maps

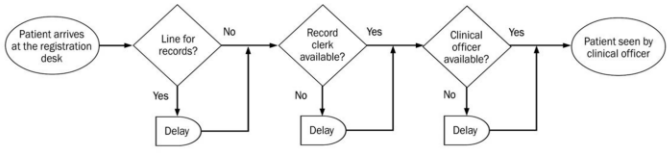
High-Level Flowchart: Shows the major steps of a process. A high-level (also called first-level or top-down) flowchart illustrates a "birds-eye view" of a process.

High-Level Flowchart of Prenatal Care



Detailed Flowchart: Provides a detailed picture of a process by mapping all of the steps and activities that occur in the process. This type of flowchart includes such things as decision points, waiting periods, tasks that frequently must be redone (rework), and feedback loops. This type of flowchart is useful for examining areas of the process in detail and for looking for problems or areas of inefficiency.

Detailed Flowchart of Patient Registration



There are a few different ways to format a workflow diagram, two types of workflow maps that we will discuss here are the high level flowchart and a detailed flowchart.

A high level flow chart also known as a first level or top doen flow chart shows the major steps of the process. The major steps being the beginning, end, and a few steps in between. This is the most basic flowchart to create and is good at providing a birds eye view of the process. This type of flowchart is not meant to show all the little details of a chart but to help visualize the entire process with the most important steps. This type of flowchart should be limited to 5 boxes.

Another type of flowchart is the detailed flowchart which provides a detailed picture of the process and maps out all the steps or activities that occur in a process. This type of flowchart includes decision points, delays, tasks that must be redone and feedback loops. This type of flowchart looks at the process in much more detail than the high level one. This type of flowchart is most useful when trying to identify inefficiency and waste in the process.

Whether you choose to use a high level flowchart or a detailed one, be sure to indicate who performs each step of the process.

Know your symbols

	START/END: Indicates the start and end points of a process
	OPERATION: A specific task or activity that is performed
	DECISION POINT: A point in the process where a yes/no question or a decision is required before moving on to the next step
	DIRECTION: Arrows connect steps in the process and direct flow of information
	DELAY: Indicates the workflow goes into a wait
	OFF-PAGE CONNECTOR: Refers to a process located on another page
	ON-PAGE REFERENCE: Refers to a step in the process located on the same page
	UNCLEAR: Use this when a step in the process is unknown or not clear

Note: There are many more symbols than those listed, but these are the most commonly used ones

Before diving in to how to do workflow mapping, we will go over a few basic symbols.

I say a few symbols because there are a lot more symbols that you can use in more complicated workflows. These symbols are the more commoly used ones.

The first four symbols are the most crucial to workflow mapping.

The first symbol is an elongated oval shape that represents the start and end points of a process. All process have a start and end symbol and some process may have more than one starting or ending point.

A rectangle is used to represent a step that is performed in the process.

A diamond is used to represent a point in the process where a decision must be made before moving on to the next step. The decision can be a yes/no question or a question with a choice of answers. Not all processes will have a decision point

An arrow is used to direct the flow of information. Arrows connect different steps in the process.

Elongated semicircles are used to represent delays in the process.

The pentagon shape is used to refer to a separate workflow that is located on another page.

A circle is used to refer back to a step in the process that is located on the same page as your map.

A cloud is used to symbolize a step that you may be unclear about.

Simple steps for workflow mapping

- Step 1. Pick a process to map out, pick which type of workflow to use, and agree on its purpose
- Step 2. Determine the beginning and end points
- Step 3. Identify each step in the process
- Step 4. Put the steps in order
- Step 5. Review and edit the first draft
- Step 6. After a day or two, review the flowchart with the team for input

Speaker:

Here are a few simple steps for workflow mapping.

The first step in the process of workflow mapping is a combination of a few steps. Step 1 is the prework that needs to be done by the team before the one designated person can actually start drawing the map.

Step 1 involves choosing a process to map, picking out which type of workflow you want to use, and agreeing on the purpose of the workflow map. Now, picking out a process to map in itself may be a long drawn out process for some practices which we will not discuss in this presentation. One tip would be to choose a process that is the most time consuming, most labor intensive, or a process that generates the most patient or staff complaints. If no one process immediately comes to mind, a process assessment tool like the "Know your processes-Practice core and supporting processes assessment" evaluation form from Dartmouth's Clinical Microsystems can be used to help identify the first area of focus or just simply poll the members of your team or practice staff.

Then you will need to figure out if you want a high level or a detailed workflow map. A detailed workflow map is more insightful but they can get complicated if the process is complicated. The team will also have to agree on how the workflow map will be used. Are we just trying to figure out what's going on? does your team plan on improving the process after it's been mapped?

Steps 2 -5 is the actual creation of the workflow diagram which is performed by one designated person. These steps can be done with a pencil and paper or you can use post it notes or cut paper into shapes to represent each of the steps. There is also software available specifically for creating workflow diagrams such as Microsoft Visio. If you aren't willing to pay for a program, you can also create flowcharts using microsoft office applications like word or powerpoint, which most practices have invested in. All the workflows in this presentation were made using powerpoint. One piece of advice is to draw out all the shapes and arrange them in order before drawing the connector arrows. This makes it easy to move steps around.

Place the beginning and end steps in their appropriate symbols. Then place each step of the process in the correct symbol, but do not add the arrows yet. Move the symbols around on the page until you decide on an order that is logical. Remember, you are mapping the process as is, not what it would ideally be. Then add the arrow connectors.

Step 2 is to figure out the beginning and end points of the process. Some process may have more than one beginning or end point and that's okay. Think about what signifies the beginning of the process and how do you know when the process is over.

Step 3 is identifying each of the steps in the process and who performs each step. It may be helpful to brainstorm all the steps on a separate piece of paper before placing the steps in symbols.

Step 4 is putting all the steps in order. Some guides will recommend drawing the connecting arrows after all the steps have been drawn because you may want to change the order of steps as you get more and more information about the process.

Step 5 is to review the first draft to make sure it's in a somewhat logical order and make edits if needed.

The last step is for the team to review the initial draft of the workflow map and have the team give input.

One point that cannot be emphasized enough is that the person maps the process AS IS. If the process ha multiple dead ends and bottle necks, these things need to be elicited or else it cannot be improved upon. You can't fix something if you do not know what is wrong with it.

What to do with your workflow map

- **Look at your workflow map and examine it**
  - **Beginning and end points**
  - **Each activity and wait symbol**
  - **Decision points**
  - **Hand-offs (where one person finishes his or her part of the process and another person picks it up)**
- **Ask questions about the workflow map**
  - **Does that step really need to be there?**
- **Map out the improved process**

The workflow map that has just been created has a wealth of useful information if you know what to do with it.

After your workflow map has been approved by the team, look at it closely and ask questions as you examine the map! Examine the beginning and end points, take notice if there is more than one beginning step or more than one end step. Look at the number of activity symbols and number of delays in the process. Pay attention to how many times the process branches due to a decision point in the process. Look at where tasks in the process change hands and how many times these hand offs occur in one process.

Then question the process! For beginning and end steps, can you streamline the process so that there is just one beginning and one end point. Ask yourself and the team is that step really needs to be there. Can the wait in the process be removed somehow? When the process branches out does the process loop back or does it lead to a dead end? Can this person perform this task so the process doesn't have to change hands so many different times.

Does the process even make sense the way it's being done now?

After questioning the process, figure out a way to improve the process. Get rid of a step and see what happens or develop a protocol so work doesn't get piled up for one person.

How *not* to do workflow mapping

- **Map out the processes you *wish* you had**
- **Interview a few key informants to understand the process instead of shadowing everyone involved in the process**
- **Ignore the opinions of those people who know the process best**
- **Put your workflow map on the shelf and don't look at it again**

Workflow mapping can be done in a way that is not useful for your practice.

One of the ways where workflow mapping can go wrong is if you mapped out the process you wish you had, with major emphasis on the word wish. Sometimes when people start mapping out things, they somehow end up with a diagram of how they want the process to look and not how the current workflow actually looks. If the purpose of doing workflow mapping is to figure out what's going wrong in a process, a workflow map of the perfect process will not help because the minor pitfalls that may happen during the process will not be included.

If your team has already mapped out their current process, and discussed some potential solutions to fix the problems then it is okay to map out the ideal process.

Another way that can make workflow mapping a little less useful is if the person drawing the workflow map does not capture the entire process or does not capture the process in detail. This would happen if the person drawing the map only interviewed a few staff members, I'll call them key informants here, associated with the process. In process that change hands multiple times, not everyone will know what the previous person or what the next person in the process will do because naturally we only care about what we have to get done. The best way to figure out the process from start to end is to shadow the people involved and ask questions. Another reason why shadowing people is beneficial to workflow mapping is to figure out all the variations in how the task is performed. Shadowing people may take a little more time; if it's not possible to shadow multiple people, be sure to have input from those who know the process the best.

This leads to another point on how not to do workflow mapping, which is ignoring opinions of those people who know the process the best. For example, no person in the practice will understand all the intricacies of the rooming process better than a medical assistant or a nurse because they do it on a daily basis, or a receptionist will know best how phone calls are handled in the clinic. Getting input from those who know the process the best can assist the workflow process and ensure that it is an accurate representation of what goes on.

The last thing you don't want to do when workflow mapping is to put the workflow that someone just created on the shelf and not look at it again. Having a diagram of the most complicated practice problem is great, but that is only half of workflow mapping, the other part is using it to make things better. Take the workflow map to staff meetings for discussion, post it on a wall with a suggestion box underneath with a sign that reads "how can we fix this".

Achieving meaningful use requires workflow change

- **Meeting meaningful use requires practice staff to perform functions they may not have performed before**
  - **Example: Practices will need to provide patients with an after visit summary**
- **Meeting meaningful use requires efficient high-quality and patient-centered use, not just any use, of the EHR**

Now that we have explained what a workflow map is, discussed the reasons for performing workflow mapping pre and post EHR implementation and demonstrated how you do workflow mapping, we are going to go over example workflows to meet meaningful use requirements.

We included this section in this presentation to give concrete examples of workflows that will be relevant to how practices will deliver care.

Achieving the meaningful use objectives will require a workflow change whether you realize it now or not. We've already discussed how big of a change an EHR is to a practice. The common theme throughout the example workflow slides is that meeting meaningful use will require practice staff to perform functions they may have never performed before, like providing patients with clinical summaries after office visits, or practice staff may perform the same functions, like documenting vital signs or refilling prescriptions, but they will have to learn an entirely new way of doing things.

As we have all probably experienced, change can take a while to get used to. Workflow mapping can however help your practice prepare for the changes beforehand.

If there is no plan on how to use the EHR, the training will be less useful to staff because everything will be theoretical and the training is more of a tutorial on how to use the functions of the EHR, which does have value, but it could have been a session on how a practice can use the EHR to do what it needs to get done; these two things are very different.

Meeting meaningful use requires efficient high quality and patient centered use, not just use, of the EHR. Workflow mapping can help a practice figure out how best to use the EHR, and once a practice has figured out what works in their practice, it will be much easier to achieve meaningful use. Many practices who are not prepared for the change will struggle with EHR implementation.

Meaningful use criteria: Stage 1

Core requirement	Workflow changes needed?	Workflow change ideas
Record patient demographics	Yes	Someone in the practice needs to enter and update demographics
Record vital signs electronically	Yes	Medical assistant adds to rooming tasks: calculating BMI, entering height, weight, BP, growth charts into EHR
Maintain up-to-date problem list	Yes	Clinicians often fail to keep problem lists updated. MA reviews problem list during rooming and reminds clinician to update. MA does not make updates in EHR
Maintain active med list	Yes	MA does med-rec during rooming and makes or pends updates in EHR
Maintain active allergy list	Yes	MA has series of questions about allergies and is responsible for this task
Record smoking status	Yes	MA adds this to rooming task and could do brief counseling (readiness to change, perhaps call state quit line)

The next 3 slides summarize the 15 core requirements and the menu of 10 additional tasks from which practices can choose 5 of. We created a chart summarizing whether a workflow change is needed and some workflow change ideas to get practices thinking about what they can do to meet meaningful use.

You will see that not all of the meaningful use objectives requires a workflow change, some of the meaningful use requirements are functions already built into the HER and will require talking to your vendor.

The first core requirement is to record patient demographics. This does not require a workflow change as most practices already enter this information electronically into their billing systems.

Recording vital signs electronically does require a workflow change. Most Mass already do this, except they write it in the chart.

Maintaining up to date problem lists will require a workflow change. This is something that clinicians often fail to keep updated. A MA would not be able to make changes to the problem list but an MA could review the list with the patient during the rooming process to see if any acute conditions have been resolved and then the MA can remind the clinician to update it in the HER.

Maintaining active medication lists requires a workflow change. MAs could perform this during the rooming process but will need to be trained on how to do medication reconciliation or med rec. it will be a practice policy as to whether or not a MA can make actual changes in the med list. Some EHRs may have a function to pend updates which the clinician can review.

Maintaining active allergy lists and recording smoking status are two other workflow changes that can be performed during the rooming process by an MA. With some training, MAs could even do brief counseling with patients who are current smokers.

Core requirement	Workflow changes needed?	Workflow change ideas
Provide patients with clinical summaries for each office visit	Yes	The clinician does this and trains MA to carry it out
E-prescribing	Yes	For initial prescriptions, clinicians do the e-prescribing, but for some chronic refills, MA could do the refill based on standing orders from clinician
Drug-drug and drug-allergy interaction checks	No	
Exchanging electronic information with other sites of care	Yes	Care coordinator (probably RN) can assist clinicians with this, particularly tracking/follow-up. If there is no RN, a workflow map would show which steps could be performed by a non-clinician staff person
Implement a decision support rule and track compliance with the rule	Yes	Tracking compliance could be done by RN care manager
Systems to protect privacy and security of patient data	No	
Report clinical quality measures to CMS or states	Yes	Someone would be responsible, perhaps practice manager. The responsible person would need training in CQI, numerators and denominators, measures, etc.

A new workflow that many practices may not be used to is providing patients with clinical summaries after office visits. Hospitals would have to provide discharge instructions on request. A clinician could do this or a clinician could create a template for a clinical summary and train the MA on how to print it out.

In this meaningful use summary chart, we combined two objectives surrounding prescriptions into one objective called e-prescribing. Practices must be able to generate and transmit permissible prescriptions electronically and practices will need to start using computer Clinician order entry for medication orders. Clinicians would have to start using the computer to prescribe and refill meds. MAs could eventually take on this role for chronic meds based on standing orders from the clinician.

Practices will be required for drug drug and drug allergy interaction checks, these do not require a workflow change since this functionality is built in to most EHRs.

Exchanging electronic information with other sites of care does require a workflow change. A care coordinator (most like an RN) may be able to assist clinicians with this, particularly tracking and follow-up of information.

Practices will need to implement at least clinical decision support rule and will need to track compliance with this rule. Someone at the practice would need to track compliance with the rule, this role would most like be taken on by an RN care manager.

No workflow changes are required to protect privacy and security of patient data, approved EHRs will already have met this requirement.

The last required objective is to report clinical quality measures to CMS or the state. This does require a workflow change, someone on the larger team would be responsible, perhaps RN care manager. The responsible person would need training in CQI, numerators and denominators, measures, etc.

Menu of additional tasks (choose 5 out of 10)	Workflow changes needed?	Workflow change ideas
Drug formulary check system	No	
Lab results into EHR	No	
Generate lists of patients for QI or outreach (registry)	Yes	The generation of the lists is a technical issues, but panel managers will be needed to work the lists to see which patients need which services, and provide out-reach or in-reach. MAs could be the panel managers except their workload is becoming excessive. MAs would do in-reach.
Electronic health education resources	Yes	Health educator is responsible (if available), but clinicians/MAs would also provide the information to patients
Med reconciliation between care settings	Yes	Between settings is complex, but within the primary care practice, MA can do med-rec as part of rooming
Summary of care record for referrals and transitions	Yes	This is mainly a clinician function but it also needs to be tracked and reminders done (MA and/or RN care coordinator)
Immunization data to regional registries	Yes	Someone on team responsible
Surveillance data to public health agencies	Yes	Someone on team responsible
Patient reminders for prevention/chronic care	Yes	This is a panel manager task
Patient access to lab results, problem and med lists, allergies	Yes	Creating a secure patient portal is technical issue, but actually providing the information would be an MA task

Practices will be able to choose 5 additional objectives from a list of 10.

EHRs will need to be able to implement drug formulary checks and lab results will need to be entered into the EHR. Both of these objectives do not require a workflow change.

Practices can choose to generate lists of patients for QI or outreach (registry). The generation of the lists is a technical issues, but panel managers will be needed to work the lists to see which patients need which services, and provide out-reach or in-reach. MAs could be the panel managers except their workload is becoming excessive. MAs would do in-reach.

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Patient reminders for prevention/chronic care
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This is panel manager task
Patient access to lab results, problem and med lists, allergies
Yes
Creating secure patient portal is technical issue, but actually providing the information would be MA task for her teamlet's panel

Suggested workflows for meaningful use

- **The following workflow are examples**
- **How your practice works may be different**
- **Pilot the EHR workflows with one MA or one receptionist and one clinician and a couple of patients to see if they work**

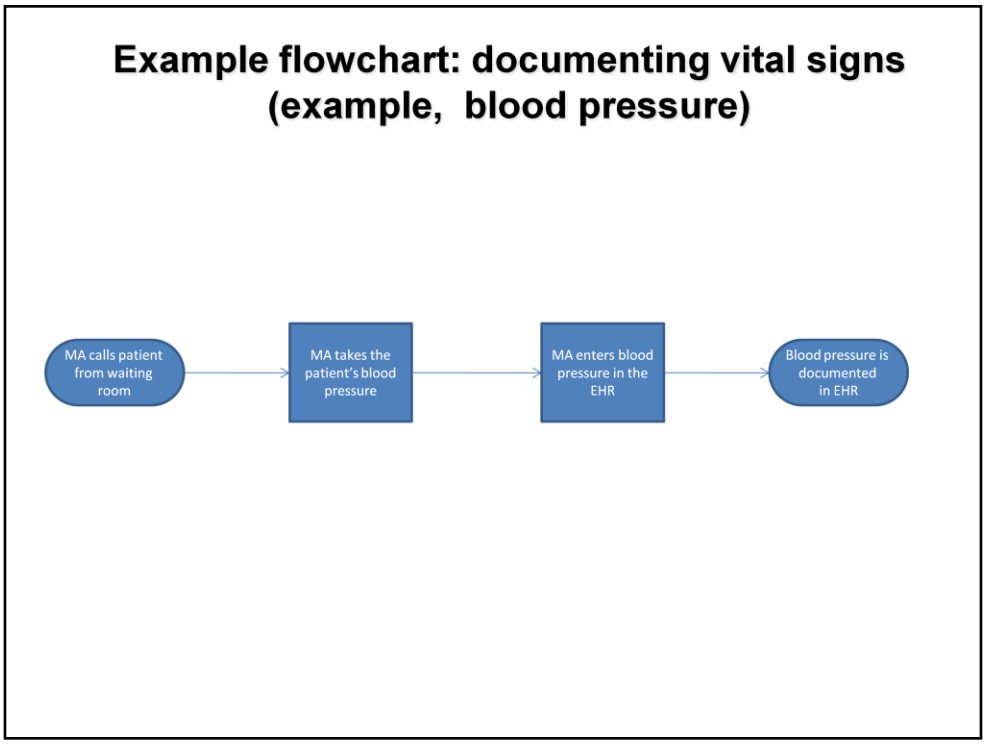
In the next few slides, we will go over some suggested workflows to help practices achieve meaningful use of their HER.

You are all probably aware that in order for practices to achieve meaningful use and get incentive payments that practices will have to meet 15 mandatory use objectives and choose 5 other objectives from a menu set of 10.

We will not be covering all 25 potential workflows. We chose 7 different requirements to go over because the workflows for these 7 requirements are similar regardless of HER choice and regardless of the type of practice you work in. We will cover an 8th workflow on how practices can change a job description. This is not a meaningful use requirement but is may be critical for aiding practices to achieve meaningful use.

i would like to make a disclaimer that the following workflows are just examples, and we are well aware that your practice may work differently. The point of reviewing these workflows is to get practices thinking about what adjustments need to be made in your current workflows; how work will get done once the EHR arrives or how staff may take on different responsibilities.

Your practice can use these workflows or you can modify them to fit your practice's needs. Either way, it is a good idea to pilot the workflows with one MA or with one patient. Test the workflow out on a small scale to see what parts of the process work or don't work. And if things in your proposed workflow map do not work out the way you expected them to, you can easily go back to your workflow map and make the improvements.



This is an example workflow for documenting vital signs.

This workflow begins when the MA, or whoever rooms patients at your practice, call the patient from the waiting room. The MA then takes the patient's vital sign, and then enters the vital signs into the computer, and the process ends. Vital signs refer to height, weight, and blood pressure.

The pre and post HER workflow for documenting vital signs is not very different and it may seem like a really simple workflow for some in the audience. The difference in documenting vital signs pre and post HER is the MA will be entering the vital signs into the computer instead of writing down the vital signs in the chart.

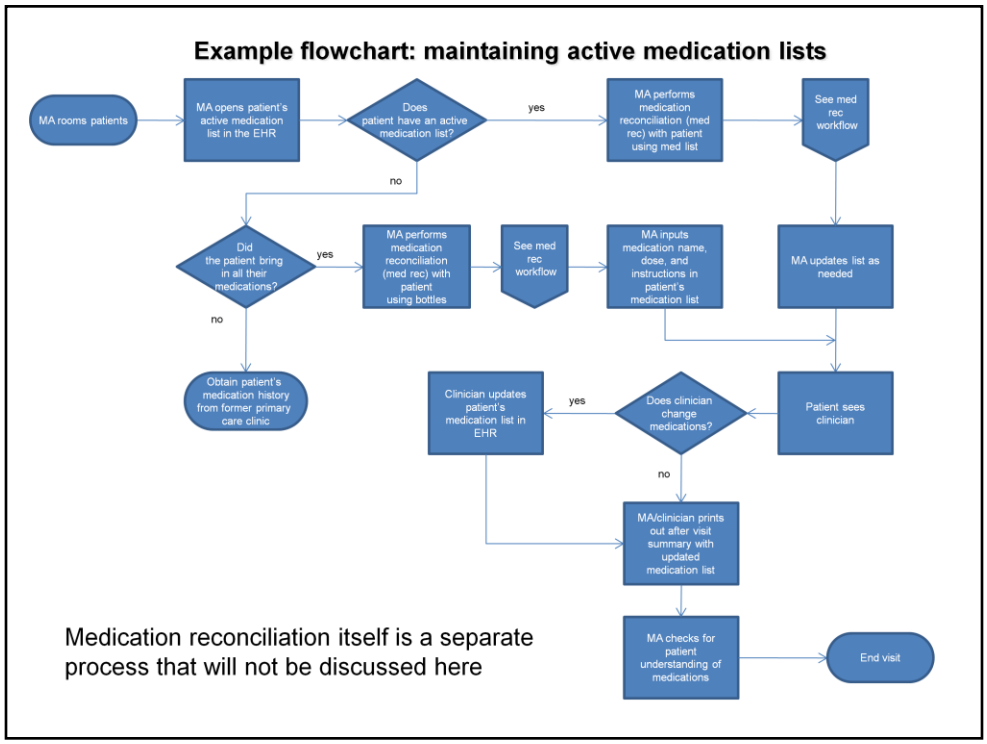
If MAs already enter things into the computer at your practice, this workflow may not seem like a huge shock but for practices who function entirely with paper, this is a big big change.

For this workflow to go smoothly, practices will have to train MAs to be comfortable using computers. If MAs do not get used to entering vital signs into the computer, the rooming process could be delayed.

Before going live, it is good for practices to make sure that MA are prepared for this change before the change actually happens.

A change the rooming process will be necessary to achieve some of the meaningful use requirements. Documenting vital signs in the EHR is just one aspect of the rooming process in a computerized world. Workflows for maintaining medication lists, allergy lists, and documenting smoking status which we will discuss shortly redistribute tasks to the MA or nurse; in this new era of healthcare, they will be doing more things in order to help the larger team.

Since the whole practice is affected by the change and MAs and nurses are taking on a larger role in how things get done in the clinic, it will be crucial for practices to think about what types of training or knowledge different staff members need to perform their jobs adequately after EHR.



Maintaining up to date active medication lists will be required for more than 80% of patients.

This is a workflow that can be performed by a MA or a nurse during the rooming process.

Some practices may be a little apprehensive about having non-clinicians perform this task, but reviewing medications with a patient can be delegated to a non-clinician with proper training.

When a MA rooms a patient, the MA will open up the patient's active medication list. The process branches depending on whether or not there are any medications entered on the list. If the is nothing on the list, the MA will ask if the patient brought in all their medication bottles. If the patient did not bring their medicine, the practice will need to get the medication list at another time from the patient's former health record.

If the patient did bring in all their medications, the MA can perform a medication reconciliation (med rec). Performing med rec is another workflow which we do not have time to cover now so we used the off page reference symbol to indicate that the med rec workflow is located on another page.

After med rec is performed, the MA inputs the medication name dose and how the patient takes the med into the active med list.

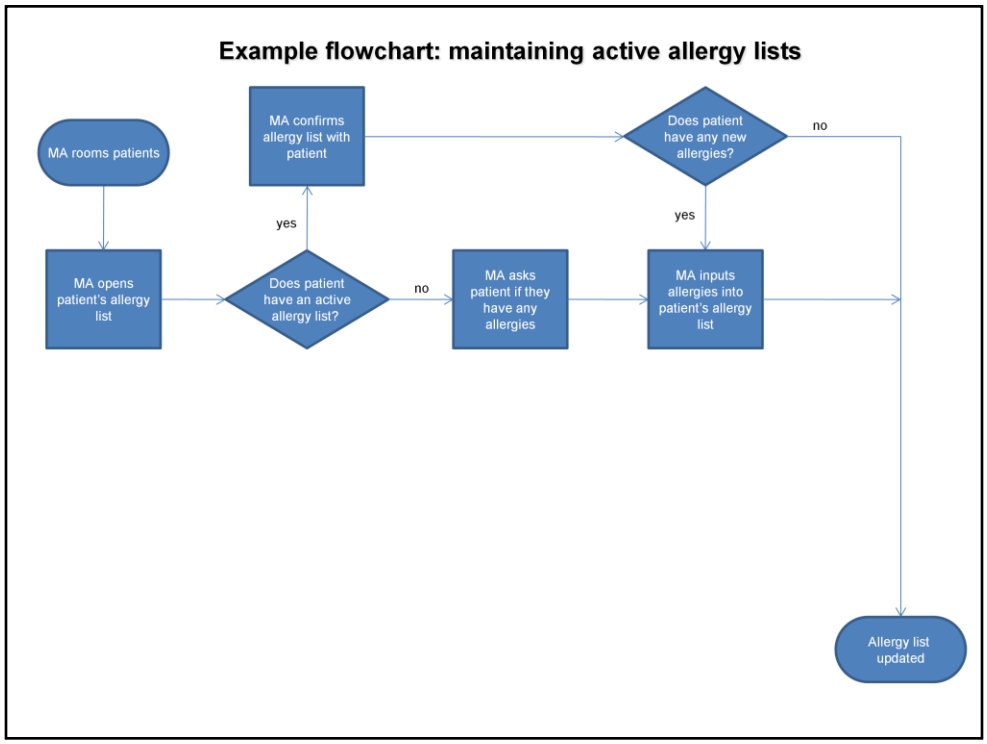
If a patient does have an active medication list, the MA will perform a med rec using the medication list and updates the list as needed.

This workflow does bring up a practice policy question. If medication changes are made during the visit, who enters the changes in the EHR, should it be the clinician or can the MA do it? This question will need to be discussed among your practice.

In our example workflow, the clinician updates the EHR after making a change to the medications. If your practice would rather delegate this responsibility to an MA or nurse, the Clinician would have to approve a medication change and then somehow let the MA or nurse know that a change has been made.

Ideally after the visit, the MA or Clinician would print out the medication list with all the changes, hand it to the patient and then someone of the health care team would close the loop with the patient and check if they know how to take their medications.

Again, this workflow will require a level of comfort with computers, and possibly typing out medication names, dosages, and instructions. Some of these things can be turned into structured data in EHR, which means MAs and Clinicians can select the drug name, dose, etc from a drop list of options, but sometimes these lists can get unwieldy. Your practice will need to decide if everything will be typed or if you want to use structured data.



Another workflow that can happen during the rooming process is maintaining active allergy lists.

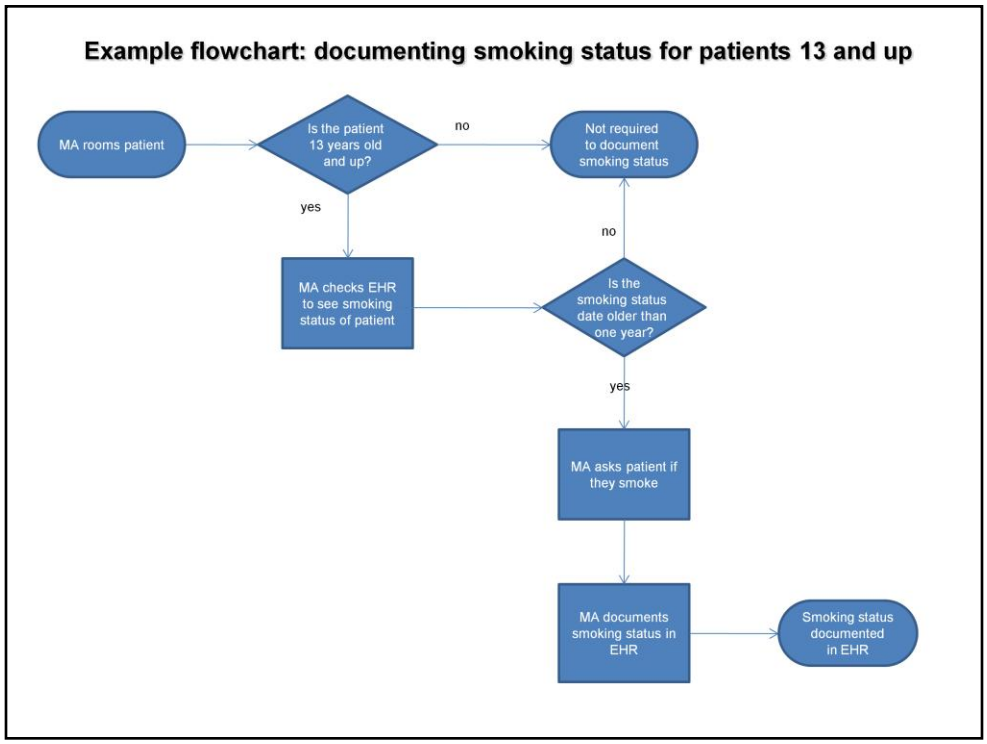
After the patient is roomed, the MA will need to open up the patient's active allergy list. If there is not a list present, the MA will need to ask the patient if they have any allergies to anything. The MA will then input the allergies into the patient's allergy list.

If the patient does have an allergy list, the MA can review the listed allergies with the patient and then ask if the patient may have developed any new allergies since the last visit. If the patient has new allergies, the MA will update it in the computer, if not, the allergy list is up to date.

Maintaining the allergy list can be done at every visit.

This workflow is not that different using a paper allergy list or a computerized allergy list, it's just entered in a different medium. Again this process will require training non clinician staff to be comfortable entering data into the computer. Similar to entering in medications in the "maintain active medication list" workflow, practices will need to partially use structured data for allergies, so staff can choose an allergy amongst of things.

If your practice has a policy to ask about allergies at every visit, that same policy should apply when you have an EHR.



To meet meaningful use, smoking status will need to be captured as structured data for 50% of all patients 13 years or older at least once during the reporting period.

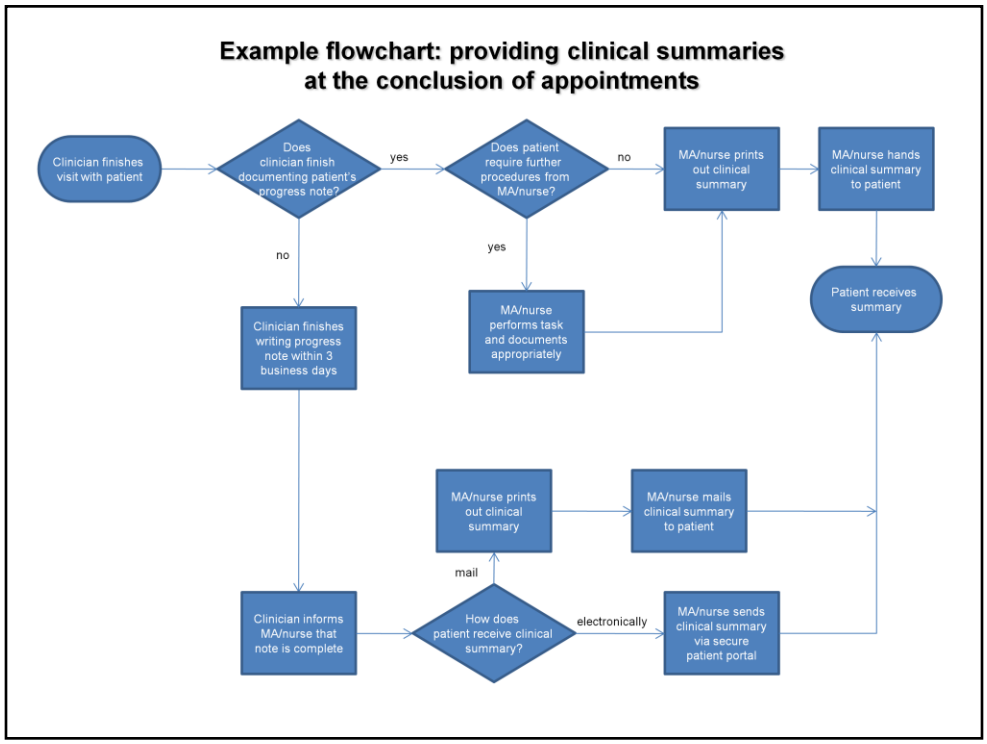
This workflow would also take place during the rooming process by an MA or nurse.

Once the patient is roomed, the MA needs to first figure out if the patient should be screened. Meaningful use only requires patients who are 13 years and older to have this question asked. If the patient is not 13 or up, smoking status does not need to be documented.

If the patient is 13 year or older, the MA should check when the last time it was asked. The reporting period is about one year, so patients 13 and up need to be asked this question at least once a year. If the patient's smoking status has been asked within the last year, nothing has to be done. But if the smkoing status has not been recorded, the MA will ask the patient if they smoke and then they will document it in the EHR.

Having this workflow in mind, practices can think about what functions they want for their EHR. This is an area where practices can ask their EHR vendor if it is possible for the smoking question not to appear until patient's turn 13 or have an alert when the smoking status was asked 10 months ago or other features that let the MA know that it needs to be asked and documented.

This workflow is purely about documenting the smoking status in the computer. A separate smoking cessation workflow will need to be created to deal with patients who answer "yes" to the question if they smoke.



A workflow that may be entirely new for some practices is giving patients a clinical summary after the visit.

Practices will need to provide a clinical summary, or an after visit summary, to the patient within 3 business days after the visit concludes for more than 50% of al office visits.

This workflow begins after the Clinician has finished seeing a patient. This workflow is dependent on the Clinician finishing their progress note in a timely manner. If the Clinician finishes the progress note by the end of the visit or a few minutes after the visit, the clinical summary can be given to the patient before they walk out of the building.

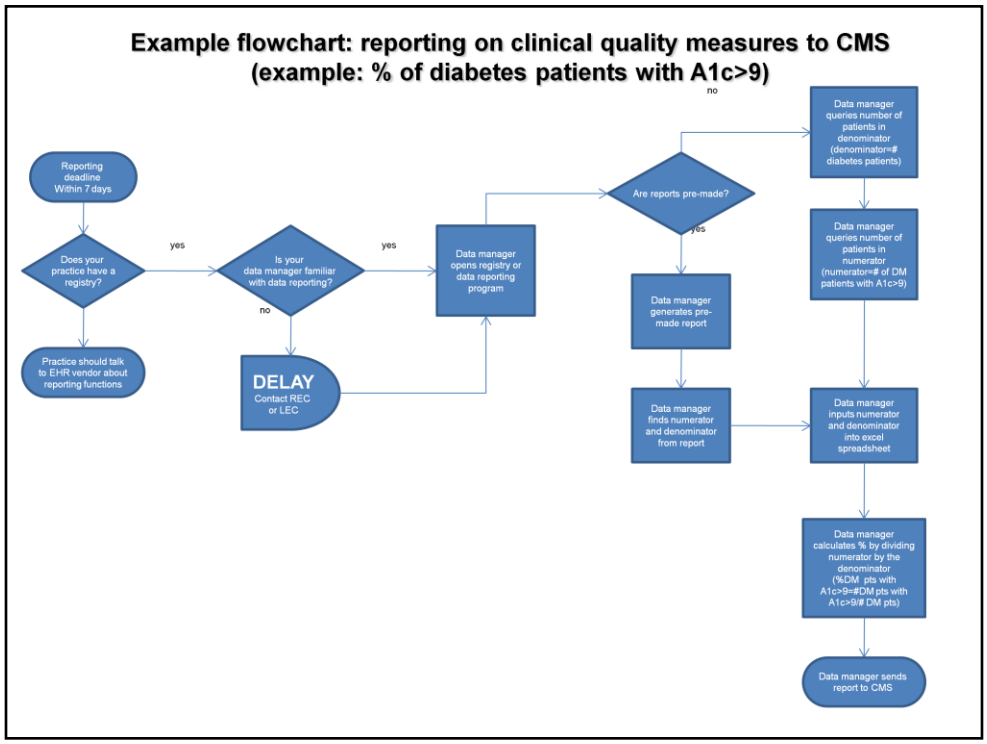
In our example, if the Clinician does finish charting, the next step is to see if the patient requires some type of procedure from a MA or a nurse like an injection. If the patient does not need anything furtherr, the MA or nurse can just print the clinical summary and hand it to the patient and the patient leaves with their summary in hand. If a procedure is needed, the ma or nurse performs the procdure and docuemnts accordingly and then prints and hands the clinical sumary to the patient.

However, if the Clinician does not finish the note before the patient walks out of the building, the Clinician will need to finish the note within 3 business days. The Clinician would also have to notify the MA or nurse that a note is complete. After the ma has been notified, the ma needs to make a decision as to how the note will be delivered to the patient.

For most practices, mailing the print out of the patient visit summary will be the easiest way for the patient to receive the summary. If your practice has the resources to purchase a patient portal, the clinical summary could be delivered to a patient's portal in a secure manner.

In this example, we have the MA printing out the note and giving it to the patient if the Clinician finnishes the note before the patient leaves. Some practices may just have the Clinician print the note out and hand it to the patient to prevent handing off the task to another person.

Some other things to consider about this workflow is having someone explain the plan in the clinical summary to the patient. Although the meaningful use objective is to make sure that a patient recieves a summary within 3 business days, having someone, either the Clinician or an MA actually explain the note with the patient can improve the care the quality of care the patient receives.



Another meaningful use objective that practices will need to meet is they will need to use their HER to report clinical quality measures to CMS or states.

In the paper chart world, performance on clinical quality measures was accomplished through chart audit. Some practices may remember CMS representatives coming to your office, and then someone would pull x amount of charts for the representatives to review and these people would lock themselves in a room somewhere combing through all of the charts.

Needless to say, gathering data on clinical quality was very time consuming and may have potentially been biased if the charts that happened to be pulled belonged to patients who were in good control of their respective conditions.

One advantage of having computerized records is that the EHR can provide a more accurate picture of how your practice is performing on its selected quality measures.

This flowchart is an example of how reporting could look like using the example of % of patients with diabetes with an A1c greater than 9.

The process begins on a certain date, we chose arbitrarily that this process would begin 7 days before the reporting deadline to give the practice plenty of time to figure out how to do it. This means that the practice should be well aware of when CMS or your state requires the report.

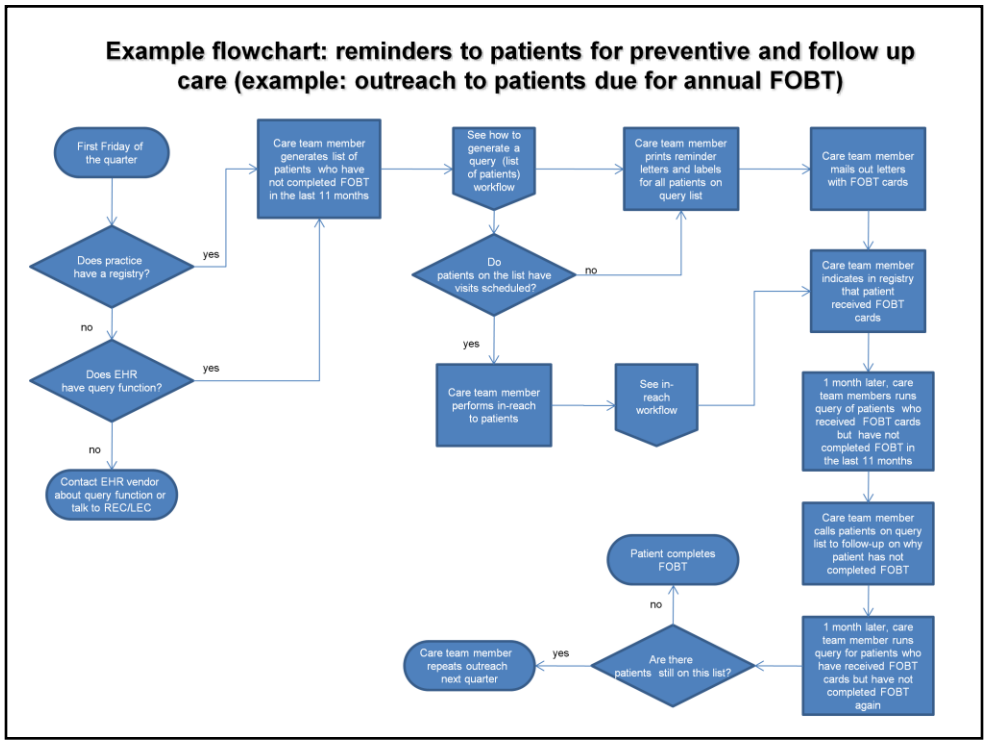
The main decision point in this process is whether or not your practice has a registry. For those of you unfamiliar with what a registry is, it is a database that contains patient health information. if your practice does not have a registry, speak to your HER vendor about the reporting capabilities of your HER because some come with registry functions like building queries.

If your practice does have a registry, is someone on your staff data savvy or familiar with data reporting? A practice manager may most likely take this function on, but that is completely up to your practice. If there is not a person familiar with data reporting, your local extension center or your regional extension center may be available to provide training, although this may delay reporting. Your practice may consider training a staff member on data before the EHR arrives.

Registries can run queries or searches for a list of patients that fit certain criteria or registries can create reports, which provides statistical information about the patients. Having pre-made reports in your registry by pass the steps of running queries individually to find numerators or denominators. Using a concrete example here of calculating the percent of diabetes patients with a1c greater than 9, if your practice does not have premade reports in the registry, the data reporter would first fun a search for the number of patient who had diabetes, the denominator, then run a search for the number of diabetes patients with an A1c greater than 9 the numerator. A report would be able to give you the numerator and denominator at the same time.

After finding the numerator and denominator, the data reporter can plug these numbers into an excel sheet and can calculate the percentage of diabetes patients with a1c greater than 9 by diving the raw number of patients with a1c greater than 9 by the total number of diabetes patients.

The data reporter would then send the report to CMS.



This workflow demonstrates how a practice can send patients reminders for preventive care or follow up care. This is something practices may not be used to as it asks practices to take a proactive approach to care.

This is an example of how a practice can provide reminders to patients who are due for their annual FOBT. This meaningful use requirement is again dependent on whether your practice has the ability to generate a list of patients using a registry or HER. Without this list of patients who are overdue or about to be due for services, meeting this objective may require tracking the dates of when patients receive certain services on an excel sheet, more work than needed.

Contact your EHR vendor about query functions or consider getting a registry or contact your Rec or lec on ideas how to generate this list.

In this example, this process takes place on the first Friday of odd numbered months. The frequency of when your practice sends out reminders is arbitrary but determining a concrete schedule of when your practice performs these tasks is helpful because it normalizes the behavior of performing a new function like outreach and it makes performing the outreach more manageable because there will be fewer patients to contact at one time.

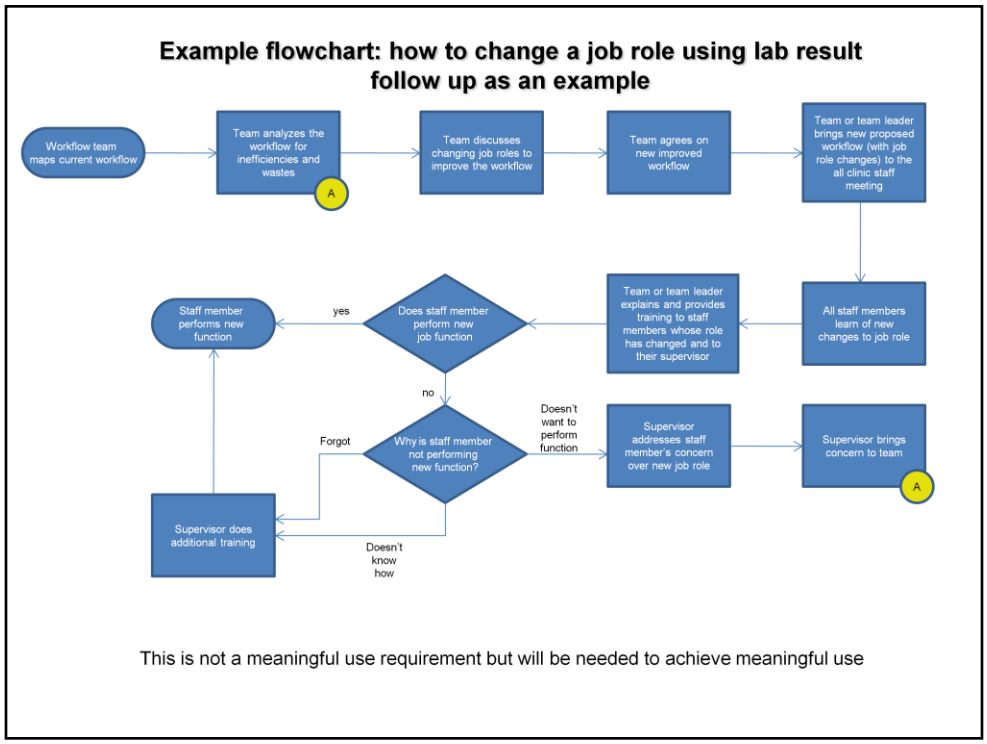
In our example, the care team member uses the registry to generate a query of patients who have not completed an FOBT in the last 11 months. Although the US preventive service task force recommends that FOBT is performed once every 12 months, if you run a search for patients who have not had an FOBT in the last 11 months, this allows your practice to catch those patients before they are due instead of just screening patients who are perpetually late!. This gives patients a one month window to complete the FOBT.

How to generate a workflow is another process so we will make a reference to it here rather than explain it.

After the care team member generates the list, they must decide how to contact patients. The two options would be to call patients or mail out a letter. Mailings are generally less time intensive because letters can be printed at all at once. Whether your practice decides to make calls or mail out letters, it is necessary to track in the patient's record that correspondence was made. In a future step one month later, the care team member will be running another query on patients who have received contact but have not completed an FOBT. This allows practices to focus efforts on patients who may have received a phone or a letter but for some reason may not have come in to complete their care service. Ask your HER vendor if this is something that can be tracked.

After running the query of patients who have been contacted but have not completed an FOBT, the care team member will call those patients to remind them to complete the FOBT.

1 month after the follow up phone calls the care team member can run the same query (the patients who have received a letter but not completed FOBT query) again. If there are still patients remaining on this list, that means these people will be outreached again to the next time the process starts. Patients no longer on this list have completed their FOBT for their year. If there are still patients remaining, they have still yet to complete their FOBT and will be outreached again to during next quarter's FOBT outreach.



The last workflow map that we will discuss is how to change a job role. This is not a meaningful use objective, but as we have shown in the previous workflow examples, a lot of the meaningful use objectives will require practice staff to take on new or different roles to help the practice achieve high quality use of the EHR.

This example discuss one possible way of redefining the job duties of existing staff members using the previous example 1 of the lab result follow up process.

Before any job roles can be changed, the EHR implementation team will need to map out the current workflow. After mapping out the workflow, the team will need to analyze the workflow map for inefficiencies and wastes and then the team discusses potential changes to improve the process, which will likely involve changing job functions. In the lab result follow up workflow from example 1, the workflow team got rid of the MA making 3 copies of the lab result and implemented a protocol for the RN to handle lab results.

After the team agrees on a proposed future workflow, the team leader or another representative will need to bring the new proposed workflow map to an all clinic staff meeting so that all staff members of the practice are aware of the new changes that are being implemented in the clinic. If only half of the MAs and RNs attended the all staff meeting, half of them would operate using the old bad workflow while the other half would do the new better workflow. You could see how this situation could potentially lead to more chaos.

After the new job roles are presented at an all staff meeting, the team leader or representative will then have to clearly explain to RNs and MAs (or whomever it is whose job role has changed) and to their supervisor or supervisors what exactly is expected of them in the new workflow. The purpose of educating the staff's supervisor is to create a method for accountability.

Then the process goes into a decision point, does the staff person perform their function, if it's a yes, then you have successfully changed the job role. If the answer is no, the reason why that staff member did not perform the new task must be addresses. If the RN still handed the lab result to the Clinician is it because they forgot that there is now a protocol? is it because the RN doesn't know how to follow the protocol? or is it because the RN doesn't want to perform the function? If it is the former two reasons (forgot or don't know how" more training is needed. If the staff member doesn't want to perform the function, their supervisor would need to address the staff members concern as to why they don't want to perform the new function? In the improved lab result follow up example, the RN is now in charge or calling patients about normal and mildly abnormal labs. Maybe the RN's can't make the phone calls because they aren't given enough time.

The supervisor can then bring this concern to the workflow team to propose a new workflow that satisfies everyone.

Conclusion

- Workflow mapping is a great tool to help implement EHR and achieve meaningful use
- EHR adoption does not equal meaningful use
- Workflow maps are a tool to improve care for patients, improve efficiency in practice, and redistribute work and job roles