HealthIT.gov
National Learning Consortium
Advancing America's Health Care

Workflow Process Mapping for Electronic Health Record (EHR) Implementation

Guidelines

Provided By:

The National Learning Consortium (NLC)

Developed By:

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NATIONAL LEARNING CONSORTIUM

The National Learning Consortium (NLC) is a virtual and evolving body of knowledge and tools designed to support healthcare providers and health IT professionals working towards the implementation, adoption and meaningful use of certified EHR systems.

The NLC represents the collective EHR implementation experiences and knowledge gained directly from the field of ONC's outreach programs (*REC*, *Beacon*, *State HIE*) and through the *Health Information Technology Research Center (HITRC)* Communities of Practice (CoPs).

The following resource is an example of a tool used in the field today that is recommended by "boots-on-the-ground" professionals for use by others who have made the commitment to implement or upgrade to certified EHR systems.

DESCRIPTION & INSTRUCTIONS

These guidelines are intended to aid providers and health IT implementers while planning for EHR implementation. The path to successful EHR implementation starts with practice workflow analysis and redesign. While this process isn't easy and takes time, efficiently managed workflow redesign can be the difference-maker to maximize office efficiencies and improve care coordination using EHRs. In fact, a lack of thorough workflow planning is one of the biggest reasons for avoidable losses in productivity and extended work days.

These guidelines will help assess practice workflow through "AS IS" (how workflows currently exist) and "TO BE" (how workflows can be optimized through practice transformation) process mapping.

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1 Why Process Map?

Developing a process map, or a visual depiction of a process, can help clarify workflow, identify bottlenecks and outline dependencies. It also provides a starting point for stakeholders by establishing a common language and set of steps. Maps can be used as a blueprint to discuss changes for the future and to implement new processes.

2 Who are the stakeholders in this process?

Workflows reflect multidisciplinary care processes. Thus, there are a variety of people involved in workflows. Identifying the stakeholders is integral to develop accurate, comprehensive diagrams. This can be done by considering who benefits from the process, who participants in it, and who has upstream and downstream touch points with it. Stakeholders may be involved at varying points and in varying degrees.

3 Process Selection

There are a variety of processes which can be modeled. Generally, those which involve multiple stakeholders or are causes of bottlenecks or errors are ones that should be considered. The set of processes should include the tasks, what is needed to complete them (inputs) and the outcomes or results (outputs).

4 Appropriate Team Selection

Workflow process mapping is difficult and selecting the appropriate team is important. Ideally, the team should include an interdisciplinary group of 5-8 people who are involved. If they volunteer, that is ideal. If it is appropriate to include patients, then they can also be included. The group should be facilitated by someone who is not responsible for the process. In addition, management should be supportive of the improvement and be available for questions.

5 Level of Process Mapping

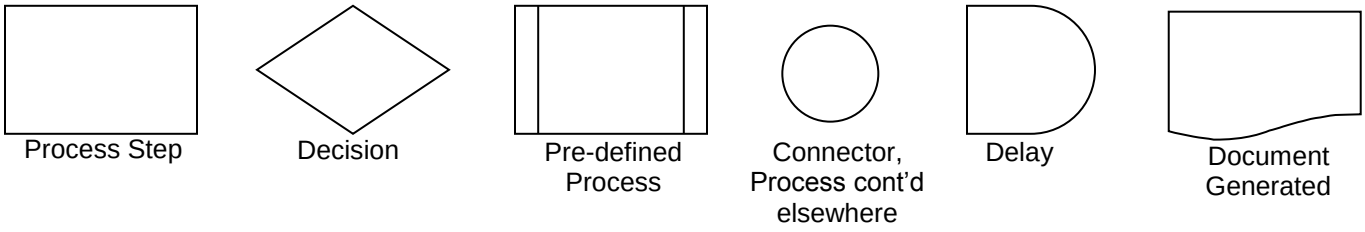
Process can be mapped at any level but different levels should not be combined. The levels are as follows:

- Macro
  - High level overview of entire process (1 page)
- Mini
  - Each step is an activity which consists of many tasks (mid)
- Micro
  - Detailed analysis of work function, steps one person follows to complete task (lowest)

6 Standard (Linear) Flowcharts

Standard, or linear, flowcharts include a series of steps in time order. Often, flowcharts are more complicated and involve multiple processes. In this case, using symbols as outlined in section 7 can be helpful.

7 Common Flowcharting Symbols



8 Process Steps

8.1 STEP 1 – DETERMINE BOUNDARIES (ONE RECTANGULAR POST-IT NOTE – SAME COLOR)

- Where does the process start? (beginning step)
- Where does it end? (last step)

8.2 STEP 2 – WHO ARE THE CUSTOMERS FOR THIS PROCESS?

- Always keep the customer in mind
- Can be internal or external
- There can be multiple customers at different points within the process

8.3 STEP 3 – MAP OUT THE "AS IS" PROCESS

- Current state of the process
- Write one step of the process on each rectangular post-it note
- Place these on the map in chronological order (working from left to right or top to bottom)

8.4 STEP 4 – ANALYZE THE "AS IS" PROCESS

- Note all the Queues
  - Places where work can pile up
    - Note the areas and potential areas where the process queues (waiting time/holds) with a large "Q" on the small square post-it notes.
    - Place these on the map between the steps (or on the steps) where the process queues
    - Document all the ideas of how to improve the process

- Note all the Checks/Reviews
  - Steps that involve a review/check
    - Place a √ on the steps that require a check/review
    - Note all the Forks

- Additional Tips for "AS IS" Process Mapping
  - Draw a macro-level flowchart first (get the big picture)
  - If possible, walk through the current process – physically follow the movement.
    - Follow a document, or a patient, etc.
  - Consider timing steps during walk through to add a level of detail
  - There are bound to be variations; record what happens 80% of the time

- Analyze the "AS IS" Process
  - Count the number of:
    - Steps
    - Handoffs
    - Checks
    - Queues
    - Forks

8.5 STEP 5 – CREATE THE "TO BE" PROCESS

- What is the "Ideal" process?
- Remove or eliminate wastes (see hints to follow)

9 Example: Improving a Process and Eliminating Waste (based on LEAN methodology)

9.1 TYPES OF WASTE

- Processing: Redundant and unnecessary process steps, excess processing, excess checking and inspection. Excess use of energy of all types.
- Correction (Defects): Re-do's, fix-ups, returns, mark-downs, managing complaints.
- Inventory (Over-productions): Idle in-progress or finished materials, supplies or information.
- Wait: Delays and queues of all types.
- Search Time (Movement): Time spent looking for information, people, supplies, and equipment.
- Transportation: Multiple handling steps and needless movement of material and information.
- Space (Storage): Storage of unneeded items, excess inventory or the general "mess" that builds up over time. Excess space required due to inefficient process flow.
- Complexity: Complex process flows. Confusing product and service choices. Organizational boundaries, which introduce inefficiencies and frustrate any sense of accomplishment.

9.2 STRATEGIES FOR REDUCING WASTE:

- Ideas for reducing waste in processes (ideas should not be limited to those on this list)
  - Simplify and standardize processes
  - Identify and eliminate work-arounds, loop-backs
  - Decrease Total Steps
  - Rearrange Steps
  - Combine Steps
  - Decrease Total Queues
  - Decrease Total Handoffs
  - Decrease Total Checks
  - Decrease Total Forks
  - Smooth out for Continuous Flow (work is processed and moved immediately to the next step)

10 Questions to think about when creating your "TO BE" Process

Thinking about changes to processes can be difficult. The following series of questions can help when determining how to improve a process.

- Can any steps be eliminated?
  - As unnecessary
  - By new equipment?
  - By changing the place where it is done or kept?
  - By changing the order of work?
  - By changing the product design?
  - By changing the specification of the incoming supply?
- Can any steps be combined with another?
  - By changing the specification of supplies?
  - By changing the design of the product?
  - By changing the order of the steps?
  - By changing the equipment used?

11 Mapping out the improved "TO BE" Process

After identifying potential areas of change, the improved process can be designed. It is important to review the components of the process, including:

- Steps
- Queues
- Handoffs
- Checks
- Forks

When the new process is developed, review it with stakeholders and management and make changes as appropriate.