

Component 10 – Fundamentals of Health Workflow Process Analysis and Redesign

Unit 2-1 – Process Mapping Theory and Rationale

This material was developed by Duke University, funded by the Department of Health and Human Services, Office of the National Coordinator for Health Information Technology under Award Number H24OC000024.

Upon successful completion of this
unit the student is able to:

- Articulate the value of process mapping.
- Describe standard processing mapping symbols and conventions.
- Analyze an existing workflow process chart in terms of the information that could be generated, and the sequence of steps that are being communicated.
- Choose the correct scope and detail level for a process map.
- Choose an appropriate process mapping methodology.
- Create a process map for a health care system (or system component) using correct symbols and conventions.

Unit 2 Topic Outline

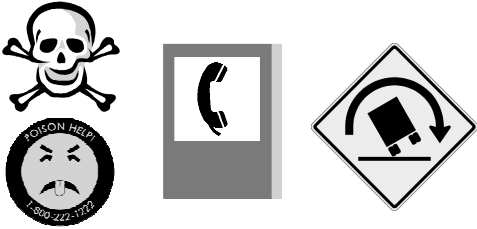
- Purpose of graphic process representation
- Process diagram vocabulary
- Identifying process steps
- Basic flowchart symbols
- Creating a basic flowchart
- Process representation concepts
 - Models, templates and abstracts
 - Data flow versus process steps
- Aspects of processes that we might need to model
- Selecting the right diagram type

Communicating with Symbols

Since the beginning of human history, people have used symbols to communicate.

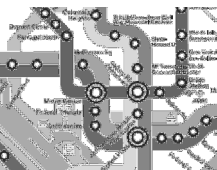


Humans perceive meaning directly from symbols



A graphic representation of a process works the same way. Standard symbols are used to convey meaning.

Process Maps Provide



Partial map of the Washington DC Metro rail system, Public domain image.

- A pictorial representation of the "whole"
- A commonly understood representation of a process
- A way to focus attention on important aspects
- A way to make the process explicit
- A way to document and share knowledge about a process

Example: Process Perspectives

- Looking up a restaurant phone number in the yellow pages involves:
 - Physical and mental steps
 - Exchange of information
- This process can be described at different detail levels
 - “Obtain phone number”
- Versus
 - Open search engine
 - Find electronic yellow pages
 - Type text name of restaurant and zip code
 - Visually inspect returned results
 - Select the one you were looking for

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Process Vocabulary

- Process
- Process map, process diagram
- Task
- Workflow
- Data flow
- Flowchart
- Notation
- Symbols

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Process

- A process is a series of steps and decisions involved in the way work is accomplished².
- Everything we do in our lives involves processes.
- The health care system is an interconnected web of many processes.
- Gall: “A complex system that works is made up of simple systems that work.”

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Process Map

- A visual representation of a process that shows
 - The boundaries, i.e. where the process begins and ends
 - The steps or tasks in the process
 - The sequence or order of the steps
- Use standard symbols so that a process map created by one person can be understood and used by others
- Different approaches use different symbol sets
- Also called process diagrams and flowcharts

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Task

- A step in a process
- Physical action that a human or machine performs
- Mental action that a human performs
- Some may be decomposed into smaller tasks
- Smallest ones called primitive, or atomic tasks
 - Those that can be decomposed no further

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Example: Process Tasks

List the process tasks required to schedule an appointment with your physician using an on-line scheduler.

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Task List

1. Identify the need for an appointment
2. Sign on to a computer
3. Open a search engine
4. Find electronic scheduler for your physician
5. Search for acceptable dates and times
6. Visually inspect returned results
7. Select the date and time
8. Confirm the date and time

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Workflow versus Dataflow

- Workflow is usually defined as a sequence of connected steps or tasks.
- Dataflow involves the transformations (operations) performed on data as it moves within and between systems.
- Data and information are often part of workflow, and vice versa.

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Workflow

- We care about the physical and sometimes mental steps that occur
- In the phone number example, these steps are:
 - Clicking the mouse to open the browser,
 - Clicking to open the search engine,
 - Typing in the search text,
 - Results being returned, and
 - Scrolling and assessment of each result.

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Dataflow

- Data and information content
- Care about:
 - The data points that are being communicated or transferred
 - Where the data are stored
 - How those data are transformed
- In the phone number example, we just care about:
 - The data values returned by the search
 - Where the data are stored

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Workflow versus Dataflow

- Emphasis on one or the other can be less
- One or both representations can be used
- Often, both are important and multiple diagrams are required.

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Flowchart

- Diagram that shows step-by-step progression through a procedure or system especially using connecting lines and a set of conventional symbols.³
- Used to diagram the logic paths through computer programs,⁴
 - Tasks of work processes.⁵

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Notation and Symbols

- Notation:
 - Used to refer to the shapes and conventions used to diagram a process
 - Several different notation formalisms in use today
- Symbols:
 - Shapes used to create a diagram.
 - For example, a diamond represents a decision point
 - In most notations

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The Most Common Symbols

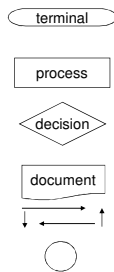
- Pause the slides
- Read the sequence of the slides
- Compare the flowchart to the list of steps
- Remember that connector symbol
- This flowchart is continued on the next slide

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Flowchart Symbols ⁶



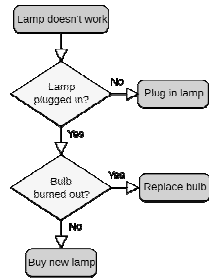
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Flowchart Example

Examine the flowchart closely. Take a few minutes and list the symbols that are correctly and incorrectly used according to the flowchart symbols on the previous slide.



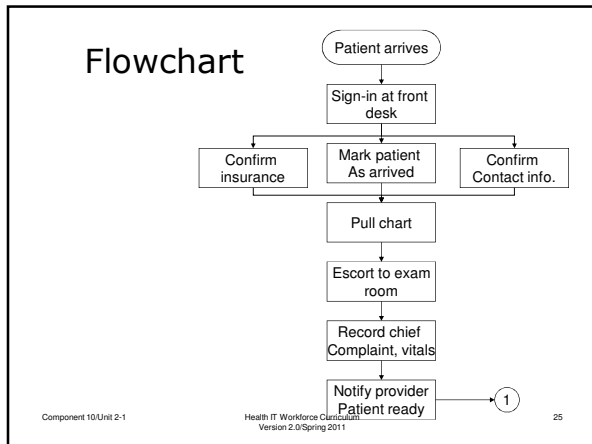
Public domain image obtained from <http://commons.wikimedia.org/wiki/>

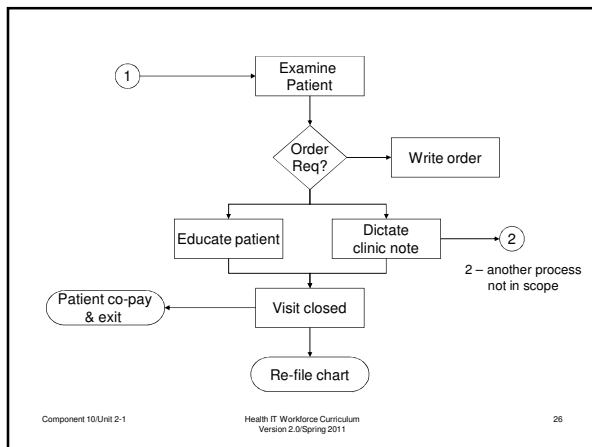
Example: Patient Intake

A patient arrives at the healthcare setting/clinic and is signed in by the receptionist. The receptionist enters the patient into a visit system as present and confirms the contact and insurance information with the patient. At this point the patient is ready to be seen by the nurse who will conduct the initial examination and interview with the patient. The nurse pulls the chart from the filing stacks and calls the patient to the exam area and escorts the patient to the exam room, interviews the patient regarding symptoms and/or complaints and records into the nurses/progress notes, and takes and records vital signs in progress notes. She/he then alerts the Physician that the patient is ready to be seen. Subsequently, the Physician examines the patient and records findings in the progress notes, determines if a prescription, procedure, lab work or a referral is required and completes the necessary paperwork if applicable. The Physician provides any additional instructions to the patient and concludes the visit. Finally, the Physician provides the patient chart to the office staff for refiling and the office staff refiles the patient chart. Also, the patient pays her co-pay and concludes the office visit.

Patient Intake and Clinic Visit

1. Patient arrives at the clinic and signs-in and checks-in with the front desk.
2. Receptionist enters the patient into the visit system as present and confirms the contact and insurance information with the patient.
3. The nurse pulls the chart from the filing stacks and calls the patient to the exam area and escorts the patient to the exam room.
4. The nurse interviews the patient regarding symptoms and/or complaints and records into the Nurses/Progress notes.
5. Nurse takes and records vital signs in progress notes and alerts the Physician that the patient is ready to be seen.
6. The Physician examines the patient and records findings in the progress notes.
7. The Physician determines if a prescription, procedure, lab work or a referral is required and completes the necessary paperwork if applicable.
8. The Physician provides any additional instructions to the patient and concludes the visit.
9. The Physician provides the patient chart to the office staff for refiling.
10. The office staff refiles the patient chart.
11. The patient pays their co-pay and concludes the office visit.





Summary

- In this lecture we have
 - Described the value of process diagrams
 - Given an example list of the process steps from a healthcare scenario
 - Described basic flowchart symbols
- At this point you should be able to
 - List the information generated or used in the process and the sequence of workflow steps when given a workflow process chart consisting of basic flow charting symbols
 - Read a scenario and using basic flowchart symbols representing the process steps and their sequence

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