Curriculum Development
Centers Program

Awardee of The Office of the National Coordinator for
Health Information Technology

Component 10 –
Fundamentals of Workflow
Process
Analysis and Redesign

Unit 6-1

Process Redesign

Objectives

- Identify the factors that optimize workflow processes in healthcare settings
- Describe how information technology can be used to increase the efficiency of workflow in healthcare settings
- ID aspects of clinical workflow that are improved by EHR
- Propose ways in which the workflow processes in healthcare settings can be re-designed to ensure patient safety and increase efficiency in such settings
- Use knowledge of common software functionality to inform a process redesign for a given clinic scenario

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Topics Covered in Unit 6

- Objectives, skills and knowledge for Process Redesign
- Human-Centered Design framework applied to Process Redesign
- Common process problems
- Solutions to process problems
- Matching common clinic system functionality to solve process problems

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You can only elevate individual
performance by elevating that
of the entire system.[1]

- W. Edwards Deming

Public domain photograph of W. Edwards Deming obtained from http://commons.wikimedia.org/

Goals of Redesigning Processes

- Improving quality and safety of care
- Enhancing the patient's care experience
- Decreasing the cost of care
- Making clinic processes more efficient

Typical Performance   Goal Performance

Unproductive
work

Productive
work

Productive
work

QI

QI
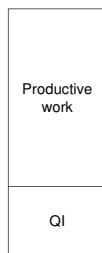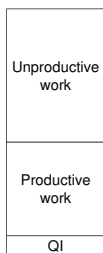
Unproductive Work

Tasks not necessary for providing patient care
- Waiting
- Transportation / unnecessary motion
- Doing things twice
- Errors
- Repetitive tasks
- People with higher level of training than necessary performing tasks

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Unproductive work = problem

Redesign strategies = solution

Before you attempt to set things right, make sure you see things right.[3]

– Blaine Lee

Why not just implement technology?

- In a recent case study[2] introduction of technology accounted for 25% improvement in invoicing time
- Addition of process redesign in addition to technology resulted in 80% improvement
- Technology is often necessary, but is seldom sufficient

Redesign Strategies[2]

- Automation
- Buffering
- Centralization
- Control addition
- Control relocation
- Contact reduction
- Customer teams and case managers

- Empower
- Exception
- Extra resources
- Flexible assignment
- Integration
- Interfacing
- Knock-outs

Redesign Strategies[2]
(cont.)

- Numerical involvement
- Outsourcing
- Order-based work
- Order assignment
- Order types
- Parallelism
- Split responsibilities

- Task composition
- Task elimination
- Triage
- Trusted party
- Resequencing
- Specialist-generalist

Optimization Method: Automation

- Design decisions determine the extent to which a given job, task, function or responsibility is to be automated or assigned to human performance[3]
- Consider the relative capabilities and limitations of human vs technology
- Basing decisions solely on the capabilities of the technology is not advised

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Automation Examples

Opportunities to use computer systems to automate clinic processes:
- Triggering prescription refills
- Alerting clinicians to abnormal lab results
- Triggering planned assessments
- Subscribing to automatic information updates
  - Rather than waiting and requesting information when needed
  - Buffering

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Optimization Method: Centralization

- Centralization can mean common coordination of activities at multiple locations such that they are done the same way
- Can also mean carrying out tasks at one location rather than having them be carried out by multiple organizations or individuals

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Centralization Examples:

- Claims clearing house
- Assigning one person in the clinic to answer the phone

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Optimization Method: Control Addition

- Control addition means adding checks in a process
- Addition of a control step identifies errors before they have a negative impact
- Can be performed by a human or a computer

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Control Addition Examples

- Checking
  - Insurance eligibility
    - Planned procedure
    - Co-pay
    - Prescription
      - Prior to sending it home with a patient
  - Drug-to-drug interactions
    - Prior to writing a prescription
  - Drug allergies
    - Prior to writing a prescription

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Control Addition Examples (cont.)

- Counting sponges and instruments before closing a surgery site
- Double checking the name on the medication and the patient arm band prior to administration
- Marking the surgery site and confirming with the patient prior to surgery

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Control Relocation

- Control relocation is changing who performs a task, triggers a task to be done, or approves a task
- In principle, control relocation usually means pushing control to the "front line" or even to the customer

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Control Relocation Examples

There are several notable examples of control relocation in healthcare:

- Home monitoring devices
- On-line
  - Appointment scheduling
  - Data entry of patient information before a visit
- Patient portals that enable patients to share their health records

Contact Reduction

Decreasing the
- Number of times
- Length of contact
- Other resources devoted to customer contact

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Contact Reduction Examples

- Completion of patient information forms before a visit
- Automated appointment reminders
- Pushing tasks down to the lowest level of staff with appropriate training

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Care Teams & Case Managers

- Help customers navigate complexity
- Called case managers
- Care teams are similar

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Exception Handling

- Exception
  - A case that is somehow different from the rest
  - Is incomplete, has errors, special circumstances or special needs
- Exception handling:
  - Designing a process to handle the ordinary cases
  - "Shunting" the exceptions into a different work stream
- Frees the process to operate at maximum efficiency

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Exception Handling Examples

- Special process for contacting no-shows and rescheduling
- When one lab test in a batch is held up, available results are returned and others are reported when available

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Extra Resources

- Identifying those process steps that are known bottlenecks
  - i.e., Cause downstream delays
  - Adding extra resources at those steps to optimize the overall process

- Examples:
  - Staffing the front desk
  - Eliminating provider wait time

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Flexible Assignment

- "Hedging your bet"
  - Minimizing risk
- Things might not always work out
- Flexible assignment
  - Not backing yourself into a corner
- Example:
  - Hiring a medical office assistant who can also do blood draws in case having nurses draw blood causes an imbalance in workload

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Integration

- Designing clinic processes so that they mesh well with high volume/high interaction organizations
- Example:
  - Electronic interface with
    - Claims clearinghouse
    - Lab or high volume diagnostic service
    - Local hospital

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Interfacing

- Interfacing means providing common and standard interaction points for high volume interactions
- Example:
  - All labs come through a Lab interface
  - On-line appointment scheduling
  - All documents are received in one place and processed

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Knock-out

- Fail fast
- Decisions that decrease workload should be made as early in the process as possible
- Examples:
  - Checking insurance eligibility first thing
  - Early initiation of insurance approval
  - Screening patients for issues requiring urgent care immediately

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As Few Hands as Possible

- Design processes to involve as few roles / people as possible
  - Eliminates unnecessary delays
  - Hand-offs
  - Communication errors
- Avoid splitting responsibilities across departments or organizations

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Outsourcing, Trusted Party

- If others can do things better or more efficiently than the clinic, consider outsourcing
- Examples:
  - Responding to requests for records
  - Using an external lab or diagnostic testing service
  - Hosting the medical record software and IT support

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Process Types

- Process analysis should have identified:
  - Main clinic work streams
  - Processes

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Eliminate Queues and Batching

- Queues and batches cause delays and wait time
- Instead assign work as it comes in to a person responsible for seeing it through to completion
- Example
  - Same day appointment guaranteed
  - Assigning a person to handle prescription refills that are called in by patients or pharmacies

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Parallelism, Resequencing

- Anything that can be done in parallel should be done in parallel
  - Rather than waiting for another step to be completed
- Resequence process steps to accomplish tasks as early in the process as possible

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Task Composition

- Some things are better done as smaller steps
- Other things may be easier to accomplish as a group of steps
- Example:
  - Processing incoming documents to be filed

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Task Elimination

- Getting rid of steps that do not add value
- Examples:
  - ePrescribing
  - Getting rid of redundant work
  - Automating steps

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Specialist-generalist

- Some things are more efficient if a person handles only one type of issue
- Other situations require people who wear many hats
- Choice, specialist or generalist, depends on:
  - Training and skill level required for a task,
  - How easy a task is to do when it is not a main focus of someone's effort, and
  - Practice size / volume

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Triage

- Related to the specialist – generalist concept
- Means there is an initial sorting step
  - Things requiring specialist attention are sent to specialists
  - Others are sent where they are most efficiently handled
- Example:
  - Triage nurse in an emergency department assures that urgent patients get seen first, and less serious ones wait longer

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Types of Changes

- Some process changes are large:
  - "Breakthroughs"
  - Major shifts in the way work is done
  - Great improvements in performance
  - Usually takes more preparation, planning, and innovation
- Other changes are small incremental advances
- Many of the strategies discussed here can be either
- The former usually takes more preparation and planning, and of course innovation

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Summary

In the first part of this unit, we have covered:

- Goals of process redesign
- Common process problems
- Process redesign strategies to address common process problems
- Clinic examples of redesign strategies

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