

## Safe Workflow Design

### Unit 7c: Incorporating Workflow into HIT Design

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## Objectives

At the end of this segment, the student will be able to:

- Appraise ways of incorporating decision-making requirements into health information technology (HIT) design

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## Workflow Process Redesign Mapping of Current Processes

- Name of process
- Process owner
- Process output/product
- Who is involved in delivering the process
- Who cares about the process
- Extent of the process to be mapped
- Activities to define the process
- Start and end point

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### Workflow Process Redesign Mapping of Current Processes

- Waste (non-value-added time)
- Bottlenecks
- Redundancies
- Points of dissatisfaction
- Inefficient use of workforce skills

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### Workflow Process Redesign Mapping of Current Processes

- Admission
- Discharge
- Transfer
- Prescribing
- Triage
- Phlebotomy
- Pediatric patient stay
- Trauma patient stay
- Obstetric patient stay

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### HIT Design to Support Workflow: Emergency Department Example

Emergency department (ED) crowding has been a consistent problem at an urban, tertiary care academic medical center in New York City. Using process redesign, a multidisciplinary team was able to streamline patient throughput before implementing a fully integrated ED information system.

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## HIT Design to Support Workflow: Acute Care Hospital Example

Researchers at 2 Boston academic medical centers examined the effects of a redesigned medication reconciliation process integrated into their existing provider order entry systems. The process redesign team involved physicians, nurses, and pharmacists who examined admission and discharge processes that support medication reconciliation.

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## HIT Design to Support Workflow: Acute Care Hospital Example

Create preadmission medication list from existing electronic sources

Document a planned action on admission for each medication

Facilitate review of a completed medication list and admission medications by a second clinician

Facilitate reconciliation of the med list with current inpatient meds when writing discharge orders

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## HIT Design to Support Workflow: Chronic Disease Clinic Example

### Information Access

- Review existing data

### Data Input

- Enter new data
- Edit existing data

### Communication

- Communicate with other people
- Communicate with other entities

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### HIT Design to Support Workflow: Chronic Disease Clinic Example

Information Types	Information Sources
<ul style="list-style-type: none"> <li>• Laboratory results</li> <li>• Radiology images</li> <li>• Other test results</li> <li>• External medical records</li> <li>• Internal medical records</li> <li>• Patient-reported status information</li> </ul>	<ul style="list-style-type: none"> <li>• EHR</li> <li>• Paper records</li> <li>• FAX</li> <li>• Mail</li> <li>• E-mail</li> <li>• Documents brought by patient</li> <li>• Patient verbal report</li> <li>• Device-generated data</li> </ul>

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### HIT Design to Support Workflow: Chronic Disease Clinic Example

Design application to:

- Support shared needs/behaviors
- Allow customization for disease-specific needs
- Allow customization for user-specific needs
- Explore new data input approaches
- Support efficient medical device data transfer
- Allow scanning of searchable, accessible data
- Allow easy navigation/filtering of important data
- Support alternative displays of longitudinal data
- Promote efficiency and other benefits
- Promote adoption

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### HIT Design to Support Workflow: Small Ambulatory Practice Example

Examine the multiple workflows within the current office practice

- How appointments are scheduled
- What occurs during the actual visit
- What are the workflows after the visit
- How does the office practice handle unscheduled patient visits
- How does the practice handle post-visit patient questions

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## HIT Design to Support Workflow: Small Ambulatory Practice Example

Important workflow consideration: how the office or clinic will continue business operations during unanticipated system downtime

- Are there adequate back-ups and redundant servers?
- Will providers revert to paper systems?

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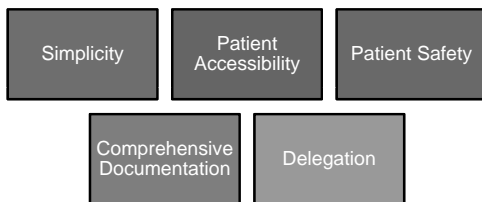
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## HIT Design to Support Workflow: Small Ambulatory Practice Example



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## HIT Design to Support Workflow

- Poor user interface and system design
  - Hinders clinical workflow
  - Leads to wasted time, poor data collection, misleading data analysis, and negative clinical outcomes
- Proper HIT implementation depends on accurate models of clinical processes
- If HIT is to help, it must improve the natural clinical workflow

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## Summary

- Health care process redesign must begin with a well-structured evaluation of current workflow processes
- Information obtained during workflow process analysis informs process redesign efforts.
- HIT professionals can assist teams to analyze the impact of HIT on workflow processes.

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