Curriculum Development Centers Program

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

HEALTH IT WORKFORCE CURRICULUM
COMPONENT BLUEPRINT
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Component Number: 10
Component Title: Fundamentals of Health Workflow Process Analysis & Redesign

Component Description: Fundamentals of health workflow process analysis and redesign is a necessary component of complete practice automation and includes topics of process validation and change management.

Assigned Institution: Duke University
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Workforce Roles:
Health IT Roles to Which this Content Applies:

- Clinician/Practitioner Consultant
- Implementation Support Specialist
- Practice Workflow and Information Management Redesign Specialist

Component Objectives:
At the completion of this component, the student will be able to:

1. Identify the elements involved in providing patient care within a complex health care setting that must be taken into consideration when examining and proposing changes in workflow processes.
2. Create a diagram of processes in the health care setting that support workflow analysis and re-design.

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3. Critically analyze the workflow processes in a selected health care setting to determine their effectiveness from the perspective of those being served (i.e., patients), those providing the services (i.e., professional and non-professional staff), and the organization's leadership (i.e., decision makers).
4. Propose ways in which quality improvement methods, tools and health IT can be applied within a health care setting to improve workflow processes.
5. Suggest approaches that would ensure the success of workflow re-design from development and presentation of the implementation plan, to facilitation of decision making meetings, implementation of the changes, evaluation of the new processes, sustainability of new workflow processes, and continuous quality improvement efforts to achieve meaningful use.
6. Apply to these activities an understanding of health IT, meaningful use, and the challenges practice settings will encounter in achieving meaningful use.

Component Units with Objectives and Topics

Unit 1: Concepts of Processes and Process Analysis

Description: This unit focuses on the six aims for health care process improvement. In this unit, students are helped to understand the concepts of systems, systems thinking and health care processes. Such understanding provides a foundation for the study if clinical process analysis and redesign.

Objectives:

1. Describe the purpose for process analysis and redesign in the clinical setting
2. Describe the role of a Practice workflow and information management redesign specialist and contrast it with other roles such as technical support and implementation management
3. Explain how health care process analysis and redesign and meaningful use are related
4. Analyze a health care scenario and identify the components of clinical workflow.
5. Given a scenario of a health care analysis and redesign, analyze the responsibilities of each participant in the process and how the roles complement or overlap with one another
6. Describe how the workflow processes used by a health care facility might differ depending on the type of facility

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Topics:

1. Role of Health Care Workflow Analysis and Redesign Specialist
    a. Definitions
    b. Health care Roles and Responsibilities
2. IOM 6 Quality Areas
3. Importance of HIT to Health Care - Meaningful Use
4. The Clinical Setting
5. Common Health Care Processes
6. Clinical Workflow
7. Summary: What a Process Analysis and Redesign Specialist Does

Unit 2: Process Mapping Theory and Rationale

Description: In two parts, Fundamentals of Health Workflow Process Analysis and Redesign: Process Mapping Theory and Rationale, Lecture a and Process Mapping Diagramming Tools, Lecture b, covers the background necessary for graphically representing processes. It uses flowcharts and basic flowchart symbols to provide an introduction to graphical process representation, also called process diagramming. Separate units cover complete symbol sets and conventions for different types of process diagrams.

Objectives:

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

Topics:

1. Purpose of graphic process representation
2. Process diagram vocabulary
3. Identifying process steps
4. Basic flowchart symbols
5. Creating a basic flowchart

Unit 3: Interpreting and Creating Process Diagrams

Description: Unit 3 is composed of several lectures, one for each diagramming method. Lecture a, Interpreting and Creating Process Diagrams: Introduction - provides

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an introduction to these concepts and reviews information from Unit 2, Lecture b. Based on feedback from practitioners, we recommend using two methods (data flow diagrams in Yourdon notation, and flowcharts). In Lecture a, we review the process aspects that each diagram type covers. In separate presentations, we cover each diagram type. For the two recommended methods, the presentation covers concepts and skills from reading and interpreting the diagrams to actually creating them. For the rest of the diagrams, we cover only background, use, and notation, i.e., the presentation prepares the student to read and interpret the diagram but not to create them.

Objectives:

1. Create a process flowchart for a health care system (or system component) using appropriate ISO 5807 symbols and conventions,
2. Create context and data flow diagrams for a health care system (or system component) using appropriate Yourdon symbols and conventions,
3. Choose the correct scope and detail level for a process flowchart and data flow diagram,
4. Read and interpret Gane-Sarson data flow diagram,
5. Read and interpret an entity relationship diagram in crow's foot notation, and
6. Read and interpret UML class, activity, and state diagrams.

Topics:

1. Key process aspects that may require analysis and diagramming
2. Types of process diagrams
3. Standard ISO 5807 process diagramming symbols and conventions
4. Reading an ISO 5807 flowchart in terms of the information that could be generated and the workflow steps that are being communicated
5. Create ISO 5807 flowcharts for a health care system (or system component) using correct symbols and conventions
6. Yourdon data flow diagram symbols and conventions
7. Creating data flow diagrams (DFDs) for a given a health care scenario
8. Gane-Sarson symbols and conventions for process mapping
9. Reading Gane-Sarson data flow diagrams
10. Understand the background of how Entity-Relationship Diagrams (ERDs) are used and maintained, the symbol set used in producing ERDs, and process aspects covered by them
11. Understand the notation conventions and be able to read (not create) a simple Entity Relationship Diagram (ERD)
12. Purpose, symbols, and conventions for UML
    a. Class,
    b. Activity and
    c. State machine diagram
13. Reading and interpreting the diagrams

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Unit 4: Acquiring Clinical Process Knowledge

Description: In three lectures, this unit covers the concepts and methods for Acquiring Clinical Process Knowledge in the health care setting needed by the health care Workflow Analysis and Redesign Specialist.

Objectives:

1. Identify how the strategic goals and stakeholders for a given health care facility can influence workflow processes in that facility,
2. Create an agenda for an opening meeting to discuss workflow processes in a health care facility, in light of that facility's strategic goals and stakeholders,
3. Compare and contrast different types of knowledge and their impact on organizations,
4. Analyze a health care scenario according to CMMI levels,
5. Identify the workflow processes that are likely to be used by a health care facility,
6. Identify the workflow processes that are essential to observe in order to determine how best to streamline the operations in a given health care facility, and
7. Identify key individuals with whom the Practice Workflow and Information Management Redesign Specialist should meet or observe in order to gain an understanding of the nature and complexity of their work.
8. Given a process observation scenario, formulate the questions that would facilitate a productive discussion of the workflow of information, activities and roles within that facility,
9. Suggest ways to successfully respond to common challenges encountered in knowledge acquisition,
10. Given a practice scenario, choose an appropriate knowledge acquisition method,
11. Given a process analysis scenario including list of observations, create agenda for visit closing meeting and an initial meeting report, and
12. Given a set of diagrams and observations from an information gathering meeting, draft a summary report.

Topics:

1. Knowledge Acquisition (KA) goals in health care,
2. Importance of KA,
3. Categories of knowledge, and
4. Knowledge and the Capability Maturity Model (CMM).
5. Clinic information such as mission, stakeholders and goals that can help inform the analysis,
6. Common clinic processes, and
7. Creating a process inventory.
8. Knowledge sources,
9. Process information that should be considered in the analysis,
10. Methods to obtain the information,

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11. Knowledge acquisition plan, and
12. Initiating a relationship with a clinic.

Unit 5: Process Analysis

Description: In two lectures, Fundamentals of Health Workflow Process Analysis and Redesign: Process Analysis covers the background and methodology for process analysis.

Objectives:

1. Describe the purpose of process analysis,
2. Describe skills and knowledge necessary for process analysis,
3. Perform a process analysis for a given clinic scenario,
4. Given results of a process analysis draft a summary report, and
5. Given results of a process analysis, identify desired EMR functionality

Topics:

1. Objectives of Process Analysis
2. Relevant concepts for process analysis
3. Steps for process analysis
4. Starting with process inventory and diagrams
5. For each process, listing
    a. Variations applicable to the clinic
    b. Exceptions
6. And Reporting findings
7. Process Variations for common clinic processes
    a. Patient check-in
    b. Patient visit
    c. Prescription
    d. Received documentation
    e. Labs & diagnostic tests
    f. Referral and consults
    g. Disease management
    h. Billing
8. Identifying EHR functionality from Process Analysis

Unit 6: Process Redesign

Description: This unit, Process Design, consists of 4 lectures and covers the background and methodology for process redesign in the health care facility.

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Objectives:

1. Identify the factors that optimize workflow processes in health care settings.
2. Describe how information technology can be used to increase the efficiency of workflow in health care settings.
3. Identify aspects of clinical workflow that are improved by EHR.
4. Propose ways in which the workflow processes in health care settings can be re-designed to ensure patient safety and increase efficiency in such settings.
5. Use knowledge of common software functionality and meaningful use objectives to inform a process redesign for a given clinic scenario.

Topics:

1. Objectives and goals of Process Redesign,
2. Unproductive work,
3. Twenty seven strategies for optimizing processes, and
4. An example of each optimization strategy.
5. Describe how information technology can be used to increase the efficiency of workflow in health care settings
6. Identify aspects of clinical workflow that are improved by EHR
7. Objectives, Skills and Knowledge for Process Redesign,
8. Common process problems,
9. Solutions to process problems, and
10. Human-Centered Design Framework as applied to Process Redesign.
11. Matching common clinic system functionality to solve process problems.
12. Objectives, skills and knowledge for Process Redesign,
13. Human-Centered Design framework applied to Process Redesign,
14. Common process problems,
15. Solutions to process problems,
16. Matching common clinic system functionality to solve process problems, and
17. Process redesign for Meaningful Use.

Unit 7: Facilitating Meetings for Implementation Decisions

Description: In one lecture, this unit, Facilitating Meetings for Implementation Decisions, covers a method and the associated logistics for conducting meetings in which health care facility decision makers review options for major process and implementation related decisions and make decisions. The purpose of the meetings is to outline the decisions that need to be made, to assure that decision makers have the necessary information for decision making, and to facilitate decision making. This unit provides the Practice Workflow and Information Management Redesign Specialist with tools for conducting decision making meetings. There are many methods for conducting and facilitating meetings. Here, we provide one method, discuss key concepts, and provide references to resources that you can use as you develop your skills and portfolio of tools for meeting facilitation.

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Objectives:

1. Describe major health care facility decisions in process redesign that includes EHR technology
2. Draft an agenda and facilitation plan for a decision making meeting,
3. Prepare a presentation to communicate findings of a workflow analysis or process redesign to health care facility decision makers,
4. Document those decisions that are made and actions identified in a decision making meeting, and
5. Critique a decision making meeting agenda, facilitation plan or scenario to identify problems and how they could have been prevented

Topics:

1. Coordinating a decision making meeting
2. Using appropriate group methods to discuss and make decisions on inefficiencies
3. Identifying opportunities for streamlining manual and computer-aided processes, and the
4. Transition from analysis and redesign to implementation planning, and we will also give examples of the plan content.

Unit 8: Quality Improvement Methods

Description: This unit covers Quality Improvement Methods recommended for use in the Health Care Setting. Many different approaches to quality improvement have been used in the health care arena. The workflow analysts will encounter organizations and people with experience with a multitude of proven methods and fads. Thus, an awareness of the history, methods, and tools of quality improvement is critical. This unit introduces students to these elements of QI, as well as categories of mistakes seen in these methods. It is not intended to teach the student how to use these methods and tools.

Objectives:

1. Describe strategies for quality improvement
2. Describe the role of Leadership in Quality Improvement
3. Describe the local clinic improvement capabilities
4. Describe and recommend tools for quality improvement
5. Compare and contrast the quality improvement methodologies and tools and their appropriate uses in the health care setting

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Topics:

1. Foundations of Quality Improvement
2. Methods for Quality Improvement
3. Tools for performing Quality Improvement
4. A culture of Quality Improvement
5. Mistakes in Quality Improvement

Unit 9: Leading and Facilitating Change

Description: This unit, Leading and Facilitating Change, introduces the concepts of change and the impact of such change on the providers and staff within a health care facility. It enhances the understanding that workflow analysts must be sensitive to the human component as they examine and propose modifications in processes. This unit prepares the student to recognize and address common change management problems, and to work with individuals and groups to facilitate change.

Objectives:

1. Explain concerns expressed by participants in a process analysis & redesign scenario in terms of common change management concepts.
2. Propose strategies to gain acceptance of changes in work processes.
3. Create and critique a facilitation plan, including appropriate facilitation tools for a given process analysis & redesign scenario, and
4. Given a health care change management scenario, explain outcomes in terms of common change management concepts

Topics:

1. Change Management concepts
2. Tools for Facilitating change
3. Facilitation Planning

Unit 10: Process Change Implementation and Evaluation

Description: This unit focuses on helping students develop skills needed to implement and evaluate the effectiveness of changes designed to improve workflow processes and the quality of care in health care facility. This unit prepares the student to implement a process change by covering three key skill sets: 1) develop a process change plan (implementation plan), 2) communicate a process change plan, and 3) develop an evaluation plan.

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Objectives:

1. Develop a Process Change Implementation Plan for a health care facility that includes tasks to be accomplished, responsible parties for various tasks, a timeline, and the human and material resources needed
2. Identify management tracking and measurement opportunities for the process change
3. Outline elements of an evaluation plan that will help determine the success of a workflow process change implemented in a health care facility
4. Describe how the workflow analyst can help a health care facility continually improve its workflow processes, based on results of ongoing evaluations

Topics:

1. Common process changes
2. Implementation plan components
3. Communication for implementation
4. Common implementation problems
5. Evaluating the new process

Unit 11: Maintaining and Enhancing the Improvements

Description: This unit focuses on helping the student develop the skills to recognize and access changes that can be maintained, develop alternative processes and methods needed to keep the practice running if the EHR system fails and apply to these activities an understanding of health IT, meaningful use, and the challenges practice settings will encounter in achieving, sustaining and enhancing meaningful use.

Objectives:

1. Design control strategies to maintain performance of clinic processes
2. Develop and present a sustainability and continuous improvement plan for a health care setting
3. Work with practice staff to develop a set of plans to keep the practice running (to the extent necessary and practical) if the EHR system fails
4. Work with practice staff to evaluate the new processes as implemented and identify problems and changes that are needed

Topics:

1. Monitoring processes to maintain performance gains
2. Continuing to improve process performance
3. Contingency planning for EHR downtime
    a. providing patient care when the EHR is down
    b. maintaining availability of health information to providers and patients in major emergencies

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