

# Design and Implementation of An Innovative Training Module

Jian Luo, MSN, RN, C

Kaye Schlitz, BSN RN, C

Rebecca Kitzmiller, MHR, MSN, RN, BC

# Learning Objectives

- Describe the framework: systems analysis and the nursing process
- Evaluate educational and information technology principles for training guidelines
- Review the design process and evaluation of an innovative training approach

# System Analysis vs. Nursing Process

- Needs assessment
  - Requirements definition
  - Analysis
  - Design Phase
  - Programming/customization
  - Testing/Implementation
  - Evaluation
- Observation/ Assessment
    - Information needs
    - Infrastructure needs
    - Defining requirements
      - Scope
      - Timeline
      - Resources

# System Analysis vs. Nursing Process

- Needs assessment
  - Requirements definition
  - Analysis
  - Design Phase
  - Programming/customization
  - Testing/Implementation
  - Evaluation
- Observation/ Assessment
  - Diagnosis
    - Analysis
    - Finalize scope
    - Design system

# System Analysis vs. Nursing Process

- Needs assessment
  - Requirements definition
  - Analysis
  - Design Phase
  - Programming/customization
  - Testing/Implementation
  - Evaluation
- Observation/ Assessment
  - Diagnosis
  - Planning
    - Timeline
    - Budget
    - Design
    - Customization

# System Analysis vs. Nursing Process

- Needs assessment
  - Requirements definition
  - Analysis
  - Design Phase
  - Programming/customization
  - Testing/Implementation
  - Evaluation
- Observation/ Assessment
  - Diagnosis
  - Planning
  - Implementation
    - Testing
    - Training
    - Deployment

# System Analysis vs. Nursing Process

- Needs assessment
  - Requirements definition
  - Analysis
  - Design Phase
  - Programming/customization
  - Testing/Implementation
  - Evaluation
- Observation/ Assessment
  - Diagnosis
  - Planning
  - Implementation
  - Evaluation
    - Use of system
    - Installation process
    - Maintenance
    - Enhancements

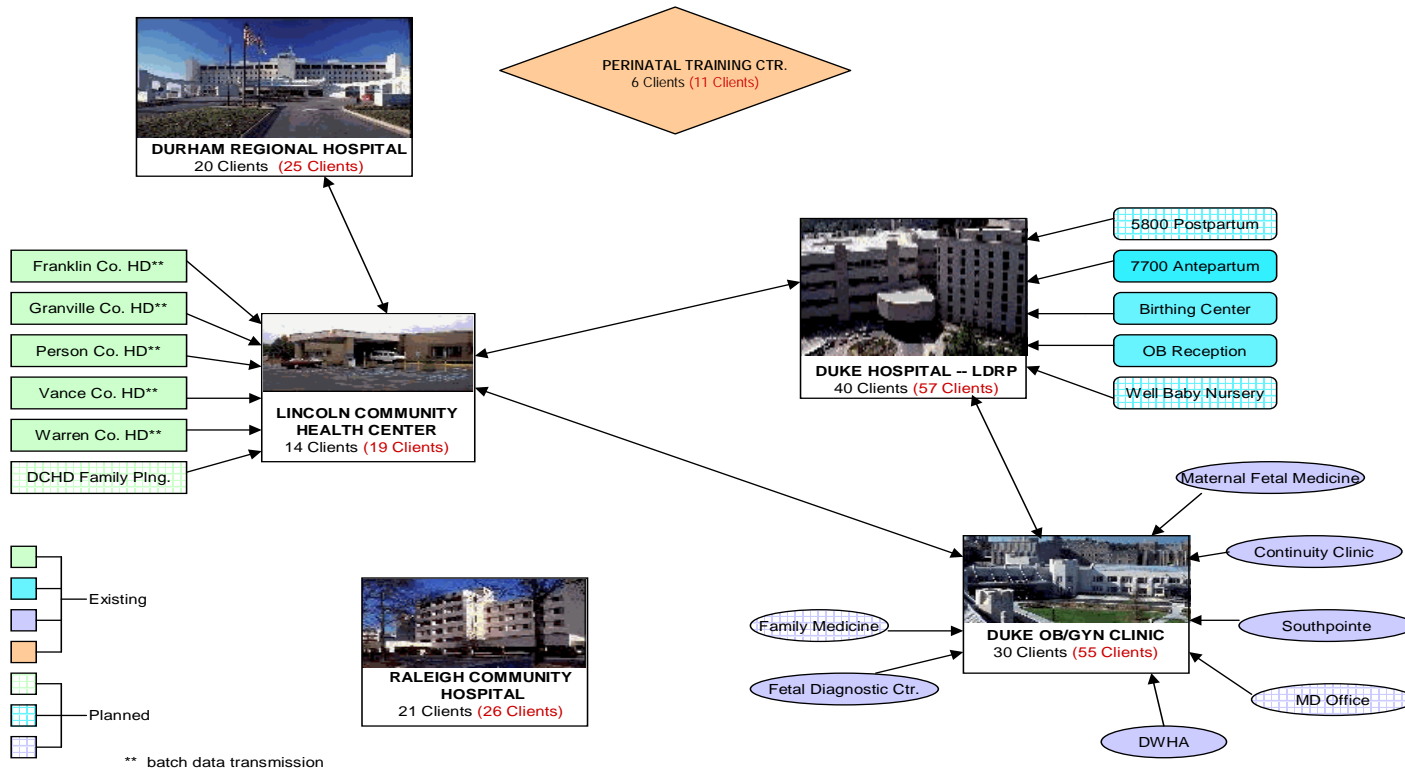
# Needs Assessment (Assessment)

- Obstetrics practice:
  - Complex, fast-paced
  - Crucial timing
  - Immediate action needed based on the changes in clinical values
  - Rapid resident turnover
  - Historically poor attendance to training



# Needs Assessment (Assessment)

## OB TRACEVUE AT DUKE UNIVERSITY HEALTH SYSTEM



# Needs Assessment (Assessment)

- System design limitations:
  - Patient information resides on different servers
    - Inpatient (3 locations)
    - Outpatient (8 locations)
  - Access limited by server/client design
  - Manual record transfer process to view records from alternate locations

# Needs Assessment (Assessment)

- User needs:
  - Quick access to up to date patient data
  - Information access at point of care and point of decision making
    - Clinic vs. Labor and delivery
  - Innovative training approach
    - Too much Information → overwhelms the learner
    - Insufficient information → incapability to perform the task

# Requirements (Assessment)

- Remote access functionality to all patient data
  - Addition of two new locations
- Scope:
  - Innovative training
- Timeline
  - 5 Weeks
- Resources
  - Personnel
  - Software

# Analysis (Diagnosis)

- Human-computer interaction
  - assesses the users' own strengths and weaknesses with respect to the content and design of the training module.
  - “...human as an interacting social being. It includes a concern with the nature of work, and with the notion that human systems and technical systems mutually adapt to each other and must be considered as a whole”

(Hewett, 1992).

# Analysis (Diagnosis)

- Adult Learning Theory
  - Fundamentals:
    - Self-concept
    - Experience
    - Readiness,
    - Orientation
    - Motivation
  - True-to life experiences
  - Adult learners
    - Self directive
    - Require control

(Knowles, 1990)

# Analysis (Diagnosis)

- Technology
  - Obstetrics system:
    - OBTV Web server
    - VPN client server model
  - Educational software:
    - Video recording
    - Voice over
    - Desk top / movement screen capture

# Analysis (Diagnosis)

- Refining Scope
- Create “true-to-life” training module
  - VPN account request
  - VPN software use
  - OBTV remote client use
- Enhanced training experience
  - User controlled
  - Self Directed
  - Reduce Time Conflict
- Budget: 0



# Design (Planning)

- Self directed training:
  - Familiarity with Obstetrics system and clinical practice
  - Familiarity with system administration and architecture
  - Educational software
    - Functional use: screen, video and voice capture
    - Student use of end product
    - Email content vs storage media

# Design (Planning)

- Theoretical Framework
  - High quality
  - True-to-life
  - Time appropriate
  - Learning style accommodation:
    - Visual
    - Auditory

# Programming (Planning)

- Utilize PPT to define the content for easy modifications
- Perfecting voice recording
  - Speed
  - Enunciation
- Coordinating voice to visual content
- Screen capture: smooth/accurate user movement
- Iterative
  - 9 Major revisions
  - 109 Minor revisions

# Testing (Implementation)

- Test Group
  - Expert clinical user
    - Clinical Educator
  - Expert informatics users
    - Nursing informatics staff
  - System Champions
    - Obstetrics System Steering Committee
    - Obstetrics System provider champion

# Testing (Implementation)

- Content Feedback
  - Inappropriate technical jargon: “Server Locations”
  - Add VPN account request
  - Visual versus Auditory learners
    - Increase clarity and detail of verbal instructions
- Technical Feedback
  - Create “auto run” function to support novice computer users
  - Written instructions appropriate

# Testing (Implementation)

- Results
  - Auto run on insertion of CD
    - Create Batch file with executables to call the parameters
    - Batch file as back up solution for Auto Run failure
  - Incorporation of VPN account request and VPN access
  - Appropriate length of content (user attention)
  - Perfect coordination of voice to content
  - On/Off audio option
  - Content print option

# Implementation (Implementation)

- Distribution
  - Email content changed to CD-ROM
    - 121 MB
  - Written instructions provided
  - Utilized campus mail
    - No Cost
  - Number trained

# Demo





# Evaluation

- System Use
- Evaluation of CD functionality
- Evaluation of Content
- Maintenance/Enhancements

# Questions

# References

- AuCoin B. & Kitzmiller R. "The Nursing Process: Addressing the challenges of the transition from paper to electronic documentation." American Nursing Informatics Association 2004 Annual Conference, New Orleans, May 23, 2004.
- Hewet, T. T., Baecker, R., Card, S., Carey, T., Gasen, J., and Mantei, M. et al. (1992) *ACM SIGCHI Curricula for Human-Computer Interaction*. Retrived March 20, 2004, from <http://www.acm.org/sigchi/cdg/>
- Hunt, E. Sproat, S. & Kitzmiller, R. (2004). *The Nursing Informatics Implementation Guide*. Springer-Verlag, New York.
- Knowles, M. S. (1990). *The adult learner: A neglected species*. (4th ed.). Houston, TX: Gulf Publishing Company.