Introduction

- What is Medical Informatics?
- Scope, size of Medical Informatics
- What is Health Care?
- What problems currently exist in Health Care?
- Information technology & Health Care
Fields In Medical Informatics

- Four Main Fields:
  - Information Science
  - Computer Science
  - Human Factors
  - Health Care
Cognition

- Use of information regarding patient care
- Need of more accurate and current information
  - Direct observation
  - Paper printouts
  - Electronic displays
- Helps clinicians further evaluate proper patient care
Ecological Displays

- What are ecological displays?
- How is it useful to clinicians?
- What are some strengths of displays?
- What are some drawbacks?
Ecological Displays

Patient Vital Signs Display
Ecological Displays

Pulmonary Function Display
Ecological Displays

Respirator Display
Ecological Displays

Blood Pressure Display
Ecological Displays

Breathing Display With Markers
Ecological Displays

Multi Document Interface Display

IPRO 372: Medical Informatics: Scoping Health Care Information Technology
ICU & VICU

- What is the ICU?
- What is the VICU?
  - How does it work?
  - Strengths and Weaknesses
Virtual ICU Informational Pathways

VICU

24-HOUR DOCTOR

24-HOUR NURSE

INFORMATION SYSTEM

MICROPHONE

SERVER

MONITORING EQUIPMENT

LINK

CLINICAL

BESIDE

SPEAKER

DOCTOR/NURSE

SERVER

MONITORING EQUIPMENT

CAMERA

PATIENT

MICROPHONE

CALL BUTTON

LINK

CLINICAL

= from Patient side

= from VICU side
Inside the VICU
Concepts & Methods

- What attributes make a good display?
  - Clinician’s Opinions
  - Team’s Opinions
- Good displays consist of:
  - Flexibility
  - Controllable
  - Scalable
Concepts & Methods

- Usability test
- Where did we get our information and results?
- How do we go about creating this display?
Figure 6.4. Partial reconstruction of the computer display (display CSM ECS CRYO TAB) monitored by the electrical, environmental, and communication controller (EECOM) at 55:54:44 mission time during the Apollo 13 mission.

Figure 6.5. Partial reconstruction of the computer display (display CSM ECS CRYO TAB) monitored by the electrical, environmental, and communication controller (EECOM) at 55:54:45 mission time during the Apollo 15 mission. Note oxygen tank 2 pressure showed a peak at this point of 1,008 psi.
Concepts
Concepts

Dr. Jebediah Johnson
PATIENT: Travis Baker
LAB RESULTS

- Culture
- Urine
- Hematology
- Histology

Dr. Jebediah Johnson
PATIENT: Travis Baker
LAB RESULTS: Blood

- Acidity: 7.32
  - Alcohol: 0.0 mg/dL
  - Ammonia: 20 µg of N/dL
  - Amylase: 65 units/L
  - Ascorbic Acid: 1.2 mg/dL
- Bicarbonate: 15 mEq/L
  - Bilirubin: 9.0% Total: 1.0 mg/dL
  - Blood Volume: 10.3 mg/dL
  - CO₂ pressure: 35 mm Hg
  - CD4 Cell Count: 1500 cells/µL
  - Ceruloplasmin: 55 mg/dL
  - Chloride: 103 mEq/L
  - CBC
Conclusions

- What problem are we trying to solve?
- Areas of focus
  - Flexible ecological displays
  - Cognitive research
  - Information Science & Technology
  - ICU & VICU
- Methods to solve the problem:
  - Primary and secondary sources
  - Rapid prototyping
- Future work & research
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