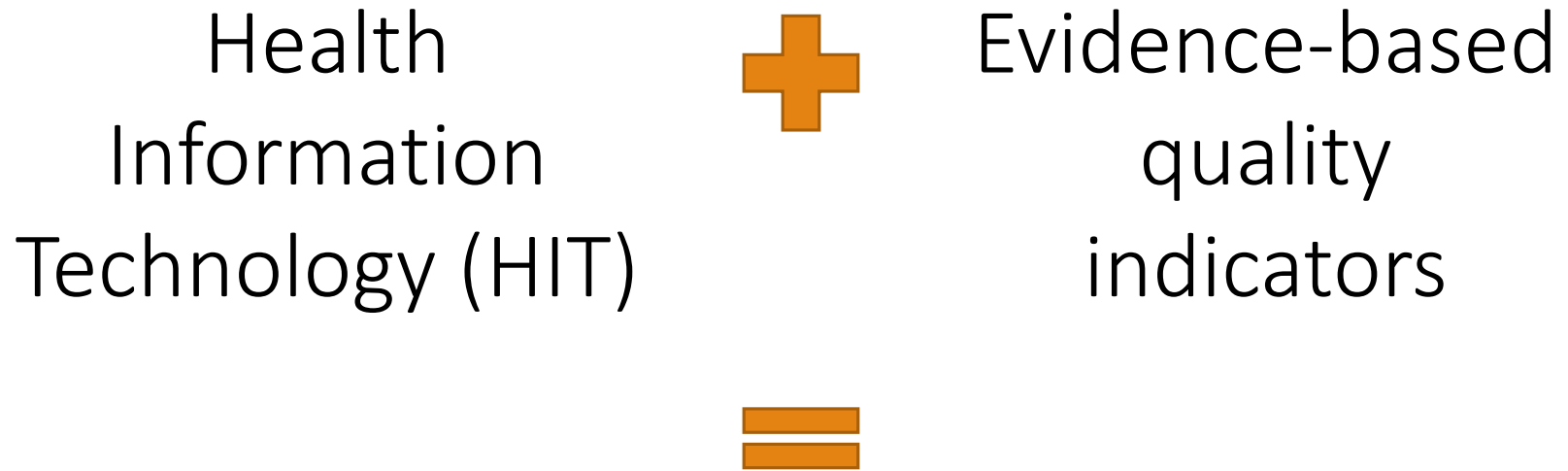# Implementing Evidence-based Quality Indicators into a Health Information Technology Dashboard

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Motivation

Health Information Technology (HIT) **+** Evidence-based quality indicators

=

"Substantial reductions in the incidence and severity of medical errors"

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Evidence-based Indicators
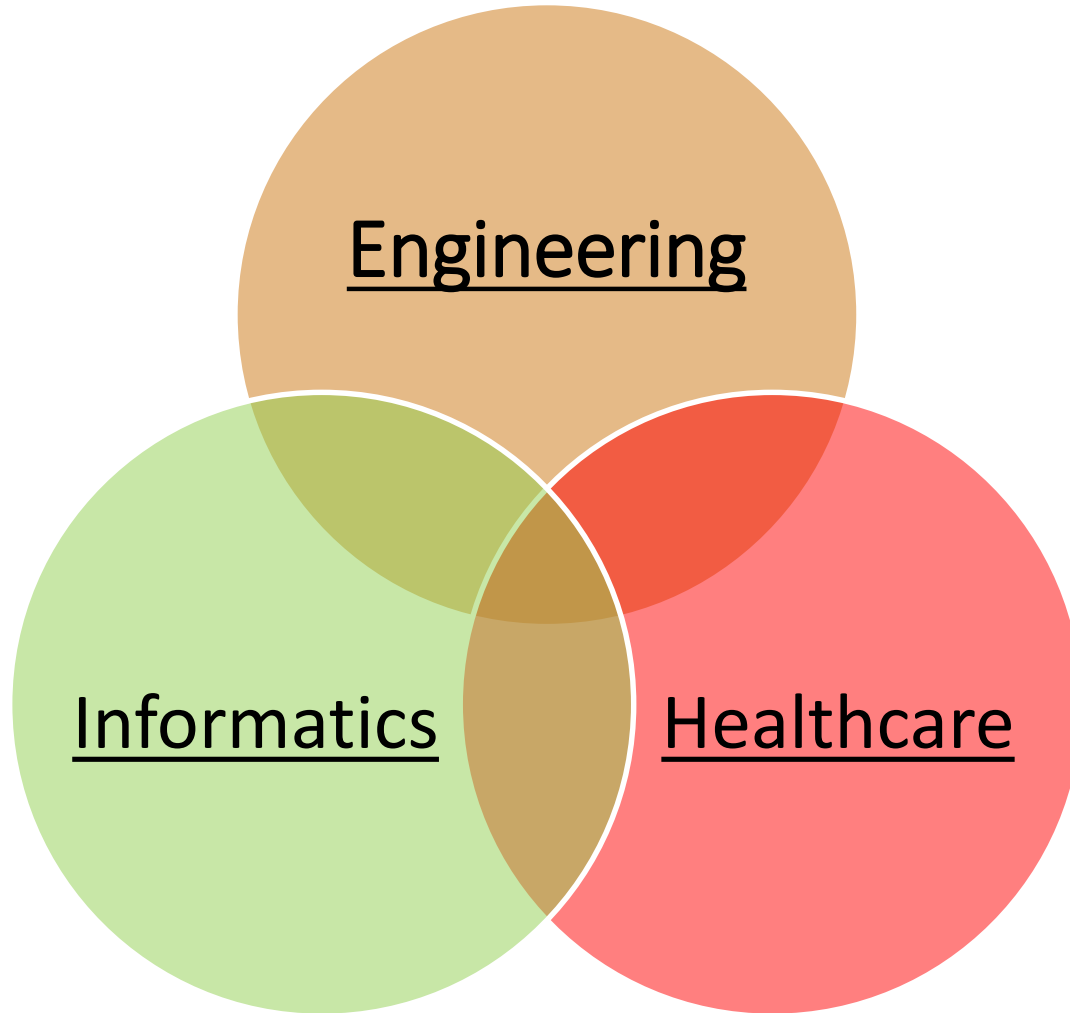
Problem and Objective

Problem

Lack of HIT systems using evidence-based indicators in the clinical environment
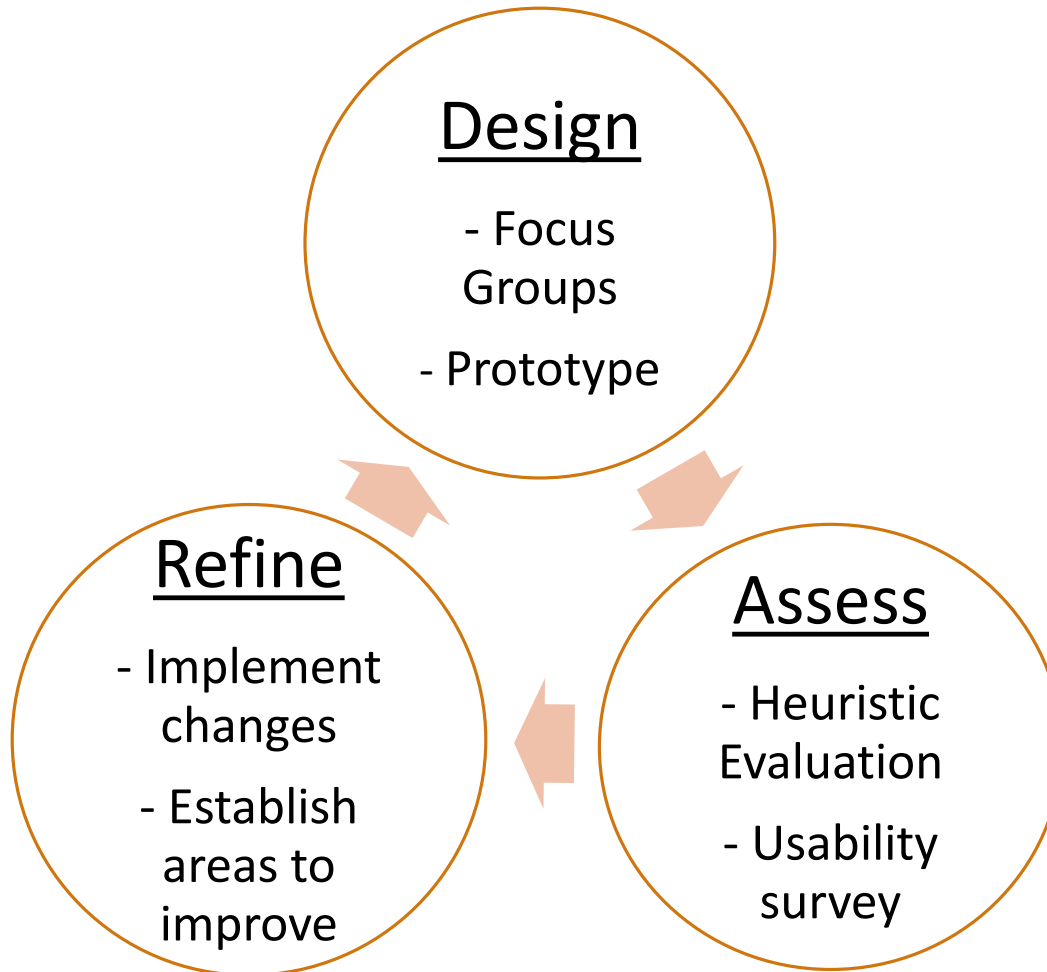
Objective

Design a HIT dashboard to communicate patient risk information to hospital care staff

While keeping Human Factors principles in mind!

Approach

Approach

Design: Focus Group

- Eight medical surgical unit staff members
  - 4 nurse managers and nurses
  - 2 physicians
  - 2 hospital quality professionals

- Questions to facilitate discussion
  - Which quality indicators to include?
  - How would you prefer quality indicators be presented?
  - Previous experiences with health information technology?

- Used responses to design the prototype dashboard

Design: Focus Group

Patient

- Patient name
- Unit number
- Bed number
- Attending Physician
- Length of Stay

Quality Indicators

- Pain Acceptable?
- Barthel Index
- Fall Risk?
- Restraint in Use?
- Pressure Ulcer Risk?
- Number of Urinary Cather Days
- Readmission in last 30 days?

Status

- When was the system last updated
- Who made last changes
- Indicator trends

Design: Prototype

Design: Prototype

Status

Assess

Heuristic Evaluation Recommendations

- Include a cover sheet to describe goal of display
- Remove quality indicator scores when they may be shown as present vs. absent
- Length of stay indicator in days rather than hours

System Usability Score

- Mean score of 83 (SD = 7.6)
- Prototype was "good", but with potential for improvement

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Refine: Integrate into EMR

Assess

Task Time and Accuracy Trials

- Three nurse pairs and one physician from medical-surgical areas
- Eight multi-step tasks
- Recorded and evaluated

System Usability Score

- Mean score of 87.5 (SD = 9.6)
- Improved 4.5 points since Assessment 1, but still room for improvement

Assess: Time on Task
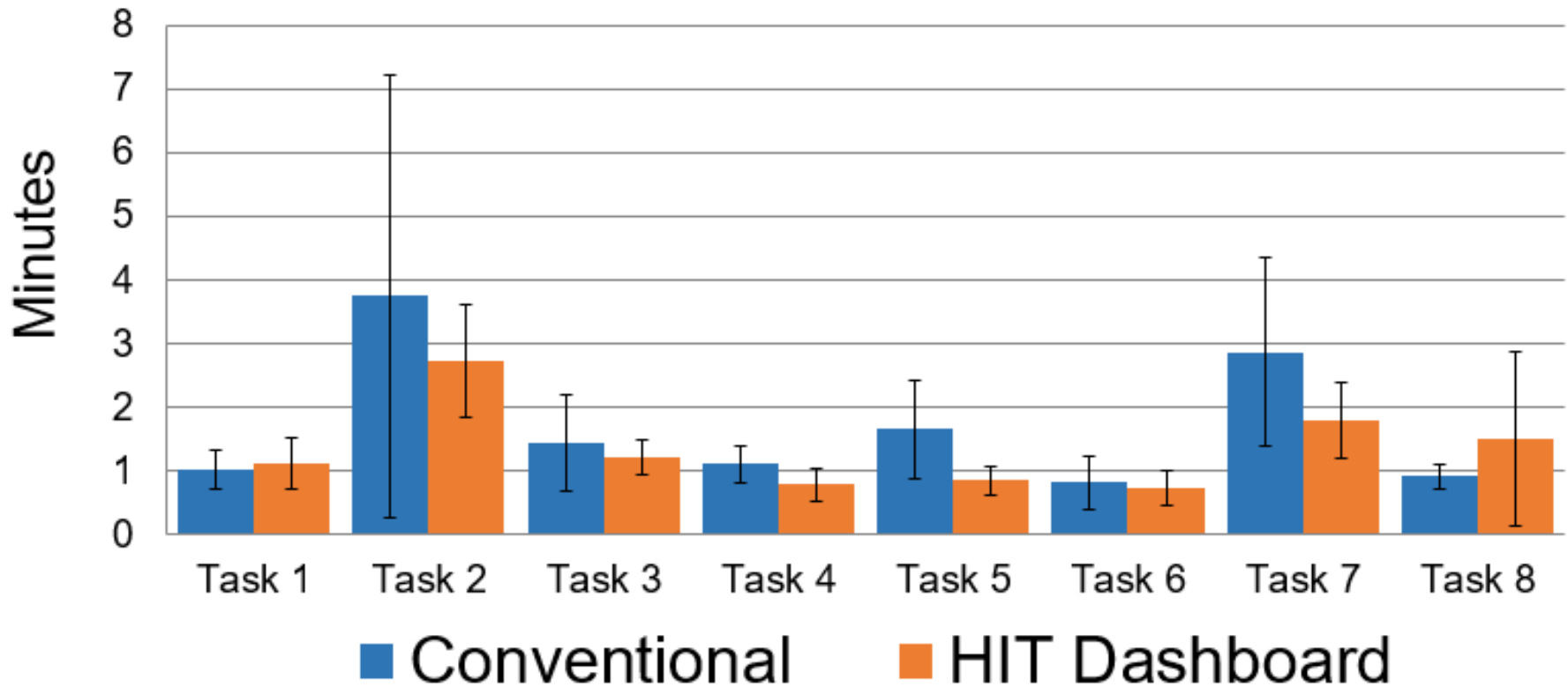
Assess: Tasks with No Errors
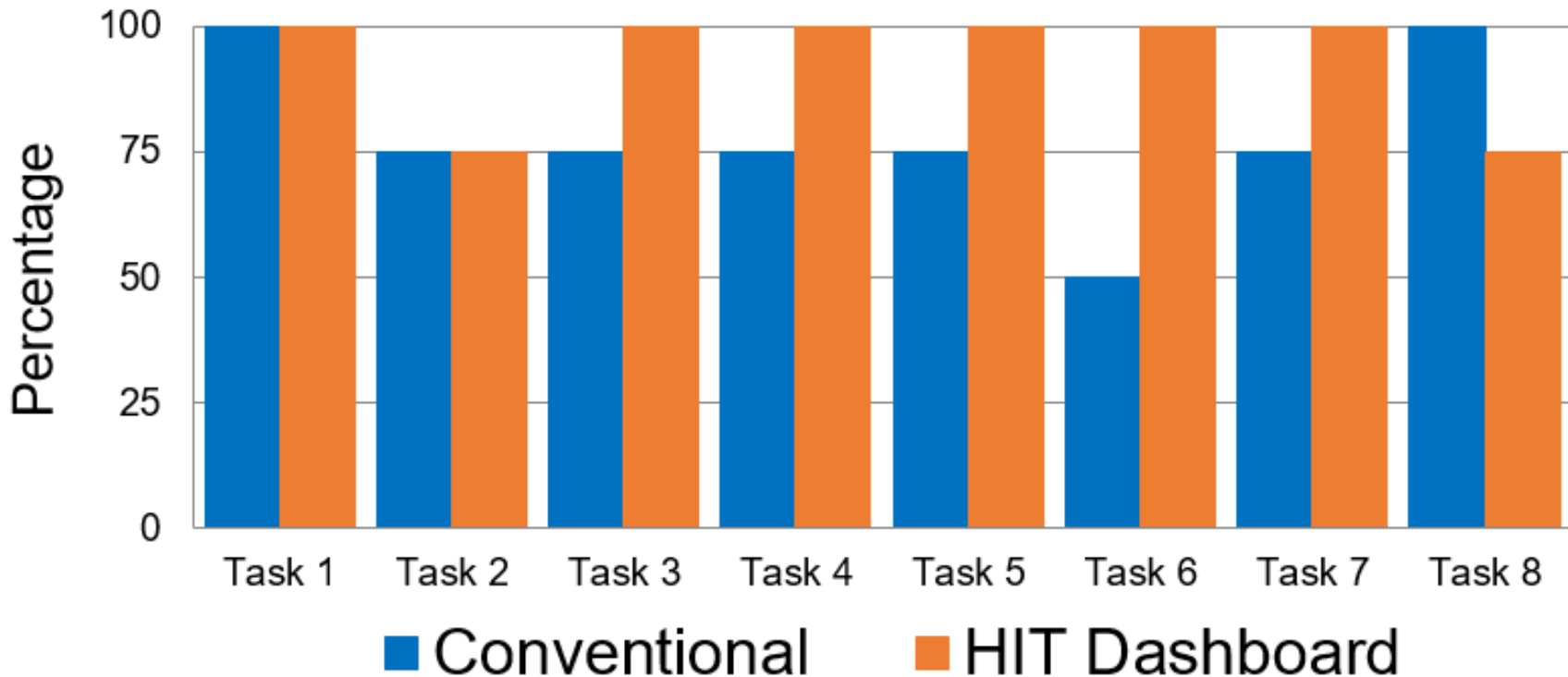
Assess: Qualitative

"The dashboard was mostly self-explanatory, hence easy to use and learn."

"The dashboard removes all the clutter. The visual aspect of the system provides information at-a-glance for multiple patients."

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Refine: Pilot Implementation

- Chief nurse is funding installation in 11 units

- Implementation Process   (Cullen & Adams, 2012)
  - Installation
  - Nurse manager / physician training
  - Introduction at each unit's council meeting
  - Participation in daily huddles & JIT training
  - Follow-up on programming issues/questions

- Prospective assessment to follow

Questions and Comments

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