

Human Factors Analysis to Improve Med Rec for Ped Onc

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1 Background

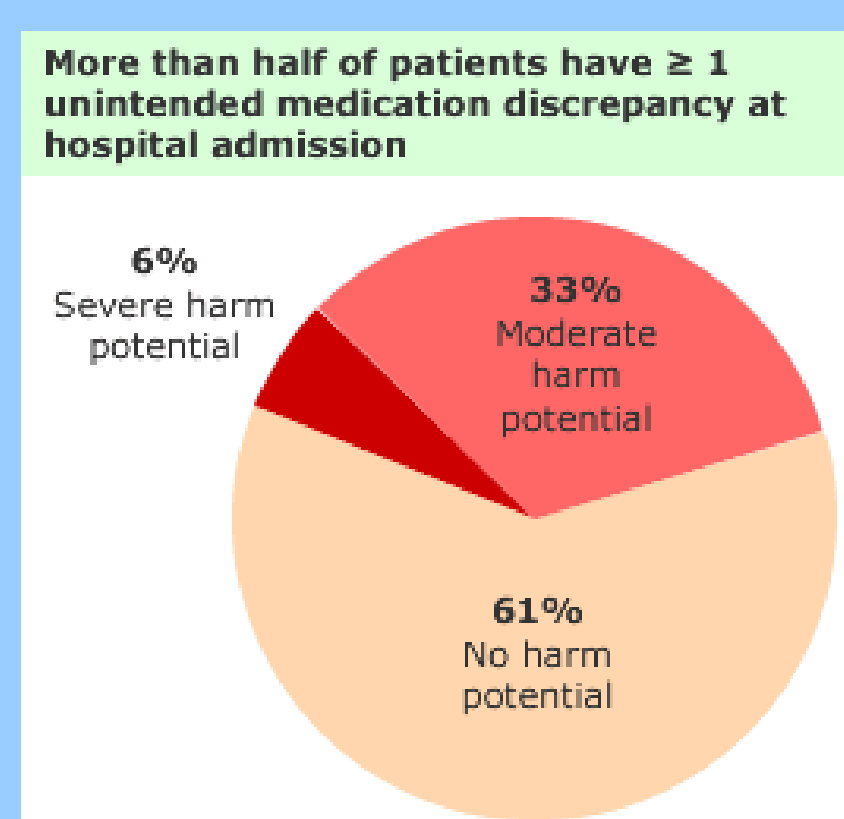
Medication Reconciliation is a high risk workflow

National Patient Safety Goal 03.06.01 (2016)

Record and pass along correct information about a patient's medicines. Find out what medicines the patient is taking. Compare those medicines to new medicines given to the patient. Make sure the patient knows which medicines to take when they are at home. Tell the patient it is important to bring their up-to-date list of medicines every time they visit a doctor.

Clinic Goals:

- Obtain accurate and comprehensive medication list
- Creates clear and concise treatment plan free from duplications, omissions, contraindications, unclear information, and changes
- Upon discharge patient has clear understanding of medications (Purpose, dose, schedule, route, adverse effects contraindications, and documentation) and easy access



Cornish PL, Knowles SR, Marchesano R, et al. Unintended medication discrepancies at the time of hospital admission. Arch Intern Med. 2005;165:424-429.

Complicated by the implementation of new Health Information Technologies (HIT) such as Epic.

Sources of potential error:

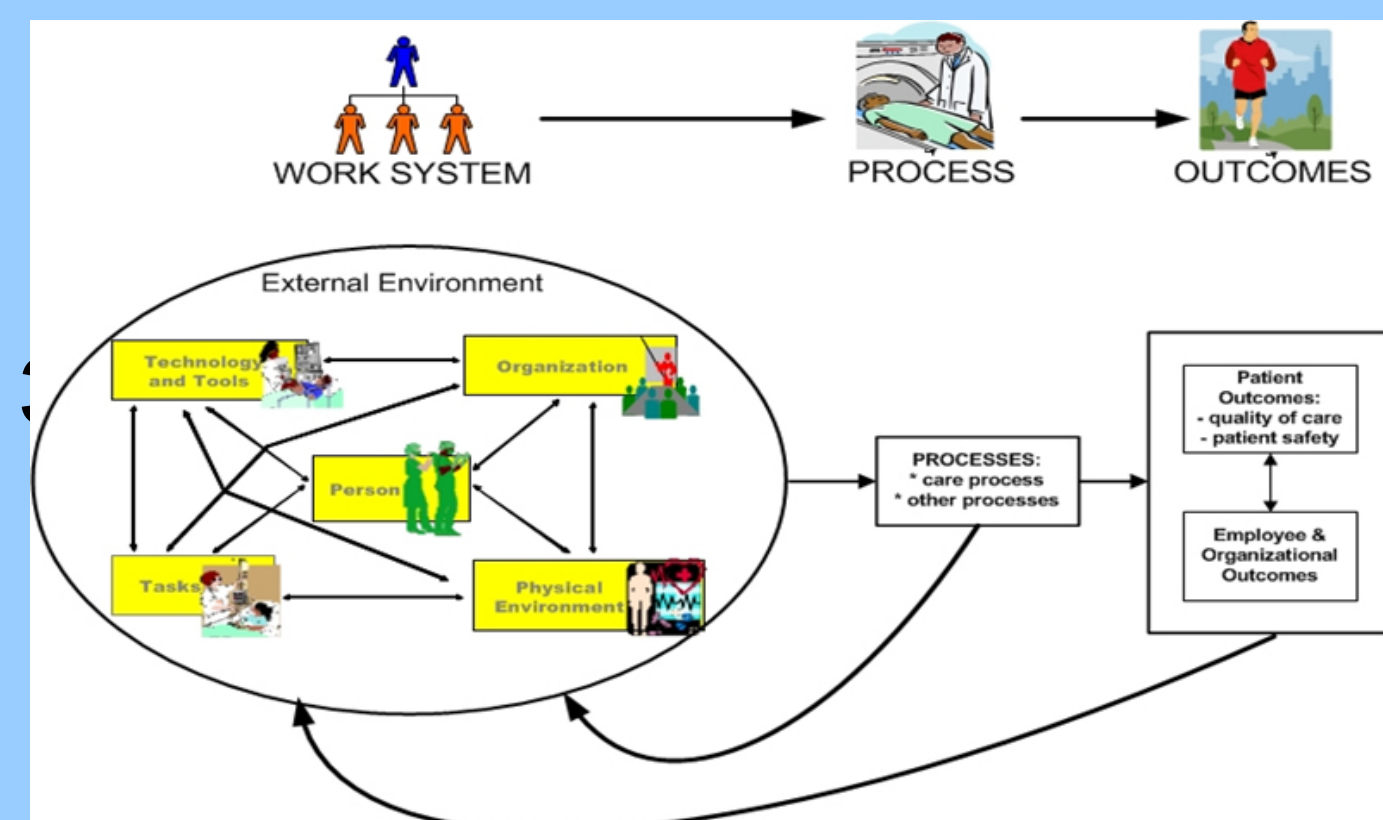
- Poor system usability designs that set users up for failures
- Inadequate training
- Limited understanding of the task significance to whole workflow

2 Methods

Human Factors Analysis to streamline processes, perform proactive assessment, and promote patient safety.

- Evaluate the usability of HIT and redesign system interfaces with end-user centered approach
- Analyze for potential workflow deviations and mitigate the identifiable system issues.

The SEIPS Model demonstrates the interaction of components in a work system affecting care processes and patient outcomes.



Nielsen's Heuristic Principles

- Visibility of system status
- Match between system and the real world
- User control and freedom
- Consistency and standards
- Error prevention
- Recognition rather than recall
- Flexibility and efficiency of use
- Aesthetic and minimalist design
- Help users recognize, diagnose, and recover from errors
- Help and documentation

Quantitative and Qualitative Data Collection

N=7

Participant Observation

- Obtain Information to build scenario
- MDs in Outpatient Oncology Clinic
- New and returning patients

Simulation (Outpatient Clinic)

- Case Scenario Created in Epic Playground
- MDs perform med rec using Epic w/ standardized patient
- How many medications were reconciled? How?

Survey (Likert Scale Post-Simulation)

- System Usability Scale (SUS) to determine participant perception of usability

Task Time Data

- Where is the process efficient?
- Where is it inefficient?

Interviews

- How does EPIC effect on the medication reconciliation process?
- What are the obstacles to successful medication reconciliation posed by EPIC?
- What are the advantages of using EPIC to perform medication reconciliation?

3 Results

Participant Observation Data

- Wide variability in practices
- Multiple sources of verification
- Various levels of accuracy and efficiency

Simulation Case Scenario

Steps for Med Rec Based on best practice and Epic Tool

- Mark as Reviewed – 6
- Alert for External Info – 4
- Review Allergies – 2
- Talk to Patient – 7
- Review Home Medlist – 7
- Classify Meds (Taking, Not Taking, D/C) – 4
- Modify Order – 7
- Drug-Drug Interactions – 2
- Review Final Medlist – 1

SUS Scores out of 100

Range: 95-40
 Mean: 69.3

Task Time Analysis – TBD

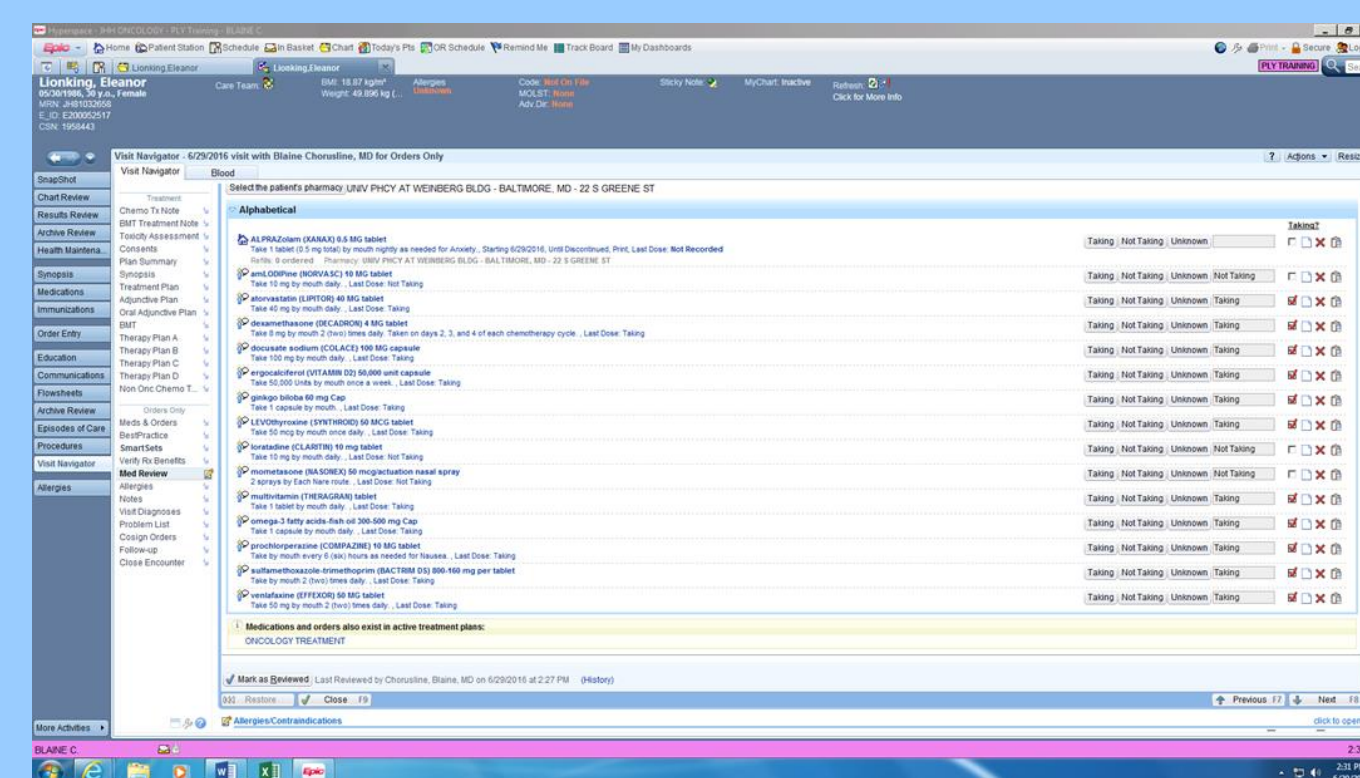
Interview Data Analysis

Themes:

- Errors in patient reporting
- Errors in team communication
- Role ambiguity
- How to document
- Obstacles to training
- Epic Usability

Where to Perform Medication Reconciliation?

Visit Navigator → Med Review



Visit Navigator → Meds and Orders

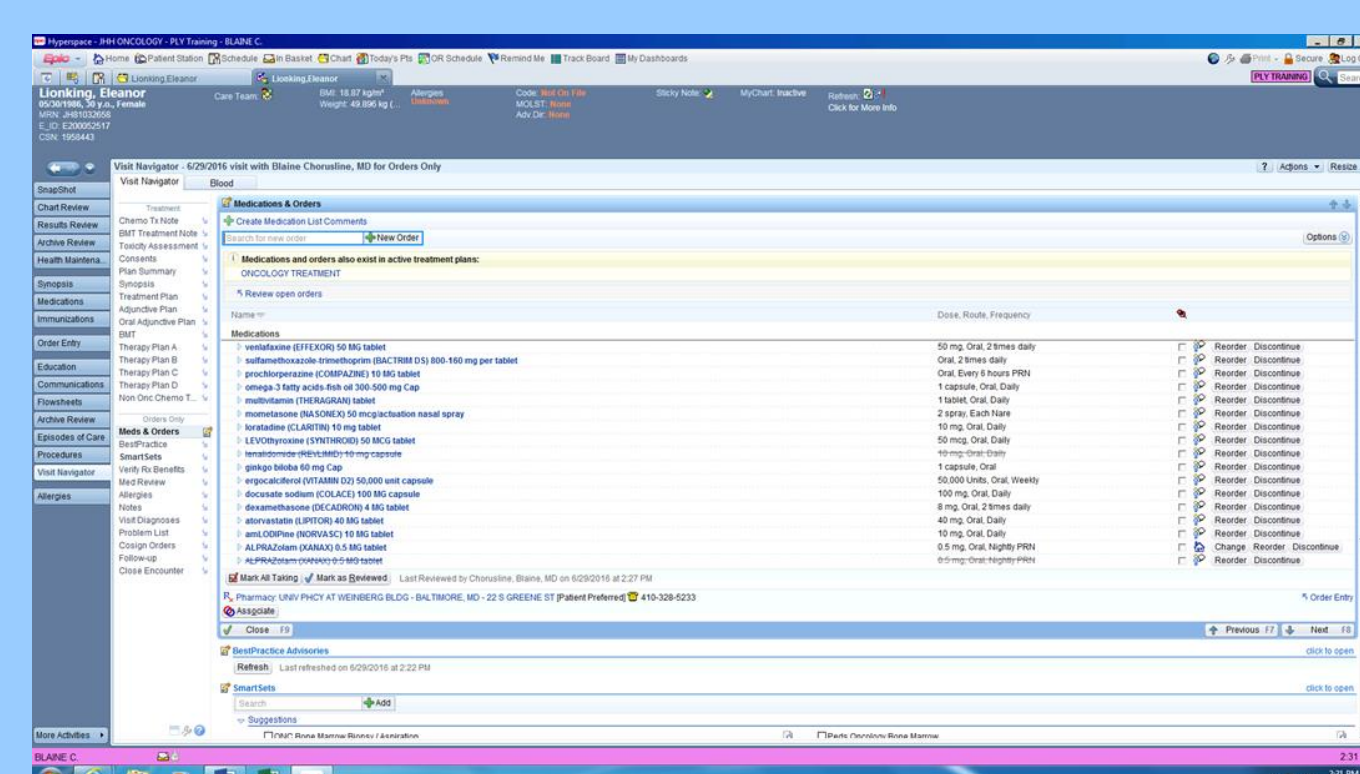
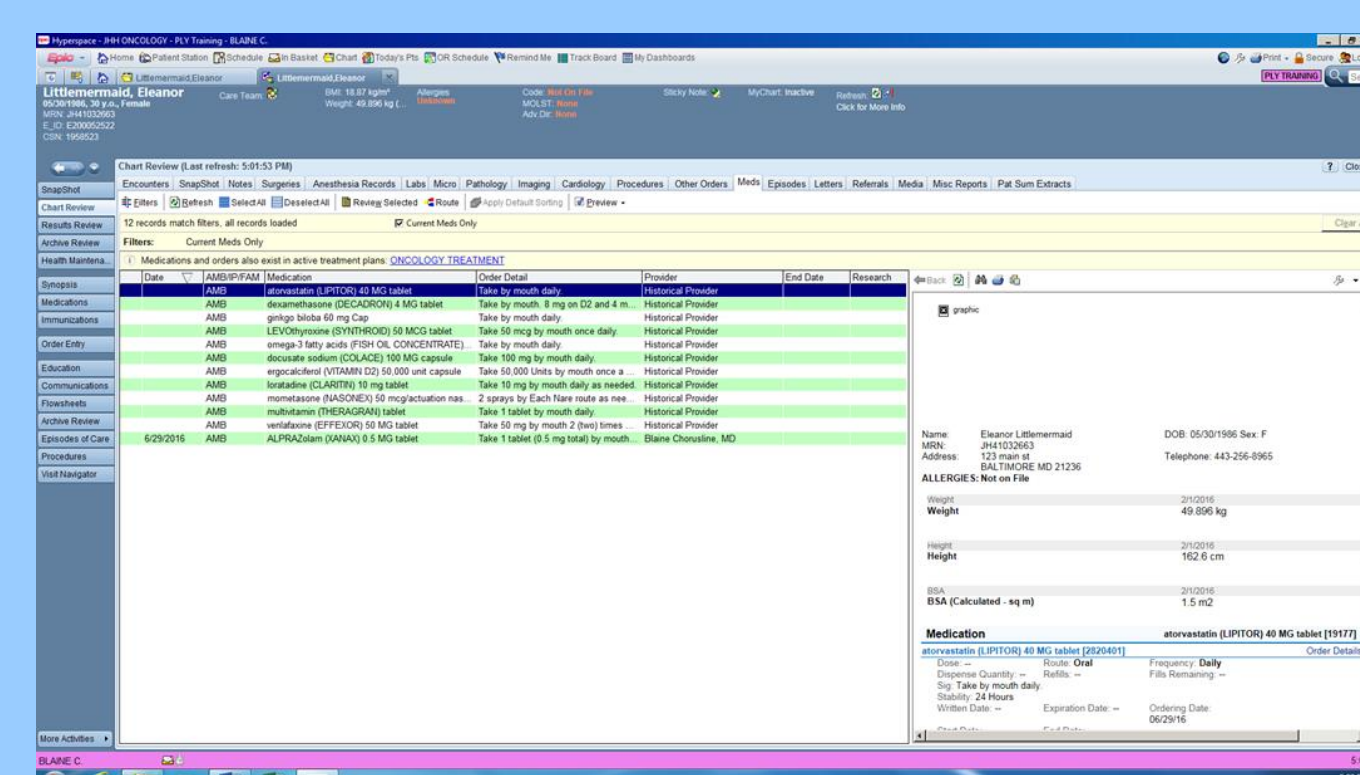


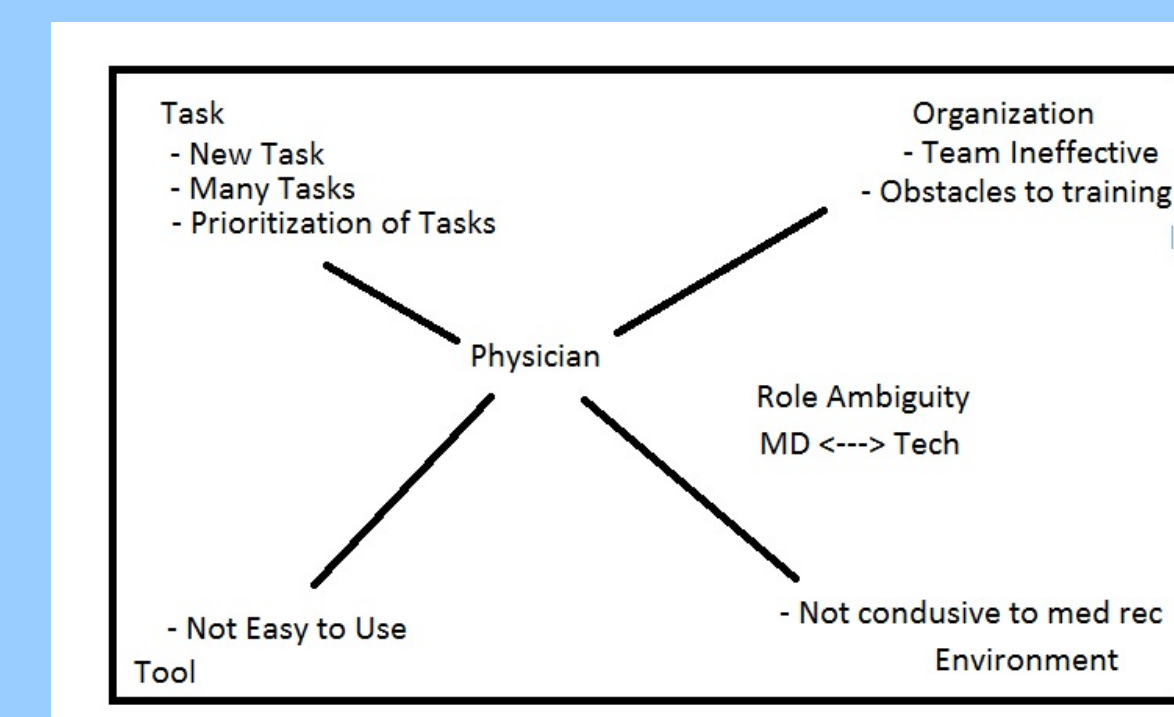
Chart Review → Meds



Also "Medication" tab and "Medication Reconciliation" Tool in Epic

4 Conclusions

Evaluation of factors in SEIPS Model



Task: New and unfamiliar; not one task, but many tasks occurring simultaneously; therefore difficult to prioritize

Organization: Barriers to successful training (i.e. deadlines, third party administrators, insufficient training tools)

Environment: Rooms not conducive to interactions with both patient and computer

Tool: Not designed with medication reconciliation in mind; non specific platform to serve needs of many users

Individual: Role ambiguity in outpatient setting between medical techs and MDs, both perform med rec but responsibility is with provider

Recommendations

- Standardize med rec workflow for best practice
- Re-train Epic users post implementation
- Independent review of health information technology (HIT) training modules
- Develop HIT implementation strategies
- Changes to Epic platform to facilitate accurate and efficient medication reconciliation

5 Future Directions

- Identify and mitigate potential errors specific to pediatric oncology
- Conduct further observations and interviews
- Build and test inpatient scenario
- Include different levels of providers (NP, PA)

6 References

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Funding Source:

The Helene Fuld Leadership Program for the Advancement of Patient Care Quality and Safety