Introduction

- As the importance of the continuum of care on clinical outcomes has been widely recognized [1], longitudinal information which spans across episodes of care (e.g. medication list) is required to be documented in addition to traditional encounter-focused clinical notes.
- An accurate list of medications in current use with timely updates is necessary to prevent medical errors. [2]
  - Inaccurate medication lists found in ambulatory Electronic Health Records (EHRs) [3] may be partially due to lack of support for the workflow of medication management in the outpatient setting.
- In this poster, we will compare medication list functionalities with medication-related work in the outpatient setting and propose solutions following work-centered design approach.

I. Identify gaps in functionalities in existing ambulatory EHRs

I.(a) Interviewed four primary care providers regarding medication-related work in the outpatient setting, independent from the work carried out using specific EHRs, with published clinical guidelines on medication review incorporated.

I.(b) Evaluated six ambulatory EHRs in terms of functionalities supporting providers' medication-related work by a usability researcher.

II. Propose expanded data model and user interface mockups using TURF framework

- Function analysis in TURF (i.e. task, user, representation and function): the process that the abstract structure of a work domain is identified. [4]

Methods

I. Outpatient medication management and gaps in EHR functionalities

- Appropriate drug and dosage form for the indication
- Not allergic, no severe drug-drug interaction
- Sufficient supply
- Insurance coverage
- Convenient for patients to adhere to the regimen
- Appropriate dose, route, duration, etc.
- Within safe dose range, adjusted for patients with liver and renal deficiencies
- Toxicity monitoring
- Patient-reported adverse consequences
- Patient-reported adherence [5]
- Therapeutic effectiveness monitoring

The six EHRs in this study (1) automatically list prescribed medications as current medications with no functionality to indicate patient adherence; (2) only provide “allergy list” to document adverse consequences, with data entry and display separated from “medication list”; (3) provide no linkage between medications and test results that are processed by clinicians to monitor toxicity and effectiveness of those medications.

II. Proposed data model and user interface mockups

- Fig 1. Data model for medication management

Summary of Conclusions

- Work-centered design is essential for EHRs to support patient care.
- Medication-related work activities in the outpatient setting should be adequately captured for the design of medication list in ambulatory EHRs.
- Clinicians’ feedback on the proposed user interface mockups will be analyzed for further improvement.

References


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