Effects of an EHR System in an Urgent/Convenient Care Clinic
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Abstract
We investigated impact of change from a hybrid electronic health record (EHR)/paper-based documentation system to a "meaningful use" vendor-designed system on workflow, efficiency, and clinician workload in Urgent/Convenient Care clinics (UCC). Measures included unstructured work observations, semi-structured interviews, time-motion, and surveys completed by physicians, nurses, and medical assistants. Preliminary analysis of the pre-change data suggests themes related to clinician workload and workflow, and fragmented paper and electronic representation of patient information. Current EHR-based tools designed for primary care may not be optimally aligned with UCC workflow and rapid patient throughput.

INTRODUCTION

• **Urgent & Convenient Care (UCC):**
  - Urgent & Convenient Care clinics are an increasing model of care delivery in the United States.
  - Compared with emergency care, UCC clinics can provide care that is urgent but not yet an emergency at far less cost. Yet unlike primary care, the work is driven by acute rather than chronic care.
  - UCC clinics also help free up emergency rooms for patients in true need of emergency services.

• **Electronic Health Records and UCC:**
  - UCC clinics have a distinct workflow from both ER and primary care, bringing a unique set of concerns for patient safety and quality of care, as well as the design for appropriate electronic health records system.
  - We analyzed how information required for patient care tasks has been generated, represented, and propagated through the documentation system.

• **Setting & Participants:**
  - Design: Pre- and Post- Intervention
  - Setting: Two non-academic UCC clinics within one medical system in a rural/suburban Midwestern area
  - Participants: 8 physician staff and 14 nursing staff (6 registered nurses and 8 medical assistants) in the pre-implementation phase

• **Measures:**
  - Semi-structured Interviews
  - Surveys
  - Modified nurse-physician collaboration survey (Shortell et. a 1991)
  - System Usability Scale (Brooke, 1996)
  - Observations
  - Unstructured field studies
  - Time Motion Studies

METHOD

PRELIMINARY FINDINGS

Work Flow in Convenient Care Clinics

Generated from the shadowing data and consensus process from the research group:

- **Pt. Intake One Nurse**
  - EHR notification of pt., check-in
  - Home assessment form & scripts
  - Vital signs
  - Chief complaint verified
  - Triage
  - "Biometric" pt. and places paper forms in rack outside room
  - Scraps used for later EHR documentation

- **Pt. Evaluation One Physician**
  - Reviews intake form
  - Physician assessment
  - Checks pt’s health history in EHR

- **Actions One Physician**
  - Documents evaluation
  - Places orders
  - Pt. assessment and re-evaluation

- **Actions Shared Among Nurses**
  - Carries out orders (med, med, admin)
  - Documents actions
  - Notifies physician

- **Discharge One Physician or New Nurse**
  - Pt. instructions

- **Types of Information**
  - Electronic health records
  - Paper
  - Verbal

- **Pre-Discharge**
  - Reviews lab results
  - Dictates based on notes
  - Dictation submitted to vendor for placement in EHR 1-24 hours later
  - Reviews clinic notes in the EHR from memory

- **One Physician**
  - Reviews lab results
  - Dictates based on notes
  - Dictation submitted to vendor for placement in EHR 1-24 hours later
  - Reviews clinic notes in the EHR from memory

- **Shared Among Subsequent Nurses**
  - EHR multi-patient shared workflow
  - Contacts pt. about test results

- **Types of Information**
  - Electronic health records
  - Paper
  - Verbal

Rapid patient throughput and work "sharing" among nursing staff present opportunity for potential error and creates specific requirements for EHR usability.

Use of paper "scraps" to temporarily record patient information when seeing patients suggests inadequacy of EHR alignment with workflow and creates potential for data accuracy errors.

Delays in information flow and missing information related to the patient visit may introduce error into the dictation system for clinical notes.

Takeaway

The unique goals and workflow of UCC clinics have multiple implications for the design of "meaningful" EHR modules in this setting. This includes enhanced ability to document and share information during rapid patient flow through the clinic. In addition, UCC clinics have increased need for computer-supported collaborative work tools that are not typically included in EHRs. Coordination is done both face-to-face, through paper forms, and the EHR, and the current EHR system in the UCC clinic may lack the flexibility to support rapid sharing of follow-up responsibilities.

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