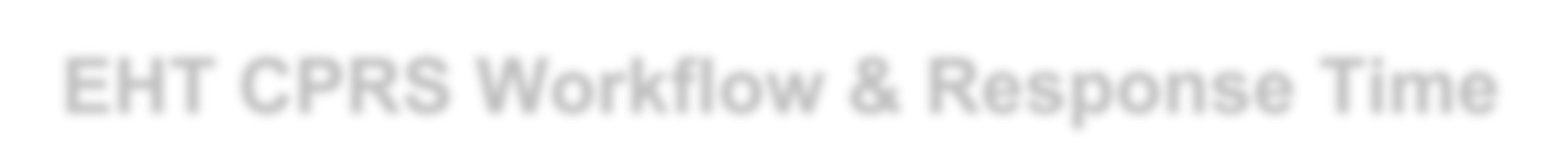
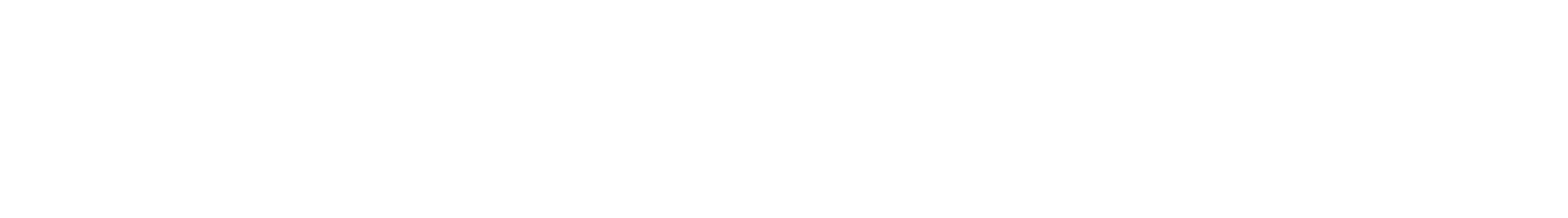
Emerging Health Technology Investigations Support

EHT CPRS Workflow & Response Time EHT CPRS Workflow & Response Time



# Overview EHT sought to identify clinical workflow and response time improvement opportunities using simulation technologies

* Inspired by work done at Massachusetts General Hospital
* Software applications concerns, some are over 25 years old, maybe outmoded and inefficient
* Need to quantify VHA’s unwritten 2-second transaction response time rule

# Approach

* Identify high-value, frequently performed tasks at four VAMC locations
* Shadow clinicians at each site, observe task workflow and interaction with CPRS
* Analyze findings, document cross-cutting issues
* Devise candidate alternative solutions
* Validate candidate solutions with clinicians using simulated CPRS screens
* Document functional requirements for recommended solutions

EHT CPRS Workflow & Response Time

# Anticipated Benefits

## • Workflow efficiencies

–Save clinicians time, improve user experience for frequently performed tasks

–Allow clinicians more time for direct patient care

• User response time preferences

–Establish acceptable user response time threshold

## Summary of Study Findings • Workflow Impact

–34 recommendations regarding 8 high-value, frequently performed tasks

• Timesaving

–Potential to save 28 minutes per day per physician

## • Keystroke Reduction

–Keystroke reduction across all 8 high-value, frequently performed tasks

## Summary of Study Findings (cont.) • User Response Time Preference Test Results

–Quantified VHA 2 second transaction response time rule

## • Task Order Ranking

–Clinician rank ordering of importance the 8 highvalue, frequently performed tasks

–Cover Sheet (Interactive Functionality) ranked as #1

## Workflow Impact Print Patient List

* Print personalized patient list (name and location)
* Impacts hospital setting, obviates need for clinician to leave CPRS to perform clerical task

## Dashboard Functionality

* Accessing multiple patients' information from one screen
* Impacts hospital setting, enables clinician to quickly triage assigned patients

## Workflow Impact (cont.) Cover Sheet (Postings)

* Highlights importance of first glance information
* Impacts hospital and clinic settings, enables clinician to quickly confirm specific posting information

## Cover Sheet (Interactive Functionality)

* Adding additional functionality to Cover Sheet

(starting new note, changing meds, ordering labs)

* Impacts hospital setting, enables clinician to conduct patient encounter without leaving Cover Sheet

Workflow Impact (cont.) Accessing Data Behind Templates and

## Consults

* Capability to access additional patient data while completing locally developed template or consult
* Impacts hospital and clinic settings, enables clinician to retain information entered in template or consult while accessing other screens

## Medication Sorting

* Capability to sort and compare inpatient, outpatient, and non-VA medications in Medication Screen
* Impacts hospital and clinic settings, enables clinician to more quickly reconcile patient's medication profile

## Workflow Impact (cont.) Sorting and Finding Orders

* Capability to sort, quickly identify patient orders
* Impacts hospital and clinic settings, enables clinician to more quickly identify patient's order

## CPRS Interaction with BCMA

* Link CPRS and BCMA to automatically synchronize patient information between the applications
* Impacts inpatient nursing, potentially reduces possibility of patient medication error

## Projected Time Savings

|  |  |  |  |
| --- | --- | --- | --- |
| High-Value, Frequently Performed Task | Average Savings per Task  (\*Seconds) | Used  During the Day | Total  Savings  (\*Seconds) |
| Print Patient List | 49 | 1 | 49 |
| Dashboard Functionality | 14 | 7 | 98 |
| Cover Sheet (Postings) | 15 | 7 | 105 |
| Cover Sheet (Interactive Functionality) | 19 | 7 | 133 |
| Accessing Data Behind Templates and Consults | 17 | 7 | 119 |
| Sorting and Comparing Medications | 104 | 7 | 728 |
| Sorting and Finding Orders | 60 | 7 | 420 |
| Savings in Seconds | |  | 1,652 |
| Savings in Minutes | |  | 28\* |

\*Results rounded to the neared second/minute

## Keystroke Savings

|  |  |  |  |
| --- | --- | --- | --- |
| High-Value, Frequently Performed Task | Keystroke for As-Is  Scenario | Keystroke for To-Be  Scenario | Keystroke Difference |
| Print Patient List | 21 | 2 | 19 |
| Dashboard Functionality | 10 | 4 | 6 |
| Cover Sheet (Postings) | 6 | 1 | 5 |
| Cover Sheet (Interactive Functionality) | 7 | 4 | 3 |
| Accessing Data Behind Templates and Consults | 17 | 12 | 5 |
| Medication Sorting | Manual Process | 2 | NA |
| Sorting and Finding Orders | 5 | 4 | 1 |
| CPRS Interaction with BCMA | 4 | 0 | 4 |

## Task Order Ranking Results by Workflow Impact

0

%

%

5

%

10

15

%

20

%

25

%

30

%

Cover Sheet (Interactive Functionality)

Dashboard Functionality

Medication Reconciliation (Sorting and Comparing)

Accessibility of Data behind Templates and Consults

Cover Sheet (Postings)

Print Patient List

CPRS Interaction with BCMA

Sorting and Finding Orders

% Individuals Ranking Task as a 1

## User Response Time Preference Test Results

0

10

20

30

40

50

60

70

0:25

0:50

1:00

2:00

5:00

7:00

10:00

15:00

# Responses

System Response Time (Seconds)

|  |  |
| --- | --- |
| Acceptable Somewhat Acceptable Somewhat Unacceptable | Unacceptable |

Thank You Questions?

Background Support Material

Task Summaries

## Print Patient List

* Definition: Print personalized patient list (name and location)
* Average time savings: 49 seconds (+/- 9 seconds)
* Keystroke/click savings: 19 seconds
* Task ranking: Bottom half by doctors and nurses

Impact: Hospital setting, obviates need for clinician to leave CPRS to perform clerical task

## Dashboard Functionality

* Definition: Accessing multiple patients' information from one screen
* Average time savings: 14 seconds (+/- 4 seconds)
* Keystroke/click savings: 6 seconds
* Task ranking: Top half by doctors and nurses

Impact: Hospital setting, enables clinician to quickly triage assigned patients

## Cover Sheet (Postings)

* Definition: Highlights importance of first glance information
* Average time savings: 15 seconds (+/- 7 seconds)
* Keystroke/click savings: 5 seconds
* Task ranking: Lower half by doctors, top half by nurses

Impact: Hospital and clinic settings, enables clinician to quickly confirm specific posting information

## Cover Sheet (Interactive Functionality)

* Definition: Adding additional functionality to cover screen (starting new note, changing meds, ordering labs)
* Average time savings: 19 seconds (+/- 6 seconds)
* Keystroke/click savings: 3 seconds
* Task ranking: Top half by doctors and nurses

Impact: Hospital setting, enables clinician to conduct patient encounter without leaving cover screen

## Accessing Data Behind Templates and Consults

* Definition: Capability to access additional patient data in CPRS while completing a locally developed template
* Average time savings: 17 seconds (+/- 6 seconds)

− 17 seconds represents "best case" scenario

* + Templates are developed locally, thus vary in length and complexity
  + Time savings based on closing out template after first two questions (template close out occurs well into completing template)

## Accessing Data Behind Templates and Consults (cont.)

* Keystroke/click savings: 4 seconds
* Task ranking: Top half by doctors and nurses

Impact: Hospital and clinic settings, enables clinician to retain information entered in template or consult while accessing other screens

## Medication Sorting

* Definition: Capability to sort and compare inpatient, outpatient, and non-VA medications in Medication screen
* Average time savings: 104 seconds (+/- 17 seconds)
* Keystroke/click savings: NA (compared against manual process)
* Task ranking: Top half by doctors, bottom half by nurses

Impact: Hospital and clinic settings, enables clinician to more quickly reconcile patient's medication profile

## Sorting and Finding Orders

* Definition: Capability to sort, quickly identify patient orders
* Average time savings: 60 seconds (+/- 14 seconds)
* Keystroke/click savings: 1 second
* Task ranking: Bottom half by doctors and nurses

Impact: Hospital and clinic settings, enables clinician to more quickly identify patient's order

## CPRS Interaction with BCMA

* Definition: Link CPRS and BCMA to automatically synchronize patient information between the applications
* Average time savings: NA (Could not be modeled in iRise)
* Keystroke/click savings: 4 seconds
* Task ranking: Bottom half by doctors (do not use application) and nurses

Impact: Inpatient nursing, has potential to reduce possibility of patient medication error

User Response Time Preference Test Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *User Response Time Preference Test Results* | | | | |
| Time (Seconds) | Acceptable Response Time | Somewhat Acceptable Response Time | Somewhat Unacceptable Response Time | Unacceptable Response Time |
| 0.25 | 58 (86%) | 3 (4%) | 4 (6%) | 3 (4%) |
| 0.50 | 55 (82%) | 7 (10%) | 5 (7%) | 1 (1%) |
| 1:00 | 54 (80%) | 12 (18%) | 1 (1%) | 1 (1%) |
| 2:00 | 28 (41%) | 23 (34%) | 11 (16%) | 6 (9%) |
| 5:00 | 15 (22%) | 27 (40%) | 16 (23%) | 10 (15%) |
| 7:00 | 2 (3%) | 13 (19%) | 21 (31%) | 32 (47%) |
| 10:00 | 2 (3%) | 6 (9%) | 14 (21%) | 46 (67%) |
| 15:00 | 3 (4%) | 0 (0%) | 7 (10%) | 58 (86%) |

Task Order Ranking Individual Facility Perspective

## EHT CPRS Workflow & Response Time

### Highest Impact on Job Workflow VAMC Albany

* Doctors:
  + 60% selected Cover Sheet (Interactive Functionality)
* Nurses:
  + 50% selected Templates and Consults

## EHT CPRS Workflow & Response Time

### Highest Impact on Job Workflow (cont.) VAMC Baltimore

* Doctors:
  + 33% selected Dashboard
  + 33% selected Cover Sheet (Interactive Functionality)
  + 33% selected Medication Sorting
* Nurses:
  + 50% selected Cover Sheet (Interactive Functionality)

## EHT CPRS Workflow & Response Time

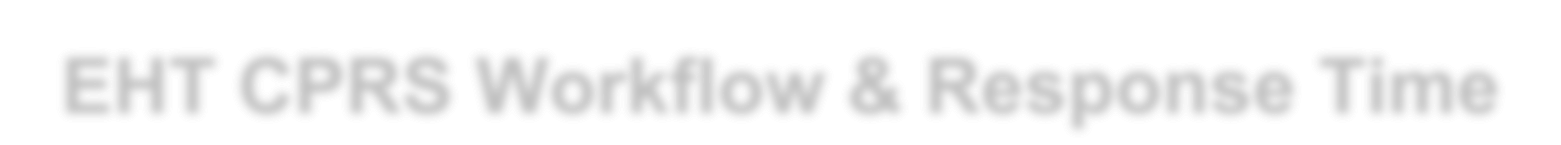
### Highest Impact on Job Workflow (cont.) VAMC Bay Pines

* Doctors:
  + 33% selected Dashboard
  + 33% selected Cover Sheet (Interactive Functionality)
  + 33% selected Medication Sorting
* Nurses:
  + 50% selected Templates and Consults
  + 25% selected Dashboard
  + 25% selected Cover Sheet (Interactive Functionality)

## EHT CPRS Workflow & Response Time

### Highest Impact on Job Workflow (cont.) VAMC West Roxbury

* Doctors:
  + 40% selected Medication Sorting
  + 60% selected Medication Sorting as priority # 2
* Nurses:
  + - 33% selected Medication Sorting – Remainder divided evenly between:
    - Dashboard
    - Cover Sheet (Postings)
    - Cover Sheet (Interactive Functionality)

EHT CPRS Workflow & Response Time

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Combined Task Order Ranking Results | | | | | | |  |
| Scale | Print Patient List | Dashboard  Functionality | Cover  Sheet  (Postings) | Cover Sheet  (Interactive  Functionality) | Accessibility of Data behind  Templates and Consults | Medication  Reconciliation (Sorting and  Comparing) | Sorting and  Finding  Orders | CPRS  Interaction with BCMA |
| 1 | 1 (3%) | 7 (21%) | 2 (6%) | 10 (29%) | 6 (18%) | 7 (21%) | 0 (0%) | 1 (3%) |
| 2 | 1 (3%) | 7 (21%) | 2 (6%) | 9 (26%) | 9 (26%) | 5 (15%) | 1 (3%) | 0 (0%) |
| 3 | 3 (9%) | 4 (12%) | 5 (15%) | 3 (9%) | 7 (21%) | 4 (12%) | 7 (21%) | 1 (3%) |
| 4 | 4 (12%) | 7 (21%) | 6 (18%) | 3 (9%) | 5 (15%) | 3 (9%) | 4 (12%) | 2 (6%) |
| 5 | 6 (18%) | 4 (12%) | 4 (12%) | 7 (21%) | 2 (6%) | 6 (18%) | 3 (9%) | 2 (6%) |
| 6 | 2 (6%) | 0 (0%) | 10 (29%) | 2 (6%) | 3 (9%) | 8 (24%) | 9 (26%) | 0 (0%) |
| 7 | 10 (29%) | 5 (15%) | 4 (12%) | 0 (0%) | 2 (6%) | 1 (3%) | 10 (29%) | 2 (6%) |
| 8 | 7 (21%) | 0 (0%) | 1 (3%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 26 (76%) |