EHR Usability Test Report of Picasso by Doc-tor.com

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1.EXECUTIVE SUMMARY

A usability test of Picasso was conducted from 12/03/2018 to 12/07/2018 by software development quality team for several modules of Picasso. The purpose of this test was to test and validate usability of Picasso and provide quantitative analysis of the system's usability. During the usability test, 10 healthcare providers matching the target demographic criteria and representing a cross section of our typical user base, served as participants and used Picasso in simulated, but representative tasks. The study collected performance data on 12 tasks conducted on an EHR.

- 170.315(a)(1) Computerized Provider Order Entry –Medications
- 170.315(a)(2) Computerized Provider Order Entry – Laboratory
- 170.315(a)(3) Computerized Provider Order Entry – Diagnostic Imaging
- 170.315(a)(4) Drug-Drug, Drug-Allergy Interactions Checks
- 170.315(a)(5) Demographics 170.315(a)(6) Problem List
- 170.315(a)(7) Medication List 170.315(a)(8) Medication Allergy List
- 170.315(a)(9) Clinical Decision Support
- 170.315(a) (14) Implantable Device List
- 170.315(b)(3) E-Prescribe

During the 30 minutes test, one-on-one usability test, each participant was greeted by administrator and asked to review and sign an informed consent/release form (included in Appendix 5.3); they were instructed that they could withdraw at any time. All participants were current users of Picasso, so they had prior experience with Picasso. The administrator introduced the test and instructed participants to complete a series of tasks (given one at a time) using Picasso. During the testing, the administrator timed the test and, along with the data logger(s) recorded user performance data on paper and electronically. After each task, the participants were requested to enter the percentage of Task Success. The administrator did not give the participants assistance in how to complete the task.

The following types of data were collected for each participant:

• Number of tasks successfully completed within the allotted time without assistance

• Time to complete the tasks

• Number and types of errors

• Path deviations

• Participant's verbalizations

• Participant's satisfaction ratings of the system

The results from the System Usability Scale scored the subjective satisfaction with the system based on performance with the usability tasks.

In addition to the performance data, the following qualitative observations were made:

- Test comments after the test
- Major findings
- Areas for improvement

All participant data was de-identified – no correspondence could be made from the identity of the participant to the data collected. Following the conclusion of the testing, participants were asked to complete a post-test questionnaire. Various recommended metrics, accordance with the examples set forth in the *NIST Guide to the Processes Approach for improving the Usability of Electronic Health Records*, were used to evaluate the usability of the EHRUT. Following is a summary of the performance and rating data collected on the EHRUT

2. INTRODUCTION

The EHRUT tested for this study was Picasso. Designed to present medical information to healthcare providers outpatient settings, the EHRUT consists of a browser-based, cloud hosted solution. The usability testing attempted to represent realistic exercises and conditions.

The purpose of this study was to test and validate the usability of the current user interface, and provide evidence of usability in the EHR Under Test (EHRUT). To this end, measures of effectiveness, efficiency and user satisfaction, such time to alter a medication list or ease of modifying radiology orders, were captured during the usability testing.

3. METHOD

3.1 PARTICIPANTS

A total of 10 participants, namely 10 users tested on Picasso. They were asked to complete a total of 12 tasks and subtasks. Scenarios and subtasks were specified within in the tasks which are mentioned as titles in Tasks section. Participants were not paid monetary compensation for their participation in the Usability test.

Picasso is designed for Physicians and nurses, therapist and other healthcare specialist to perform their duties with regard to primary healthcare and ambulatory services. The

participants were the users of previous version of Picasso. They did not assume any role in product development processes of Picasso and were not employed by

The participants filled out a Recruitment Screener (See Appendix 5.1) that is used to collect demographic information and evaluate their suitability to participate in the test. Participant names were replaced with Participant IDs so that an individual's data cannot be tied back to individual identities.

Participants were scheduled for 30 minutes. The demographic data of the participants is illustrated in Table 3.1

Participant Identifier	Participant Gender	Participant Age	Education	Occupation/Role	Professional Experience	Computer Experience	Product experience	Assistive Technology Needs
A1	M	50-59	Doctorate Degree (MD,DNP,PhD)	Physician	20	25 years	5 years	None
A2	M	40-49	Doctorate Degree (MD,DNP,PhD)	Physician	12	20 Years	3 years	None
A3	F	40-49	Doctorate Degree (MD,DNP,PhD)	Physician	10	20 years	2 years	None
A4	M	50-59	Doctorate Degree (MD,DNP,PhD)	Physician	18	22 years	6 years	None
A5	F	20-29	Doctorate Degree (MD,DNP,PhD)	Nurse Practitioner	3	15 years	9 months	None
A6	F	30-39	Doctorate Degree (MD,DNP,PhD)	Physician Assistant	10	12 years	1 year	None
A7	M	40-49	Doctorate Degree (MD,DNP,PhD)	Physician	15	20 years	3.5 years	None
A8	M	50-59	Doctorate Degree (MD,DNP,PhD)	Physician	25	25 years	9 years	None
A9	F	30-39	Doctorate Degree (MD,DNP,PhD)	Physician Assistant	8	15 years	6 months	None
A10	M	40-49	Doctorate Degree (MD,DNP,PhD)	Physician	12	30 years	1 year	None

3.2 STUDY DESIGN

Overall, the objective of this test was to uncover areas here the application performed well – that is, effectively, efficiently, and with satisfaction – and areas where the application failed to meet the needs of the participants. The data from this test may serve as a baseline for the

future tests with an updated version of the same EHR and/or comparison with other EHRs provided the same tasks are used. In short, this testing serves as both a means to record or benchmark currently usability, but also to identify areas where the improvements must be made.

During the usability test, participants interacted with Piccaso. Each participant used the system in a conference room or training room of the institute they are employed. They were provided with the same instructions by the moderator. The system was evaluated for the effectiveness, efficiency ad satisfaction as defined by measures collected and analyzed for each participant:

- Number of tasks successfully completed within the allotted time without assistance
- Time to complete the tasks
- Number and types of errors
- Task deviations
- Participant's satisfaction ratings of the system
- System Usability Scale score
- For additional information usability scale, see Section 3.9.

3.3 TASKS

A number of tasks were constructed that would be realistic and representative of the kinds of activities a use might do with this EHR, including:

1. CPOE – Medication
2. CPOE – Laboratory
3. CPOE – Radiology
4. Drug-Drug and Drug-Allergy interaction checks
5. Patient Demographic Changes
6. Problem List
7. Medication List
8. Medication Allergy List
9. Clinical Decision Support (CDS)
10. Implantable Device List
11. E-Prescribe

Tasks were selected based on their frequency of use, criticality of function, and those that maybe most troublesome for users. Tasks should always be constructed in light of the study objectives.

3.4 PROCEDURES

Upon arrival, participants were greeted; their identity was verified and matched with a name on the participant schedule. Participants were then assigned a participant ID. Each participant reviewed and signed an informed consent and release form (appendix 3). A represented from the test team witnessed the participants signature.

All participants had remote sessions via live support through Picasso. They were asked to indicate when each task was done, after referring to the instruction sheet which had been emailed to them a day prior to their session. Initially the moderator activated the Live Support session and tested all controls to ensure session would run smoothly.

3.5 TEST LOCATION

Study was conducted via remote sessions on Live Support through Picasso. Sessions were scheduled individually with participants and were asked to check their internet connectivity. The moderator was at her own personal office and the participant was at their own personal location. They were also asked to select a time and place where they would not be disturbed during the session. Control of the moderator's computer was passed to the participant and sessions were moderated using the same materials and methods as face-to-face sessions.

3.6 TEST ENVIRONMENT

The participants used mouse and keyboard when interacting with Picasso. Since Picasso operates in a web-based architecture, no installations were made on the test computers. The data entered by the previous participants in the system was removed before the initiation of the test for each participant. The computer used in Picasso was an Alienware17 running Windows10.

3.7 TEST FORMS AND TOOLS

During the usability test, various documents and instruments were used, including:

- System Usability Scale Questionnaire
- The Moderator's Guide
- Participant Task
- Informed Consent

Examples of these documents can be found in Appendices 5 respectively. The Moderator's Guide was devised so as to be able to capture required data.
The participant's interaction with Picasso was captured and recorded digitally with screen capture software running on the test machine. These records were saved and used in subsequent analyses.

3.8 PARTICIPANT INSTRUCTIONS

The moderator gave a general introductory briefing and then read the instructions aloud to each participant. For sample Participation Orientation command file, see Appendix 4. The participants were asked to complete a series of tasks which were presented to the participants in task sheets and also were read out by the moderator.

3.9 USABILITY METRICS

According to the NIST Guide to the Processes Approach for Improving the Usability of Electronic Health Records, EHRs should support a process that provides a high level of usability for all users. The goal is for users to interact with the system effectively, efficiently, and with an acceptable level of satisfaction. To this end, metrics for effectiveness, efficiency and user satisfaction were captured during the usability testing.

The goals of the test were to assess:

- 1. The effectiveness of Picasso by measuring participant success rates and errors
- 2. The efficiency of Picasso by measuring the average task time and path deviations
- 3. The satisfaction with Picasso by measuring ease of use ratings

3.10 DATA SCORING

Measures	Rationale and scoring
Task Success	A task was counted as a "Success" if the participant was able to achieve the correct outcome, without assistance, within the time allotted on a per task basis. Success was calculated separately for each task. If a task is completed with the assistance of the moderator, this will be counted as failure in the measurement report. The total number of successes were calculated for each task and then divided by the total number of times that task was attempted. The results are provided as a percentage. Task times were recorded for successes. Observed task times divided by the optimal time for each task is a measure of optimal efficiency. If the participants remain idle for a predefined time (30 seconds), the moderator pauses the test and counts this as failure in the measurement report.
Task Failures	If the participant abandoned the task, did not reach the correct answer or performed it incorrectly, or reached the end of the allotted time before successful completion, the task was counted as an "Failures."
Task Deviations	The participant's path (i.e., steps) through the application was recorded. Deviations occur if the participant, for example, went to a wrong screen, clicked on an incorrect menu item, followed an incorrect link, or interacted incorrectly with an on-screen control. This path was compared to the optimal path. The number of steps in the observed path is divided by the number of optimal steps to provide a ratio of path deviation.
Task Time	Each task was timed from when the administrator said **"Begin"** until the participant said, **"Done."** If he or she failed to say **"Done,"** the time was stopped when the participant stopped performing the task. Only task times for tasks that were successfully completed were included in the average task time analysis. Average time per task was calculated for each task. Variance measures (standard deviation and standard error) were also calculated.
Task Rating	Participant's subjective impression of the ease of use of the application was measured by administering both a simple post-task question as well as a post-session questionnaire. Participant was asked to fill out the questionnaire in Appendix 5.6.

Table 3.10 data scoring details

4. RESULTS

DATA ANALYSIS AND REPORTING

The results of the usability test were calculated according to the methods specified in the Usability Metrics section above. Participants who failed to follow session and task instructions had their data excluded from the analyses.

The usability testing results for Picasso are detailed below.

4.1 CRITERIA 170.315(A1) (1) CPOE- MEDICATIONS

Task Mapping

The table maps the 'Computerized Provider Order Entry (CPOE) medications' to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing. Bold font is used within the certification criteria and within the steps for successful task completion to aid verification that the usability test tasks address the details of the specified criteria

Table: CPOE - medications test criteria and tasks

	'Computerized Provider Order Entry (CPOE) - Medications' Test Criteria and expectations are stated below, the Usability test must conform to the criteria that are not 'Optional'
	(i) Enable a user to **record**, **change**, and **access** medication orders. (ii) Optional. Include a "reason for order" field.
	To successfully complete the clinical task, participants were required to complete each of the following subtasks:
	Task A1.1: Select patient's record & **access** orders Task A1.2: Select patient's record & **enter** order Task A1.3: Select patient's record & **change** order

Task Participant and Instructions

Based on user characteristics, typical workflow, and tasks performed as part of their daily work, prescribers and nurses on attempted this task.

Prescriber and nurse data were combined based on the fact that neither the task nor the user characteristics differ based on these user roles

Participant Task Instructions: The instructions are provided with **Appendix 4.1** – Task Data sheet with Task numbers.

Table: Test results for each subtask in CPOE - Medications task

Measures							
	N	Task Success	Path Deviation	Task Time (seconds)		Errors	Scenario Ratings (5=Easy)
Task	#	Percent %	Deviations (observed/optimal)	Mean (SD)	Deviations (observed/optimal)	Percent %	Mean (SD)
Task A1.1: Select patient's record & access orders	10	100%	2/2	12	7.726/ 12	0%	5
Task A1.2: Select patient's record & enter order	10	100%	5/5	30	18.179/30	0%	5
Task A1.3: Select patient's record & change order	10	100%	4/3	45	27.773/45	0%	4

Discussion of the Findings

The following sections discuss the results organized around an error analysis, test performance and error rates. The error analysis includes identification of use errors and user interface design issues as well as classification of severity based on the consequence of the error.

Error Analysis

No critical use errors were identified or observed as part of CPOE-Medications task.

Effectiveness

All participants, as suggested by timings by expert users, were able to perform the tasks within optical number of steps and time. No participants needed assistant in completing any tasks

Efficiency

No additional opportunity is observed for improving efficiency.

Satisfaction

Average success score of the participants was 5 on average based on 5-point Likert-type scale. Most of the participants completed tasks successfully without difficulty.

Major Findings

No Major findings

Areas for Improvement

No additional areas for improvement related to effectiveness and efficiency determined.

4.2 CRITERIA 170.315(A)(2) CPOE – LABORATORY

Task Mapping

The table maps the 'Computerized Provider Order Entry (CPOE) laboratory' criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted

	'Computerized Provider Order Entry (CPOE) - Laboratory Test Criteria and expectations are stated below, the Usability test must conform to the criteria that are not 'Optional':
	(i) Enable a user to record, change, and access laboratory orders. (ii) Optional. Include a "reason for order" field.
	To successfully complete the clinical task, participants were required to complete each of the following subtasks:
	Task A1.1: Select patient's record & **access** orders Task A1.2: Select patient's record & **enter** order Task A1.3: Select patient's record & **change** order

Task Participant and Instructions

The instructions are provided with **Appendix 5** – Task Data sheet with Task numbers

Data Analysis and Reporting

Table: Test results for each subtask in CPOE - Laboratory task

Measures							
	N	Task Success	Path Deviation	Task Time (seconds)		Errors	Scenario Ratings (5=Easy)
Task	#	Percent %	Deviations (observed/optimal)	Mean (SD)	Deviations (observed/optimal)	Percent %	Mean (SD)
Task A2.1: Select patient's record & access orders	10	100%	3/3	15	7.505/15	0%	5
Task A2.2: Select patient's record & enter order	10	100%	10/10	40	26.636/40	0%	5
Task A3.3: Select patient's record & change order	10	100%	15/13	70	51.045/60	0%	4

Error Analysis

No critical use errors were identified or observed as part of CPOE-Laboratory task.

Effectiveness

All participants, as suggested by timings by expert users, were able to perform the tasks within close optical number of steps and time. One participant needed assistant with one task but was able to complete the other two with no help.

Efficiency

No additional opportunity is observed for improving efficiency.

Satisfaction

Average success score of the participants was 5 on average based on 5-point Likert-type scale. Most of the participants completed tasks successfully without difficulty.

Major Findings

No Major finding at the time.

Areas for Improvement

No additional areas for improvement related to effectiveness and efficiency determined.

4.3 CRITERIA 170.315(A)(3) CPOE – RADIOLOGY

Task Mapping

The table maps the 'Computerized Provider Order Entry (CPOE) – Radiology' criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

	'Computerized Provider Order Entry (CPOE) – Radiology Test Criteria and expectations are stated below; the Usability test must conform to the criteria that are not 'Optional':
	(i) Enable a user to record, change, and access laboratory orders. (ii) Optional. Include a "reason for order" field.
	To successfully complete the clinical task, participants were required to complete each of the following subtasks:
	Task A3.1: Select patient's record & **access** orders Task A3.2: Select patient's record & **enter** order Task A3.3: Select patient's record & **change** order

Task Participant and Instructions

Participant Task Instructions: The instructions are provided with Appendix 5– Task Data sheet with Task numbers.

Data Analysis and Reporting

Measures							
	N	Task Success	Path Deviation	Task Time (seconds)		Errors	Scenario Ratings (5=Easy)
Task	#	Percent %	Deviations (observed/optimal)	Mean (SD)	Deviations (observed/optimal)	Percent %	Mean (SD)
Task A3.1: Select patient's record & access orders	10	100%	3/3	15	8.705/15	0%	5
Task A3.2: Select patient's record & enter order	10	100%	6/6	50	35.596/50	0%	5
Task A3.3: Select patient's record & change order	10	90%	10/8	65	48.384/65	10%	4

Error Analysis

No critical use errors were identified or observed as part of CPOE-Radiology task.

Effectiveness

All participants, as suggested by timings by expert users, were able to perform the tasks within optical number of steps and time. One participant did not complete one task but was successfully able to complete the others.

Efficiency

No additional opportunity is observed for improving efficiency.

Satisfaction

Average success score of the participants was 5 on average based on 5-point Likert-type scale. Most of the participants completed tasks successfully without difficulty.

Major Findings

No Major findings

Areas for Improvement

No additional areas for improvement related to effectiveness and efficiency determined.

4.4 CRITERIA 170.315(A)(4) DRUG-DRUG, DRUG-ALLERGY INTERACTION CHECKS

Task Mapping

The table maps the 'Drug-Drug, Drug-Allergy Interaction Checks' criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

	'Drug-Drug, Drug-Allergy Interaction Checks' Test criteria and expectations are stated below
	(i) Interventions. Before a medication order is completed and acted upon during computerized provider order entry (CPOE), interventions must automatically indicate to a user drug-drug and drug-allergy contraindications based on a patient's medication list and medication allergy list. (ii) Adjustments. (A) Enable the severity level of interventions provided for drug-drug interaction checks to be adjusted. 2. (B) Limit the ability to adjust severity levels in at least one of these two ways: 1. To a specific set of identified users. 2. As a system administrative function.
	To successfully complete the clinical task, participants were required to complete each of the following subtasks:
	Task A4.1: Review and action upon Drug-Drug interaction alert Task A4.2: Review and action upon Drug-Allergy interaction alert Task A4.3: Update Setting, Interaction Severity Level Task A4.4: Update Setting, Interaction Alert

Task Participant and Instructions

The instructions are provided with **Appendix 5** – Task Data sheet with Task numbers.

Data Analysis and Reporting

Table: Drug-Drug, Drug-Allergy Interactions Checks test criteria and tasks

Measures							
	N	Task Success	Path Deviation	Task Time (seconds)		Errors	Scenario Ratings (5=Easy)
Task	#	Percent %	Deviations (observed/optimal)	Mean (SD)	Deviations (observed/optimal)	Percent %	Mean (SD)
Task A4.1: Select Review & Action upon Drug-Drug Interaction Alert	10	100%	5/5	30	21.428/30	0%	5
Task A4.2: Review & Action upon Drug-Allergy Interaction Alert	10	100%	5/5	30	18.514/30	0%	5
Task A4.3: Update Setting, Interaction Severity Level	10	100%	7/7	70	58.27/70	0%	5

Task A4.4: Update Setting, Interaction Alert	10	100%	7/7	70	51.981	0%	5

Error Analysis

No critical use errors were identified or observed as part of CPOE-Drug-Drug, Drug-Allery Task

Effectiveness

All participants, as suggested by timings by expert users, were able to perform the tasks within optical number of steps and time.

Efficiency

No additional opportunity is observed for improving efficiency.

Satisfaction

Average success score of the participants was 5 on average based on 5-point Likert-type scale. Most of the participants completed tasks successfully without difficulty.

Major Findings

No major findings

Areas for Improvement

No additional areas for improvement related to effectiveness and efficiency determined.

4.5 CRITERIA 170.315(A)(5) DEMOGRAPHICS

Task Mapping

The table maps the 'Demographics' to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

Table: Demographics usability test criteria and tasks

	'Demographics' test criteria and expectations are stated below.
	(i) Enable a user to **record, change, and access** patient demographic data including race, ethnicity, preferred language, sex, sexual orientation, gender identity, and date of birth. (A) Race and ethnicity. 1. Enable each one of a patient's races to be recorded in accordance with, at a minimum, the standard specified in § 170.207(f)(2) and whether a patient declines to specify race. 2. Enable each one of a patient's ethnicities to be recorded in accordance with, at a minimum, the standard specified in § 170.207(f)(2) and whether a patient declines to specify ethnicity. 3. Aggregate each one of the patient's races and ethnicities recorded in accordance with paragraphs (a)(5)(i)(A)(1) and (2) of this section to the categories in the standard specified in § 170.207(f)(1).

	(B) Preferred language. Enable preferred language to be recorded in accordance with the standard specified in § 170.207(g)(2) and whether a patient declines to specify a preferred language. (C) Sex. Enable sex to be recorded in accordance with the standard specified in § 170.207(n)(1). (D) Sexual orientation. Enable sexual orientation to be recorded in accordance with the standard specified in § 170.207(o)(1) and whether a patient declines to specify sexual orientation
	To successfully complete the clinical task, participants were required to complete each of the following subtasks:
	Task A5.1: Record demographic data Task A5.2: Change demographic data Task A5.3: Access demographic data Task A5.4: Record preliminary cause & death of date Task A5.5: Change preliminary cause & death of date

Task Participant and Instructions

The instructions are provided with **Appendix 5.2** – Task Data sheet with Task numbers

Data Analysis and Reporting

Table: Test results for each subtask in Demographics task

Measures							
	N	Task Success	Path Deviation	Task Time (seconds)		Errors	Scenario Ratings (5=Easy)
Task	#	Percent %	Deviations (observed/optimal)	Mean (SD)	Deviations (observed/optimal)	Percent %	Mean (SD)
Task A5.1: Record demographic data	10	100%	6/6	70	58.42/70	0%	5
Task A5.2: Change demographic data	10	100%	2/2	15	9.87/15	0%	5
Task A5.3: Access demographic data	10	100%	2/2	10	5.23/10	0%	5
Task A5.4: Record preliminary cause & death of date	10	100%	8/8	70	52.548/70	0%	5
Task A5.5: Change preliminary cause & death of date	10	100%	8/8	15	7.456/15	0%	5

Error Analysis

No critical use errors were identified or observed as part of CPOE-Demographics Task

Effectiveness

All participants, as suggested by timings by expert users, were able to perform the tasks within optical number of steps and time.

Efficiency

No additional opportunity is observed for improving efficiency.

Satisfaction

Average success score of the participants was 5 on average based on 5-point Likert-type scale. Most of the participants completed tasks successfully without difficulty.

Major Findings

No major findings

Areas for Improvement

No additional areas for improvement related to effectiveness and efficiency determined.

4.6 CRITERIA 170.315(A)(6) PROBLEM LIST

Task Mapping

The table maps the 'Problem List' criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing

	'Problem List' test criteria and expectations are stated below.
	Enable a user to record, change, and access a patient's active problem list: (i) Ambulatory setting only. Over multiple encounters in accordance with, at a minimum, the version of the standard specified in §170.207(a)(4). (ii) Inpatient setting only. For the duration of an entire hospitalization in accordance with, at a minimum, the version of the standard specified in §170.207(a)(4).
	To successfully complete the clinical task, participants were required to complete each of the following subtasks:
	Task A6.1: Select patient's record & enter problem Task A6.2: Select patient's record & access problem Task A6.3: Select patient's record & change problem

Task Participant and Instructions

The instructions are provided with **Appendix 5.2** – Task Data sheet with Task numbers.

Data Analysis and Reporting

Measures							
	N	Task Success	Path Deviation	Task Time (seconds)		Errors	Scenario Ratings (5=Easy)
Task	#	Percent %	Deviations (observed/optimal)	Mean (SD)	Deviations (observed/optimal)	Percent %	Mean (SD)
Task A6.1: Select patient's record & enter problem	10	100%	4/4	30	25.56/30	0%	5
Task A6.2: Select patient's record & access problem	10	100%	2/2	15	5.99/15	0%	5
Task A5.3: Select patient's record & change problem	10	100%	7/7	30	26.64/30	0%	5

Error Analysis

No critical use errors were identified or observed as part of CPOE-Problem List

Effectiveness

All participants, as suggested by timings by expert users, were able to perform the tasks within optical number of steps and time.

Efficiency

No additional opportunity is observed for improving efficiency.

Satisfaction

Average success score of the participants was 5 on average based on 5-point Likert-type scale. Most of the participants completed tasks successfully without difficulty.

Major Findings

No major findings

Areas for Improvement

No additional areas for improvement related to effectiveness and efficiency determined.

4.7 CRITERIA 170.315(A)(7) MEDICATION LIST

Task Mapping

The table maps the 'Medication List' criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

Table: 'Medication List' usability test criteria and tasks

	'Computerized Provider Order Entry (CPOE) - Medications' test criteria and expectations are stated below, the Usability test must conform to the criteria that are not 'Optional':
	Enable a user to record, change, and access a patient's active medication list as well as medication history: 1. Ambulatory setting only. Over multiple encounters. 2. Inpatient setting only. For the duration of an entire hospitalization.
	To successfully complete the clinical task, participants were required to complete each of the following subtasks:
	Task A7.1: Select patient's record & enter medication Task A7.2: Select patient's record & access medication Task A7.3: Select patient's record & change medication

Task Participant and Instructions

The instructions are provided with **Appendix 5.2** – Task Data sheet with Task numbers.

Data Analysis and Reporting

Measures							
	N	Task Success	Path Deviation	Task Time (seconds)		Errors	Scenario Ratings (5=Easy)
Task	#	Percent %	Deviations (observed/optimal)	Mean (SD)	Deviations (observed/optimal)	Percent %	Mean (SD)
Task A7.1: Select patient's record & enter medication	10	100%	6/6	30	26.386/30	0%	5
Task A7.2: Select patient's record & access medication	10	100%	2/2	15	5.452/15	0%	5
Task A7.3: Select patient's record & change medication	10	100%	8/8	20	19.152/20	0%	5

Error Analysis

No critical use errors were identified or observed as part of CPOE-Medications List

Effectiveness

All participants, as suggested by timings by expert users, were able to perform the tasks within optical number of steps and time. One participant completed first step with the assistance of moderator, but completed second and third steps without any assistance.

Efficiency

No additional opportunity is observed for improving efficiency.

Satisfaction

Average success score of the participants was 5 on average based on 5-point Likert-type scale. Most of the participants completed tasks successfully without difficulty.

Major Findings

No Major findings

Areas for Improvement

No additional areas for improvement related to effectiveness and efficiency determined.

4.8 CRITERIA 170.315(A)(8) MEDICATION ALLERGY LIST

Task Mapping

The table maps the 'Medication Allergy List' criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

Table: Medication Allergy List usability test criteria and tasks

	'Medication Allergy List' test criteria and expectations are stated below.
	Enable a user to record, change, and access a patient's active medication allergy list as well as medication allergy history: (i) Ambulatory setting only. Over multiple encounters. (ii) Inpatient setting only. For the duration of an entire hospitalization
	To successfully complete the clinical task, participants were required to complete each of the following subtasks:
	Task A8.1: Select patient's record & enter allergy Task A8.2: Select patient's record & access allergy Task A8.3: Select patient's record & change allergy

Task Participant and Instructions

The instructions are provided with **Appendix 5.2 –** Task Data sheet with Task numbers**.**

Table: Test results for each subtask in Medication Allergy List task

Measures						
	N	Task Success	Path Deviation	Task Time (seconds)	Errors	Scenario Ratings (5=Easy)

Task	#	Percent %	Deviations (observed/optimal)	Mean (SD)	Deviations (observed/optimal)	Percent %	Mean (SD)
Task A8.1: Select patient's record & enter allergy	10	100%	2/2	30	14.875/30	0%	5
Task A8.2: Select patient's record & access allergy	10	100%	5/5	15	4.822	0%	5
Task A8.3: Select patient's record & change allergy	10	100%	6/6	20	5.66/20	0%	5

Error Analysis

No critical use errors were identified or observed as part of CPOE-Medications task.

Effectiveness

All participants, as suggested by timings by expert users, were able to perform the tasks within optical number of steps and time.

Efficiency

No additional opportunity is observed for improving efficiency.

Satisfaction

Average success score of the participants was 5 on average based on 5-point Likert-type scale. Most of the participants completed tasks successfully without difficulty.

Major Findings

No Major Findings

Areas for Improvement

No additional areas for improvement related to effectiveness and efficiency determined.

4.9 CRITERIA 170.315(A)(9) CLINICAL DECISION SUPPORT

Task Mapping

The table maps the 'Computerized Provider Order Entry (CPOE) medications' criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

Table: 'Computerized Provider Order Entry (CPOE) medications' usability test criteria and tasks

	'Clinical Decision Support' test criteria and expectations are stated below.
	(i) CDS intervention interaction. Interventions provided to a user must occur when a user is interacting with technology (ii) CDS configuration. (A) Enable interventions and reference resources specified in paragraphs (a)(9)(iii) and (iv) of this section to be configured by a limited set of identified users (e.g., system administrator) based on a user's role. (B) Enable interventions: (1) Based on the following data: (i) Problem list; (ii) Medication list; (iii) Medication allergy list; (iv) At least one demographic specified in paragraph (a)(5)(i) of this section; (v) Laboratory tests; and (vi) Vital signs. (2) When a patient's medications, medication allergies, and problems are incorporated from a transition of care/referral summary received and pursuant to paragraph (b)(2)(iii)(D) of this section. (iii) When a patient's medications, medication allergies, and problems are incorporated from a transition of care/referral summary received and pursuant to paragraph (b)(2)(iii)(D) of this section. (iii) Linked referential CDS (A) Identify for a user diagnostic and therapeutic reference information in accordance at least one of the following standards and implementation specifications (1) The standard and implementation specifications specified in §170.204(b)(3). (2) The standard and implementation specifications specified in §170.204(b)(4) (B) For paragraph (a)(9)(iv)(A) of this section, technology must be able to identify for a user diagnostic or therapeutic reference information based on each one and at least one combination of the data referenced in paragraphs (a)(9)(ii)(B)(1)(i), (ii), and (iv) of this section. (v) Source attributes. Enable a user to review the attributes as indicated for all CDS resources: (A) For evidence-based decision support interventions under paragraph (a)(9)(iii) of this section: (1) Bibliographic citation of the intervention (clinical research/guideline); (2) Developer of the intervention (translation from clinical research/guideline); (3) Funding source of the intervention development technical implementation; and (4) Release and, if applicable, revision date(s) of the intervention or reference source. (B) For linked referential CDS in paragraph (a)(9)(iv) of this section and drug-drug, drug-allergy interaction checks in paragraph (a) (4) of this section, the developer of the intervention, and where clinically indicated, the bibliographic citation of the intervention (clinical research/guideline).
	To successfully complete the clinical task, participants were required to complete each of the following subtasks:
	Task A9.1: Access to clinical decision support setting (with authorized user) Task A9.2: Access to clinical decision support setting (with unauthorized user) Task A9.3: Create a rule set definition & interaction Task A9.4: Patient demographic and medical records creation & CDS interaction follow - up

Task Participant and Instructions

Based on user characteristics, typical workflow, and tasks performed as part of their daily work, providers and clinical assistive personnel attempted this task.

The instructions are provided with Appendix 5.2 – Task Data sheet with Task numbers.

Data Analysis and Reporting

Measures

	N	Task Success	Path Deviation	Task Time (seconds)		Errors	Scenario Ratings (5=Easy)
Task	#	Percent %	Deviations (observed/optimal)	Mean (SD)	Deviations (observed/optimal)	Percent %	Mean (SD)
Task A9.1: Access to clinical decision support setting (with authorized user)	10	100%	9/9	45	33.478/45	0%	5
Task A9.2: Access to clinical decision support setting (with unauthorized user)	10	100%	3/3	20	18.871/20	0%	5
Task A9.3: Create a rule set definition & interaction	10	100%	10/10	60	52.987/60	0%	5
Task A9.4: Patient demographic and medical records creation & CDS interaction follow - up	10	100%	5/5	30	27.548/30	0%	5

Error Analysis

No critical use errors were identified or observed as part of *'Clinical Decision Support'* task

Effectiveness

All participants, as suggested by timings by expert users, were able to perform the tasks within optical number of steps and time.

Efficiency

No additional opportunity is observed for improving efficiency.

Satisfaction

Average success score of the participants was 5 on average based on 5-point Likert-type scale. Most of the participants completed tasks successfully without difficulty.

Major Findings

No Major Findings

Areas for Improvement

No additional areas for improvement related to effectiveness and efficiency determined.

4.10 CRITERIA 170.315(A) (14) IMPLANTABLE DEVICE LIST

Task Mapping

The table maps the ''Implantable Device List' criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

Table: 'Implantable Device List' usability test criteria and tasks

	'Implantable Device List' test criteria and expectations are stated below.
	(i) Record unique device identifiers associated with a patient's Implantable Devices. (ii) Parse the following identifiers from a Unique Device Identifier: (A) Device Identifier; and (B) The following identifiers that compose the Production Identifier: (1) The lot or batch within which a device was manufactured; (2) The serial number of a specific device; (3) The expiration date of a specific device; (4) The date a specific device was manufactured; and (5) For an HCT/P regulated as a device, the distinct identification code required by 21 CFR 1271.290(c). (iii) Obtain and associate with each Unique Device Identifier: (A) A description of the implantable device referenced by at least one of the following: (1) The "GMDN PT Name" attribute associated with the Device Identifier in the Global Unique Device Identification Database. (2) The "SNOMED CT® Description" mapped to the attribute referenced in in paragraph (14)(iii)(A)(1) of this section. (B) The following Global Unique Device Identification Database attributes: (1) "Brand Name"; (2) "Version or Model"; (3) "Company Name"; (4) "What MRI safety information does the labeling contain?"; and (5) "Device required to be labeled as containing natural rubber latex or dry natural rubber (21 CFR 801.437)." (iv) Display to a user an implantable device list consisting of: (A) The active Unique Device Identifiers recorded for the patient; (B) For each active Unique Device Identifier recorded for a patient, the description of the implantable device specified by paragraph (a)(14)(iii)(A) of this section; and (C) A method to access all Unique Device Identifiers recorded for a patient. (v) A method to access all Unique Device Identifiers recorded for a patient. (A) The Unique Device Identifier; (B) The description of the implantable device specified by paragraph (a)(14)(iii)(A) of this section; (C) The identifiers associated with the Unique Device Identifier, as specified by paragraph (a)(14)(ii) of this section; and (D) The attributes associated with the Unique Device Identifier, as specified by paragraph (a)(14)(iii)(B) of this section.

	(vi) Enable a user to change the status of a Unique Device Identifier recorded for a patient
	To successfully complete the clinical task, participants were required to complete each of the following subtasks:
	Task A14.1: Record & Parse Unique Device Identifiers (UDI) Task A14.2: Description of Implantable device Task A14.3: Access & Display Implantable device list Task A14.4: Change status of unique device identifier

Task Participant and Instructions

The instructions are provided with **Appendix 5.2** – Task Data sheet with Task numbers.

Data Analysis and Reporting

Table: Test results for each subtask in Implantable Device List task

Measures							
	N	Task Success	Path Deviation	Task Time (seconds)		Errors	Scenario Ratings (5=Easy)
Task	#	Percent %	Deviations (observed/optimal)	Mean (SD)	Deviations (observed/optimal)	Percent %	Mean (SD)
Task A14.1: Record & Parse Unique Device Identifiers (UDI	10	90%	8/8	90	79.404	10%	4
Task A14.2: Description of Implantable device	10	100%	8/8	35	29.756/35	0%	4
Task A14.3: Access & Display Implantable device list	10	100%	3/3	20	12.466/20	0%	4
Task A14.4: Change status of unique device identifier	10	100%	8/8	35	26.789/35	0%	4

Error Analysis

No critical use errors were identified or observed as part of *'Implantable Device List'* task

Effectiveness

All participants, as suggested by timings by expert users, were able to perform the tasks within optical number of steps and time. One participant needed assistance with one of the tasks but after that was able to complete the others with no assistants

Efficiency

No additional opportunity is observed for improving efficiency.

Satisfaction

Average success score of the participants was 4 on average based on 5-point Likert-type scale. Most of the participants completed tasks successfully without difficulty.

Major Findings

No major findings

Areas for Improvement

No additional areas for improvement related to effectiveness and efficiency determined.

4.12 CRITERIA 170.315(B)(3) E-PRESCRIBING

Task Mapping

The table maps the 'e-Prescribing' criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

Table: 'e-Prescribing' usability test criteria and tasks

	'e-Prescribing' test criteria and expectations are stated below.
	(i) Enable a user to perform all of the following prescription-related electronic transactions in accordance with the standard specified in §170.205(b)(2) and, at a minimum, the version of the standard specified in §170.207(d)(3) as follows: (A) Create new prescriptions (NEWRX). (B) Change prescriptions (RXCHG, CHGRES). (C) Cancel prescriptions (CANRX, CANRES) (D) Refill prescriptions (REFREQ, REFRES). (E) Receive fill status notifications (RXFILL). (F) Request and receive medication history information (RXHREQ, RXHRES). (ii) For each transaction listed in paragraph (b)(3)(i) of this section, the technology must be able to receive and transmit the reason for the prescription using the diagnosis elements in DRU Segment. (iii) Optional. For each transaction listed in paragraph (b)(3)(i) of this section, the technology must be able to receive and transmit the reason for the prescription using the indication elements in the SIG Segment (iv) Limit a user's ability to prescribe all oral liquid medications in only metric standard units of mL (i.e., not cc). (v) Always insert leading zeroes before the decimal point for amounts less than one and must not allow trailing zeroes after a decimal point when a user prescribes medications
	To successfully complete the clinical task, participants were required to complete each of the following subtasks:

	Task B3.1: Create new prescriptions Task B3.2: Change prescriptions Task B3.3: Cancel prescriptions Task B3.4: Refill prescriptions (Status) Task B3.5: Medication history (Request, Receive) Task B3.6: Limit a user's ability to prescribe

Task Participant and Instructions

The instructions are provided with **Appendix 5.2** – Task Data sheet with Task numbers.

Data Analysis and Reporting

Table: e-Prescribing usability test criteria and tasks

Measures							
	N	Task Success	Path Deviation	Task Time (seconds)		Errors	Scenario Ratings (5=Easy)
Task	#	Percent %	Deviations (observed/optimal)	Mean (SD)	Deviations (observed/optimal)	Percent %	Mean (SD)
Task B3.1: Create new prescriptions	10	100%	6/6	60	42.878/60	0%	5
Task B3.2: Change prescriptions	10	100%	6/6	60	56.548/60	0%	5
Task B3.3: Cancel prescriptions	10	100%	6/6	95	82.812/120	0%	5
Task B3.4: Refill prescriptions (Status)	10	100%	6/6	60	48.328/60	0%	5
Task B3.5: Medication history (Request, Receive)	10	100%	3/3	15	8.685/15	0%	5

Error Analysis

NIST e-Prescribe tool is used to test several steps in e-prescribing task. Hypothetic patient and medical data are specially created for conduct of this test correctly

Effectiveness

'e-Prescribing' test was conducted with the participation of fewer participants competed to other tests. Participants only completed recording and submission stages as mentioned in the test instructions without having knowledge on integration phases operating in the system's background.

Efficiency

No additional opportunity is observed for improving efficiency.

Satisfaction

Average success score of the participants was 3.3~ on average based on 5-point Likert-type scale. Most of the participants completed tasks successfully without difficulty.

Major Findings

Performance of three sub-groups are above 90% rate.

Areas for Improvement

No additional areas for improvement related to effectiveness and efficiency determined.

5. APPENDIXES

5.1-RECRUITING SCREENER

The purpose of this screener is to ensure that the participants selected represent the target user population as closely as possible. The information in this screener is used to enter demographic information in participants section of this report. The participants who filled this screener and enrolled in the test are assigned ID numbers according to their roles. These IDs represented the participants in all numerical measurements.
Test participants are told that they should meet the following criteria;

- Entering patient information in clinical stages and operating with medical information
- Familiarity with data entry to Professional Healthcare Record
- Responding to survey questions.

Pre-Session Survey:

1. What is your name?
2. What is your gender? [Female, Male]
3. What is your age range? [20-29, 30-39, 40-49, 50-59, 60-69]
4. What is your highest level of education? [LPN, RN, NP, AD, PA, BD, MD, Other]
5. What is your occupation or role? [Doctor, Nurse, IT Expert, IT Manager, Medical Data Entry Expert]
6. How many months/year(s) of experience do you have in this occupation or role?
7. How many months/year(s) of computer experience do you have?

8.How many months/year(s) have you used a Professional Electronic Health Record (EHR)?

9. Do you need assistive technological devices such as screensaver, etc.?

5.2 PARTICIPANT DEMOGRAPHICS FOR PICASSO

Gender	**Count**
Men	**6**
Women	**4**
Total	**10**
Occupation/Role	
RN/BSN/NP	**1**
Physician	**9**
Medical Assistant/Technician	**0**
Admin	**0**
Total	**10**
Age Range	
20-39	**1**
30-39	**2**
40-49	**4**
50-59	**3**
60-69	**0**
Total	**10**
Education	
High School Diploma	**0**
Associates	**0**
Bachelors	**0**
Masters	**0**
Doctors	**10**
Total	**10**
Professional Experience	
Less than 1 year	**0**
2-5 years	**1**
6-10 years	**3**
11-20 years	**5**
21 + years	**1**
Total	**10**

Computer Experience	
Less than 1 year	**0**
2-5 years	**0**
6-10 years	**0**
11-20 years	**7**
21 + years	**3**
Total	**10**
Product Experience	
1 year or less	**4**
2-5 years	**4**
6-9 years	**2**
10+ years	**0**
Total	**10**
Assistive Technology Needs	
Yes	**0**
No	**10**
Total	**10**

5.3: NON-DISCLOSURE AGREEMENT AND INFORMED CONSENT FORM

I voluntarily agree to participate in an evaluation being conducted by Picasso through its authorized agent, User-View, Inc. This evaluation will test the usability of the Picasso product ("Product").

The purpose of this study is to gather feedback about the effectiveness and efficiency of the Product.

By participating in this study, I agree and consent to the following:

I authorize Picasso to keep, preserve, use in any manner and dispose of the findings from this evaluation, including my feedback and suggestions expressed. I relinquish any rights to my feedback and suggestions about the Product. Athena will not associate my name or organization name with the results of this evaluation. I give my permission for Athena and its authorized agent User-View, Inc. to make video and audio records and to take photos of me during this evaluation. I understand that these recordings and photos

can be used only for the purpose of evaluating the Product and showing the results of the evaluations and not for any other purpose. I understand that my participation is completely voluntary and I may withdraw my consent and discontinue my participation at any time without penalty.

_X_____

Name (please print)

APPENDIX 4: EXAMPLE MODERATOR GUIDES

Thank you for participating in this study today. Our session will last 40 minutes. During that time, you will look at the Electronic Health Record System Picasso. I will be asking you to complete a few tasks. We are interested in how easy or how difficult this system is to use and how we could improve it. You will need to complete these tasks on your own and ask quickly as possible as there is time limit for each task. Please do not do more than asked. I cannot help you or answer you while you are doing the tasks. I will read the task to you and then I will say begin. You may ask me to clarify or repeat the task before I say Begin. After I say begin you are on your own. When you are done with the task please say Done. The time will stop then. After the task is done you may comment or ask questions.

In between tasks I will take control of the screen and open a new patient, new note, change practice physicians etc.

Please be honest with your opinions all information will be kept confidential and your name will not be associated with your comments at any times.

Do you have any questions or concerns?

APPENDIX 5 - TASK DATA SHEETS

Tasks are created with the goal of completion within the shortest time and in accordance with ONC test criteria. Some -obligatory- steps about functionality of the software are not included in test steps during the completion of tasks. For example, in a task about prescription, it is assumed that the procedures such as registration of patient, creation of protocol for patient by the system, payment to pay desk, etc. are completed successfully.
Tasks created below do not include the tasks that calculate numerical measurements of this report and do not contain all scenarios of the tasks. For example, opening of allergy data list is not included as a step in recording and re-arrangement of allergic warnings. But, exact time of opening allergy data list and number of steps taken until this action are recorded for the completion of task successfully in terms of numerical measurements.

1. Task Data Sheets for 170.315(a)(1) CPOE Mediations

1A. Task A1.2: Select patient's record & enter order

Scenario: You are Dr. Ezra Brooks providing care for a new patient. The patient is 35-year old female whose chief complaint is she had a bad cough. She has a diagnosis of acute bronchitis. Please order ***Amoxicillin 500mg***

Your patient name is ***Elijah Winter***

In the note > select medication > search Amoxicillin > select dosage 500 mg > **STOP**

1B. Task A1.3: Select patient's record & change order

*Scenario: you decide to order the patient **Augmentin 250mg** instead of the Amoxicillin 500 mg*

In the same screen search **>** select the drop-down dosage **250 mg** > **stop**

1C. Task A1.2: Select patient's record & access order

Scenario: you now want to access what you ordered.

In the **clinical** button > select the **Medication Tab** > you will see pending/current medication

2. Task Data Sheets for 170.315(a)(2) CPOE Laboratory

Task A2.1: Select patient's record & enter order

Scenario: You want to check Mr. Winter CBC. Order a lab for CBC

In the note> select **Assessment/diagnosis** > Order Lab >Fill out * > select **Glucose Tolerance Test, 5 Specimens >** Validate Order > **Stop & close**

Ordering Physician: **Allan, Joseph**

Task A2.2.: Select patient's record and cancel order

Scenario: You want to cancel the order for the Mr. Winter

In the **clinical** section > Select **Assessment** > Select the **globe** > Select **standard orders entered** > **Check off** the order > select **Delete** order

Task A2.3.: Select patient's record and change order

Scenario: You want to cancel the order for the Mr. Winter

In the **clinical** section > Select **Assessment** > Select the **globe** > Select **standard orders entered** > Select the **Order number** > select **Next** > Select test **Glucose** > **Validate Order**

3. Task Data Sheets for 170.315(a)(2) CPOE Radiology

Task A3.2: Select patient's record & enter order

Scenario: you want to order a Chest X-Ray for Mr. Winter

In the note>Select **Assessment**>**Requisitions**> Search **Chest X-Ray**>**Order**

Task A3.3: Select and Cancel order

Scenario: you want to cancel a Chest X-Ray for Mr. Winter

Select the **requisition** > right click **delete**

4. Task Data Sheets for 170.315(a)(4) Drug-Drug / Drug -Allergy checks

4.A Task A4.1: Review and action upon Drug-Drug interaction alert

Scenario: A long time Patient who has depression comes into the office because she feels like her medication is no longer working. You decide to put her on another medication Phenelzine 15 mg tablet as you are prescribing the medication you notice the interactions alert between fluoxetine and phenelzine Please add Amoxicillin and review the interaction alert.

Patient: Rita Berliner

Select the **Clinical** button > **Medications Tab** > Search **Amoxicillin** > Review the **interactions alert** > Select Ok

4B. Task A4.2: Review and action upon Drug-Allergy interaction alert

Scenario: The same patient shows you a rash on his skin, you prescribe him Benadryl but notice he has a drug allergy to it. Please prescribe Benadryl and then review the interaction alert.

*Medications Tab>Search **Benadryl** > Select **Interactions** button and review > **Select ok***

5. Task Data Sheets for 170.315(a)(5) Demographics

5A. Task A5.1 Record Demographic Data

*Scenario: Your patient is a 55-year old male who comes in for his annual physical exam, upon checking in he notices his ethnicity is enter incorrectly. He also noticed that there was nothing in race field. Please go in there and enter **ONLY** his Race.*

Race: Black and African American

Go into **PM** > **Front Desk > Demographics** > Search & select Patient **Harold Wilson > Edit info > Submit**

5B. Task A5.2 Change Demographic Data

Now please change his Ethnicity as follow:

Ethnicity: Not Hispanic or Latino

Go into **PM** > **Front Desk > Demographics** > Search Patient **Harold Wilson > Edit info > Submit**

5C. Task A5.4 Record preliminary cause & death of date

Scenario: You receive a phone call from one your patient's wife informing you that her husband Anthony Bourdain has passed away due to long term illness. Please go in the patient's chart and record the patients Date of death.

Go into **PM** > **Front Desk > Demographics** > Search & select Patient **Anthony Bourdain > Details Tab > Enter Date of Deceased > Submit**

5D. Task A5.4 Access Demographic Data

Scenario: you want to call a patient and inform them that they're lab results came back negative. Find the demographic info to obtain the phone number.

Search the patient > Click the **3 dots** on the right > select **Demographics**.

6. Criteria 170.315(a)(6) Problem List

6A. Task A6.1: Select patient's record & enter problem

*Scenario: You want to give this patient the problem **Essential Hypertension***

In the note > Select **Assessment** > search **Essential Hypertension** > Double click > Close window

6B. Task A6.3: Select patient's record & change problem

*Scenario: you noticed you meant to put in **Hyperlipidemia** instead of Essential Hypertension, go back and change it.*

In the note> select **Assessment**> on the right side of the screen > select **Essential Hypertension >** Select the **Red X > Yes >** Search **Hyperlipidemia > double click**

7. Criteria 170.315(a)(7) Medication List

7A. Task A7.1: Select patient's record & enter medication

*Scenario: Salama Hayek is coming into the office because she has a cold, she tells you she has been taking **Theraflu Express Max Cold Day** Twice a Day. Please add medication.*

Search **Reese Witherspoon** > Select Clinical Button > Select **Medications Tab >** search **Theraflu Express Max Cold Day** > **Double Click** > Change time to **BID** > Select the **Historic Drop Down > Select patient**

7B. Task A7.2: Select patient's record & change medication

Scenario: Mrs. Hayek then remembers she has been taking the medication 3 times a day instead of 3. Please go into the medication and then change from BID to TID

In the current screen > Select **Theraflu Express Max Cold Day** > Select the **Represcribe** Drop down > Select **Reload into Prescription Pad** > Change the time from **BID** to **TID** > Select the **Historic** Drop Down > Select **Patient** > on the next screen select the old **Theraflu Express Max Cold Day** > Select the **Set Active/Inactive** drop down > Select **Remove without specify reason**

8. Task Data Sheets for 170.315(a)(8) Medication Allergy

8A. Task A8.1: Select patient's record & enter allergy

*Scenario: Mrs. Witherspoon informs you she is allergic to Penicillin and gets hives if she takes it. Please go into the patient's allergy list and add **Penicillin** with the reaction **Hives.***

Select the **clinical** button > **Allergies Tab** > Select **Medications** in the drop down on the left > Search for **Penicillin** > Under reactions search **Hives** > select the + Button

8B. Task A8.3: Select patient's record & change allergy

*Scenario: Mrs. Witherspoon informs you that she does not actually get hives but she starts sneezing. Please go in there and remove **Hives** and add **sneezing.***

In the reactions search **Sneezing** > Select the **+ sign** > then select **hives** > select **Remove Allergy**

9. 170.315 (a)(9) Clinical Decision Support

Scenario: 35-year old London Ferrero is coming in for her annual physical, while in her chart review the CDS Alert

*In the notes> select the **red Alert** button > Select the **BP & PE***

10. 170.315(a) (10) Implantable Device List

Task A14:1 Record & Parse Unique Device Identifiers

Open Clinical on a patient > Select **Implantable Device** > **Add** Implantable Device > type **Demo** > Save > Type Demo Test on Device UDI > Save Changes

Task A14.2: Description of Implantable device

Open a clinical on a patient > Select Implantable Device > See device UDI >

Task A14.3: Access & Display Implantable device list

Open a clinical on a patient > Select Implantable Device > See device list on the right.

12. Task Data Sheets for 170.315(b)(3) e-Prescribe

12A. Task B3.1: Create new prescriptions

*Scenario: Mr. Andrew Kutha is coming in for muscle ache in his upper back, you need to prescribe his **Cyclobenzaprine 5mg tablets** that he will take 1 tablet before bed, everyday for 5 days. Please escribe him the medication.*

In the note> select **Medications** > Search **Cyclobenzaprine** > Select **5mg** > in the amount select **5** > in the times select **as directed** > in the sig type in **1 tablet before bed, everyday for 5 days >** select the **Prescribe** drop down > select **Send to pharmacy**

12A. Task B3.1: change Rx prescriptions

After sending prescription to rx, you think Mr. Kutha will need a 7.5mg instead of 5mg. Please change the medication from 5mg to 7.5

12A. Task B3.1: Cancel Rx prescriptions

After some consideration you decide you want to order an MRI before prescribing him cyclobenzaprine, cancel the RX order

In the Portal > Find the medication you prescribed > select the magnify glass > on the top select ***Notify Pharmacy: cancel previously authorized refills*** *>*

APPENDIX 6 – SYSTEM USABILITY SCALE

In order to quickly assess opinions of users expressed during their experience with system, System Usability Scale (SUS) methods are used.

Please Evaluate Functionality

This Scale, measures your general impression on the test conducted today.

1. Strongly Disagree 2. Disagree 3. Neutral 4-Agree 5. Strong Agree

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I think that I would like to use this system frequently					
2. I found the system unnecessarily complex					
3. I thought the system was easy to use					
4. I think that I would need the support of a technical person to be able to use this system					
5. I found the various functions in this system were well integrated					
6. I thought there was too much inconsistency in this system					
7. I would imagine most people would learn to use system very quickly					
8. I found the system very cumbersome to use					
9. I felt very confident using the system					
10. I need to learn a lot of things before I could get going with this system					