EHR Usability Test Report of OmniMD Version 18.0

by DOCS Medical group - 12/19/2017

Test conducted By: DOCS Medical Group
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Date of Report: 12/19/2017

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Executive Summary

The usability test of OmniMD Version 18.0 was conducted on 12/12/2017, 12/14/2017, 12/15/2017 and 12/18/2017 at 4 locations of DOCS Medical Group by DOCS Medical Group.

- DOCS South Yonkers (Raceway) - 471 Central Park Avenue, Yonkers, NY, 10704
- DOCS Pelham - 116 5th Avenue, Pelham, NY, 10803
- DOCS North Yonkers - 2422 Central Park Avenue, Yonkers, NY, 10710
- DOCS Bronx - 3251 Westchester Avenue, Bronx, NY 10461

The purpose of this test was to test and validate the usability of the user interface, and provide evidence of usability in the EHR Under Test (EHRUT). During the usability test, 10 healthcare providers and medical assistants matching the target demographic criteria served as participants and used the EHRUT in simulated, but representative tasks.

This study collected performance data on 49 tasks typically conducted on an EHR. Tasks included:

- Computerized Provider Order Entry (CPOE) - Medications
- Computerized Provider Order Entry (CPOE) – Laboratory
- Computerized Provider Order Entry (CPOE) – Diagnostic Imaging
- Drug-Drug, Drug Allergy Interaction checks for CPOE
- Demographic
- Problem List

- Medication List
- Medication Allergy List
- Implantable Device
- Clinical Decision Support
- Implantable Device List
- Clinical Information Reconciliation and Incorporation
- E-Prescription

During the process one-on-one usability test, each participant was greeted by the administrator and asked to review and sign an informed consent/release form and were instructed that they could withdraw at any time. Participants had and did not have prior experience with the EHR. Training was given to each participant based on the same type of training conducted for a client. The administrator introduced the test, and instructed participants to complete a series of tasks (given one at a time) using the EHRUT. During the testing, the administrator timed the test and, along with the data logger(s) recorded user performance data on paper and electronically. The administrator did not give the participant assistance in how to complete the task.

Participant screens, head shots and audio were recorded for subsequent analysis.
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

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 and a System Usability Survey. Various recommended metrics were used to evaluate the usability of the EHRUT. Following is a summary of the performance and rating data collected on the EHRUT.

Description of Participants :

Occupation	Education Type	Product Experience (Months)	Professional Experience (Months)	Computer Experience (Months)	Age (Years)	Gender	Assistive Technology Needs
MD	MD	132	264	132	50-59	Male	No
MA	Bachelor's degree	24	36	36	20-29	Female	No
MD	MD	12	48	120	40-49	Female	No

MD	Master's degree	60	120	144	40-49	Female	No
MD	MD	42	240	168	50-59	Male	No
MD	MD	108	240	108	50-59	Female	No
MA	MA	36	36	144	30-39	Female	No
MA	Bachelor's degree	26	36	36	20-29	Female	No
MA	Bachelor's degree	12	48	48	20-29	Female	No
MA	Bachelor's degree	12	24	120	20-29	Female	No

SED Report Hyperlink :

Once certified, SED Reports will be available on below Path:

www.omnimd.com/sedreport.html

System Usability Scale

Questions

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 that most people would learn to use this system very quickly
8. I found the system very cumbersome to use

9. I felt very confident using the system

10. I needed to learn a lot of things before I could get going with this system

Results/Data

	Question	Value	Score
User#1	1	5	4
	2	4	1
	3	5	4
	4	2	3
	5	5	4
	6	2	3
	7	5	4
	8	1	4
	9	4	3
	10	2	3
		Total	33
		SUS Score	**82.5**

	Question	Value	Score
User#2	1	5	4
	2	1	4
	3	5	4
	4	1	4
	5	5	4
	6	1	4
	7	5	4
	8	1	4
	9	5	4
	10	1	4
		Total	40
		SUS Score	**100**

	Question	Value	Score
User#3	1	5	4
	2	2	3
	3	5	4
	4	3	2
	5	5	4
	6	1	4
	7	4	3
	8	1	4
	9	5	4
	10	3	2
		Total	34
		SUS Score	**85**

	Question	Value	Score
User#4	1	3	2
	2	2	3
	3	3	2
	4	4	1
	5	4	3
	6	3	2
	7	4	3
	8	2	3
	9	3	2
	10	1	4
		Total	25
		SUS Score	**62.5**

	Question	Value	Score
User#5	1	5	4
	2	1	4

	Question	Value	Score
User#6	1	5	4
	2	1	4

	3	5	4
	4	1	4
	5	1	0
	6	2	3
	7	1	0
	8	5	0
	9	1	0
	10	5	0
		Total	19
		SUS Score	**47.5**

	3	5	4
	4	1	4
	5	5	4
	6	1	4
	7	5	4
	8	1	4
	9	5	4
	10	1	4
		Total	40
		SUS Score	**100**

	Question	**Value**	**Score**
User#7	1	5	4
	2	1	4
	3	5	4
	4	3	2
	5	3	2
	6	1	4
	7	5	4
	8	1	4
	9	5	4
	10	3	2
		Total	34
		SUS Score	**85**

	Question	**Value**	**Score**
User#8	1	4	3
	2	2	3
	3	4	3
	4	2	3
	5	4	3
	6	2	3
	7	4	3
	8	3	2
	9	4	3
	10	3	2
		Total	28
		SUS Score	**70**

	Question	**Value**	**Score**
User#9	1	4	3
	2	1	4
	3	2	1
	4	2	3
	5	4	3
	6	1	4
	7	5	4
	8	4	1
	9	4	3
	10	2	3
		Total	29
		SUS Score	**72.5**

	Question	Value	Score
User#10	1	5	4
	2	1	4
	3	5	4
	4	1	4
	5	5	4
	6	1	4
	7	5	4
	8	1	4
	9	5	4
	10	1	4
		Total	40
		SUS Score	**100**

The results from the System Usability Scale scored the subjective satisfaction with the system based on performance with these tasks to be: **80.5**

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

- Major findings
    - Many of the errors involved users not clicking on the correct links, completing actions they would not perform on a regular basis, and newer modules required for 2015 Edition certification. Items that tested well include tasks that did not involve many steps to perform and tasks that were generally within the scope of the participants job function.

- Areas for improvement
    - Making links more prominent on screens, making items within screens more visible with larger fonts and colors that stand out.

Introduction

The EHRUT(s) tested for this study was (were) OmniMD Version 18.0. Designed to present medical information to healthcare providers in ambulatory and urgent care settings, the EHRUT consists of performing common tasks associated with inputting of clinical patient information and creation of orders. 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 as time to complete the tasks, participant comments and ease/difficulty of tasks, were captured during the usability testing.

Method

UCD Process

We have referred NISTIR 7741 process to prepare UCD Process.

NISTIR 7741 NIST Guide to the Processes Approach for Improving the Usability of Electronic Health Records

www.nist.gov/publications/nistir-7741-nist-guide-processes-approach-improving-usability-electronic-health-records

Author(s) Robert M. Schumacher, Svetlana Z. Lowry

Participants

Occupation	Education Type	Product Experience (Months)	Professional Experience (Months)	Computer Experience (Months)	Age (Years)	Gender	Assistive Technology Needs
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MA	Bachelor's degree	12	48	48	20-29	Female	No
MA	Bachelor's degree	12	24	120	20-29	Female	No

A total of 10 participants were tested on the EHRUT(s). Participants in the test were providers and medical assistants. Participants were recruited by DOCS Medical Group.

Participants were given the opportunity to have the same orientation and level of training as the actual end users would have received.

For the test purposes, end-user characteristics were identified and translated into a recruitment screener used to solicit potential participants.

Recruited participants had a mix of backgrounds and demographic characteristics conforming to the recruitment screener. The following is a table of participants by characteristics, including demographics, professional experience, computing experience and user needs for assistive technology. Participant names were replaced with Participant IDs so that an individual's data cannot be tied back to individual identities.

12 participants were recruited and 10 participated in the usability test. 2 participants failed to show for the study.

Participants were scheduled for one 90 minute session. A spreadsheet was used to keep track of the participant schedule, and included each participant's demographic characteristics as provided by DOCS Medical Group.

Study Design

Overall, the objective of this test was to uncover areas where 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 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 current usability, but also to identify areas where improvements must be made.

During the usability test, participants interacted with 1 EHR(s). Each participant used the system in the same location, and was provided with the same instructions.

The system was evaluated for effectiveness, efficiency and 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
- Path deviations
- Participant's verbalizations (comments)
- Participant's satisfaction ratings of the system

Tasks

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

CPOE
1. Add Pre-Existing Medication for Past Visit
2. Create Medication for Today's visit
3. View Medication
4. Edit Medication
5. Stop Medication
6. Override Interaction
7. Add Lab Test for Past visit

8. Add Lab Test for today's visit
9. View Lab Orders
10. Edit Lab Orders
11. Add Radiology Test for Past visit
12. Add Radiology Test for today's visit
13. View Radiology Orders
14. Edit Radiology Orders

Drug-Drug and Drug Allergy interaction

1. Indicate Drug-allergy Interactions on Current Medication
2. Indicate Drug-drug Interactions on Current Medication
3. Indicate Drug-allergy Interactions on Prescription
4. Indicate Drug-drug Interactions on Prescription
5. Adjust interaction level (Doctor)
6. Indicate Drug-allergy Interactions on Current Medication – Alert set to Major Alerts only

Patient Demographics

1. Add Patient Demographic
2. View Patient Demographics
3. Edit and View Patient Demographics

Problem

1. Add New Problem
2. View Problem
3. Edit and view Problem

Medication List

1. Add Medication for Past visit
2. Add Medication for Today's visit
3. View Medication

4. Edit Medication
5. Stop Medication

Medication Allergy

1. Add Medication Allergy for Past visit
2. Add Medication Allergy for Today's visit
3. View Medication Allergy
4. Edit Medication Allergy
5. Mark inactive Medication Allergy

Clinical Decision Support

1. CDS- based on Patient Demographics
2. CDS- based on Vital

Implantable Device

1. Add Implantable Device
2. View Implantable Device
3. Edit Implantable Device

Clinical Information Incorporation

1. Review and Reconcile Medication and Confirm Medication
2. Review and Reconcile Allergen
3. Review and Reconcile Problem

e-Prescription

1. Add Medication
2. Check Formulary- Alert message
3. Check Formulary
4. Signoff and Send Medication
5. Copy Prescription

Tasks were selected based on their frequency of use, criticality of function, and those that may be most troublesome for users.

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. A representative from the test team witnessed the participant's signature.

To ensure that the test ran smoothly, two staff members participated in this test, the usability administrator and the data logger. The usability testing staff conducting the test was experienced usability practitioners with 10 years of experience.

The administrator moderated the session including administering instructions and tasks. The administrator also monitored task times, obtained post-task rating data, and took notes on participant comments. A second person served as the data logger and took notes on task success, path deviations, number and type of errors, and comments.

Participants were instructed to perform the tasks (see specific instructions below):

- As quickly as possible making as few errors and deviations as possible.
- Without assistance; administrators were allowed to give immaterial guidance and clarification on tasks, but not instructions on use.
- Without using a think aloud technique.

For each task, the participants were given verbal instructions for each task. Task timing began once the administrator finished reading the question. The task time was stopped once the participant indicated they had successfully completed the task.

Following the session, the administrator gave the participant the post-test questionnaire and System Usability Scale and thanked each individual for their participation.

Participants' demographic information, task success rate, time on task, errors, deviations, verbal responses, and post-test questionnaire were recorded on paper and then into a spreadsheet.

Test Location

The test facility included a waiting area and a quiet testing room with a table, computer for the participant, and recording computer for the administrator. Only the participant and administrator were in the test room. All observers and the data logger worked from a separate room where they could see the participant's screen and face shot, and listen to the audio of the session. To ensure that the environment was comfortable for users, noise levels were kept to a minimum with the ambient temperature within a normal range. All of the safety instruction and evacuation procedures were valid, in place, and visible to the participants.

Test Environment

The EHRUT would be typically be used in a healthcare office or facility. In this instance, the testing was conducted in ambulatory/outpatient clinics. For testing, the computer used a laptop running Windows 8 Pro. The participants used the laptop keyboard and a wireless mouse interacting with the EHRUT.

The EHRUT used a 15.6" screen with a screen resolution of 1366 x 768 and system default color settings of sRGB IEC61966-2.1. The application was set up by DOCS Medical Group according to the vendor's documentation describing the system set-up and preparation. The application itself was running on a web platform using a test database over a wireless Verizon 4G LTE (890L-5A5B) connection device. Technically, the system performance was representative to what actual users would experience in a field implementation. Additionally, participants were instructed not to change any of the default system settings.

Test Forms and Tools

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

- Participant Demographics Form
- Informed Consent Form
- Orientation/Participant Instructions
- NDA Form
- Post-test Questionnaire
- System Usability Scale Form

The participant's interaction with the EHRUT was captured and recorded digitally with screen capture software running on the test machine. A web camera recorded each participant's facial expressions synced with the screen capture, and verbal comments were recorded with a microphone. The test session were electronically transmitted to a nearby observation room where the data logger observed the test session.

Participant Instructions

The administrator reads the following instructions aloud to the each participant:

> *Thank you for participating in this study. Your input is very important. Our session today will last about 90 minutes. During that time you will use an instance of an electronic health record. I will ask you to complete a few tasks using this system and answer some questions. You should complete the tasks as quickly as possible making as few errors as possible. Please try to complete the tasks on your own following the instructions very closely. Please note that we are not testing you we are testing the system, therefore if you have difficulty all this means is that something needs to be improved in the system. I will be here in case you need specific help, but I am not able to instruct you or provide help in how to use the application. Overall, we are interested in how easy (or how difficult) this system is to use, what in it would be useful to you, and how we could improve it. I did not have any involvement in its creation, so please be honest with your opinions. All of the information that you provide will be kept confidential and your name will not be associated with your comments at any time. Should you feel it necessary you are able to withdraw at any time during the testing.*

Following the procedural instructions, participants were shown the EHR and as their first task, were given time 60 minutes to explore the system, make comments, and ask questions.

Once this task was complete, the administrator gave the following instructions:

For each task, I will read the description to you and say "Begin." At that point, please perform the task and say "Done" once you believe you have successfully completed the task. I would like to request that you not talk aloud or verbalize while you are doing the tasks. I will ask you your impressions about the task once you are done.

Participants were then given 49 tasks to complete. Tasks are listed in the **TASKS** section above.

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:

- Effectiveness of [EHRUT] by measuring participant success rates and errors
- Efficiency of [EHRUT] by measuring the average task time and path deviations
- Satisfaction with [EHRUT] by measuring ease of use ratings

Data Scoring

The following table details how tasks were scored, errors evaluated, and the time data analyzed:

Measures	Rationale and Scoring
Effectiveness: 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. 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. Optimal task performance time, as benchmarked by expert performance under realistic conditions, is recorded when constructing tasks. Target task times used for task times in the Moderator's Guide must be operationally defined by taking multiple measures of optimal performance and multiplying by some factor [e.g., 1.25] that allows some time buffer because the participants are presumably not trained to expert performance. Thus, if expert, optimal performance on a task was [x] seconds then allotted task time performance was [x * 1.25] seconds. This ratio should be aggregated across tasks and reported with mean and variance scores.
Effectiveness: 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 a "Failures." No task times were taken for errors. The total number of errors was calculated for each task and then divided by the total number of times that task was attempted. Not all deviations would be counted as

	errors. This should also be expressed as the mean number of failed tasks per participant. On a qualitative level, an enumeration of errors and error types should be collected.
Efficiency: Task Deviations Means	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 Means. It is strongly recommended that task deviation means be reported. Optimal paths (i.e., procedural steps) should be recorded when constructing tasks.
Efficiency: 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.
Satisfaction: 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. After each task, the participant was asked to rate "Overall, this task was:" on a scale of 1 (Very Easy) to 5 (Very Difficult). These data are averaged across participants. 12 Common convention is that average ratings for systems judged easy to use should be 1.7 or below. To measure participants' confidence in and likeability of the [EHRUT] overall, the testing team administered the System Usability Scale (SUS) post-test questionnaire. Questions included, "I think I would like to use this system frequently," "I thought the system was easy to use," and "I would imagine that most people would learn to use this system very quickly." See full System Usability Score questionnaire in Appendix 5.13

Results :

Rating Scale	Ratings	Task Rating - Standard Deviation	Task Time Mean (s)	Task Time - Standard Deviation (s)	Task Time Deviation - Mean Observed Seconds	Task Time Deviation - Mean Optimal Seconds	Task Success - Mean (%)	Task Success - Standard Deviation (%)	Task Errors - Mean (%)	Task Errors - Standard Deviation (%)	Task Path Deviation - Observed (# of Steps)	Task Pa Deviatio - Optim (# of Steps)

§ 170.315(a)(14) Add Implantable Device												
Likert	5	0	88	28	23	43	100	0	0	0	12	
Likert	5	0	88	28	23	43	100	0	0	0	12	
Likert	5	0	88	28	23	43	100	0	0	0	13	
Likert	5	0	88	28	23	43	100	0	0	0	12	
Likert	5	0	88	28	23	43	100	0	0	0	12	
Likert	5	0	88	28	23	43	100	0	0	0	12	
Likert	5	0	88	28	23	43	100	0	0	0	12	
Likert	5	0	88	28	23	43	100	0	0	0	12	
Likert	5	0	88	28	23	43	100	0	0	0	12	
Likert	5	0	88	28	23	43	100	0	0	0	12	
§ 170.315(a)(2) Add Lab Test for Past visit												
Likert	5	0	27	9	7	7	100	0	0	0	5	
Likert	5	0	27	9	7	7	100	0	0	0	5	
Likert	5	0	27	9	7	7	100	0	0	0	5	
Likert	5	0	27	9	7	7	100	0	0	0	5	
Likert	5	0	27	9	7	7	100	0	0	0	5	
Likert	5	0	27	9	7	7	100	0	0	0	5	
Likert	5	0	27	9	7	7	100	0	0	0	5	
Likert	5	0	27	9	7	7	100	0	0	0	5	
Likert	5	0	27	9	7	7	100	0	0	0	5	
§ 170.315(a)(2) Add Lab Test for today's visit												
Likert	5	0	25	12	8	9	100	0	0	0	6	
Likert	5	0	25	12	8	9	100	0	0	0	6	
Likert	5	0	25	12	8	9	100	0	0	0	6	
Likert	5	0	25	12	8	9	100	0	0	0	6	
Likert	5	0	25	12	8	9	100	0	0	0	6	
Likert	5	0	25	12	8	9	100	0	0	0	6	
Likert	5	0	25	12	8	9	100	0	0	0	6	
Likert	5	0	25	12	8	9	100	0	0	0	6	
Likert	5	0	25	12	8	9	100	0	0	0	6	
§ 170.315(b)(3) Add Medication												
Likert	5	0	32	4	3	3	100	0	0	0	4	
Likert	5	0	32	4	3	3	100	0	0	0	4	
Likert	5	0	32	4	3	3	100	0	0	0	4	
Likert	5	0	32	4	3	3	100	0	0	0	4	
Likert	5	0	32	4	3	3	100	0	0	0	4	
Likert	5	0	32	4	3	3	100	0	0	0	4	
Likert	5	0	32	4	3	3	100	0	0	0	4	

Likert	5	0	32	4	3	3	100	0	0	0	4	
Likert	5	0	32	4	3	3	100	0	0	0	4	
Likert	5	0	32	4	3	3	100	0	0	0	4	
§ 170.315(a)(8) Add Medication Allergy for Past visit												
Likert	5	0	27	5	4	4	100	0	0	0	3	
Likert	5	0	27	5	4	4	100	0	0	0	3	
Likert	5	0	27	5	4	4	100	0	0	0	3	
Likert	5	0	27	5	4	4	100	0	0	0	3	
Likert	5	0	27	5	4	4	100	0	0	0	3	
Likert	5	0	27	5	4	4	100	0	0	0	3	
Likert	5	0	27	5	4	4	100	0	0	0	3	
Likert	5	0	27	5	4	4	100	0	0	0	3	
Likert	5	0	27	5	4	4	100	0	0	0	3	
Likert	5	0	27	5	4	4	100	0	0	0	3	
§ 170.315(a)(8) Add Medication Allergy for Today's visit												
Likert	5	0	29	10	9	9	100	0	0	0	3	
Likert	5	0	29	10	9	9	100	0	0	0	3	
Likert	5	0	29	10	9	9	100	0	0	0	3	
Likert	5	0	29	10	9	9	100	0	0	0	3	
Likert	5	0	29	10	9	9	100	0	0	0	3	
Likert	5	0	29	10	9	9	100	0	0	0	3	
Likert	5	0	29	10	9	9	100	0	0	0	3	
Likert	5	0	29	10	9	9	100	0	0	0	3	
Likert	5	0	29	10	9	9	100	0	0	0	3	
Likert	5	0	29	10	9	9	100	0	0	0	3	
§ 170.315 (a)(7) Add Medication for Past visit												
Likert	5	0	46	10	7	7	100	0	0	0	3	
Likert	5	0	46	10	7	7	100	0	0	0	3	
Likert	5	0	46	10	7	7	100	0	0	0	3	
Likert	5	0	46	10	7	7	100	0	0	0	3	
Likert	5	0	46	10	7	7	100	0	0	0	3	
Likert	5	0	46	10	7	7	100	0	0	0	3	
Likert	5	0	46	10	7	7	100	0	0	0	3	
Likert	5	0	46	10	7	7	100	0	0	0	3	
Likert	5	0	46	10	7	7	100	0	0	0	3	
Likert	5	0	46	10	7	7	100	0	0	0	4	
§ 170.315 (a)(7) Add Medication for Today's visit												
Likert	5	0	40	9	6	7	100	0	0	0	3	
Likert	5	0	40	9	6	7	100	0	0	0	3	
Likert	5	0	40	9	6	7	100	0	0	0	3	
Likert	5	0	40	9	6	7	100	0	0	0	3	

Likert	5	0	40	9	6	7	100	0	0	0	3	
Likert	5	0	40	9	6	7	100	0	0	0	3	
Likert	5	0	40	9	6	7	100	0	0	0	3	
Likert	5	0	40	9	6	7	100	0	0	0	3	
Likert	5	0	40	9	6	7	100	0	0	0	3	
Likert	5	0	40	9	6	7	100	0	0	0	3	
§ 170.315(a)(6) Add New Problem												
Likert	5	0.32	34	7	6	5	100	0	0	0	6	
Likert	5	0.32	34	7	6	5	100	0	0	0	6	
Likert	5	0.32	34	7	6	5	100	0	0	0	6	
Likert	5	0.32	34	7	6	5	100	0	0	0	6	
Likert	5	0.32	34	7	6	5	100	0	0	0	6	
Likert	5	0.32	34	7	6	5	100	0	0	0	6	
Likert	5	0.32	34	7	6	5	100	0	0	0	6	
Likert	5	0.32	34	7	6	5	100	0	0	0	6	
Likert	5	0.32	34	7	6	5	100	0	0	0	6	
Likert	4	0.32	34	7	6	5	100	0	0	0	7	
§ 170.315(a)(5) Add Patient Demographic												
Likert	5	0.42	59	30	26	26	100	0	0	0	10	
Likert	5	0.42	59	30	26	26	100	0	0	0	10	
Likert	5	0.42	59	30	26	26	100	0	0	0	10	
Likert	4	0.42	59	30	26	26	100	0	0	0	10	
Likert	4	0.42	59	30	26	26	100	0	0	0	10	
Likert	5	0.42	59	30	26	26	100	0	0	0	10	
Likert	5	0.42	59	30	26	26	100	0	0	0	10	
Likert	5	0.42	59	30	26	26	100	0	0	0	10	
Likert	5	0.42	59	30	26	26	100	0	0	0	10	
Likert	5	0.42	59	30	26	26	100	0	0	0	10	
§ 170.315(a)(1) Add Pre-Existing Medication for Past Visit												
Likert	5	0.42	47	15	9	9	100	0	0	0	5	
Likert	5	0.42	47	15	9	9	100	0	0	0	5	
Likert	5	0.42	47	15	9	9	100	0	0	0	5	
Likert	4	0.42	47	15	9	9	100	0	0	0	5	
Likert	4	0.42	47	15	9	9	100	0	0	0	6	
Likert	5	0.42	47	15	9	9	100	0	0	0	5	
Likert	5	0.42	47	15	9	9	100	0	0	0	5	
Likert	5	0.42	47	15	9	9	100	0	0	0	5	
Likert	5	0.42	47	15	9	9	100	0	0	0	5	
Likert	5	0.42	47	15	9	9	100	0	0	0	5	
§ 170.315(a)(3) Add Radiology Test for Past visit												
Likert	5	0	31	9	7	7	100	0	0	0	5	

Likert	5	0	31	9	7	7	100	0	0	0	5	
Likert	5	0	31	9	7	7	100	0	0	0	5	
Likert	5	0	31	9	7	7	100	0	0	0	5	
Likert	5	0	31	9	7	7	100	0	0	0	5	
Likert	5	0	31	9	7	7	100	0	0	0	5	
Likert	5	0	31	9	7	7	100	0	0	0	5	
Likert	5	0	31	9	7	7	100	0	0	0	5	
Likert	5	0	31	9	7	7	100	0	0	0	5	
Likert	5	0	31	9	7	7	100	0	0	0	5	
§ 170.315(a)(3) Add Radiology Test for today's visit												
Likert	5	0	19	6	5	5	100	0	0	0	6	
Likert	5	0	19	6	5	5	100	0	0	0	6	
Likert	5	0	19	6	5	5	100	0	0	0	6	
Likert	5	0	19	6	5	5	100	0	0	0	6	
Likert	5	0	19	6	5	5	100	0	0	0	6	
Likert	5	0	19	6	5	5	100	0	0	0	6	
Likert	5	0	19	6	5	5	100	0	0	0	6	
Likert	5	0	19	6	5	5	100	0	0	0	6	
Likert	5	0	19	6	5	5	100	0	0	0	6	
§ 170.315(a)(4) Adjust interaction level (Doctor)												
Likert	3	1.18	26	11	8	8	100	0	0	0	3	
Likert	3	1.18	26	11	8	8	100	0	0	0	3	
Likert	5	1.18	26	11	8	8	100	0	0	0	3	
Likert	5	1.18	26	11	8	8	100	0	0	0	3	
Likert	2	1.18	26	11	8	8	100	0	0	0	4	
Likert	2	1.18	26	11	8	8	100	0	0	0	3	
Likert	4	1.18	26	11	8	8	100	0	0	0	4	
Likert	3	1.18	26	11	8	8	100	0	0	0	3	
Likert	3	1.18	26	11	8	8	100	0	0	0	3	
Likert	5	1.18	26	11	8	8	100	0	0	0	3	
§ 170.315(a)(9) CDS- based on Patient Demographics												
Likert	5	0	24	13	9	9	100	0	0	0	3	
Likert	5	0	24	13	9	9	100	0	0	0	3	
Likert	5	0	24	13	9	9	100	0	0	0	3	
Likert	5	0	24	13	9	9	100	0	0	0	3	
Likert	5	0	24	13	9	9	100	0	0	0	3	
Likert	5	0	24	13	9	9	100	0	0	0	3	
Likert	5	0	24	13	9	9	100	0	0	0	3	
Likert	5	0	24	13	9	9	100	0	0	0	3	
Likert	5	0	24	13	9	9	100	0	0	0	3	

Likert	5	0	24	13	9	9	100	0	0	0	3	
§ 170.315(a)(9) CDS- based on Vital												
Likert	5	0	40	9	6	8	100	0	0	0	3	
Likert	5	0	40	9	6	8	100	0	0	0	3	
Likert	5	0	40	9	6	8	100	0	0	0	3	
Likert	5	0	40	9	6	8	100	0	0	0	3	
Likert	5	0	40	9	6	8	100	0	0	0	3	
Likert	5	0	40	9	6	8	100	0	0	0	3	
Likert	5	0	40	9	6	8	100	0	0	0	3	
Likert	5	0	40	9	6	8	100	0	0	0	3	
Likert	5	0	40	9	6	8	100	0	0	0	3	
Likert	5	0	40	9	6	8	100	0	0	0	3	
§ 170.315(a)(10) Check Formulary												
Likert	5	0	31	14	13	13	100	0	0	0	3	
Likert	5	0	31	14	13	13	100	0	0	0	3	
Likert	5	0	31	14	13	13	100	0	0	0	3	
Likert	5	0	31	14	13	13	100	0	0	0	3	
Likert	5	0	31	14	13	13	100	0	0	0	3	
Likert	5	0	31	14	13	13	100	0	0	0	4	
Likert	5	0	31	14	13	13	100	0	0	0	3	
Likert	5	0	31	14	13	13	100	0	0	0	3	
Likert	5	0	31	14	13	13	100	0	0	0	3	
Likert	5	0	31	14	13	13	100	0	0	0	3	
§ 170.315(a)(10) Check Formulary- Alert message												
Likert	5	0	34	11	8	13	100	0	0	0	5	
Likert	5	0	34	11	8	13	100	0	0	0	5	
Likert	5	0	34	11	8	13	100	0	0	0	5	
Likert	5	0	34	11	8	13	100	0	0	0	5	
Likert	5	0	34	11	8	13	100	0	0	0	5	
Likert	5	0	34	11	8	13	100	0	0	0	5	
Likert	5	0	34	11	8	13	100	0	0	0	5	
Likert	5	0	34	11	8	13	100	0	0	0	5	
Likert	5	0	34	11	8	13	100	0	0	0	5	
Likert	5	0	34	11	8	13	100	0	0	0	5	
§ 170.315(b)(3) Copy Prescription												
Likert	5	0.32	26	11	9	9	100	0	0	0	8	
Likert	5	0.32	26	11	9	9	100	0	0	0	8	
Likert	5	0.32	26	11	9	9	100	0	0	0	8	
Likert	5	0.32	26	11	9	9	100	0	0	0	8	
Likert	5	0.32	26	11	9	9	100	0	0	0	8	
Likert	5	0.32	26	11	9	9	100	0	0	0	8	

Likert	4	0.32	26	11	9	9	100	0	0	0	8	
Likert	5	0.32	26	11	9	9	100	0	0	0	8	
Likert	5	0.32	26	11	9	9	100	0	0	0	8	
Likert	5	0.32	26	11	9	9	100	0	0	0	8	
§ 170.315(a)(1) Create Medication for Today's visit												
Likert	5	0.42	50	19	13	14	100	0	0	0	5	
Likert	5	0.42	50	19	13	14	100	0	0	0	5	
Likert	5	0.42	50	19	13	14	100	0	0	0	5	
Likert	5	0.42	50	19	13	14	100	0	0	0	5	
Likert	5	0.42	50	19	13	14	100	0	0	0	5	
Likert	4	0.42	50	19	13	14	100	0	0	0	5	
Likert	4	0.42	50	19	13	14	100	0	0	0	5	
Likert	5	0.42	50	19	13	14	100	0	0	0	5	
Likert	5	0.42	50	19	13	14	100	0	0	0	5	
Likert	5	0.42	50	19	13	14	100	0	0	0	5	
§ 170.315(a)(5) Edit and View Patient Demographics												
Likert	5	0.42	37	11	10	10	100	0	0	0	7	
Likert	5	0.42	37	11	10	10	100	0	0	0	7	
Likert	5	0.42	37	11	10	10	100	0	0	0	6	
Likert	4	0.42	37	11	10	10	100	0	0	0	6	
Likert	5	0.42	37	11	10	10	100	0	0	0	6	
Likert	5	0.42	37	11	10	10	100	0	0	0	6	
Likert	4	0.42	37	11	10	10	100	0	0	0	6	
Likert	5	0.42	37	11	10	10	100	0	0	0	7	
Likert	5	0.42	37	11	10	10	100	0	0	0	7	
Likert	5	0.42	37	11	10	10	100	0	0	0	6	
§ 170.315(a)(6) Edit and view Problem												
Likert	5	0	26	10	8	8	100	0	0	0	5	
Likert	5	0	26	10	8	8	100	0	0	0	5	
Likert	5	0	26	10	8	8	100	0	0	0	5	
Likert	5	0	26	10	8	8	100	0	0	0	5	
Likert	5	0	26	10	8	8	100	0	0	0	5	
Likert	5	0	26	10	8	8	100	0	0	0	5	
Likert	5	0	26	10	8	8	100	0	0	0	5	
Likert	5	0	26	10	8	8	100	0	0	0	5	
Likert	5	0	26	10	8	8	100	0	0	0	5	
§ 170.315(a)(14) Edit Implantable Device												
Likert	5	0.32	37	12	9	8	100	0	0	0	9	
Likert	5	0.32	37	12	9	8	100	0	0	0	9	
Likert	5	0.32	37	12	9	8	100	0	0	0	9	

Likert	4	0.32	37	12	9	8	100	0	0	0	10	
Likert	5	0.32	37	12	9	8	100	0	0	0	9	
Likert	5	0.32	37	12	9	8	100	0	0	0	9	
Likert	5	0.32	37	12	9	8	100	0	0	0	9	
Likert	5	0.32	37	12	9	8	100	0	0	0	9	
Likert	5	0.32	37	12	9	8	100	0	0	0	9	
Likert	5	0.32	37	12	9	8	100	0	0	0	9	
§ 170.315(a)(2) Edit Lab Orders												
Likert	5	0.32	41	10	6	7	100	0	0	0	6	
Likert	5	0.32	41	10	6	7	100	0	0	0	6	
Likert	5	0.32	41	10	6	7	100	0	0	0	6	
Likert	5	0.32	41	10	6	7	100	0	0	0	6	
Likert	5	0.32	41	10	6	7	100	0	0	0	6	
Likert	4	0.32	41	10	6	7	100	0	0	0	6	
Likert	5	0.32	41	10	6	7	100	0	0	0	6	
Likert	5	0.32	41	10	6	7	100	0	0	0	6	
Likert	5	0.32	41	10	6	7	100	0	0	0	6	
Likert	5	0.32	41	10	6	7	100	0	0	0	6	
§ 170.315 (a)(7) Edit Medication												
Likert	5	0	45	19	14	14	100	0	0	0	3	
Likert	5	0	45	19	14	14	100	0	0	0	3	
Likert	5	0	45	19	14	14	100	0	0	0	3	
Likert	5	0	45	19	14	14	100	0	0	0	3	
Likert	5	0	45	19	14	14	100	0	0	0	3	
Likert	5	0	45	19	14	14	100	0	0	0	3	
Likert	5	0	45	19	14	14	100	0	0	0	3	
Likert	5	0	45	19	14	14	100	0	0	0	3	
Likert	5	0	45	19	14	14	100	0	0	0	3	
Likert	5	0	45	19	14	14	100	0	0	0	3	
§ 170.315(a)(1) Edit Medication (Pre-Existing)												
Likert	5	0.32	28	8	7	6	100	0	0	0	4	
Likert	5	0.32	28	8	7	6	100	0	0	0	4	
Likert	5	0.32	28	8	7	6	100	0	0	0	4	
Likert	5	0.32	28	8	7	6	100	0	0	0	4	
Likert	5	0.32	28	8	7	6	100	0	0	0	4	
Likert	5	0.32	28	8	7	6	100	0	0	0	4	
Likert	4	0.32	28	8	7	6	100	0	0	0	5	
Likert	5	0.32	28	8	7	6	100	0	0	0	4	
Likert	5	0.32	28	8	7	6	100	0	0	0	4	
Likert	5	0.32	28	8	7	6	100	0	0	0	5	
§ 170.315(a)(8) Edit Medication Allergy												

Likert	5	0	20	9	7	7	100	0	0	0	4	
Likert	5	0	20	9	7	7	100	0	0	0	4	
Likert	5	0	20	9	7	7	100	0	0	0	4	
Likert	5	0	20	9	7	7	100	0	0	0	4	
Likert	5	0	20	9	7	7	100	0	0	0	4	
Likert	5	0	20	9	7	7	100	0	0	0	4	
Likert	5	0	20	9	7	7	100	0	0	0	4	
Likert	5	0	20	9	7	7	100	0	0	0	4	
Likert	5	0	20	9	7	7	100	0	0	0	4	
Likert	5	0	20	9	7	7	100	0	0	0	4	
§ 170.315(a)(3) Edit Radiology Orders												
Likert	5	0	49	13	9	10	100	0	0	0	5	
Likert	5	0	49	13	9	10	100	0	0	0	5	
Likert	5	0	49	13	9	10	100	0	0	0	5	
Likert	5	0	49	13	9	10	100	0	0	0	5	
Likert	5	0	49	13	9	10	100	0	0	0	6	
Likert	5	0	49	13	9	10	100	0	0	0	5	
Likert	5	0	49	13	9	10	100	0	0	0	5	
Likert	5	0	49	13	9	10	100	0	0	0	5	
Likert	5	0	49	13	9	10	100	0	0	0	5	
§ 170.315(a)(4) Indicate Drug-allergy Interactions on Current Medication												
Likert	5	0.42	64	13	10	13	100	0	0	0	6	
Likert	5	0.42	64	13	10	13	100	0	0	0	6	
Likert	5	0.42	64	13	10	13	100	0	0	0	6	
Likert	5	0.42	64	13	10	13	100	0	0	0	6	
Likert	5	0.42	64	13	10	13	100	0	0	0	6	
Likert	4	0.42	64	13	10	13	100	0	0	0	6	
Likert	5	0.42	64	13	10	13	100	0	0	0	6	
Likert	5	0.42	64	13	10	13	100	0	0	0	6	
Likert	5	0.42	64	13	10	13	100	0	0	0	6	
Likert	4	0.42	64	13	10	13	100	0	0	0	6	
§ 170.315(a)(4) Indicate Drug-allergy Interactions on Current Medication – Alert set to Major Alerts only												
Likert	5	0.32	66	15	11	14	100	0	0	0	6	
Likert	5	0.32	66	15	11	14	100	0	0	0	6	
Likert	5	0.32	66	15	11	14	100	0	0	0	6	
Likert	5	0.32	66	15	11	14	100	0	0	0	6	
Likert	5	0.32	66	15	11	14	100	0	0	0	6	
Likert	5	0.32	66	15	11	14	100	0	0	0	6	
Likert	5	0.32	66	15	11	14	100	0	0	0	6	
Likert	5	0.32	66	15	11	14	100	0	0	0	6	

Likert	5	0.32	66	15	11	14	100	0	0	0	6	
Likert	4	0.32	66	15	11	14	100	0	0	0	7	
§ 170.315(a)(4) Indicate Drug-allergy Interactions on Prescription												
Likert	5	0.63	48	19	15	14	100	0	0	0	6	
Likert	5	0.63	48	19	15	14	100	0	0	0	6	
Likert	5	0.63	48	19	15	14	100	0	0	0	7	
Likert	5	0.63	48	19	15	14	100	0	0	0		
Likert	5	0.63	48	19	15	14	100	0	0	0	7	
Likert	5	0.63	48	19	15	14	100	0	0	0		
Likert	3	0.63	48	19	15	14	100	0	0	0	7	
Likert	5	0.63	48	19	15	14	100	0	0	0	6	
Likert	5	0.63	48	19	15	14	100	0	0	0	6	
Likert	5	0.63	48	19	15	14	100	0	0	0	6	
§ 170.315(a)(4) Indicate Drug-drug Interactions on Current Medication												
Likert	5	0.32	47	22	16	16	100	0	0	0	6	
Likert	5	0.32	47	22	16	16	100	0	0	0	6	
Likert	5	0.32	47	22	16	16	100	0	0	0	6	
Likert	5	0.32	47	22	16	16	100	0	0	0	6	
Likert	4	0.32	47	22	16	16	100	0	0	0	6	
Likert	5	0.32	47	22	16	16	100	0	0	0	6	
Likert	5	0.32	47	22	16	16	100	0	0	0	6	
Likert	5	0.32	47	22	16	16	100	0	0	0	6	
Likert	5	0.32	47	22	16	16	100	0	0	0	6	
Likert	5	0.32	47	22	16	16	100	0	0	0	6	
§ 170.315(a)(4) Indicate Drug-drug Interactions on Prescription												
Likert	5	0	47	14	10	10	100	0	0	0	6	
Likert	5	0	47	14	10	10	100	0	0	0	6	
Likert	5	0	47	14	10	10	100	0	0	0	7	
Likert	5	0	47	14	10	10	100	0	0	0	6	
Likert	5	0	47	14	10	10	100	0	0	0	6	
Likert	5	0	47	14	10	10	100	0	0	0	6	
Likert	5	0	47	14	10	10	100	0	0	0	6	
Likert	5	0	47	14	10	10	100	0	0	0	6	
Likert	5	0	47	14	10	10	100	0	0	0	6	
§ 170.315(a)(8) Mark inactive Medication Allergy												
Likert	5	0	16	6	5	5	100	0	0	0	4	
Likert	5	0	16	6	5	5	100	0	0	0	4	
Likert	5	0	16	6	5	5	100	0	0	0	4	
Likert	5	0	16	6	5	5	100	0	0	0	4	
Likert	5	0	16	6	5	5	100	0	0	0	4	

Likert	5	0	16	6	5	5	100	0	0	0	4	
Likert	5	0	16	6	5	5	100	0	0	0	4	
Likert	5	0	16	6	5	5	100	0	0	0	4	
Likert	5	0	16	6	5	5	100	0	0	0	4	
Likert	5	0	16	6	5	5	100	0	0	0	4	
§ 170.315(a)(4) Override Interaction												
Likert	5	0.48	42	18	12	11	90	4.35	10	0.09	6	
Likert	5	0.48	42	18	12	11	90	4.35	10	0.09	6	
Likert	4	0.48	42	18	12	11	90	4.35	10	0.09	8	
Likert	4	0.48	42	18	12	11	90	4.35	10	0.09	7	
Likert	5	0.48	42	18	12	11	90	4.35	10	0.09	6	
Likert	4	0.48	42	18	12	11	90	4.35	10	0.09	6	
Likert	5	0.48	42	18	12	11	90	4.35	10	0.09	6	
Likert	5	0.48	42	18	12	11	90	4.35	10	0.09	6	
Likert	5	0.48	42	18	12	11	90	4.35	10	0.09	6	
Likert	5	0.48	42	18	12	11	90	4.35	10	0.09	6	
§ 170.315(b)(2) Review and Reconcile Allergen												
Likert	5	0.63	28	14	11	13	100	0	0	0	6	
Likert	5	0.63	28	14	11	13	100	0	0	0	6	
Likert	5	0.63	28	14	11	13	100	0	0	0	6	
Likert	5	0.63	28	14	11	13	100	0	0	0	6	
Likert	5	0.63	28	14	11	13	100	0	0	0	6	
Likert	5	0.63	28	14	11	13	100	0	0	0	6	
Likert	3	0.63	28	14	11	13	100	0	0	0	6	
Likert	5	0.63	28	14	11	13	100	0	0	0	6	
Likert	5	0.63	28	14	11	13	100	0	0	0	6	
Likert	5	0.63	28	14	11	13	100	0	0	0	6	
§ 170.315(b)(2) Review and Reconcile Medication and Confirm Medication												
Likert	5	0.63	45	18	14	15	100	0	0	0	7	
Likert	5	0.63	45	18	14	15	100	0	0	0	7	
Likert	5	0.63	45	18	14	15	100	0	0	0	7	
Likert	5	0.63	45	18	14	15	100	0	0	0	7	
Likert	5	0.63	45	18	14	15	100	0	0	0	7	
Likert	5	0.63	45	18	14	15	100	0	0	0	8	
Likert	3	0.63	45	18	14	15	100	0	0	0	7	
Likert	5	0.63	45	18	14	15	100	0	0	0	7	
Likert	5	0.63	45	18	14	15	100	0	0	0	7	
Likert	5	0.63	45	18	14	15	100	0	0	0	7	
§ 170.315(b)(2) Review and Reconcile Problem												
Likert	5	0.67	30	13	9	10	100	0	0	0	6	
Likert	5	0.67	30	13	9	10	100	0	0	0	6	

Likert	5	0.67	30	13	9	10	100	0	0	0	6	
Likert	5	0.67	30	13	9	10	100	0	0	0	6	
Likert	5	0.67	30	13	9	10	100	0	0	0	6	
Likert	4	0.67	30	13	9	10	100	0	0	0	6	
Likert	3	0.67	30	13	9	10	100	0	0	0	6	
Likert	5	0.67	30	13	9	10	100	0	0	0	6	
Likert	5	0.67	30	13	9	10	100	0	0	0	6	
Likert	5	0.67	30	13	9	10	100	0	0	0	6	
§ 170.315(b)(3) Signoff and Send Medication												
Likert	5	0	27	8	7	7	100	0	0	0	8	
Likert	5	0	27	8	7	7	100	0	0	0	8	
Likert	5	0	27	8	7	7	100	0	0	0	8	
Likert	5	0	27	8	7	7	100	0	0	0	8	
Likert	5	0	27	8	7	7	100	0	0	0	8	
Likert	5	0	27	8	7	7	100	0	0	0	8	
Likert	5	0	27	8	7	7	100	0	0	0	8	
Likert	5	0	27	8	7	7	100	0	0	0	8	
Likert	5	0	27	8	7	7	100	0	0	0	8	
Likert	5	0	27	8	7	7	100	0	0	0	8	
§ 170.315 (a)(7) Stop Medication												
Likert	5	0	21	5	4	4	100	0	0	0	4	
Likert	5	0	21	5	4	4	100	0	0	0	4	
Likert	5	0	21	5	4	4	100	0	0	0	4	
Likert	5	0	21	5	4	4	100	0	0	0	4	
Likert	5	0	21	5	4	4	100	0	0	0	4	
Likert	5	0	21	5	4	4	100	0	0	0	4	
Likert	5	0	21	5	4	4	100	0	0	0	4	
Likert	5	0	21	5	4	4	100	0	0	0	4	
Likert	5	0	21	5	4	4	100	0	0	0	4	
Likert	5	0	21	5	4	4	100	0	0	0	4	
§ 170.315(a)(1) Stop Medication (Pre-existing)												
Likert	5	0	25	6	4	5	100	0	0	0	5	
Likert	5	0	25	6	4	5	100	0	0	0	5	
Likert	5	0	25	6	4	5	100	0	0	0	5	
Likert	5	0	25	6	4	5	100	0	0	0	5	
Likert	5	0	25	6	4	5	100	0	0	0	5	
Likert	5	0	25	6	4	5	100	0	0	0	5	
Likert	5	0	25	6	4	5	100	0	0	0	5	
Likert	5	0	25	6	4	5	100	0	0	0	5	
Likert	5	0	25	6	4	5	100	0	0	0	5	

§ 170.315(a)(14) View Implantable Device												
Likert	5	0.32	11	6	4	5	100	0	0	0	4	
Likert	5	0.32	11	6	4	5	100	0	0	0	4	
Likert	5	0.32	11	6	4	5	100	0	0	0	4	
Likert	4	0.32	11	6	4	5	100	0	0	0	5	
Likert	5	0.32	11	6	4	5	100	0	0	0	4	
Likert	5	0.32	11	6	4	5	100	0	0	0	4	
Likert	5	0.32	11	6	4	5	100	0	0	0	4	
Likert	5	0.32	11	6	4	5	100	0	0	0	4	
Likert	5	0.32	11	6	4	5	100	0	0	0	4	
§ 170.315(a)(2) View Lab Orders												
Likert	5	0.84	30	9	6	7	100	0	0	0	4	
Likert	5	0.84	30	9	6	7	100	0	0	0	4	
Likert	5	0.84	30	9	6	7	100	0	0	0	4	
Likert	5	0.84	30	9	6	7	100	0	0	0	4	
Likert	3	0.84	30	9	6	7	100	0	0	0	5	
Likert	5	0.84	30	9	6	7	100	0	0	0	4	
Likert	5	0.84	30	9	6	7	100	0	0	0	4	
Likert	5	0.84	30	9	6	7	100	0	0	0	4	
Likert	5	0.84	30	9	6	7	100	0	0	0	4	
Likert	3	0.84	30	9	6	7	100	0	0	0	4	
§ 170.315 (a)(7) View Medication												
Likert	5	0	9	8	5	4	100	0	0	0	3	
Likert	5	0	9	8	5	4	100	0	0	0	3	
Likert	5	0	9	8	5	4	100	0	0	0	3	
Likert	5	0	9	8	5	4	100	0	0	0	3	
Likert	5	0	9	8	5	4	100	0	0	0	3	
Likert	5	0	9	8	5	4	100	0	0	0	3	
Likert	5	0	9	8	5	4	100	0	0	0	3	
Likert	5	0	9	8	5	4	100	0	0	0	3	
Likert	5	0	9	8	5	4	100	0	0	0	3	
§ 170.315(a)(1) View Medication (Pre existing)												
Likert	5	0	12	3	3	3	100	0	0	0	3	
Likert	5	0	12	3	3	3	100	0	0	0	3	
Likert	5	0	12	3	3	3	100	0	0	0	3	
Likert	5	0	12	3	3	3	100	0	0	0	3	
Likert	5	0	12	3	3	3	100	0	0	0	4	
Likert	5	0	12	3	3	3	100	0	0	0	3	
Likert	5	0	12	3	3	3	100	0	0	0	4	

Likert	5	0	12	3	3	3	100	0	0	0	3	
Likert	5	0	12	3	3	3	100	0	0	0	3	
Likert	5	0	12	3	3	3	100	0	0	0	3	
§ 170.315(a)(8) View Medication Allergy												
Likert	5	0	9	4	3	4	100	0	0	0	3	
Likert	5	0	9	4	3	4	100	0	0	0	3	
Likert	5	0	9	4	3	4	100	0	0	0	3	
Likert	5	0	9	4	3	4	100	0	0	0	3	
Likert	5	0	9	4	3	4	100	0	0	0	3	
Likert	5	0	9	4	3	4	100	0	0	0	3	
Likert	5	0	9	4	3	4	100	0	0	0	3	
Likert	5	0	9	4	3	4	100	0	0	0	3	
Likert	5	0	9	4	3	4	100	0	0	0	3	
§ 170.315(a)(5) View Patient Demographics												
Likert	5	0	17	7	6	6	100	0	0	0	3	
Likert	5	0	17	7	6	6	100	0	0	0	3	
Likert	5	0	17	7	6	6	100	0	0	0	3	
Likert	5	0	17	7	6	6	100	0	0	0	3	
Likert	5	0	17	7	6	6	100	0	0	0	3	
Likert	5	0	17	7	6	6	100	0	0	0	3	
Likert	5	0	17	7	6	6	100	0	0	0	3	
Likert	5	0	17	7	6	6	100	0	0	0	3	
Likert	5	0	17	7	6	6	100	0	0	0	3	
Likert	5	0	17	7	6	6	100	0	0	0	3	
§ 170.315(a)(6) View Problem												
Likert	5	0	12	6	5	5	100	0	0	0	3	
Likert	5	0	12	6	5	5	100	0	0	0	3	
Likert	5	0	12	6	5	5	100	0	0	0	3	
Likert	5	0	12	6	5	5	100	0	0	0	3	
Likert	5	0	12	6	5	5	100	0	0	0	3	
Likert	5	0	12	6	5	5	100	0	0	0	3	
Likert	5	0	12	6	5	5	100	0	0	0	3	
Likert	5	0	12	6	5	5	100	0	0	0	3	
Likert	5	0	12	6	5	5	100	0	0	0	3	
Likert	5	0	12	6	5	5	100	0	0	0	3	
§ 170.315(a)(3) View Radiology Orders												
Likert	5	0	16	4	3	3	100	0	0	0	4	
Likert	5	0	16	4	3	3	100	0	0	0	4	
Likert	5	0	16	4	3	3	100	0	0	0	4	
Likert	5	0	16	4	3	3	100	0	0	0	4	

Likert	5	0	16	4	3	3	100	0	0	0	4
Likert	5	0	16	4	3	3	100	0	0	0	4
Likert	5	0	16	4	3	3	100	0	0	0	4
Likert	5	0	16	4	3	3	100	0	0	0	4
Likert	5	0	16	4	3	3	100	0	0	0	4
Likert	5	0	16	4	3	3	100	0	0	0	4

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 the EHRUT are detailed below. The results should be seen in light of the objectives and goals outlined in the **Study Design** section. The data should yield actionable results that, if corrected, yield material, positive impact on user performance.

The results from the SUS (System Usability Scale) scored the subjective satisfaction with the system based on performance with these tasks to be: 80.5

Discussion of the Findings

Based on the participants and testing scenarios, reporting is broken down in to 5 major headings listed below.

Effectiveness

Based on the success, failure and path deviation data, for the most part, participants were able to successfully complete each task, but there were some variations in workflow which accounted for mostly minor (but some major) path deviations.

Efficiency

Based on the observations of the task time and deviation data, efficiency of the system was accounted for by the results that most users were able to successfully complete the tasks within the allotted time without deviation and other were able to complete them with minor deviations.

Satisfaction

Based on the task ratings and SUS results data, OmniMD Version 17 has been accepted by the participants as a usable system with a SUS Score of 80.5

Major Findings

Participants expressed their happiness with the system, functions and the user interface. Other overall impressions of the system include:

- “Very user friendly, not a lot of clicks and dropdowns; compared to other systems, it’s easy.”

    - "Good alerts and prompts."
    - "Interface is pretty good."
    - Would recommend to colleagues: "Oh yeah!"
- "Very easy; most of the time it's common sense once you know the system."
    - "CDA Reconciliation is very good; will prevent a lot of overlap and money for healthcare."
    - Would recommend to colleagues: "Yes, simple to use actually."
- "Excellent system!"
    - "Like all aspects of the system."
    - Would recommend to colleagues: "Sure!"
- "Clinical reconciliation is a good feature."
    - "Labs look good in patient chart."
    - Would recommend to colleagues: "Yes."
- "Easy to use."
    - "Like the clinical charting portion."
    - Would recommend to colleagues: "Yes."
- "System is good!"
    - "Patient dashboard is a nice feature."
    - Would recommend to colleagues: "Yes."
- "Similar to other version but much easier to use."
    - "Liked the clinical reconciliation section."
    - Would recommend to colleagues: "Yes."

Areas for Improvement

Areas for improvement include reducing the number of clicks within screens as well as reduce the amount of scrolling. The clinical reconciliation module was welcomed by providers, but less so by assistants. Editing of items that have already been captured should be made easier and links on all pages should be displayed more prominently and towards the center of the screens.

---------End of the Report ----------

PART 2 — § 170.315(b)(11) Decision Support Interventions

Report based on Common Industry Format for Usability Test Reports for 170.315(b)(11) Decision Support Intervention

Product: OmniMD

Version: OmniMD 18.0

Adopted UCD Standard Name: NISTIR 7741

Adopted UCD Standard Description:

This standard provides NIST guidance for those developing electronic health record (EHR) applications who need to know more about processes of user centered design (UCD). UCD ensures that designed EHRs are efficient, effective, and satisfying to the user. Following the guidance in this document will greatly increase the likelihood of achieving the goal of building a usable user interface and a better user experience.

Adopted UCD Standard Citation URL: https://www.nist.gov/publications/nistir-7741-nist-guide-processes-approach-improving-usability-electronic-health-records?pub_id=907313

Date of Usability Test: 11/03/2026 & 11/04/2026
Date of Report: 11/05/2026
Report Prepared By: OmniMD

1. Executive Summary

A usability test of OmniMD, version OmniMD EHR ambulatory software, was conducted between **11/03/2026 & 11/04/2026** by OmniMD The objective of the study was to evaluate the usability of the current user interface and gather evidence regarding the decision support intervention (DSI) functionality within the EHR system.

During the usability test, 10 healthcare providers matched the target demographic criteria, using OmniMD EHR to perform tasks related to decision support interventions.

This study evaluated user performance in 5 key scenarios withing the EHR:

1. Setting/editing up a new rule to trigger on DSI information.
2. Create a chart for a patient to review the rules just set up.
3. Modifying source attributes for an evidence-based DSI.
4. Providing electronic feedback on an evidence-based DSI.
5. Reviewing the electronic feedback

During the 30-minute one-on-one usability session was conducted remotely. Participants were greeted by the test administrator and asked to review and sign an informed consent/release form; they were instructed that they could withdraw at any time. Participants had prior experience with the EHR.

The administrator introduced the test and instructed participants to complete a series of tasks (given one at a time) using EHRUT. During the testing, the administrator timed the test and, along with the data logger(s) recorded user performance data on paper and electronically. The administrator did not give the participant 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

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, in 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.

Measure Task	N #	Task Success # Mean% (SD)	Path Deviation Deviations (Observed/ Optimal)	Task Time Mean (SD)	 Deviations (Observed/ Optimal)	Errors # Mean% (SD)	Task Ratings 5=Easy Mean (SD)
Decision Support Interventions (315.b.11) – Evidence-based DSI							
Setting/editing up a new rule to trigger on DSI information.	10	100% (0%)	9/8	270 (55)	126/143	0.20% (0.47%)	4.30 (0.60)
Create a chart for a patient to review the rule just set up	10	100% (0%)	10/9	55 (3)	5/50	0% (0%)	4.50 (0.47)
Modifying source attributes for an evidence-based DSI	10	100% (0%)	4/4	21 (3)	6/15	0.10% (0.31%)	4.40 (0.69)
Providing electronic feedback on an evidence-based DSI	10	100% (0%)	11/9	70 (7)	14/56	0.10% (0.31%)	4.80 (0.42)
Reviewing the electronic feedback	10	100% (0%)	10/10	69 (9)	19/50	0% (0%)	4.70 (0.48)

The results from the System Usability Scale scored subjective satisfaction with the system based on performance with these tasks to be: 86.5. In addition to the performance data, the following qualitative observations were made:

1.1 Major findings

- Every task tested and measured using summative testing methods, was completed by the participants within the allocated target task time.
- The participants were able to navigate the user interface to accomplish the listed tasks without many erroneous detours or deviations from the optimal path.
- The test results indicated that OmniMD EHR18.0 consistent design standard reduces errors and task time with novice users, expediting the learning curve across functions.

1.2 Areas for improvement

Two areas were identified during the study that require review for workflow improvements and usability considerations. One area involves enhancing the visibility of the DSI rules icon to further improve accessibility. The other involves enhancing the rule settings to direct users to the relevant screen and minimizing the need for scrolling.

2. Introduction

The EHRUT tested for this study was OmniMD, version EHR 18.0 ambulatory software. Designed to present medical information to healthcare providers in private practices, the EHRUT consists of practice management, EHR and medical billing software. The usability testing attempted to represent realistic exercises and conditions.

The aim of this study was to evaluate and validate the usability of the user interface and demonstrate adherence to user-centered design principles, supporting certification for functionality outlined in §170.315(g)(3) Safety Enhanced Design for §170.315(b)(11) Decision Support Intervention (DSI).

To this end, measures of effectiveness, efficiency and user satisfaction, such as time on task, path deviation, errors, were captured during the usability testing.

3. Method

3.1 Participants

A total of 10 participants were tested on the EHRUT(s). Participants in the test were providers and healthcare users that are involved in the day-to-day collection and entering of medical data across multiple specialties. Participants were selected by OmniMD and since each participant volunteered for test event participation, none of the participants were provided compensation for their time.

Recruited participants had a mix of backgrounds and demographic characteristics conforming to participant screener. Participants were given the opportunity to have the same orientation and level of training as the actual end users would have received.

The following is a table of participants by characteristics, including demographics, professional experience, computing experience and user needs for assistive technology. Participant names were replaced with Participant IDs so that an individual's data cannot be tied back to individual identities.

	ID	Gender	Age	Education	Occupation / Role	Professional Experience	Computer Experience	Product Experience	Assistive Technology Needs
1	P01	F	40-49	Master's degree	Physician Assistant	66	210	24	None
2	P02	M	30-39	Doctorate degree	Physician	120	204	21	None
3	P03	F	40-49	Master's degree	Nurse Practitioner r	180	240	120	None
4	P04	F	50-59	Bachelor's degree	EMR Super User	336	336	84	None
5	P05	M	40-49	Bachelor's degree	Registered Nurse	120	216	120	None
6	P06	F	50-59	Bachelor's degree	Consultant /Billing	432	456	360	None
7	P07	F	50-59	Doctorate degree	Physician	300	312	20	None
8	P08	F	40-49	Master's degree	Registered Nurse	180	192	24	None
9	P09	F	40-49	Bachelor's degree	Registered Nurse	408	240	22	None
10	P10	M	60-69	Doctorate degree	Physician	444	444	168	None

10 participants were recruited and participated in the usability test. Participants were scheduled for 30-minute sessions with 5 minutes in between each session for debrief by the administrator(s) and data logger(s), and to reset systems to proper test conditions. A spreadsheet was used to keep track of the participant schedule and included each participant's demographic.

3.2 Study Design

Overall, the objective of this test was to uncover areas where 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 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 current usability, but also to identify areas where improvements must be made.

During the usability test, all participants interacted with the same version of OmniMD EHR under consistent conditions and were given identical instructions. The system was evaluated for effectiveness, efficiency and

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
- Path deviations
- Participant's verbalizations (comments)
- Participant's satisfaction ratings of the system

Additional information about the various measures can be found in Section 3.9 on Usability Metrics.

3.3 Tasks

Five tasks were constructed that would be realistic and representative of the kinds of activities a clinical user might do with this EHR that also represented a functionality gap between what was already tested for criterion 170.315(a)(9) Clinical Decision Support and the new criterion 170.315(b)(11) Decision Support Intervention, including:

1. Setting/editing up a new rule to trigger on DSI information.
2. Create a chart for a patient to review the rules just set up.
3. Modifying source attributes for an evidence-based DSI.
4. Providing electronic feedback on an evidence-based DSI.
5. Reviewing the electronic feedback

3.4 Risk Analysis

Tasks in the Usability Tests Scenarios were selected based on requirements to satisfy the Safety-enhanced Design criterion (170.315.g.3) and good software development practices. Included in the requirements is that 'User tasks employed in the study are prioritized in accordance with the risk associated with user.' The assessment of patient safety risk resulting from the software development, and then end-user interaction with the EHR, begins during the design phase, and continues through the development phase of the EHR functionality. The Product Owner and the development scrum team assess the requirements and workflow of the desired enhancement for the potential patient safety and IT risks and actively plan in reducing these risks.

OmniMD has defined tasks to be performed in the summative usability tests based on their frequency of use, criticality of function, and those that may be most troublesome for users.
Risk analysis of the tasks is summarized in the Table below.

Criteria	Risk
Setting/editing up a new rule to trigger on DSI information.	Medium Risk
Create a chart for a patient to review the rule just setup.	Low Risk
Modifying source attributes for an evidence-based DSI	Low Risk
Providing electronic feedback on an evidence-based DSI	Medium Risk
Reviewing the electronic feedback	Medium Risk

3.5 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. A representative from the test team witnessed the participant's signature.

To ensure that the test ran smoothly, two staff members participated in this test, the usability administrator and the data logger. The usability testing staff conducting the test were experienced usability practitioners.

The administrator moderated the session including administering instructions and tasks. The administrator also monitored task times, obtained post-task rating data, and took notes on participant comments. A second person served as the data logger and took notes on task success, path deviations, number and type of errors, and comments.

Participants were instructed to perform the tasks (see specific instructions below):

- As quickly as possible making as few errors and deviations as possible.
- Without assistance; administrators were allowed to give immaterial guidance and clarification on tasks, but not instructions on use.
- Without using a think aloud technique.

For each task, the participants were given a brief introduction to the functionality being tested. They were also informed about the protection of their data (de-identification). Task timing began once the administrator finished reading the question. The task time was stopped once the participant indicated they had successfully completed the task.

Following the session, the administrator gave the participant the post-test questionnaire (e.g., the System Usability Scale, see Appendix 5), and thanked each individual for their participation.

Participants' demographic information, task success rate, time on task, errors, deviations, verbal responses, and post-test questionnaire were recorded into a spreadsheet.

Participants were thanked for their time.

3.6 Test Location

Test sessions were held remotely via Online meeting tool. The test administrator and participant logged into the session from their various locations.

3.7 Test Environment

The EHRUT would typically be used in a healthcare office or facility. In this instance, the testing was conducted on Laptop running Windows 11 operating system. The participants used mouse and keyboard when interacting with the EHRUT along with 23" FHD screen with resolution 1920x1200.

The application was set up by OmniMD according to the vendor's documentation describing the system set-up and preparation. The application itself was running in the cloud using a test database. Technically, the system performance (i.e., response time) was representative of what actual users would experience in a field

implementation.
Additionally, participants were instructed not to change any of the default system settings (such as control of font size).

3.8 Test Forms and Tools

During the usability test, various documents and instruments were used, including:
1. Participant Consent Form
2. Moderator's Guide
3. Task List
4. Acknowledgement Form
5. Post-test/System Usability Scale Questionnaire

The Moderator's Guide was devised so as to be able to capture required data.

3.9 Participant Instructions

The administrator reads the following instructions aloud to each participant:

Thank you for participating in this study. Your input is very important. Our session today will last about 30 minutes. During that time, you will use an instance of an electronic health record.
I will ask you to complete a few tasks using this system and answer some questions. You should complete the tasks as quickly as possible making as few errors as possible. Please try to complete the tasks on your own following the instructions very closely. Please note that we are not testing you we are testing the system, therefore if you have difficulty all this means is that something needs to be improved in the system. I will be here in case you need specific help, but I am not able to instruct you or provide help in how to use the application.
Overall, we are interested in how easy (or how difficult) this system is to use, what in it would be useful to you, and how we could improve it. I did not have any involvement in its creation, so please be honest with your opinions. All the information that you provide will be kept confidential and your name will not be associated with your comments at any time. Should you feel it necessary you are able to withdraw at any time during the testing.

Following the procedural instructions, participants were shown the EHR and as an initial orientation activity, were given time (10 minutes) to explore the system and make comments. Once this task was complete, the administrator gave the following instructions:
For each task, I will read the description to you and say "Begin." At that point, please perform the task and say "Done" once you believe you have successfully completed the task. I would like to request that you not talk aloud or verbalize while you are doing the tasks. I will ask you your impressions about the task once you are done.

Participants were then given 5 tasks to complete.

3.10 Usability Metrics

According to the NIST 7741 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. Effectiveness of OmniMD, EHR-18.0 by measuring participant success rates and errors
2. Efficiency of OmniMD, EHR-18.0 by measuring the average task time and path deviations
3. Satisfaction with OmniMD, EHR-18.0 by measuring ease of use ratings

4. Data Scoring

The following table details how tasks were scored, errors evaluated, and the time data analyzed

Effectiveness:	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.
Task Success	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. Optimal task performance time, as benchmarked by expert performance under realistic conditions, is recorded when constructing tasks. Target task times used for task times in the Moderator's Guide must be operationally defined by taking multiple measures of optimal performance and multiplying by a factor of 2 that allows some time buffer because the participants are presumably not trained to expert performance. Thus, if expert, optimal performance on a task was 30 seconds then allotted task time performance was 60 seconds. This ratio should be aggregated across tasks and reported with mean and variance scores.
Effectiveness:	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." No task times were taken for errors.
Task Failures	The total number of errors was calculated for each task and then divided by the total number of times that task was attempted. Not all deviations would be counted as errors.11 This should also be expressed as the mean number of failed tasks per participant.

Efficiency: 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.
	It is strongly recommended that task deviations be reported. Optimal paths (i.e., procedural steps) should be recorded when constructing tasks.

Efficiency: 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.
Satisfaction: 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. After each task, the participant was asked to rate "Overall, this task was:" on a scale of 1 (Very Difficult) to 5 (Very Easy). These data are averaged across 10 participants. Common convention is that average ratings for systems judged easy to use should be 3.3 or above. To measure participants' confidence in and likeability of the OmniMD, version EHR-18.0 overall, the testing team administered the System Usability Scale (SUS) post-test questionnaire. Questions included, "I think I would like to use this system frequently," "I thought the system was easy to use," and "I would imagine that most people would learn to use this system very quickly."

5. Results

5.1 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 the EHRUT are detailed below:

Measure	N	Task Success	Path Deviation	Task Time		Errors	Task Ratings 5=Eas
Task	#	# Mean% (SD)	Deviations (Observed/ Optimal)	Mean (SD)	Deviations (Observed/ Optimal)	# Mean% (SD)	Mean (SD)
Decision Support Interventions (315.b.11) – Evidence-based DSI							
Setting/editing up a new rule to trigger on DSI information.	10	100% (0%)	9/8	270 (55)	126/143	0.20% (0.47%)	4.30 (0.60)
Create a chart for a patient to review the rule just set up	10	100% (0%)	10/9	55 (3)	5/50	0% (0%)	4.50 (0.47)
Modifying source attributes for an evidence-based DSI	10	100% (0%)	4/4	21 (3)	6/15	0.10% (0.31%)	4.40 (0.69)
Providing electronic feedback on an evidence-based DSI	10	100% (0%)	11/9	70 (7)	14/56	0.10% (0.31%)	4.80 (0.42)
Reviewing the electronic feedback	10	100% (0%)	10/10	69 (9)	19/50	0% (0%)	4.70 (0.48)

The results from the SUS (System Usability Scale) scored subjective satisfaction with the system based on performance with these tasks to be 86.5.

5.2 Effectiveness

All participants displayed high effectiveness using OmniMD EHR. The participants were able to complete all tasks successfully without task failures.

5.3 Efficiency

Based on the observations of the task time and deviation data, users were able to efficiently perform the decision support intervention tasks.

5.4 Satisfaction

Task ratings showed that all participants found the tasks intuitive and easy to perform. The System Usability Scale (SUS) score was 86.5, with a range from a low of 75 to a high of 100.

5.5 MAJOR FINDINGS

Participants rated the system highly, describing it as user-friendly, straightforward, and praised its simplicity. The opportunity to provide feedback on the DSI was a new concept for most and was well-received. Accessing user feedback as an administrative user was also found to be straightforward and efficient.

5.6 AREAS OF IMPROVEMENT

Two areas were identified during the study that require review for workflow improvements and usability considerations. One area involves enhancing the visibility of the DSI rules icon to further improve accessibility. The other involves enhancing the rule settings to direct users to the relevant screen and minimize the need for scrolling.

6. Appendices

6.1 Appendix 1: Participant Consent Form

PARTICIPANT CONSENT FORM
Usability Study - Electronic Health Records System | ONC §170.315(b)(11) Decision Support Interventions

Thank you for taking the time to participate in this usability evaluation. Your contribution plays a meaningful role in improving the safety, usability, and effectiveness of our Electronic Health Records (EHR) system. This study is conducted as part of our ongoing commitment to delivering clinically safe and user-centered health information technology.

Purpose of the Study

The purpose of this study is to evaluate the usability and workflow integration of Decision Support Intervention features within our EHR system. You will be asked to complete a series of representative clinical tasks using the system and share your feedback. The session is expected to last approximately 30 minutes.

Participant Agreement
• I confirm that my participation in this study is entirely voluntary. I understand that I am free to withdraw my consent or discontinue participation at any point during the session, without any obligation to provide a reason.
• I consent to participate in the usability evaluation session, which may include screen and audio recording conducted by the study team for research and analysis purposes.
• I understand that all information collected during this study will be used solely for the purpose of evaluating and improving health information technology, and will not be used for any commercial, promotional, or non-research purpose.
• I acknowledge that any screen recordings or session captures made during this study may be reviewed and used internally by the development and research teams without requiring additional consent.
• I understand that the goal of this research is to identify opportunities to enhance the usability and safety of software systems, and that my feedback directly informs that process.
• I understand that de-identified data from this study referenced by participant identifier only, never by name may be shared with relevant stakeholders, including authorized regulatory or certification bodies, as required.
• I am assured that my personal identity will remain confidential throughout all phases of data collection, analysis, and reporting. Only anonymized identifiers will appear in any documentation or published findings.
• I agree to promptly notify the session administrator if I experience any discomfort, confusion, or concern during the study, and I understand that I may stop participation at any time without consequence.

Your Decision

Please indicate your choice below:

☐YES I have read and understood the above information and voluntarily agree to participate in this study.
☐NO I choose not to participate in this study at this time.

Signature & Acknowledgement
Participant Name (Print): _____
Participant Signature: _____
Date: _____

Participant ID (assigned): _____
Session Administrator: _____

This consent form will be retained securely by the study team. A copy is available to the participant upon request. For questions regarding this study, please contact the study administrator prior to signing.

6.2 Appendix 2: Moderator's Guide

MODERATOR'S GUIDE
Usability Study - Electronic Health Records System
ONC §170.315(b)(11) Decision Support Interventions | Safety Enhancement Design (SED)

Study Date: _____ **Session Duration**: ~30 Minutes **Participant ID**: Moderator Name:

1. Purpose of This Guide

This Moderator's Guide ensures consistency across all usability test sessions conducted as part of the Safety Enhancement Design (SED) evaluation for §170.315(b)(11) Decision Support Interventions. It provides standardized scripts, task prompts, observation instructions, and post-task procedures.
Moderators must follow this guide closely to ensure session data is valid, comparable, and suitable for SED documentation submitted to ONC.

2. Pre-Session Setup Checklist

Complete all items below before the participant enters or joins the session:

- Test environment is loaded and verified (production-equivalent EHR instance)
- Screen recording software is active and confirmed recording
- Consent form has been provided and is ready for participant signature
- Participant ID has been assigned and documented
- Task scenario sheets are printed or on-screen and ready
- SEQ rating form is prepared for post-task collection
- Timer or stopwatch is ready to record task completion times
- Observer (if present) is briefed and positioned out of participant's line of sight

3. Welcome & Introduction Script

NOTE: Read the following script aloud to the participant verbatim. Do not paraphrase or skip sections.

- Thank you for taking the time to participate in today's session. Your input is genuinely important to us, and we appreciate your willingness to help improve this system.

- Our session today will last approximately 30 minutes. You will be working with an electronic health records system. I will ask you to complete a series of tasks using the system and share your impressions afterward.
- Please try to complete each task as efficiently as possible, with as few errors as you can. Follow the task instructions closely and work independently as much as possible.
- I want to be clear — we are not testing you. We are evaluating the system. If you encounter difficulty, that simply tells us something in the system needs to be improved. There are no right or wrong answers.
- I will be present throughout the session. I can clarify task instructions, but I am not able to guide you on how to use the application itself.
- I had no involvement in designing this system, so please be completely honest. All responses are confidential and your name will not be associated with any comments at any time.
- Your participation is entirely voluntary. You may withdraw at any time without any obligation.
- Do you have any questions before we begin?

NOTE: Pause and address any questions. Do not proceed until the participant confirms they are ready.

4. Task Instructions Script

NOTE: Read the following to the participant before presenting the first task.

- For each task, I will read a short description aloud and then say “Begin.” Please start the task at that point. When you believe you have successfully completed it, please say “Done.”
- While working on a task, please try not to think out loud or verbalize your actions. Once you say “Done,” I will ask you a quick question about your experience.
- Are you ready to begin?

5. Post-Task Procedure

After each task is completed, follow these steps in order:

1. Stop the timer and record the completion time.
2. Note whether the task was completed successfully (Yes/No) and record any errors observed.
3. Ask the participant the SEQ post-task question below and record their numerical response.
4. Allow a brief pause before presenting the next task.

SEQ Post-Task Question (read aloud after each task)

- Overall, how would you rate the difficulty of that task? Please use a scale from 1 to 5, where 1 means “Very Difficult” and 5 means “Very Easy.”

NOTE: Record the participant’s numerical response. Do not prompt or suggest a rating.

6. Post-Session Wrap-Up Script

- That concludes all of the tasks for today. Thank you so much for your time and honest feedback.

- Before you go, do you have any general comments about the system or your overall experience today?

NOTE: Record any open-ended feedback verbatim. Do not paraphrase during the session.

- Your responses will remain completely confidential and will be used only to improve the system. Thank you again for participating.

7. Session Observation Log

Record the following session-level details and per-task observations:

Participant ID: _____

Session Date: _____

Moderator: _____

Session Start Time: _____

Session End Time: _____

Task ID	Success (Y/N)	Time (sec)	Errors Observed	Path Steps	SEQ Rating	Notes / Observations
T01						
T02						
T03						
T04						
T05						

For internal use by trained session moderators only. Do not distribute to participants. Retain completed observation logs as part of the SED study record.

6.3 Appendix 3: Tasks List

TASK LIST
Usability Study - Electronic Health Records System
ONC §170.315(b)(11) Decision Support Interventions | Safety Enhancement Design (SED)

Study Date: _____ **Session Duration**: ~30 Minutes **Participant ID**:_____ **Moderator Name:** _____

Instructions for the Moderator

For each task below, read the Scenario Prompt aloud to the participant and say “Begin.” Start timing when you say “Begin” and stop when the participant says “Done” or visibly stops interacting. Record results in the fields provided.

T01	Setting/editing up a new rule to trigger on DSI information.
Scenario Prompt	Please set up a new clinical decision support rule that triggers based on patient DSI information.
Record	Success: □ Yes □ No Time: _____ sec Errors: _____ Path Steps: _____ SEQ Rating: _____

T02	Create a chart for a patient to review the rule just set up
Scenario Prompt	Open a patient chart and verify that the rule you just configured is firing correctly for that patient.
Record	Success: □ Yes □ No Time: _____ sec Errors: _____ Path Steps: _____ SEQ Rating: _____

T03	Modifying source attributes for an evidence-based DSI
Scenario Prompt	Locate the existing evidence-based DSI and update its source attribute information.
Record	Success: □ Yes □ No Time: _____ sec Errors: _____ Path Steps: _____ SEQ Rating: _____

T04	Providing electronic feedback on an evidence-based DSI
Scenario Prompt	You disagree with a DSI alert. Submit electronic feedback using the system's feedback mechanism.
Record	Success: □ Yes □ No Time: _____ sec Errors: _____ Path Steps: _____ SEQ Rating: _____

T05	Reviewing the electronic feedback
Scenario Prompt	Navigate to the electronic feedback submitted for a DSI and review the feedback details, including the submitted comments, feedback status, and any associated DSI information
Record	Success: □ Yes □ No Time: _____ sec Errors: _____ Path Steps: _____ SEQ Rating: _____

Task List ---- for moderator use during the session. Present tasks in the order listed. Do not skip or reorder tasks.

6.4 Appendix 4: Acknowledgement Form

PARTICIPANT ACKNOWLEDGEMENT FORM
ONC §170.315(b)(11) Decision Support Interventions | Safety Enhancement Design (SED)

Participant ID:_____ **Session Date**:_____ **EHR Version**:_____ **Moderator**:_____

Session Completion Acknowledgement

Please confirm each statement by checking the box:

I completed all assigned usability tasks for this session.
I completed the Post-Test Questionnaire honestly and to the best of my ability.
I understand my feedback will be used solely to improve the EHR system and for ONC SED documentation purposes.
I confirm my participation was voluntary and that I was free to withdraw at any time.
I understand my identity will remain confidential; only a de-identified participant code will be used in any reporting.
I had the opportunity to ask questions during the session and any concerns were addressed.

Participant Signature: _____

Full Name (Print) : _____

Signature: _____

Date: _____

I confirm this participant completed the session in accordance with the study protocol and all documentation has been collected.
Administrator Name : _____

Administrator Signature: _____

Date : _____

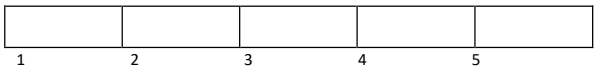
Retain this signed form as part of the official SED study record. A copy may be provided to the participant upon request.

6.5 Appendix 5: Post-test/System Usability Scale Questionnaire

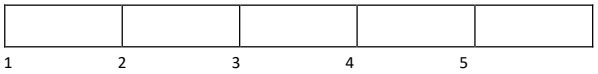
In 1996, Brooke published a "low-cost usability scale that can be used for global assessments of systems usability" known as the System Usability Scale or SUS.16 Lewis and Sauro (2009) and others have elaborated on the SUS over the years. Computation of the SUS score can be found in Brooke's paper, in at

http://www.usabilitynet.org/trump/documents/Suschapt.doc or in Tullis and Albert (2008).

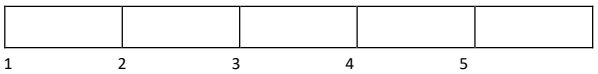
1. I think that I would like to use this system frequently



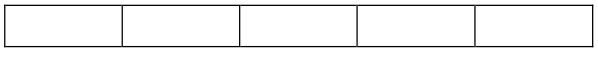
2. I found the system unnecessarily complex



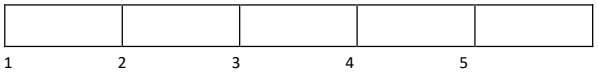
3. I thought the system was easy to use



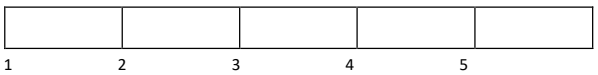
4. I think that I would need the support of a technical person to be able to use this system



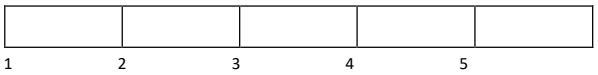
5. I found the various functions in this system were well integrated



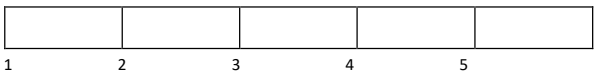
6. I thought there was too much inconsistency in this system



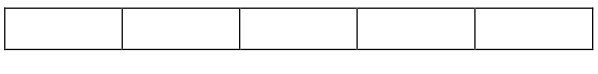
7. I would imagine that most people would learn to use this system very quickly



8. I found the system very cumbersome to use



9. I felt very confident using the system



10. I needed to learn a lot of things before I could get going with this system

