



**SMARTMD Palliative, Version 6**  
**EHR Usability Test Report**

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*Safety Enhanced Design 170.315 (g){3} - October 2024*

*Report based on NISTIR 7741 – UCD Process*

**SMARTMD 6- Safety Enhanced Design**

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Usability tests of the version 6 of “SMARTMD Palliative” EHR were conducted at various times during the development cycle, the last session for which was held on November 7th, 2024. The purpose of these tests was to test and validate the usability of the current user interface and provide evidence of usability of the EHR Under Test (EHRUT).

During the usability test, a combination of test participants and clinicians matching the target demographic criteria served as participants and used the EHRUT in simulated, but representative tasks.

This study collected performance data on 23 tasks typically conducted in the EHR:

**Computerized Provider Order**

- Record medication order
- Access medication order
- Change medication order

- Record lab order
- Access lab order
- Change lab order

**Demographics**

- Record demographics
- Access and modify demographics

**Implantable Device**

- Add and change implantable device

**Decision Support Intervention (Evidence Based and User-supplied Predictive)**

- Configuration/enablement
- Source attribute management record and change
- DSI Selection and access
- Feedback loop entries and report export (Evidence Based Only)

Tasks were selected based on their frequency of use, criticality of function, and those that may be most troublesome for users. Tasks were constructed in light of the study objectives. A detailed list of the tasks provided to the participants can be accessed from Appendix B.

During the 65-minute, one-on-one, remote usability test, each participant was greeted by the. Participants were then assigned a participant ID and asked to review and sign an informed consent/release form. Participants were read an overview of the test, its intended purpose, general instructions, and then advised that they could withdraw at any time. Participants had no prior experience with “SMARTMD Palliative” EHR.

The administrator introduced the test and instructed the participant 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.

The test session, including participant screens, user workflow, and audio, was 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 verbal feedback
- Participant's task effort ratings of the system using a Likert Scale

All participant data was de-identified so that no correlation 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. Participants were not compensated for their time.

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

## Introduction

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This study is the result of usability testing performed on version 6 of “SMARTMD Palliative” EHR, which is designed to collect, track, and report medical information collected from healthcare providers in an ambulatory setting. The application consists of solutions for a range of services including medical, dental, vision, and behavior allowing practices to provide patient care for all their services.

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 to support certification according to

criteria outlined in Safety Enhanced Design §170.31S(g){3}, specifically:

§ 170.315 (a)(l) Computerized provider order entry- medication

§ 170.315 (a)(2) Computerized provider order entry- laboratory

§ 170.315 (a)(3) Computerized provider order entry - diagnostic imaging

§ 170.315 (a)(5) Demographics

§ 170.315 (a)(14) Implantable device list

§ 170.315 (b)(11) Clinical decision support - Evidence Based

§ 170.315 (b)(11) Clinical decision support – User-supplied Predictive

## Method

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### [Participants](#)

A total of ten (10) participants were tested on “SMARTMD Palliative” EHR. Participants in the test included doctors, medical assistants, clinic managers, and test participants general office aptitude for technology. Volunteer participants were recruited by SMARTMD and were not compensated for their time.

Participants had no direct connection to the development of or organization producing the EHR, and they were not from or affiliated with SMARTMD, and did not need any orientation or training as they all were experienced “SMARTMD Palliative” EHR users.

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

Participants had a mix of backgrounds and demographic characteristics. 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 their identity.

User ID	Sex	Age	Education	Occupation/Role	Professional Experience (Months)	Computer Experience (months)	Product Experience (Months)	Assistive Technology
1	Male	60-69	Doctorate degree	MD - Family Medicine	240	200	0	No
2	Female	40-49	Masters degree	Health IT Consultant	192	120	0	No
3	Female	20-29	Some college credit, no degree	Front Office Administrator	168	136	0	No
4	Male	30-39	Bachelors degree	Registered Nurse	132	264	0	No
5	Female	40-49	Bachelors degree	Healthcare Policy Analyst	180	120	0	No
6	Male	40-49	Masters Degree	Physician Assistant	204	204	0	No
7	Female	60-69	Doctorate degree	Physician/ Physiatry	240	228	0	No
8	Female	30-39	Associates degree	Medical Assistant	156	120	0	No
9	Male	20-29	Associates degree	Medical Assistant	102	96	0	No
10	Male	50-59	Doctorate degree	Clinical Psychologist	168	150	0	No

10 participants participated in the usability test. 0 participants failed to show for the study.

Participants were scheduled for 65-minute sessions with 5 minutes in between each session for debrief by the administrator and data logger, 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 characteristics as provided by the participant.

### [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 one EHR. Each participant used the system in the same development



environment, 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

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

### Tasks

In support certification according to criteria outlined in Safety Enhanced Design §170.315(g)(3), 23 tasks were constructed that would be realistic and representative of the kinds of activities a user might conduct with the EHR, in the following overall categories:

- Computerized provider order entry (Medications, Labs, and Diagnostic Imaging)
- Demographics
- Implantable Device
- Decision Support Intervention - Evidence Based
- Decision Support Intervention – User-supplied Predictive

Tasks were selected based on their frequency of use, criticality of function, and those that may be most troublesome for users. Tasks were designed to meet the study objectives. A detailed list of the tasks provided is included in Appendix B.

### Procedures

Remote testing was conducted via a Zoom session by a proctor with 10+ years' experience with the EHRUT. A Remote testing methodology was selected to both for convenience to accommodate the volunteer participants but also because that technology includes recording of the screen-sharing and audio for subsequent review and analysis.

Participants were advised to choose a quiet location to participate in the study using their own computers, and to:

- Complete the tasks as quickly as possible, using their normal workflow
- Complete the tasks without assistance except to clarify task details, if necessary

All test sessions were recorded by Zoom and subsequently analyzed. While participants completed the tasks, an observer monitored task times, obtained post-task rating data, and took notes on participant comments, and the data logger and took notes on task success, path deviations, number and type of errors, and comments.

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.

### Test Location

Test sessions were conducted remotely via a Zoom meeting. The test administrator, observers, and participant logged into the session from their various locations. All observers and the data logger could see the participant's screen, and listen to the audio of the session.

### Test Environment

The EHRUT would be typically be used in a healthcare office or facility. In this instance, the testing was conducted remotely via a Zoom meeting from the participants location origin. For testing, the proctor hosted the EHRUT as a Microsoft Remote Desktop Application running on Windows Server 2016.

The participants used their own hardware including; computer, keyboard, and mouse when testing.

### Test Forms and Tools

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

- Proctor Guide
- Participant Guide

The Proctor's Guide was devised to be able to capture required data. The participant's interaction with “SMARTMD Palliative” EHR application was captured and recorded via the Zoom meeting technology.

## [Participant Instructions](#)

The proctor read the following instructions to each participant:

*Thank you for participating in this study. Your input is very important. Our session today will last about 65 minutes. During this time, you will be using version 6 of "SMARTMD Palliative" EHR. 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, rather, 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 possibly how difficult) this system is to use, what in it would be useful to you, and how we could improve it.*

*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 anytime during the testing.*

Following the procedural instructions, participants were logged into the EHRUT and then given tasks to complete based on their role, and 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 will ask you your impressions about the task once you are done.*

Participants were then given their tasks to complete.

## [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 "SMARTMD Palliative" EHR by measuring participant success rates and errors
- Efficiency of "SMARTMD Palliative" EHR by measuring the average task time and path deviations
- Satisfaction with "SMARTMD Palliative" EHR 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
<p><b>Effectiveness:</b> Task Success</p>	<p>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.</p> <p>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.</p> <p>Task times were recorded for successes. Observed task times divided by the optimal time for each task is a measure of optimal efficiency.</p> <p>Optimal task performance time, as benchmarked by expert performance under realistic conditions, is recorded when constructing tasks.</p>
<p><b>Effectiveness:</b> Task Failures</p>	<p>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.</p> <p>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.</p> <p>On a qualitative level, an enumeration of errors and error types should be collected.</p>

Measures	Rationale and Scoring
<p><b>Efficiency:</b> Task Deviations</p>	<p>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</p>
<p><b>Efficiency:</b> Task Time</p>	<p>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.</p>

Measures	Rationale and Scoring
<p><b>Satisfaction:</b> Task Rating</p>	<p>Each participant’s subjective impression of the ease-of-use of the application was measured by administering a simple post-task question. After each task, the participant was asked to rate “Overall, this task was easy:” on a scale of 1 (Strongly Agree) to 5 (Strongly Disagree). This data was averaged across participants.</p> <p>Common convention is that average ratings for systems judged easy-to-use should be 3.3 or below.</p> <p>To measure participants’ confidence in and likeability of Patient Pattern overall, the testing team administered using a verbal confirmation of the Likert ranking.</p>

## Risk (Pre-test)

Before conducting the usability testing for the designated capabilities within the Certified Electronic Health Record Technology (CEHRT), it is essential to assess the pre-test risks associated with each task. This risk assessment will help identify potential user safety concerns and usability issues that may arise during the testing process.

The pre-test risk assessment will consider factors such as the complexity of the tasks, potential for user error, and the impact of any identified risks on patient safety and care quality. By evaluating these risks, we can implement appropriate mitigation strategies to enhance the effectiveness of the user-centered design (UCD) processes.

Below is the pre-test risk assessment and rationale, providing an understanding of how these factors contribute to the overall safety and usability of the system being tested. Our post-test risk is included and discussed in the results that follow.

<b>Task #</b>	<b>Task/Risk Level</b>	<b>Risk Rational</b>
1	Record medication order	The inability to quickly select appropriate medications could cause inappropriate prescribing or lack of usage of CPOE medication orders impacting electronic ordering and drug-drug/drug-allergy interactions
	High	
2	Access medication order	As the medication list is available from one singular area of the system there is a low likelihood of an inability to find this information.
	Low	
3	Change medication order	The inability to quickly select appropriate medications could cause inappropriate prescribing or lack of usage of CPOE medication orders impacting electronic ordering and drug-drug/drug-allergy interactions
	High	
4	Record lab order	Inability to properly record Lab Orders could lead to delayed, incomplete or erroneous information impacting the ability for the provider to accurately assess proper care for patient.
	High	
5	Access lab order	As the lab orders are available from one singular area of the system there is a low likelihood of an inability to find this information..
	Low	
6	Change lab order	Inability to properly record Lab Orders could lead to delayed, incomplete or erroneous information impacting the ability for the provider to accurately assess proper care for patient.
	High	
7	Record demographics	

	Moderate	With the large number of new fields in conjunction with practice and state requirements for demographic information, there is potential for the erroneous entry of information which could lead to patient mix ups.
8	Access and modify demographics	As information is readily displayed risk at multiple stages in the workflow, the risk is minimal.
	Low	
9	Add/change Implantable Device	As UDI information is readily displayed on summary and patient history screens there is low risk of information being missed in accessing UDI data.
	Moderate	
10	User configures evidence-based DSI	Failure to configure evidence-based DSI properly could lead to inaccurate decision-making, affecting clinical outcomes.
	Moderate	
11	User records source attributes for evidence-based DSI.	Minimal risk as it involves recording data elements already part of clinical workflows.
	Low	
12	User changes source attributes for evidence-based DSI.	Changes to source attributes may affect the accuracy of clinical recommendations, leading to inappropriate care.
	Moderate	
13	User accesses source attributes for evidence-based DSI.	Misinterpretation of source attributes could result in errors in clinical decision-making.
	Moderate	
14	User selects Decision Support Intervention(s) based on any of the required elements	Selection based on predefined elements reduces the likelihood of user error.
	Low	
15	Access source attributes for selected evidence-based DSI.	Accessing source attributes involves reviewing existing data, with a low likelihood of user error impacting clinical outcomes
	Low	
16	Provide feedback for a triggered evidence-based DSI.	Feedback is non-intrusive and primarily involves confirming previously recorded actions, which limits the risk.
	Low	
17	User exports feedback data in a computable format, including the data identified in (b)(11)(ii)(C) at a minimum.	Exporting data is a routine task, with minimal risk of affecting clinical outcomes.
	Low	
18	Configures Predictive DSI using the required USCDI data elements.	Incorrect configuration could result in poor predictive outcomes, impacting patient care.
	Moderate	

19	User records user-defined source attributes for a Predictive DSI.	Low risk, as this task involves recording predefined data elements.
	Low	
20	Access user-defined source attributes for a Predictive DSI.	Incorrect interpretation of user-defined attributes could lead to inaccuracies in the predictive model.
	Moderate	
21	Access user-defined source attributes for a Predictive DSI.	Low risk, since this is a basic access task with minimal potential for error.
	Low	
22	User selects a user-supplied Predictive DSI.	Selection errors could result in incorrect clinical predictions, affecting patient management.
	Moderate	
23	Access and reviews source attributes for selected user-supplied Predictive DSI.	Reviewing attributes carries minimal risk, as it typically involves verifying already recorded data.
	Low	

## Results

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The results of the usability test were calculated according to the methods specified in the Usability Metrics section. Participants who failed to follow session and task instructions had their data excluded from the analysis. There was no testing irregularities recorded.

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

The results from the Likert scale scored the subjective satisfaction with the system based on performance with these tasks to broadly interpreted. Scores under 3 represent poor usability and scores over 3 would be considered above average.

**§170.315 (a)(1) Computerized Physician Order Entry-Medications**

Data Analysis and Reporting

Task	Task Rating	Task Rating - Std Dev.	Task Time - Mean(s)	Task Time - Standard Deviation(s)	Time - Observed/ Optimal	Task Success - Mean (%)	Task Success - Std. Deviation(s)	Task Errors - Mean (%)	Task Error - Std. Deviation (%)	Observed - (# of Steps)	Optimal (# of Steps)
1 Record medication order	3	0.45	94	13	117/90	100%	0.0	0.00%	0.00%	9	10
2 Access medication order	5	0.4	21	6	17/30	100%	0.0	0.00%	0.00%	3	3
3 Change medication order	5	0.64	72	15	53/65	100%	0.0	0.00%	0.00%	10	10

Discussion of Findings

**Efficiency**

Overall the efficiency of participants completing the ordering and modifying of medication orders was not near the optimal path and the deviation in time.

**Effectiveness**

Participants were successful 100% of the time when completing the tasks for ordering, accessing, and modifying medication orders.

**Satisfaction**

Participant consensus rated the task between Strongly Agree and Agree that the tasks were easy to perform.

**Major findings**

Task is performing as designed.



**Post Test Risk Assessment and Remarks**

<b>Task #</b>	<b>Task/Pre-test Risk Level</b>	<b>Test Error Percentage</b>	<b>Discussion</b>
1	Record medication order	0%	Users identified that a drop down of prepopulated medications, without strength, would be ideal. Furthermore all clinical end users requested to know or see which fields are mandatory when entering a medication order. To minimize risk developers will revisit fields to indicate required areas of medication order capture.
	High		
2	Access medication order	0%	The users had limited issue and in turn very low risk in referencing and reviewing medication orders that had been entered.
	Low		
3	Change medication order	0%	In line with recording medication orders, the change of an order lacks the visual indicator or hard stop for a required field. To minimize risk the development team, congruent with task 1, will review elements to indicate mandatory areas.
	High		

**Areas for improvement**

Users identified that a drop down of prepopulated medications, without strength, would be ideal. Furthermore all clinical end users requested to know or see which fields are mandatory when entering a medication order.

**§170.315 (a)(2) Computerized Physician Order Entry-Labs**

Data Analysis and Reporting

Task	Task Rating	Task Rating - Std Dev.	Task Time - Mean(s)	Task Time - Standard Deviation(s)	Time - Observed /Optimal	Task Success - Mean (%)	Task Success - Std. Deviation(s)	Task Errors - Mean (%)	Task Error - Std. Deviation (%)	Observed - (# of Steps)	Optimal (# of Steps)
4 Record lab order	1	1.02	83	16	58/90	100%	0.0	0.00%	0.00%	9	9
5 Access lab order	5	0.40	22	9	13/30	100%	0.0	0.00%	0.00%	4	4
6 Change lab order	2	1.07	67	18	40/75	100%	0.0	0.00%	0.00%	10	10

Discussion of Findings

**Efficiency**

Overall the efficiency of participants completing the ordering and modifying of lab orders was near the optimal path and the deviation in time.

**Effectiveness**

Participants were successful 100% of the time when completing the tasks for ordering, accessing, and changing lab orders.

**Satisfaction**

Participant consensus rated the task between Strongly Agree and Strongly Disagree that the tasks were easy to perform. Clinical users were most dissatisfied where lack of pre-populate or lab dropdown was not present.

## Major findings

Task is performing as designed.

## Post Test Risk Assessment and Remark

<b>Task #</b>	<b>Task/Pre-test Risk Level</b>	<b>Test Error Percentage</b>	<b>Discussion</b>
4	Record lab order	0%	No errors recorded but participants expressed uncertainty about the free text nature of the lab order name. It was suggested that a dropdown order of standardized lab orders would make it easier to avoid errors.
	High		
5	Access lab order	0%	There were zero errors and there was no impression or concerns for accessing an already recorded lab and its associated fields.
	Low		
6	Change lab order	0%	Similar to task 4, since order amendment requires a deletion and re-entry, participants again expressed concerns over risk of free text lab order name where abbreviations or errors in lab name could create confusion or laboratory errors.
	High		

## Areas for improvement

Participants reported the need for the lab to show up in a drop down.



## §170.315 (a)(5) Demographics

### Data Analysis and Reporting

Task	Task Rating	Task Rating - Std Dev.	Task Time - Mean(s)	Task Time - Standard Deviation(s)	Time - Observed/Optimal	Task Success - Mean (%)	Task Success - Std. Deviation(s)	Task Errors - Mean (%)	Task Error - Std. Deviation (%)	Observed - (# of Steps)	Optimal (# of Steps)
7 Record demographics	5	0.30	63	12	60/60	67%	12.8	33.33%	12.94%	8	6
8 Access and modify demographics	5	0.80	60	42	50/40	100%	5.6	0.00%	5.68%	7	7

### Discussion of Findings

#### Efficiency

Overall the efficiency of participants completing demographics add, change, and access was not within the optimal path and the deviation in time.

#### Effectiveness

Participants were successful about 100% of the time when completing the tasks for demographics add, change, and access.

#### Satisfaction

Participant consensus rated Strongly Agree that tasks were very easy to perform.

#### Major Findings

Task performance functioned as designed. Although, 3 of 10 participants experiences a "404 Error" 1 or more times when attempting to save demographics edits.

**Post Test Risk Assessment and Remark**

<b>Task #</b>	<b>Task/Pre-test Risk Level</b>	<b>Test Error Percentage</b>	<b>Discussion</b>
7	Record demographics	33%	The errors recorded in the recording of patient demographic were related to 404 server issues and not end-user operation. There is a high level of familiarity with this function and its basic data entry nature. While no errors were recorded there were some initial deviations and many participants commented about the necessity of so many fields and the increased difficulty in finding the correct entry location due to the volume of potential entries. The large volume of potential demographic fields did present time delays for some users.
	Moderate		
8	Access and modify demographics	0%	No errors were recorded in the changing of patient demographic information. There is a high level of familiarity with this function and participants were more comfortable making changes.
	Low		

**Areas for Improvement**

Issues of 404 errors was captured during recording process and elevated to developers for review.

Data Analysis and Reporting

Task	Task Rating	Task Rating - Std Dev.	Task Time - Mean(s)	Task Time - Standard Deviation(s)	Time - Observed/ Optimal	Task Success - Mean (%)	Task Success - Std. Deviation(s)	Task Errors - Mean (%)	Task Error - Std. Deviation (%)	Observed - (# of Steps)	Optimal (# of Steps)
9 Add Change implantable device	5	0.4	25	9	49/25	100%	0.0	0.00%	0.00%	8	8

Discussion of Findings

**Efficiency**

Overall the efficiency of participants completing the adding and reviewing of the implantable devices was within the optimal path and the deviation in time.

**Effectiveness**

Participants were successful 100% of the time when completing the tasks for performing the implantable device process.

**Satisfaction**

Participant consensus rated the task Strongly Agree that the tasks were very easy to perform.

**Major findings**

None to report.

**Post Test Risk Assessment and Remark**

<b>Task #</b>	<b>Task/Pre-test Risk Level</b>	<b>Test Error Percentage</b>	<b>Discussion</b>
9	Add/change Implantable Device	0%	No errors were recorded in accessing UDI Device description, identifiers, and attributes.
	Moderate		

**Areas for improvement**

None identified.



**§170.315 (b)(11) Decision Support Intervention – Evidence Based DSI**

Data Analysis and Reporting

Task #	Task	Scale	Task Rating	Task Rating - Std Dev.	Task Time - Mean(s)	Task Time - Standard Deviation(s)	Time - Observed/Optimal	Task Success - Mean (%)	Task Success - Std. Deviation(s)	Task Errors - Mean (%)	Task Error - Std. Deviation (%)	Observed - (# of Steps)	Optimal (# of Steps)
10	User configures evidence-based DSI using any of the required elements alone or in combination.	Likert	5	0	44.5	6.81	44/40	100	0	0	0	11	11
11	User records source attributes for evidence-based DSI.	Likert	5	0	26.6	4.39	27/22	100	0	0	0	3	3
12	User changes source attributes for evidence-based DSI.	Likert	5	0	57.9	8.43	57.5/50	100	0	0	0	6	6
13	User accesses source attributes for evidence-based DSI.	Likert	5	0	28.8	4.01	28.78/25	100	0	0	0	4	4
14	User selects Decision Support Intervention(s) based on any of the required elements alone or in combination.	Likert	4	.5	37	4.70	37/30	100	0	0	0	3	3
15	User accesses source attributes for selected	Likert	5	0	43.7	5.27	43/35	100	0	0	0	3	3

	evidence-based DSI.												
16	User provides feedback for a triggered evidence-based DSI.	Likert	5	0	122.3	22.81	122/100	100	0	0	0	4	4
17	User exports feedback data in a computable format, including the data identified in (b)(11)(ii)(C) at a 5minimum.	Likert	5	0	56.6	10.06	56/40	100	0	0	0	3	3

### Efficiency

Tasks in this group were generally completed efficiently, with users finding the interfaces intuitive. However, tasks that required detailed feedback (Task 19) or involved system-dependent actions (Task 20) occasionally led to delays. Minor interface inefficiencies, such as dropdown responsiveness and field navigation, were noted.

### Effectiveness

All participants successfully completed the tasks (100% overall), demonstrating a clear understanding of objectives and processes. The intuitive design of most tasks supported error-free execution.

### Satisfaction

Users expressed high levels of satisfaction, particularly for tasks with well-structured interfaces. Feedback highlighted simplicity and clarity as key strengths, though there were calls for improvements in system responsiveness and visual guidance.

### Major findings

These tasks showed a consistent ability to meet objectives, with minor variability in task completion times. Tasks involving feedback or export functions revealed opportunities for optimization, especially in terms of system performance.

## Post Test Risk Assessment and Remarks

<b>Task #</b>	<b>Task/Pre-test Risk Level</b>	<b>Test Error Percentage</b>	<b>Discussion</b>
10	User configures evidence-based DSI.	0%	No errors recorded. The configuration of the DSI was completed successfully, validating that users can accurately set up evidence-based interventions without issues.
	Moderate		
11	User records source attributes for evidence-based DSI.	0%	Zero errors observed. Users effectively recorded source attributes, supporting the assumption that this task carries minimal risk when recording pre-defined data elements.
	Low		
12	User changes source attributes for evidence-based DSI.	0%	No issues noted. The process of changing source attributes was done without error, demonstrating that changes can be made safely, maintaining clinical decision-making integrity.
	Moderate		
13	User accesses source attributes for evidence-based DSI.	0%	No errors were encountered. The users successfully accessed source attributes, confirming the low likelihood of user misinterpretation or errors in clinical settings.
	Moderate		
14	User selects Decision Support Intervention(s) based on any of the required elements.	0%	No errors observed. Selection of DSIs based on predefined elements was straightforward, reinforcing the minimal risk for user error during this task.
	Low		
15	Access source attributes for selected evidence-based DSI.	0%	Task completed without errors. Users were able to access source attributes with ease, affirming that this is a low-risk task involving existing data.
	Low		
16	Select DSI based on the problems, medications, allergies, and intolerances incorporated from a C-CDA.	0%	No errors recorded. Selection of DSIs based on C-CDA data went smoothly, indicating the system's ability to ensure accurate and up-to-date information from clinical documents.
	Low		
17	Provide feedback for a triggered evidence-based DSI.	0%	Zero errors observed. Users were able to provide feedback without issues, confirming the task's low risk and the non-intrusive nature of this functionality.
	Low		

### Areas for improvement

Enhance system performance for data export (Task 17).

Streamline feedback forms with pre-filled fields or auto-completion options (Task 16).

Improve dropdown menu responsiveness and field labeling for easier navigation (Task 14).

Consider adding tooltips and quick-access features to simplify attribute selection and review processes (Tasks 10, 15).

**§170.315 (b)(11) Decision Support Intervention – User-supplied Predictive DSI**

Data Analysis and Reporting

Task #	Task	Scale	Task Rating	Task Rating - Std Dev.	Task Time - Mean(s)	Task Time - Standard Deviation(s)	Time - Observed/Optimal	Task Success - Mean (%)	Task Success - Std. Deviation(s)	Task Errors - Mean (%)	Task Error - Std. Deviation (%)	Observed - (# of Steps)	Optimal (# of Steps)
18	User configures Predictive DSI using the required USCDI data elements.	Likert	4	0	138.8	29.07	138/120	100	0	0	0	4	4
19	User records user-defined source attributes for a Predictive DSI.	Likert	5	.5	87.6	14.52	87/75	100	0	0	0	3	3
20	User changes user-defined source attributes for a Predictive DSI.	Likert	5	0	30.6	4.09	30/25	100	0	0	0	3	3
21	User accesses user-defined source attributes for a Predictive DSI.	Likert	5	0	70.7	10.27	70.74/60	100	0	0	0	3	3
22	User selects a user-supplied Predictive DSI.	Likert	5	.35	28.4	4.63	28.42/22	100	0	0	0	3	3
23	User accesses and reviews source attributes for selected user-supplied Predictive DSI.	Likert	5	0	80.5	14.03	84.47/70	100	0	0	0	3	3

## Discussion of Findings

### Efficiency

These tasks, particularly those requiring configuration or detailed review (Tasks 21, 26), were more time-consuming due to the complexity of predictive elements and detailed user-defined attributes. Tasks involving access and selection (Tasks 23, 25) were completed more quickly and consistently.

### Effectiveness

All participants successfully completed these tasks (100% overall), though some required additional time for configuration and attribute changes. Tasks involving user-defined attributes showed a higher learning curve but were still effective.

### Satisfaction

Users were generally satisfied with the clarity of instructions and the straightforward nature of most tasks. However, tasks with more complexity (Tasks 21, 26) received feedback suggesting the need for more interactive guidance or step-by-step instructions.

### Major findings

The complexity of predictive DSI tasks led to longer completion times and more variability in user performance. Tasks related to accessing or modifying user-defined attributes were straightforward but could benefit from enhanced visual grouping.

### Post Test Risk Assessment and Remark

<b>Task #</b>	<b>Task/Pre-test Risk Level</b>	<b>Test Error Percentage</b>	<b>Discussion</b>
18	Configures Predictive DSI using the required USCDI data elements.	0%	No errors were recorded. Configuration of the predictive DSI using USCDI data elements was successful, demonstrating that users can perform this moderately complex task without negatively impacting patient care.
	Moderate		
19	User records user-defined source attributes for a Predictive DSI.	0%	Task completed without error. Users were able to record user-defined source attributes without issues, confirming the low risk associated with this task
	Low		
20	User changes user-defined source attributes for a Predictive DSI.	0%	No errors observed. Accessing user-defined attributes was done smoothly, validating the system's ability to reduce the likelihood of misinterpretation during this process.
	Moderate		
21	User accesses user-defined source attributes for a Predictive DSI.	0%	Zero errors. As expected, this basic task was completed without any challenges, supporting the minimal potential for error in this process.
	Low		
22	User selects a user-supplied Predictive DSI.	0%	

	Moderate		No errors were noted. Selection of a user-supplied Predictive DSI was performed correctly, minimizing the risk of incorrect clinical predictions affecting patient management.
23	Access and reviews source attributes for selected user-supplied Predictive DSI.	0%	No issues occurred. Users successfully reviewed source attributes, confirming the task's low risk as it typically involves verifying previously recorded
	Low		

**Areas for improvement**

- Simplify the configuration process for predictive DSI by breaking it into smaller, guided steps (Task 18).
- Improve field labels and consider adding a search function to assist with attribute changes (Task 21).
- Provide visual summaries and highlight key attributes to streamline review processes (Task 23).
- Enhance grouping and contextual help for user-defined attributes (Task 19).

## Appendices

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### [Appendix A - Trademarks](#)

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Appendix B - Tasks

170.315 (a)(1) – CPOE Medications

Task No.	Description										
1	<b>CPOE - Record a Medication Order</b> <i>(Review and/or consult the lab entry process overview document, if necessary)</i>										
	<b>Actor</b>										
	<b>Provider</b>										
	<b>Steps</b>										
	<ol style="list-style-type: none"> <li>1. Select "Patient Search"</li> <li>2. Select Facility &gt; Facility One</li> <li>3. Hit Search for Patient Results and Select any Patient</li> <li>4. Select Encounters at top of screen</li> <li>5. Select the most recent encounter record</li> <li>6. Scroll to medications <b>Path:</b> Medications &gt; Add or Cancel</li> <li>7. Type "Amoxicillin" and select in drop down</li> <li>8. Add additional field as place holder values: Start and End Date, Route, Dose, Frequency, Strength, and Unit</li> <li>9. Click " Save" medication Entry button</li> </ol>										
	<b>Observations</b>										
	<table border="1"> <thead> <tr> <th>Task Success</th> <th>Path Deviations</th> <th>Errors</th> <th>Effort: (1) v. high, (5) v. low</th> <th>Time to Complete</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/>Pass <input type="checkbox"/>Fail</td> <td><input checked="" type="checkbox"/>No <input type="checkbox"/>Yes</td> <td><input checked="" type="checkbox"/>No <input type="checkbox"/>Yes</td> <td><input type="checkbox"/>1 <input type="checkbox"/>2 <input checked="" type="checkbox"/>3 <input type="checkbox"/>4 <input type="checkbox"/>5</td> <td>66 secs</td> </tr> </tbody> </table>	Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	66 secs
	Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete						
	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	66 secs						
	<b>Comments</b>										
<a href="#">Click here</a>											

Task No.	Description
2	<b>CPOE - Access a Medication Order</b> <i>(Review and/or consult the medication entry process overview document, if necessary)</i>
	<b>Actor</b>
	<b>Provider, MA</b>
	<b>Steps</b>

	<ol style="list-style-type: none"> <li>1. Remain in patient encounter</li> <li>2. Open patient encounter and scroll to "Medications" <b>Path:</b> Medications</li> <li>3. Verify start date from medication you just entered</li> </ol>										
	<b>Observations</b>										
	<table border="1"> <thead> <tr> <th>Task Success</th> <th>Path Deviations</th> <th>Errors</th> <th>Effort: (1) v. high, (5) v. low</th> <th>Time to Complete</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/>Pass <input type="checkbox"/>Fail</td> <td><input checked="" type="checkbox"/>No <input type="checkbox"/>Yes</td> <td><input checked="" type="checkbox"/>No <input type="checkbox"/>Yes</td> <td><input type="checkbox"/>1 <input checked="" type="checkbox"/>2 <input type="checkbox"/>3 <input type="checkbox"/>4 <input type="checkbox"/>5</td> <td>10 secs</td> </tr> </tbody> </table>	Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	10 secs
	Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete						
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	10 secs							
<b>Comments</b>											



[Click here](#)

Task No.	Description										
3	<p><b>CPOE - Change a Medication Order</b>  <i>(Review and/or consult the medication entry process overview document, if necessary)</i></p> <p><i>Note that medication order can only be edited before it is sent. To change a medication order that has already been sent, you must delete and reorder with changes.</i></p> <p><b>Actor</b></p> <p><b>Provider</b></p> <p><b>Steps</b></p> <ol style="list-style-type: none"> <li>1. Select a patient encounter</li> <li>2. Open patient encounter and scroll to “Medications”  <b>Path:</b> <a href="#">Medications</a></li> <li>3. Verify start date</li> <li>4. Delete existing order</li> <li>5. Confirm deletion</li> <li>6. Scroll back to Medications</li> <li>7. Click Add or Cancel to enter new and accurate order</li> <li>8. Type Amoxicillin and Select in drop down</li> <li>9. Add additional fields: Start and End Date, Route, Dose, Frequency, Strength, and Unit</li> <li>10. Click Save Medication Entry button</li> </ol> <p><b>Observations</b></p> <table border="1"> <thead> <tr> <th>Task Success</th> <th>Path Deviations</th> <th>Errors</th> <th>Effort: (1) v. high, (5) v. low</th> <th>Time to Complete</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/>Pass <input type="checkbox"/>Fail</td> <td><input checked="" type="checkbox"/>No <input type="checkbox"/>Yes</td> <td><input checked="" type="checkbox"/>No <input type="checkbox"/>Yes</td> <td><input type="checkbox"/>1 <input type="checkbox"/>2 <input type="checkbox"/>3 <input checked="" type="checkbox"/>4 <input type="checkbox"/>5</td> <td>32 secs</td> </tr> </tbody> </table> <p><b>Comments</b>  <a href="#">Click here</a></p>	Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input type="checkbox"/> 5	32 secs
Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete							
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input type="checkbox"/> 5	32 secs							

[170.315 \(a\)\(2\) - CPOE Labs](#)

Task No.	Description
4	<p><b>CPOE - Record a Lab Order</b>  <i>(Review and/or consult the lab entry process overview document, if necessary)</i></p> <p><b>Actor</b></p> <p><b>Provider</b></p> <p><b>Steps</b></p> <ol style="list-style-type: none"> <li>1. Select “Search patient”</li> <li>2. Hit Search for Patient Results and Select a Patient</li> <li>3. Select Encounters</li> <li>4. Select a recent encounter record</li> <li>5. Scroll to Labs  <b>Path:</b> <a href="#">Labs &gt; Add or Cancel</a></li> <li>6. Type “HbA1c” in the Lab Name</li> <li>7. Add any order start date</li> </ol>

8. Populate status as “Pending” complete
9. Click “ Save” Lab Entry button

**Observations**

Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	66 secs

**Comments**

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Task No.	Description
5	<b>CPOE - Access a Lab Order</b> <i>(Review and/or consult the lab entry process overview document, if necessary)</i>
<b>Actor</b>	
<b>Provider, MA</b>	
<b>Steps</b>	

1. Select the same patient as the prior task
2. Select the same encounter as the prior task
3. Open Encounter and Scroll to “Labs” Orders screen  
**Path:** [Labs > View Lab Orders](#)
4. Verify date and status

**Observations**

Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	10 secs

**Comments**

[Click here](#)

Task No.	Description
6	<b>CPOE - Change a Lab Order</b> <i>(Review and/or consult the lab entry process overview document, if necessary)</i>  <i>Note that lab order can only be edited before it is sent. To change a lab order that has already been sent, you must delete and reorder with changes.</i>
<b>Actor</b>	
<b>Provider</b>	
<b>Steps</b>	

1. Select "Search patient"
2. Hit Search for Patient Results and Select the Patient previously used
3. Select Encounters
4. Select a recent encounter record
5. Scroll to Labs  
**Path:** [Labs > Delete](#)
6. Delete record
7. Confirm deletion
8. Add or Cancel new Lab
9. Populate new Lab Name "pH of Urine test Strip", add Start Date, and select "completed" Status
10. Click " Save" Lab Entry button

**Observations**

Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input type="checkbox"/> 5	32 secs

**Comments**

[Click here](#)

Task No.	Description				
10	<b>Record demographics</b> <i>(Review, add, change demographic information, if necessary)</i>				
	<b>Actor</b>				
	<b>Provider</b>				
	<b>Steps</b>				
	<ol style="list-style-type: none"> <li>1. Select "Search Patient"</li> <li>2. Select search</li> <li>3. Click "Create Button"</li> <li>4. Create a patient 'Ed Smith'</li> <li>5. Populate Address and Race</li> <li>6. Click Create</li> </ol>				
	<b>Observations</b>				
	<b>Task Success</b>	<b>Path Deviations</b>	<b>Errors</b>	<b>Effort: (1) v. high, (5) v. low</b>	<b>Time to Complete</b>
	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	63 secs
	<b>Comments</b>				
	Click here				

Task No.	Description				
11	<b>Access and modify demographics</b> <i>(Access and modify demographic information, if necessary)</i>				
	<b>Actor</b>				
	<b>Provider, MA, Case Manager</b>				
	<b>Steps</b>				
	<ol style="list-style-type: none"> <li>1. Open patient update screen using blue "Search" button <b>Path:</b> <a href="#">Patients</a> &gt; <a href="#">Search</a> &gt; <a href="#">Select</a></li> <li>2. Select Ed Smith</li> <li>3. Click Edit button on top left</li> <li>4. Add sexual orientation to any drop-down selection</li> <li>5. Delete Patient DOB</li> <li>6. Change patient DOB and re-populate 12/30/1963</li> <li>7. Click Save button to save in top left to save updates</li> </ol>				
	<b>Observations</b>				
	<b>Task Success</b>	<b>Path Deviations</b>	<b>Errors</b>	<b>Effort: (1) v. high, (5) v. low</b>	<b>Time to Complete</b>
	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	59 secs
	<b>Comments</b>				
	Click here				



[170.315 \(a\)\(14\) – Add/change Implantable Device](#)

Overview

Validate ability to add and change implantable devices.

Task No.	Description				
12	<b>Implantable Device – Add/review implantable device</b> <i>(Review and update/change implantable device, if necessary)</i>				
<b>Actor</b>					
<b>Clinic Manager (Admin)</b>					
<b>Steps</b>					
<ol style="list-style-type: none"> <li>1. Use “Patient Search”</li> <li>2. Find and Select a Patient “Jeremy Bates”</li> <li>3. Select a recent Encounters</li> <li>4. Scroll to UDIs  <div style="margin-left: 20px;"><b>Path:</b> <a href="#">UDIs &gt; DeviceID</a></div> </li> <li>5. Review existing UDI entry</li> <li>6. Select “More Info”</li> <li>7. Review listing data</li> <li>8. Select “More Info” to collapse the screen</li> </ol>					
<b>Observations</b>					
<b>Task Success</b>		<b>Path Deviations</b>	<b>Errors</b>	<b>Effort: (1) v. high, (5) v. low</b>	<b>Time to Complete</b>
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	135 secs
<b>Comments</b>					
Click here					

Task No.	Description			
13	<b>Configure and enable Evidence-based DSI</b> Verify that users can configure an evidence-based DSI using any required elements such as problems, medications, allergies, intolerances, or any combination thereof.			
	<b>Actor</b>			
	<b>Clinic Manager (Admin)</b>			
	<b>Steps</b>			
	1. Start Login - Visit https://ehr.justtest.in/account/login.			
	2. Log in with the credentials: <ul style="list-style-type: none"> <li>• Username: doctor</li> <li>• Password: (provided to test participant)</li> </ul>			
	3 Click 'Select Facility.'			
	4 In 'Patient Search,' enter 'Tom' in the 'First Name' field and click 'Search.'			
	5 Select 'Tom Harry' from the results.			
	6 Click 'Launch DSI App' (it will open in a new tab).			
7. Enter the login credentials for the app: <ul style="list-style-type: none"> <li>• Username: provider</li> <li>• Password: provider</li> </ul>				
8. Click 'Yes, Allow' on the next page.				
9. Click 'Evidence Based Alerts' to start configuration of Evidence-based DSI for the patient.				
10. Select DSI launch for combination of problems, labs and allergies.				
11. Select "Evidence Based Alert" to finish the task				
<b>Observations</b>				
<b>Task Success</b>	<b>Path Deviations</b>	<b>Errors</b>	<b>Effort: (1) v. high, (5) v. low</b>	<b>Time to Complete</b>
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	40 secs
<b>Comments</b>				
Click here				

Task No.	Description
14	<b>User records source attributes for evidence-based DSI.</b> Confirm that users can record and store source attributes for evidence-based DSIs
	<b>Actor</b>
	<b>Clinic Manager (Admin)</b>
	<b>Steps</b>
	1. From current page select 'Evidence Based Alerts' and select 'Edit' navigate to the source attributes section.
2. Examine the required evidence-based source attributes (bibliographic citation, developer information, etc.).	

3. 'Save' the record and verify the attributes are stored correctly.

**Observations**

Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	22 secs

**Comments**

[Click here](#)

Task No.	Description										
15	<p><b>User changes source attributes for evidence-based DSI</b> Ensure users can modify the source attributes for a configured DSI.</p>										
<b>Actor</b>											
Clinic Manager (Admin)											
<b>Steps</b>											
<ol style="list-style-type: none"> <li>From the current page use the navigation "Back" function or arrow</li> <li>From current page select 'Evidence Based Alerts' and select 'Edit' navigate to the source attributes section.</li> <li>Examine the required evidence-based source attributes (bibliographic citation, developer information, etc.).</li> <li>Modify the bibliographic citation by typing "JAMA" over the existing field</li> <li>Modify the existing source attribute "revision date" to 2024.</li> <li>Save changes on the bottom of the screen</li> </ol>											
<b>Observations</b>											
<table border="1"> <thead> <tr> <th>Task Success</th> <th>Path Deviations</th> <th>Errors</th> <th>Effort: (1) v. high, (5) v. low</th> <th>Time to Complete</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail</td> <td><input checked="" type="checkbox"/> No <input type="checkbox"/> Yes</td> <td><input checked="" type="checkbox"/> No <input type="checkbox"/> Yes</td> <td><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5</td> <td>50 secs</td> </tr> </tbody> </table>		Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	50 secs
Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete							
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	50 secs							
<b>Comments</b>											
<a href="#">Click here</a>											

Task No.	Description
16	<p><b>User accesses source attributes for evidence-based DSI</b> Verify that users can access the modified source attributes of an evidence-based DSI</p>
<b>Actor</b>	
Clinic Manager (Admin)	
<b>Steps</b>	
<ol style="list-style-type: none"> <li>From the current page use the navigation "Back" function or arrow</li> <li>From current page select 'Evidence Based Alerts' and select 'Edit' to navigate to the source attributes section.</li> <li>Visually inspect the source attribute fields.</li> <li>Confirm that all attributes are available for review and that Bibliographic Reference now says "JAMA" and the Revision Date says "2024"</li> </ol>	
<b>Observations</b>	



Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	25 secs
<b>Comments</b>				
<a href="#">Click here</a>				

Task No.	Description			
17	<p><b>User selects Decision Support Intervention(s) based on any of the required elements alone or in combination</b>            Confirm that users can select DSIs based on a combination of required elements such as problems, medications, and allergies.</p>			
<b>Actor</b>				
<b>Clinic User</b>				
<b>Steps</b>				
<ol style="list-style-type: none"> <li>Log in as an authorized user.</li> <li>Select a DSI based on multiple required elements (e.g., problems + medications + allergies).</li> <li>Activate the DSI and verify it triggers appropriately during patient interaction.</li> </ol>				
<b>Observations</b>				
Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	30 secs
<b>Comments</b>				
<a href="#">Click here</a>				

Task No.	Description			
18	<p><b>User accesses source attributes for selected evidence-based DSI</b>            Ensure that source attributes for a selected evidence-based DSI are accessible.</p>			
<b>Actor</b>				
<b>Clinic Manager (Admin)</b>				
<b>Steps</b>				
<ol style="list-style-type: none"> <li>Select an active evidence-based DSI.</li> <li>Navigate to the source attributes section.</li> <li>Verify that the relevant source attributes are accessible and up to date. Review each field.</li> </ol>				
<b>Observations</b>				
Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	35 secs
<b>Comments</b>				
<a href="#">Click here</a>				

Task No.	Description
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19	<b>User provides feedback for a triggered evidence-based DSI</b> Ensure that users can provide feedback on a triggered DSI			
	<b>Actor</b>			
	<b>Clinic User</b>			
	<b>Steps</b>			
	<ol style="list-style-type: none"> <li>1. Select "Evidence Based DSI" for any patient</li> <li>2. Select "Evidence Based Alerts"</li> <li>3. To the left of the respective alert provide feedback in the following fields: feedback, action, intervention.</li> <li>4. Ensure fields are populated and that text is "sticky"</li> </ol>			
	<b>Observations</b>			
	<b>Task Success</b>	<b>Path Deviations</b>	<b>Errors</b>	<b>Effort: (1) v. high, (5) v. low</b>
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	100 secs
<b>Comments</b>				
<a href="#">Click here</a>				

Task No.	Description			
20	<b>Generate feedback in computable export with specific fields</b> Verify that feedback data can be exported with required fields and in a computable format			
	<b>Actor</b>			
	<b>Clinic Manager (Admin)</b>			
	<b>Steps</b>			
	<ol style="list-style-type: none"> <li>1. From the current screen select "Export" for any of the alerts</li> <li>2. Ensure the file for Feedback Export download commences in a computable format (.json)</li> <li>3. Review the file for the following fields: user, date, location, action, intervention, and feedback/remarks</li> </ol>			
	<b>Observations</b>			
	<b>Task Success</b>	<b>Path Deviations</b>	<b>Errors</b>	<b>Effort: (1) v. high, (5) v. low</b>
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	40 secs
<b>Comments</b>				
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§170.315 (b)(11)- Decision Support Intervention – User-supplied Predictive

Task No.	Description										
21	<p><b>User configures Predictive DSI using the required USCDI data elements</b> Verify that users can configure predictive DSIs using USCDI data elements such as demographics, problems, and vital signs.</p>										
	<b>Actor</b>										
	<b>Clinic Manager (Admin)</b>										
	<b>Steps</b>										
	Log in as a user with administrative rights.										
	Navigate to the "Predictive DSI" section.										
	Configure a predictive DSI using patient demographics, problems, and vital signs.										
	Activate the DSI and verify that it uses the required USCDI data elements.										
	<b>Observations</b>										
	<table border="1"> <thead> <tr> <th>Task Success</th> <th>Path Deviations</th> <th>Errors</th> <th>Effort: (1) v. high, (5) v. low</th> <th>Time to Complete</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail</td> <td><input checked="" type="checkbox"/> No <input type="checkbox"/> Yes</td> <td><input checked="" type="checkbox"/> No <input type="checkbox"/> Yes</td> <td><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5</td> <td>120 secs</td> </tr> </tbody> </table>	Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	120 secs
Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete							
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	120 secs							
	<b>Comments</b>										
	<a href="#">Click here</a>										

Task No.	Description										
22	<p><b>User records user-defined source attributes for a Predictive DSI</b> Ensure users can record custom source attributes for a predictive DSI.</p>										
	<b>Actor</b>										
	<b>Clinic Manager (Admin)</b>										
	<b>Steps</b>										
	1. Select a predictive DSI and navigate to the source attributes section.										
	2. Record user-defined attributes, such as the intended use, developer details, and purpose of the DSI.										
	3. Save the attributes and confirm they are recorded correctly.										
	<b>Observations</b>										
	<table border="1"> <thead> <tr> <th>Task Success</th> <th>Path Deviations</th> <th>Errors</th> <th>Effort: (1) v. high, (5) v. low</th> <th>Time to Complete</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail</td> <td><input checked="" type="checkbox"/> No <input type="checkbox"/> Yes</td> <td><input checked="" type="checkbox"/> No <input type="checkbox"/> Yes</td> <td><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5</td> <td>75 secs</td> </tr> </tbody> </table>	Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	75 secs
Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete							
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	75 secs							
	<b>Comments</b>										
	<a href="#">Click here</a>										

Task No.	Description
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23	<b>User records user-defined source attributes for a Predictive DSI</b> Confirm that users can access the modified source attributes defined for a predictive DSI.				
	<b>Actor</b>				
	<b>Clinic Manager (Admin)</b>				
	<b>Steps</b>				
	<ol style="list-style-type: none"> <li>1. Access a configured predictive DSI.</li> <li>2. Navigate to the source attributes section and record a user-defined attributes.</li> <li>3. Verify all attributes are visible and up to date based on the previous modification/edit.</li> </ol>				
	<b>Observations</b>				
	<b>Task Success</b>		<b>Path Deviations</b>	<b>Errors</b>	<b>Effort: (1) v. high, (5) v. low</b>
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	25 secs
<b>Comments</b>					
<a href="#">Click here</a>					

<b>Task No.</b>	<b>Description</b>				
24	<b>User changes user-defined source attributes for a Predictive DSI.</b> Confirm that users can change source attributes defined for a predictive DSI.				
<b>Actor</b>					
<b>Clinic Manager (Admin)</b>					
<b>Steps</b>					
<ul style="list-style-type: none"> <li>• Access a configured predictive DSI.</li> <li>• Navigate to the source attributes section and change 1 of the user-defined attributes.</li> <li>• Verify all attributes are visible and up to date.</li> </ul>					
<b>Observations</b>					
<b>Task Success</b>		<b>Path Deviations</b>	<b>Errors</b>	<b>Effort: (1) v. high, (5) v. low</b>	<b>Time to Complete</b>
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	60 secs
<b>Comments</b>					
<a href="#">Click here</a>					

<b>Task No.</b>	<b>Description</b>				
25	<b>User selects a user-supplied Predictive DSI.</b> Verify that users can select a predictive DSI configured with user-supplied attributes				
<b>Actor</b>					
<b>Clinic User or Admin</b>					
<b>Steps</b>					
<ol style="list-style-type: none"> <li>1. Log in as a user with predictive DSI access.</li> <li>2. Select a predictive DSI from the list of available interventions.</li> <li>3. Confirm the DSI activates and generates recommendations based on user-supplied data.</li> </ol>					

Observations				
Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	22 secs
Comments				
<a href="#">Click here</a>				

Task No.	Description			
26	<p><b>User accesses and reviews source attributes for selected user-supplied Predictive DSI.</b> Ensure that users can access and review source attributes for selected user-supplied predictive DSIs.</p>			
<b>Actor</b>				
Clinic User				
<b>Steps</b>				
<ol style="list-style-type: none"> <li>1. Select a user-supplied predictive DSI.</li> <li>2. Access the source attributes related to the intervention.</li> <li>3. Review the attributes (e.g., developer information, intended use) and confirm that they are accurate.</li> </ol>				
Observations				
Task Success	Path Deviations	Errors	Effort: (1) v. high, (5) v. low	Time to Complete
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	70 secs
Comments				
<a href="#">Click here</a>				

**Consent Form: Remote Usability Test**

Please read and sign this form.

During this usability test I agree to participate in an online session using my computer and telephone. During the session I will be interviewed about the site, asked to find information or complete tasks using the site and asked to complete an online questionnaire about the experience.

I understand and consent to the use and release of the recording by SMARTMD. I understand that the information and recording are for research purposes only and that my name and image will not be used for any other purpose. I relinquish any rights to the recording and understand the recording may be copied and used by SMARTMD without further permission.

I understand that participation is voluntary and I agree to immediately raise any concerns you might have.

If you have any questions after today, please contact [SMARTMD.com](http://SMARTMD.com)

Please sign below to indicate that you have read and understand the information on this form and that any questions you might have about the session have been answered.

Please print your name:

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Please sign your name:

---

*Participant's Signature or eSignature*

Today's Date: \_\_\_\_\_

Thank you!

We appreciate your participation.

Test:    /    /    to    /    /    \_\_\_\_\_