



**Physician's Solution v11**  
**2024 EHR Usability Test**  
**(b)(11) Addendum Report**

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

*Report based on ISO/IEC 62366 Common Industry Format for Usability Test Reports*

**Physician's Solution - Safety Enhanced Design**

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## Executive Summary

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Usability tests of the 11 version of the 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 14 tasks typically conducted in the EHR:

### **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 the 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

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## Introduction

This study is the result of usability testing performed on the 11 version of the 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 §170.315(g)(3), specifically:

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

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

## Method

### Participants

A total of ten (10) participants were tested on the EHR. Participants in the test included doctors, medical assistants, clinic managers, and test participants general office aptitude for technology. Volunteer participants were recruited by 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 , and did not need any orientation or training as they all were experienced 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), 14 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:

- 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 the 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 the current version of the 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 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 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 EHR 1.0 by measuring participant success rates and errors
- Efficiency of EHR 1.0 by measuring the average task time and path deviations
- Satisfaction with EHR 1.0 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
<b>Effectiveness:</b> Task Success	<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>
<b>Effectiveness:</b> Task Failures	<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
<b>Efficiency:</b> Task Deviations	<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>
<b>Efficiency:</b> Task Time	<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
<b>Satisfaction:</b> Task Rating	<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>

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.

Task #	Task/Risk Level	Risk Rationale
1	User configures evidence-based DSI	Failure to configure evidence-based DSI properly could lead to inaccurate decision-making, affecting clinical outcomes.
	Moderate	
2	User records source attributes for evidence-based DSI.	Minimal risk as it involves recording data elements already part of clinical workflows.
	Low	
3	User changes source attributes for evidence-based DSI.	Changes to source attributes may affect the accuracy of clinical recommendations, leading to inappropriate care.
	Moderate	
4	User accesses source attributes for evidence-based DSI.	Misinterpretation of source attributes could result in errors in clinical decision-making.
	Moderate	
5	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	
6	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	
7	Provide feedback for a triggered evidence-based DSI.	Feedback is non-intrusive and primarily involves confirming previously recorded actions, which limits the risk.
	Low	
8	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	
9	Configures Predictive DSI using the required USCDI data elements.	Incorrect configuration could result in poor predictive outcomes, impacting patient care.
	Moderate	

10	User records user-defined source attributes for a Predictive DSI.	Low risk, as this task involves recording predefined data elements.
	Low	
11	User changes user-defined source attributes for a Predictive DSI.	Incorrect interpretation of user-defined attributes could lead to inaccuracies in the predictive model.
	Moderate	
12	User accesses user-defined source attributes for a Predictive DSI.	Low risk, since this is a basic access task with minimal potential for error.
	Low	
13	User selects a user-supplied Predictive DSI.	Selection errors could result in incorrect clinical predictions, affecting patient management.
	Moderate	
14	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

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 (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)
1	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
2	User records source attributes for evidence-based DSI.	Likert	5	0	26.6	4.39	27/22	100	0	0	0	3	3
3	User changes source attributes for evidence-based DSI.	Likert	5	0	57.9	8.43	57.5/50	100	0	0	0	6	6
4	User accesses source attributes for evidence-based DSI.	Likert	5	0	28.8	4.01	28.78/25	100	0	0	0	4	4
5	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
6	User accesses source attributes for selected	Likert	5	0	43.7	5.27	43/35	100	0	0	0	3	3

	evidence-based DSI.												
7	User provides feedback for a triggered evidence-based DSI.	Likert	5	0	122.3	22.81	122/100	100	0	0	0	4	4
8	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

Task #	Task/Pre-test Risk Level	Test Error Percentage	Discussion
1	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		
2	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		
3	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		
4	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		
5	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		
6	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		
7	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		
8	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 20).

Streamline feedback forms with pre-filled fields or auto-completion options (Task 19).

Improve dropdown menu responsiveness and field labeling for easier navigation (Task 17).

Consider adding tooltips and quick-access features to simplify attribute selection and review processes (Tasks 13, 18).

## §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)
9	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
10	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
11	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
12	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
13	User selects a user-supplied Predictive DSI.	Likert	5	.35	28.4	4.63	28.42/22	100	0	0	0	3	3
14	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>
9	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		
10	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		
11	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		
12	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		
13	User selects a user-supplied Predictive DSI.	0%	No errors were noted. Selection of a user-supplied Predictive DSI was performed correctly, minimizing the risk of incorrect clinical predictions affecting patient management.
	Moderate		
14	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 21).
- Improve field labels and consider adding a search function to assist with attribute changes (Task 24).
- Provide visual summaries and highlight key attributes to streamline review processes (Task 26).
- Enhance grouping and contextual help for user-defined attributes (Task 22).

## Appendices

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

Physician's Solution® is a registered trademark

## Appendix B - Tasks

### §170.315 (b)(11)- Decision Support Intervention – Evidence Based

Task No.	Description										
1	<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 <a href="https://ehr.justtest.in/account/login">https://ehr.justtest.in/account/login</a> .										
	2. Log in with the credentials: <ul style="list-style-type: none"> <li>Username: (provided to test participant)</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>										
	<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>40 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	40 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	40 secs						
	<b>Comments</b>										
<a href="#">Click here</a>											

Task No.	Description
2	<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>

<ol style="list-style-type: none"> <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>'Save' the record and verify the attributes are stored correctly.</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	22 secs
<b>Comments</b>				
<a href="#">Click here</a>				

<b>Task No.</b>	<b>Description</b>
<b>3</b>	<b>User changes source attributes for evidence-based DSI</b> Ensure users can modify the source attributes for a configured DSI.
<b>Actor</b>	
<b>Clinic Manager (Admin)</b>	
<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>	
<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
50 secs	
<b>Comments</b>	
<a href="#">Click here</a>	

<b>Task No.</b>	<b>Description</b>
<b>4</b>	<b>User accesses source attributes for evidence-based DSI</b> Verify that users can access the modified source attributes of an evidence-based DSI
<b>Actor</b>	
<b>Clinic Manager (Admin)</b>	
<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> </ol>	

4. Confirm that all attributes are available for review and that Bibliographic Reference now says "JAMA" and the Revision Date says "2024"				
<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	25 secs
<b>Comments</b>				
<a href="#">Click here</a>				

<b>Task No.</b>	<b>Description</b>			
5	<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 for problems, medications, and allergies.			
<b>Actor</b>				
<b>Clinic User</b>				
<b>Steps</b>				
1. Log in as an authorized user. 2. Select a DSI based on multiple required elements (e.g., problems + medications + allergies). 3. Activate the DSI and verify it triggers appropriately during patient interaction.				
<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	30 secs
<b>Comments</b>				
<a href="#">Click here</a>				

<b>Task No.</b>	<b>Description</b>			
6	<b>User accesses source attributes for selected evidence-based DSI</b> Ensure that source attributes for a selected evidence-based DSI are accessible.			
<b>Actor</b>				
<b>Clinic Manager (Admin)</b>				
<b>Steps</b>				
1. Select an active evidence-based DSI. 2. Navigate to the source attributes section. 3. Verify that the relevant source attributes are accessible and up to date. Review each field.				
<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	35 secs
<b>Comments</b>				
<a href="#">Click here</a>				

Task No.	Description										
7	<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, and remarks.</li> <li>4. Ensure fields are populated and that text is "sticky"</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>100 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	100 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	100 secs							
<b>Comments</b> <a href="#">Click here</a>											

Task No.	Description										
8	<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>										
	<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>40 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	40 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	40 secs							
<b>Comments</b> <a href="#">Click here</a>											

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

Task No.	Description									
9	<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.									
	<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
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										
10	<b>User records user-defined source attributes for a Predictive DSI</b> Ensure users can record custom source attributes for a predictive DSI.										
	<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>											
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Task No.	Description
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11	<b>User changes user-defined source attributes for a Predictive DSI</b> Confirm that users can change the 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>	<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	25 secs
<b>Comments</b>					
<a href="#">Click here</a>					

<b>Task No.</b>	<b>Description</b>			
12	<b>User accesses user-defined source attributes for a Predictive DSI.</b> Confirm that users can access user defined 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>
	<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
<b>Time to Complete</b>				
60 secs				
<b>Comments</b>				
<a href="#">Click here</a>				

<b>Task No.</b>	<b>Description</b>
13	<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>

	<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	22 secs
	<b>Comments</b>				
	<a href="#">Click here</a>				

<b>Task No.</b>	<b>Description</b>										
14	<p><b>User accesses and reviews source attributes for selected user-supplied Predictive DSI.</b></p> <p>Ensure that users can access and review source attributes for selected user-supplied predictive DSIs.</p>										
	<b>Actor</b>										
	<b>Clinic User</b>										
	<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>										
	<b>Observations</b>										
	<table border="1"> <tr> <td><b>Task Success</b></td> <td><b>Path Deviations</b></td> <td><b>Errors</b></td> <td><b>Effort: (1) v. high, (5) v. low</b></td> <td><b>Time to Complete</b></td> </tr> <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>70 secs</td> </tr> </table>	<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	70 secs
<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	70 secs							
	<b>Comments</b>										
	<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 . 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 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 us directly.

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:

---

Please sign your name:

---

*Participant's Signature or eSignature*

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

Thank you!

We appreciate your participation.

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



## **EHR Usability Test Report of Physician's Solution 11.0**

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**Date of Usability Test: Oct 09, 2019**

**Date of Report** : Sep 16<sup>th</sup>, 2019  
**Report Prepared By** : Gobinath V. B  
**Report Reviewed By** : Aaron Wachspress

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## 1 Executive Summary

A usability test of Physician's Solution 11.0 was conducted on Sep XX, 2019 at two locations in NY by Physician's Solutions EMR. The purpose of this test was to test and validate the usability of the current user interface, and provide evidence of usability in the EHR under Test (EHRUT). During the usability test, two healthcare providers, one practice administrator and one office manager matching the target demographic criteria served as participants and used the EHRUT in simulated, but representative tasks.

This study collected performance data on October 1, 2014 tasks typically conducted on an EHR:

- Computerized provider order entry – medications
- Computerized provider order entry – laboratory
- Computerized provider order entry – diagnostic imaging
- Drug-drug, drug-allergy interaction checks
- Demographics
- Problem list
- Medication list
- Medication allergy list
- Clinical decision support
- Implantable device list
- Clinical information reconciliation and incorporation
- Electronic prescribing

At start of the test, each participant was greeted by the administrator / moderator. 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 the EHRUT. During the testing, the administrator timed the test and recorded user performance.

The administrator did not give the participant assistance in how to complete the task. 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.

Sr.	Task	Completed Successfully?	Completed in Time?	Time Deviation
1	Computerized provider order entry– medications	Yes	No	Plus 4
2	Computerized provider order entry – laboratory	Yes	No	Plus 3
3	Computerized provider order entry – diagnostic imaging	Yes	No	Plus 2
4	Drug-drug, drug-allergy interaction checks	Yes	No	Plus 8
5	Demographics	Yes	Yes	None
6	Problem list	Yes	Yes	None
7	Medication list	Yes	Yes	None
8	Medication allergy list	Yes	No	Plus 6
9	Clinical decision support	Yes	No	Plus 14
10	Implantable device list	Yes	No	Plus 7
11	Clinical information reconciliation	Yes	No	Plus 6
12	Electronic prescribing	Yes	No	Plus 8

## 2 Introduction

The EHRUT tested for this study was Physician’s Solution 6.0, an Ambulatory EHR. 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 EHRUT.

### 3 Method

A total of 10 participants were tested on the EHRUT. Participants in the test were healthcare providers and nurse practitioners.

The participants had a mix of backgrounds and demographics. 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	Professional Role	Professional Experience	Computer Experience	Product Experience	Assistive Technology Needs	Facility Use of EHR
1	Female	20-29	Bachelor's Degree	Medical Assistant	5	230	15	No	Electronic
2	Female	30-39	Bachelor's Degree	Medical Assistant	12	240	13	No	Electronic
3	Female	30-39	Bachelor's Degree	Medical Assistant	15	250	12	No	Electronic
4	Female	30-39	Bachelor's Degree	Medical Assistant	15	210	13	No	Electronic
5	Female	20-29	Bachelor's Degree	Scribe	1	220	12	No	Electronic
6	Male	60-69	Master's Degree	Provider	31	240	16	No	Electronic
7	Male	50-59	Master's Degree	Provider	26	240	16	No	Electronic
8	Female	30-39	Bachelor's Degree	Medical Assistant	10	250	13	No	Electronic
9	Female	30-39	Bachelor's Degree	Medical Assistant	4	200	15	No	Electronic
10	Female	20-29	Bachelor's Degree	Medical Assistant	5	210	15	No	Electronic
11	Female	20-29	Bachelor's Degree	Medical Assistant	2	220	14	No	Electronic

### 3.1 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.



### 3.2 Tasks:

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

- 170.315 (a)(1) Computerized provider order entry – medications
- 170.315 (a)(2) Computerized provider order entry – laboratory
- 170.315 (a)(3) Computerized provider order entry – diagnostic imaging
- 170.315 (a)(4) Drug-drug, drug-allergy interaction checks
- 170.315 (a)(5) Demographics
- 170.315 (a)(6) Problem list
- 170.315 (a)(7) Medication list
- 170.315 (a)(8) Medication allergy list
- 170.315 (a)(9) Clinical decision support
- 170.315 (a)(14) Implantable device list
- 170.315 (b)(2) Clinical information reconciliation and incorporation
- 170.315 (b)(3) Electronic prescribing

### 3.3 Procedure:

At start of the test, participants were greeted. Participants were then assigned a participant ID. The administrator / moderator moderated the session including administering instructions and tasks. The administrator / moderator also monitored task times, obtained post-task rating data, and took notes on participant comments.

Participants were instructed to perform the tasks keeping in view the following instruction:

- 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 written copy of the task. Task timing began once the administrator / moderator 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 (the System Usability Scale, see Appendix 3), and thanked each individual for their participation. Participants' demographic information, task success, and time on task were recorded into a spreadsheet.

### 3.4 Test Location:

Tests were conducted in the practices while provider and nurse practitioner had no patients there. Only the participant and administrator / moderator were in the test room. Administrator / moderator could see the participant's screen. 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

### 3.5 Test Environment:

The EHRUT would be used in a healthcare office. In this instance, the testing was conducted in provider's office. For testing, the computer used consisted of a desktop machine running Windows 7 Operating System.

The participants used a mouse and keyboard when interacting with the EHRUT. The application was set up by the administrator according to the requirements. The application itself was running on a Windows platform using a test database on a WAN connection. Technically, the system performance (i.e., response time) 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 (such as control of font size).

### 3.6 Test Forms and Tools:

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

1. Moderator's Guide
2. Post-test Questionnaire

Examples of these documents can be found in Appendices 2-3 respectively. The Moderator's Guide was devised so as to be able to capture required data.

### 3.7 Participant Instructions:

The administrator read 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. 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 and time were told to complete the task. 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.*

### 3.8 Usability Metrics:

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

1. Effectiveness of Physician's Solution 6.0 by measuring participant success rates and errors.
2. Efficiency of Physician's Solution 6.0 by measuring the average task time.
3. Satisfaction with Physician's Solution 6.0 by measuring ease of use ratings.

## 4 Results

### 4.1 Data Scoring:

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

Measure	Rationale and Scoring
<b>Effectiveness:</b> Task Success	<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>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.</p>
<b>Effectiveness:</b> Task Failure	<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 a “Failures.”</p>
<b>Efficiency:</b> Task Deviation	<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.</p>
<b>Efficiency:</b> Task Time	<p>Each task was timed from when the administrator said “Begin” until the participant said, “Done”. Only task times for tasks that were successfully completed were included in the average task time analysis.</p>
<b>Satisfaction:</b> Task Rating	<p>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 participants.</p> <p>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 Physician’s Solution 6.0 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.” See full System Usability Score questionnaire in Appendix 3.</p>

#### 4.2 Results:

The results of the usability test were calculated according to the methods specified in the Usability Metrics section above.

Sr.	Task	Completed Successfully?	Completed in Time?	Time Deviation
1	Computerized provider order entry– medications	Yes	No	Plus 4
2	Computerized provider order entry – laboratory	Yes	No	Plus 3
3	Computerized provider order entry – diagnostic imaging	Yes	No	Plus 2
4	Drug-drug, drug-allergy interaction checks	Yes	No	Plus 8
5	Demographics	Yes	Yes	None
6	Problem list	Yes	Yes	None
7	Medication list	Yes	Yes	None
8	Medication allergy list	Yes	No	Plus 6
9	Clinical decision support	Yes	No	Plus 14
10	Implantable device list	Yes	No	Plus 7
11	Clinical information reconciliation	Yes	No	Plus 6
12	Electronic prescribing	Yes	No	Plus 8

#### Effectiveness:

Most users praised the new system. They were excited to see the newly built module for Clinical Information Reconciliation and Clinical Decision Support.

#### Major Findings:

The users took a little extra time on Clinical Information Reconciliation and Clinical Decision Support. Overall, they were satisfied to see the newly added parameters in the Clinical Decision Support but wanted to see a little improvement in the current work flow.

#### Efficiency:

Most of the tasks were completed by the users on time with deviations in Computerized Provider Entry (Lab), Clinical Information Reconciliation and Clinical Decision Support.

#### Satisfactions:

All the users were satisfied with the overall workflow and provided few suggestions to make it more user- friendly.

#### Areas for Improvement:

The users were a little unsatisfied with the speed of the system, and wanted to improve the speed and performance.

## 5. Appendix 1: Participant Demographics

Following is a high-level overview of the participants in this study

<b>Gender</b>	
Men	2
Women	9
Total (Participants)	11

<b>Occupation / Role</b>	
Physician	2
Nurse Practitioner	
Other	9
Total (Participants)	11

<b>Years of experience</b>	
0-5	5
6-10	1
10+	5
Total Participants	11

<b>Facility Use of EHR</b>	
All Paper	
All Electronic	YES
Some Paper, Some Electronic	
Total Participants	

## 6 Task wise results

### Task 1: Computerized Provider Order Entry (Medication)

Take the participant to the starting point for the task. Medications criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

#### ONC Criteria: 170.315 (a)(1) Computerized provider order entry—medications—

- Enable a user to record, change, and access medication orders.
- Optional. Include a “reason for order” field.

This criterion needs to complete all scenarios and each task mentioned in the below:

#### Scenario: Order Medications

- i. *Navigate to Medication screen to place an order.*
  - a. Order for Pantoprazole injectable, 150 mg, IV, Once
  - b. Enter the order for reason in the comments section as “ordering for acidity problem”
- ii. *Access and Change order for medication*
  - a. Access medication order which is added above
  - b. Change the Pantoprazole injectable, 350 mg, IV, Once

#### Success:

Easily completed (Yes/No): Yes

Completed with difficulty or help: Describe below (Yes/No)

Not completed: (Yes/ No)

Comments: It was easy to place order in the EMR and able to change it without any difficulty.

**Task Time:** 40 Seconds

**Task Success:** 98%

**Task Errors:** 2%

#### Rating:

Overall, this task was: Easy

Show participant written scale: “Very Easy” (1) to “Very Difficult” (5)

## **Task 2: Computerized Provider Order Entry (Laboratory)**

Take the participant to the starting point for the task. Laboratory criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

### **ONC Criteria: 170.315 (a)(2) Computerized provider order entry—laboratory—**

- Enable a user to record, change, and access medication orders.
- Optional. Include a “reason for order” field.

This criterion needs to complete all scenarios and each task mentioned in the below:

#### **Scenario: Order a Lab**

- iii. *Navigate to Lab ordering screen to place an order.*
  - a. Order for CBC
  - b. Enter the order for reason in the comment section as “Ordering for Viral Fever”
  - c. Set the Priority as ‘STAT’
  - d. Click on “Save” button
- iv. *Access and Change order for Lab Order*
  - a. Edit the existing Order
  - b. Uncheck the Lab order which is added above from template
  - c. Change the order to Urinalysis
  - d. Click on “Save” button

#### **Success:**

Easily completed (Yes/No):

Completed with difficulty or help: Describe below (Yes/No)

Not completed: (Yes/ No)

Comments: It was easy to place order in the EMR and able to change it without any difficulty.

**Task Time:** 30 Seconds

**Task Success:** 98.56%

**Task Errors:** 6%

**Rating:** Overall, this task was: Very Easy

*Show participant written scale: “Very Easy” (1) to “Very Difficult” (5)*



### **Task 3: Computerized Provider Order Entry (Diagnostic Imaging)**

Take the participant to the starting point for the task. Imaging criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

#### **ONC Criteria: 170.315 (a)(3) Computerized provider order entry— Diagnostic Imaging —**

- Enable a user to record, change, and access Imaging orders.
- Optional. Include a “reason for order” field.

This criterion needs to complete all scenarios and each task mentioned in the below:

#### **Scenario: Order a Diagnostic Imaging**

- v. *Navigate to Image ordering screen to place an order.*
  - a. Order for CT SCAN
  - b. Enter the order for reason as “Ordering for Prolonged Posterior Neck Pain”
  - c. Click on “Save and Close” button in the Template
- vi. *Access and Change order for Other Imaging Order*
  - a. Edit the Template
  - b. Uncheck the Imaging Order which is added above from template
  - c. Change the order to X-Ray
  - d. Click on “Save and Close” button in the Template

#### **Success:**

Easily completed (Yes/No):

Completed with difficulty or help: Describe below (Yes/No)

Not completed: (Yes/ No)

Comments: It was easy to place order in the EMR and able to change it without any difficulty.

**Task Time:** 80 Seconds

**Task Success:** 99.54%

**Task Errors:** 5%

#### **Rating:**

Overall, this task was: Very Easy

Show participant written scale: “Very Easy” (1) to “Very Difficult” (5)

#### **Task 4: Drug-Drug, Drug-Allergy Interaction Checks**

Take the participant to the starting point for the task. Interaction checks criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

#### **ONC Criteria: 170.315 (a)(4) Drug-Drug, Drug-Allergy Interaction Checks**

- Perform drug-drug interaction checks based on medication information included in the system
- Perform drug-allergy interaction checks based on medication allergy information included in the system

This criterion needs to complete all scenarios and each task mentioned in the below Scenario

#### **Prescribe a Medication for Drug-Drug Alert**

- Navigate to Medication screen to prescribe a medication.*
- Search and prescribe 'Warfarin'
- Save and prescribe 'Aspirin'
- Click on "Save" button to see the Drug-Drug Alert

#### **Prescribe a Medication for Drug-Allergy Alert**

- Navigate to template with Allergy list
- Add a Drug Allergy of Amoxicillin
- Navigate to Medication screen to prescribe a medication.*
- Search and prescribe 'Amoxicillin'
- Click on "Save" button to see the Drug-Allergy Alert

#### **Success:**

Easily completed (Yes/No):

Completed with difficulty or help: Describe below (Yes/No)

Not completed: (Yes/ No)

Comments: It was easy to place order in the EMR and able to change it without any difficulty.

**Task Time:** 90 Seconds

**Task Success:** 92.36%

**Task Errors:** 16%

#### **Rating:**

Overall, this task was: Easy

Show participant written scale: "Very Easy" (1) to "Very Difficult" (5)

**Task 5: Demographics**

Take the participant to the starting point for the task. Demographics criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

**ONC Criteria: 170.315 (a)(5) Demographics**

This criterion needs to complete all scenarios and each task mentioned in the below Scenario

- a. Navigate to Demographic section
- b. Validate the ability of system to record “declined to specify” for sexual orientation and gender identity in addition to race, ethnicity and preferred language
- c. ‘Gender Identity’ is Multiselect
- d. Sexual orientation and gender identity added as required data elements

**Success:**

Easily completed (Yes/No):

Completed with difficulty or help: Describe below (Yes/No)

Not completed: (Yes/ No)

Comments: It was easy to place order in the EMR and able to change it without any difficulty.

**Task Time:** 30 Seconds

**Task Success:** 100%

**Task Errors:** zero

**Rating:**

Overall, this task was: Very Easy

*Show participant written scale: “Very Easy” (1) to “Very Difficult” (5)*

**Task 6: Problem List**

Take the participant to the starting point for the task. Problem List criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

**ONC Criteria: 170.315 (a)(6) Problem List**

This criterion needs to complete all scenarios and each task mentioned in the below Scenario

- a. Navigate to Problem list section and launch Problem screen
- b. Search for a Problem by ICD10 code 'J11'
- c. Observe all the listed related problems are displayed with appropriate vocab standard terms and codes
- d. Select a specific problem from the list and save the changes
- e. Problems are saved in the patient record with appropriate vocab standard terms and codes as selected.

**Success:**

Easily completed (Yes/No):

Completed with difficulty or help: Describe below (Yes/No)

Not completed: (Yes/ No)

Comments: It was easy to place order in the EMR and able to change it without any difficulty.

**Task Time:** 30 Seconds

**Task Success:** 100%

**Task Errors:** Zero

**Rating:**

Overall, this task was: Very Easy

*Show participant written scale: "Very Easy" (1) to "Very Difficult" (5)*

**Task 7: Medication List**

Take the participant to the starting point for the task. Medication List criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

**ONC Criteria: 170.315 (a)(7) Medication List**

This criterion needs to complete all scenarios and each task mentioned in the below Scenario

- a. Navigate to Medication list section
- b. Historic Medications added in different encounters are displayed along with the RxNorm as prescribed
- c. Launch Medication screen and prescribe a new medication
- d. Newly prescribed medication is displayed along with historic medications in the list.
- e. Select a Rx from the list, Click EDIT and set it as Discontinue.
- f. Save and the Rx is removed from the Active Medication List
- g. Select a Rx from the list, Click EDIT and check 'mark it as Inactive'
- h. Save and the Rx is removed from the Active Medication List

**Success:**

Easily completed (Yes/No):

Completed with difficulty or help: Describe below (Yes/No)

Not completed: (Yes/ No)

Comments: It was easy to place order in the EMR and able to change it without any difficulty.

**Task Time:** 30Seconds

**Task Success:** 100%

**Task Errors:** Zero

**Rating:**

Overall, this task was: Very Easy

*Show participant written scale: "Very Easy" (1) to "Very Difficult" (5)*

**Task 8: Medication Allergy List**

Take the participant to the starting point for the task. Medication Allergy criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

**ONC Criteria: 170.315 (a)(8) Medication Allergy List**

This criterion needs to complete all scenarios and each task mentioned in the below Scenario

- a. Navigate to Medication Allergy list section
- b. Historic Medication Allergies added in different encounters are displayed along with the Status, Type, Reaction, Source, Severity as added
- c. Add a new Medication Allergy
- d. Newly added allergy is displayed along with historic medications in the list.
- e. Select an existing Allergy and update the Status, Severity or Reaction and save
- f. Allergy values are saved as updated

**Success:**

Easily completed (Yes/No): Yes

Completed with difficulty or help: Describe below (Yes/No) No

Not completed: (Yes/ No) Yes

Comments: It was easy to place order in the EMR and able to change it without any difficulty.

**Task Time:** 60 Seconds

**Task Success:** 96%

**Task Errors:** 8%

**Rating:**

Overall, this task was: Easy

*Show participant written scale: "Very Easy" (1) to "Very Difficult" (5)*

### **Task 9: Clinical Decision Support**

Take the participant to the starting point for the task. Clinical Decision Support criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

- **ONC Criteria: 170.315 (a)(9) Clinical decision support**

This criterion needs to complete all scenarios and each task mentioned in the below Scenario

#### **Interaction Checking**

##### **Prescribe a Medication for Drug-Drug Alert**

1. *Navigate to Medication screen to prescribe a medication.*
2. Search and prescribe 'Warfarin'
3. Save and prescribe 'Aspirin'
4. Click on "Save" button to see the Drug-Drug Alert

##### **Prescribe a Medication for Drug-Allergy Alert**

1. Navigate to template with Allergy list
2. Add a Drug Allergy of Amoxicillin
3. *Navigate to Medication screen to prescribe a medication.*
4. Search and prescribe 'Amoxicillin'
5. Click on "Save" button to see the Drug-Allergy Alert

#### **Drug Formulary**

1. Select a patient with active Insurance Plan
2. *Navigate to Medication screen to prescribe a medication.*
3. Search and try to prescribe a Branded Medication (Procardia) which has Generic equivalent (Nifedipine)
4. System suggests the Generic Medication to be prescribed
5. System also specifies whether the selected medication is reimbursable or not.

#### **Patient Education (Info Buttons)**

1. *Navigate to Medication screen to prescribe a medication.*
2. Search for a medication and click on the 'i' Icon/Button
3. System launches <https://www.healthline.com/> with detailed information about the medication in context

4. Similarly, 'i' Icon in Problem and Allergy section launches <https://www.healthline.com/> with detailed information about the clinical item in context

#### **Trigger Alert**

1. Navigate to Admin section, Tools=>Follow-Up Triggers
2. Set up a sql query that would fetch patient in bulk for the satisfying criteria. Say, fetch all Patient of age 02-18 Months and send out an Alert comment "DO NOT FORGET TO TAKE POLIO DROPS ON 10/10/2019 "
3. Bring the patient in context and check for the Alert populated in the Reminder section

#### **Success:**

Easily completed (Yes/No):

Completed with difficulty or help: Describe below (Yes/No)

Not completed: (Yes/ No)

Comments: It was easy to place order in the EMR and able to change it without any difficulty.

**Task Time:** 120 Seconds

**Task Success:** 87.12 %

**Task Errors:** 18%

#### **Rating:**

Overall, this task was: Moderate

*Show participant written scale: "Very Easy" (1) to "Very Difficult" (5)*



**Task 10: Implantable Device List**

Take the participant to the starting point for the task. Implantable Device criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

**ONC Criteria: 170.315 (a)(14) Implantable Device List**

List of all devices and specifications like UDI and other device details, Implant and Removal Date allows the Clinicians know what devices their patients have and use that information to deliver safer and more effective care.

This criterion needs to complete all scenarios and each task mentioned in the below Scenario

- a. Navigate to Medical Equipment section and add a new equipment for a patient by selecting valid UDI from the list
- b. All corresponding device details like Brand Name, Version/Model are auto-populated in the appropriate fields
- c. Enter Patient Details and save
- d. Edit the existing details and update the given details
- e. User can add a new device and update the existing information as intended

**Success:**

Easily completed (Yes/No):

Completed with difficulty or help: Describe below (Yes/No)

Not completed: (Yes/ No)

Comments: It was easy to place order in the EMR and able to change it without any difficulty.

**Task Time:** 90 Seconds

**Task Success:** 90.14%

**Task Errors:** 15%

**Rating:**

Overall, this task was: Easy

*Show participant written scale: "Very Easy" (1) to "Very Difficult" (5)*

### **Task 11: Clinical information reconciliation and incorporation**

Take the participant to the starting point for the task. **Clinical information reconciliation** criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

#### **ONC Criteria: 170.315 (b)(2) Clinical information reconciliation and incorporation**

The patient in context should have the Clinical information like Medications, Drug Allergies and Problem imported from another source but not added to patient record yet.

This criterion needs to complete all scenarios and each task mentioned in the below Scenario

#### **Medication Reconciliation**

- a. Navigate to Medications section and click on the **Reconcile** hyperlink
- b. A Reconciliation Dialog will be popped up with Medications that are coming from the external source.
- c. Verify the Source details; Patient details and Check the Medications displayed with RxNorm and click on the Merge and then Reconcile button to add the Medication in to the patient record as 'Imported'

#### **Med Allergy Reconciliation**

- f. Navigate to Medications section and click on the **Reconcile Allergy** hyperlink
- g. A Reconciliation Dialog is popped up with Medication Allergies that are coming from the external source.
- h. Verify the Source details, Patient details and Check the Allergies displayed with RxNorm and click on the Merge and then Reconcile button to add the Medication Allergies in to the patient record as 'Imported'

#### **Problem Reconciliation**

- a. Navigate to Medications section and click on the **Reconcile Problem** hyperlink
- b. A Reconciliation Dialog is popped up with Problem that are coming from the external source.
- c. Verify the Source details, Patient details and Check the Problem displayed with SNOMED-CT and click on the Merge and then Reconcile button to add the Problem in to the patient record as 'Imported'

#### **Success:**

Easily completed (Yes/No):

Completed with difficulty or help: Describe below (Yes/No)

Not completed: (Yes/ No)

Comments: It was easy to place order in the EMR and able to change it without any difficulty.

**Task Time:** 90 Seconds

**Task Success:** 96.64%

**Task Errors:** 14%

**Rating:**

Overall, this task was: Easy

*Show participant written scale: "Very Easy" (1) to "Very Difficult" (5)*

## Task 12: Electronic prescribing

Take the participant to the starting point for the task. ePrescribing criteria to usability test tasks to aid verification that the report will contain all required test scenarios for this EHR capability submitted for testing.

### ONC Criteria: 170.315 (b)(3) Electronic prescribing

This criterion needs to complete all scenarios and each task mentioned in the below Scenario

#### Scenario: ePrescribe Medication

- a. Navigate to Medication Screen and search and select a medication (cromolyn; RxNorm:831261)
- b. Fill all mandatory fields (allows mL units and no CC allowed in the system for Oral Meds) and check 'Send eRx' checkbox
- c. Click on "Save"
- d. Prescribed Rx saved in the patient record. Prescription sent to DrFirst (Surescripts console).  
Response received from DrFirst (Surescripts console).
- e. User is able to repeat this for Rx Change, Rx Cancel, Rx Refill Workflows.

#### Success:

Easily completed (Yes/No):

Completed with difficulty or help: Describe below (Yes/No) No

Not completed: (Yes/ No)

Comments: It was easy to place order in the EMR and able to change it without any difficulty

**Task Time:** 90 Seconds

**Task Success:** 95.32%

**Task Errors:** 16%

#### Rating:

Overall, this task was: Easy

Show participant written scale: "Very Easy" (1) to "Very Difficult" (5)

### Final Questions:

1. What was your overall impression of this system? **Good**
2. What aspects of the system did you like most? **All**
3. What aspects of the system did you like least? **No**
4. Were there any features that you were surprised to see? **No**
5. What features did you expect to encounter but did not see? That is, is there anything that is missing in this application? **No**
6. Compare this system to other systems you have used. **The features are easy to use.**
7. Would you recommend this system to your colleagues? **YES**

### 5.3 Appendix 3: System Usability Scale Questionnaire:

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