EHR Usability Test Report of TiaMD vs 3

Customized Common Industry Format Template for Electronic Health Record Usability Testing Report based on ISO/IEC 25062:2006 Common Industry Format for Usability Test Reports

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EXECUTIVE SUMMARY

A usability test of TiaMD vs 3 was conducted virtually during April 22-May 7, 2025 by Chart Lux Consulting. 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, ten (10) healthcare providers and individuals matching the target demographic criteria served as participants and used the EHRUT in simulated, but representative tasks. This study collected performance data on seven (7) tasks:

- Record, Change, Access Demographics
- Record, Change, and Access CPOE Diagnostic Imaging
- Record, Display, and Change Implantable Device
- Incorporating and Reconciling Medications, Problems, and Allergies from a C-CDA
- Admin User Selects Evidenced-based DSI and Predictive DSI and then Access/Record/Change Source Attributes
- User Triggers Evidenced-based DSI and Provides User Feedback
- Admin User Exports User Feedback

During the 60 minute one-on-one usability test, each participant was greeted by the administrator, and they were given instructions for the test event (included in Appendix B). While some of the participants were familiar with older versions of the EHRUT, most participants had not worked with this EHRUT before. Participants received a brief training and orientation of new features prior to testing.

The administrator introduced the test and instructed participants to complete the task using the EHRUT. During the testing, the proctor timed the test and recorded user performance data on paper and electronically. The administrator did not give the participant assistance in how to complete the task. Participant screens, head shots and audio were recorded for subsequent analysis.

The following types of data were collected for each participant:

- Number of tasks successfully completed within the allotted time without assistance
- Time to complete the tasks
- Number and types of errors
- Path deviations
- Participant's verbalizations
- Participant's satisfaction ratings of the system

All participant data was de-identified – no correspondence could be made from the identity of the participant to the data collected. Following the conclusion of the testing, participants were asked to complete a post-test questionnaire and were 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.

	N	Task Success	Path Deviations	Task Time (Seconds)		Errors	Task Ratings (5=Easy)
Task	#	Mean (SD)	Deviations (Observed / Optimal)	Mean (SD)	Deviations (Observed / Optimal)	Mean (SD)	Mean (SD)
Record, Change, Access Demographics	10	100% (0%)	15 / 14	141 (42)	42 / 90	0% (0%)	4.10 (0.70)
Record, Change, and Access CPOE Diagnostic Imaging	10	100% (0%)	9 / 9	67 (12)	12 / 45	0% (0%)	5.00 (0.00)
Record, Display, and Change Implantable Device	10	100% (0%)	9 / 8	97 (49)	49 / 30	0% (0%)	4.40 (1.02)
Incorporating and Reconciling Medications, Problems, and Allergies from a C-CDA	10	100% (0%)	13 / 13	75 (27)	27 / 30	0% (0%)	4.90 (0.30)
Admin User Selects Evidenced-based DSI and Predictive DSI and then Access/Record/Change Source Attributes	10	100% (0%)	9 / 7	106 (50)	50 / 45	0% (0%)	4.50 (0.92)
User Triggers Evidenced-based DSI and Provides User Feedback	10	100% (0%)	10 / 9	88 (31)	31 / 60	0% (0%)	4.40 (0.48)
Admin User Exports User Feedback	10	100% (0%)	3 / 3	16 (4)	4 / 15	0% (0%)	4.90 (0.30)

The results from the SUS (System Usability Scale) scored the subjective satisfaction with the system based on performance with these tasks to be 79. Broadly interpreted, scores under 60 represent systems with poor usability; scores over 80 would be considered above average.

Major Findings

Participants gave the system high marks, and we had some very enthusiastic responses, especially among those participants who have been using the EHRUT for several months. We

were pleased that the C-CDA incorporation and reconciliation was well received and had very efficient times because we had spent significant time on this part of our design.

Areas for Improvement

A reoccurring comment from multiple participants was a request to allow the demographic data elements to be selected via typing rather than scrolling through the set list. This likely attributed to the slower than expected times to complete the demographic update task. Demographic data is not typically changed after initial patient registration so we don't anticipate our users using this feature in every patient encounter, but they are valid points to consider, and we will look to improve this capability in future releases.

Some participants greatly appreciated the DSI alert notification icon being present in the patient's chart for awareness, but others felt it would be best if it could be hidden or moved. For notifications, we recognize you must balance its ability for the intervention to be easily seen and inducing alert fatigue. We will consider ways to maintain this balance while improving usability where we can.

Finally, a few participants took extra time to complete the imaging order because it requires a double click instead of a single click. We will evaluate this design in future releases.

Usability Report

Introduction

The EHR Under Test (EHRUT) tested for this study was TiaMD version 3, designed to provide the clinical health IT capabilities in an ambulatory setting. The usability testing attempted to represent realistic exercises and conditions to determine how the EHRUT ensures clinical safety when performing its certified tasks.

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 for the associated tasks in this report. To this end, measures of effectiveness, efficiency and user satisfaction, such as time to complete the tasks and deviations from optimal pathways, were captured during the usability testing.

Method

Design Standard

TiaMD employed NISTIR 7741 usability standard in our product design. It is a user-centered design (UCD) created for improving the usability of electronic health records (https://www.nist.gov/publications/nistir-7741-nist-guide-processes-approach-improving-usability-electronic-health-records).

Participants

A total of ten (10) participants were tested on the EHRUT. The intended users of the TiaMD EHR application are all medical specialties of ambulatory clinicians. Participants in the test primarily act in the role of administrators, medical assistants, and medical technicians. Participants were recruited by the developer, and participants had no direct connection to the development of the EHRUT. While some of the participants were familiar with older versions of the EHRUT, most participants had not worked with this EHRUT before. Participants received a brief training and orientation of new features prior to testing.

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

ID	Gender	Age	Education	Role	Prof Experience (months)	Comp Experience (months)	Product Experience (months)	Assistive Technology Needs
001	F	50-59	Associate degree	Practice Manager	96	120	48	None

002	F	50-59	Some college credit, no degree	Medical Assistant	300	132	0	None
003	F	30-39	Some college credit, no degree	Medical Assistant	240	240	12	None
004	F	20-29	Some college credit, no degree	Medical Assistant	48	48	24	None
005	M	30-39	Doctorate degree	Physician	60	84	0	None
006	F	30-39	Associate degree	Clinical Manager	180	180	3	None
007	F	20-39	Bachelor's Degree	Clinical Manager	60	48	0	None
008	F	40-49	Some college credit, no degree	Medical Assistant	180	180	0	None
009	F	20-29	High school graduate	Medical Technician	36	84	0	None
010	M	50-59	Bachelor's Degree	Admin	312	180	6	None

All ten participants (matching the demographics in the section on Participants) were recruited and participated in the usability test. Participants were scheduled for 60 minute sessions with the test screener.

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 location and was provided with the same instructions. The system was evaluated for effectiveness, efficiency and satisfaction as defined by measures collected and analyzed for each participant:

- Number of tasks successfully completed within the allotted time without assistance
- Time to complete the tasks
- Number and types of errors
- Path deviations
- Participant's verbalizations (comments)
- Participant's satisfaction ratings of the system

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

Tasks

A number of tasks were constructed that would be realistic and representative of the kinds of activities a user might do with this EHR according to its respective ONC certified criteria. Tasks were selected based on their frequency of use, criticality of function, and those that may be most troublesome for users. Tasks used in the study are listed below and with their relative risk associated with user errors noted.

1. Record, Change, Access Demographics (Low Risk)
2. Record, Change, and Access CPOE Diagnostic Imaging (Medium Risk)
3. Record, Display, and Change Implantable Device (Low Risk)
4. Incorporating and Reconciling Medications, Problems, and Allergies from a C-CDA (Low Risk)
5. Admin User Selects Evidenced-based DSI and Predictive DSI and then Access/Record/Change Source Attributes (Low Risk)
6. User Triggers Evidenced-based DSI and Provides User Feedback (Medium Risk)
7. Admin User Exports User Feedback (Low Risk)

Procedures

Test participants were scheduled for 60 minute sessions and arrived as individual participants. Each participant was assigned a number to identify results while detaching the identity of the individual from the response and observations. Demographic data was collected from each participant matched with a name on the participant schedule.

A test administrator moderated each test including administering instructions and tasks. The administrator also monitored path deviations and task success, obtained post-task rating data, and took notes on participant comments. The test administrator monitored task times and took notes on number and types of errors, using the recorded video session to confirm details.

Participants were instructed to perform the tasks as quickly as possible, making as few errors and deviations as possible, and without assistance.

Each participant was provided with a clinical scenario providing the background context for the task workflows. Each participant was read the scenario and then provided instructions on the task to perform. Task timing began once the administrator finished reading the question. The task time was stopped once the participant successfully completed the task. Scoring is discussed below.

Following the session, the administrator gave the participant the post-test questionnaire on usability (see Appendix D) and thanked each individual for their participation.

The test administrator compiled the demographic information, task success rate, time on task, errors, deviations, comments, and post-test questionnaire for analysis and scoring.

Test Location

Testing was done using Zoom remote session. Only one participant was logged in at any given time with the administrator to ensure privacy.

Test Environment

The EHRUT would typically be used in an ambulatory setting, and the testing environment was setup to mimic this workflow. The test application was running on a private server using a test database on an Internet connection. The participants used a mouse and keyboard when interacting with the EHR.

The application was set up by TiaTech USA engineering to mimic a live environment. Technically, the system performance (i.e. response time) was slightly slower representation of what actual users would experience in a field implementation. Additionally, participants were not allowed to change any of the default system settings.

Test Forms and Tools

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

1. Demographics Questionnaire
2. Participant Briefing/Debriefing document
3. Usability Task Tracking document
4. Post-Test Questionnaire (System Usability Scale)

Examples of these documents can be found in Appendices A-D respectively.

The participant's interaction with the EHRUT was captured and recorded digitally with web conferencing software running on the test machine. The test administrator participated in each session live, with access to the recorded session afterwards.

Participant Instructions

The administrator reads the following instructions noted in Appendix B. Participants were given all required tasks to complete. Tasks are listed in the Usability Task tracking document in Appendix C.

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 TiaMD by measuring participant success rates and errors
2. Efficiency of TiaMD by measuring the average task time and path deviations
3. Satisfaction with TiaMD by measuring ease of use ratings

Data Scoring

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

Measures	Rational and Scoring
Effectiveness: Task Success	A task was counted as a "Success" if the participant was able to achieve the correct outcome, without assistance, within the time allotted on a per task basis. The total number of successes were calculated for each task and then divided by the total number of times that task was attempted. The results are provided as a percentage. Task times were recorded for successes. Observed task times divided by the optimal time for each task is a measure of optimal efficiency. Optimal task performance time, as benchmarked by expert performance under realistic conditions, is recorded when constructing tasks. Target task times used for task times in the Moderator's Guide must be operationally defined by taking multiple measures of optimal performance and multiplying by some factor (e.g. 1.25) that allows some time buffer because the participants are presumably not trained to expert performance. Thus, if expert, optimal performance on a task was 60 seconds then allotted task time performance was 80 seconds (60 x 1.25). This ratio should be aggregated across tasks and reported with mean and variance scores.
Effectiveness: Task Failures	If the participant abandoned the task, did not reach the correct answer or performed it incorrectly, or reached the end of the allotted time before successful completion, the task was counted as an "Failures." No task times were taken for errors. The total number of errors was calculated for each task and then divided by the total number of times that task was attempted. Not all deviations would be counted as errors. This should also be expressed as the mean number of failed tasks per participant. On a qualitative level, an enumeration of errors and error types should be collected.
Efficiency:	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.

Task Deviations	This path was compared to the optimal path. The number of steps in the observed path is divided by the number of optimal steps to provide a ratio of path deviation. It is strongly recommended that task deviations be reported. Optimal paths (i.e., procedural steps) should be recorded when constructing tasks.
Efficiency: Task Time	Each task was timed from when the administrator said "Begin" until the participant said, "Done." If he or she failed to say "Done," the time was stopped when the participant stopped performing the task. Only task times for tasks that were successfully completed were included in the average task time analysis. Average time per task was calculated for each task. Variance measures (standard deviation and standard error) were also calculated.
Satisfaction: Task Rating	Participant's subjective impression of the ease of use of the application was measured by administering both a simple post-task question as well as a post-session questionnaire. After each task, the participant was asked to rate "Overall, this task was:" on a scale of 1 (Very Difficult) to 5 (Very Easy). These data are averaged across participants. Common convention is that average ratings for systems judged easy to use should be 3.3 or above. To measure participants' confidence in and likeability of the TiaMD 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 D.

Results

Data Analysis and Scoring

The results of the usability test were calculated according to the methods specified in the Usability Metrics section above. There were no participants who failed to follow session and task instructions and as a result all participants had their data included in the final analyses.

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

	N	Task Success	Path Deviations	Task Time (Seconds)		Errors	Task Ratings (5=Easy)
Task	#	Mean (SD)	Deviations (Observed / Optimal)	Mean (SD)	Deviations (Observed / Optimal)	Mean (SD)	Mean (SD)
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Discussions of the Findings

Effectiveness

Based on the success, failure and path deviation data, the system was well designed, and the tasks scored well.

Efficiency

Efficiency was measured as a function of time on task relative to pre-determined benchmark task times and clicks per task relative to benchmark task values. Based on the task completion times, the majority of users completed all tasks close to the optimal time. A few participants needed to refer back multiple times to the test story to enter in the correct information which delayed completion of the task.

Satisfaction

Based on the task ratings, all the participants found the tasks to be intuitive and easy to perform. The SUS score was calculated to be 79, with the lowest score being 52.5 and the highest score being 95.

Major Findings

Participants gave the system high marks, and we had some very enthusiastic responses, especially among those participants who have been using the EHRUT for several months. We were pleased that the C-CDA incorporation and reconciliation was well received and had very efficient times because we had spent significant time on this part of our design.

Areas for Improvement

A reoccurring comment from multiple participants was a request to allow the demographic data elements to be selected via typing rather than scrolling through the set list. This likely attributed to the slower than expected times to complete the demographic update task. Demographic data is not typically changed after initial patient registration so we don't anticipate our users using this feature in every patient encounter, but they are valid points to consider, and we will look to improve this capability in future releases.

Some participants greatly appreciated the DSI alert notification icon being present in the patient's chart for awareness, but others felt it would be best if it could be hidden or moved. For notifications, we recognize you must balance its ability for the intervention to be easily seen and inducing alert fatigue. We will consider ways to maintain this balance while improving usability where we can.

Finally, a few participants took extra time to complete the imaging order because it requires a double click instead of a single click. We will evaluate this design in future releases.

Appendix A: Demographic Questionnaire

Name	
Gender	
Age	
Education (highest attained)	
Clinical Role	
Professional Experience (in months)	
Experience with Computers in Healthcare (in months)	
Experience with EHR (in months)	

Appendix B: Participant Briefing/Debriefing

Thank you for participating in this study. Our session today will last approximately 60 minutes. During that time, you will look at our EHR and be asked to do various tasks associated with its ONC certification criteria. The goal is for you to attempt to complete the various tasks to the best of your ability, and we will document your findings as part of our effort to certify our product in the ONC health IT certification program.

The product you will be using today is not ready for production, but the functionality you will be encountering in the testing tasks is nearly at its finish state for this upcoming release. While we provide a clinical story for the test tasks at hand, some of the test data we provide may not make sense for your personal day-to-day activities and it should be treated as placeholder data for testing.

I will ask you to complete a few tasks using this system and then answer some questions. 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. You will be asked to complete these tasks on your own trying to do them as quickly as possible with the fewest possible errors or deviations. Do not do anything more than asked. If you get lost or have difficulty, I cannot answer help you with anything to do with the system itself. Please save your detailed comments until the end of a task or the end of the session as a whole when we can discuss freely. Please be honest with your opinions as this feedback will help improve the product.

We are recording our session today via web conferencing software. All of the information that you provide will be kept confidential and your name will not be associated with your comments at any time.

Do you have any questions or concerns?

Appendix C: Usability Tasks

Task 1: Record, Change, Access Demographics

New patient has been registered in the system. However, in talking with the new patient in person, the clinical user determines that patient demographic information must be updated and records the correct information in the patient record in the registration page.

1. Take the participant to the starting point for the task. Begin timer.
2. User will perform the actions according to the assigned patient data sheet and described above.
3. Record Success:
    a. Completed according to proper steps.
    b. Completed with difficulty or help. Describe below in comments.
    c. Not completed.
    d. Comments:
4. Task Time Observed (seconds):
5. Task Time Optimal (seconds):
6. Results of Pathway Choice
    a. Correct
    b. Minor Deviations/Cycle (describe below)
    c. Major Deviations (describe below)
    d. Comments:
7. Record Errors and Verbalizations:
8. Ask participant: “overall, how would you rate this task? Rating: (5) Very Easy (4) Easy (3) Moderate (2) Difficult (1) Very Difficult”:

Associated Criteria:

- 170.315(a)(5) Demographics

Task 2: Record, Display, and Change Implantable Device

In the encounter, the patient shares that he recently had surgery and had some nonabsorbable sutures implanted but has since been removed (no longer active). He provides the suture label ID/UDI for the implants. The clinical user records the sutures in the implantable device list of the patient. The user saves this information in the record. The user then changes the status of the implantable device to inactive.

1. Take the participant to the starting point for the task. Begin timer.
2. User will perform the actions according to the assigned patient data sheet and described above.
3. Record Success:
    a. Completed according to proper steps.
    b. Completed with difficulty or help. Describe below in comments.
    c. Not completed.
    d. Comments:
4. Task Time Observed (seconds):
5. Task Time Optimal (seconds):
6. Results of Pathway Choice
    a. Correct
    b. Minor Deviations/Cycle (describe below)
    c. Major Deviations (describe below)
    d. Comments:
7. Record Errors and Verbalizations:
8. Ask participant: “overall, how would you rate this task? Rating: (5) Very Easy (4) Easy (3) Moderate (2) Difficult (1) Very Difficult”:

Associated Criteria:

- 170.315(a)(14) Implantable Device List

Task 3: Record, change, and access CPOE Diagnostic Imaging

In an encounter with the patient, the user selects a diagnostic imaging test. However, after completing the initial documentation, the physician decides to change the order. The user returns to the previous order and removes it. The user then enters the new order.

1. Take the participant to the starting point for the task. Begin timer.
2. User will perform the actions according to the assigned patient data sheet and described above.
3. Record Success:
    a. Completed according to proper steps.
    b. Completed with difficulty or help. Describe below in comments.
    c. Not completed.
    d. Comments:
4. Task Time Observed (seconds):
5. Task Time Optimal (seconds):
6. Results of Pathway Choice
    a. Correct
    b. Minor Deviations/Cycle (describe below)
    c. Major Deviations (describe below)
    d. Comments:
7. Record Errors and Verbalizations:
8. Ask participant: “overall, how would you rate this task? Rating: (5) Very Easy (4) Easy (3) Moderate (2) Difficult (1) Very Difficult”:

Associated Criteria:

- 170.315(a)(3) CPOE-Diagnostic Imaging

Task 4: Incorporating and Reconciling Medications, Problems, and Allergies from a C-CDA

User receives a C-CDA for the patient from another provider after a previous transition of care visit. Using the functionality of the EHR, the User incorporates the received C-CDA into the EHR and then begins reconciling the data into the patient's chart. The User accepts these additions, and their respective lists are updated accordingly.

1. Take the participant to the starting point for the task. Begin timer.
2. User will perform the actions according to the assigned patient data sheet and described above.
3. Record Success:
    a. Completed according to proper steps.
    b. Completed with difficulty or help. Describe below in comments.
    c. Not completed.
    d. Comments:
4. Task Time Observed (seconds):
5. Task Time Optimal (seconds):
6. Results of Pathway Choice
    a. Correct
    b. Minor Deviations/Cycle (describe below)
    c. Major Deviations (describe below)
    d. Comments:
7. Record Errors and Verbalizations:
8. Ask participant: "overall, how would you rate this task? Rating: (5) Very Easy (4) Easy (3) Moderate (2) Difficult (1) Very Difficult":

Associated Criteria:

- 170.315(b)(2) Clinical Information Reconciliation and Incorporation

Task 5: Admin User Selects Evidenced-based DSI and Predictive DSI Access / Record / Change Source Attributes

The authorized admin user goes to EHR to select or activate an evidenced-based DSI. After evidenced-based DSI is selected, the admin user will access source attributes and then record and change them. The authorized admin user goes to EHR to select or activate a user-supplied predictive DSI. After user-supplied predictive DSI is selected, the admin user will access source attributes and then record and change them. The user engages and activates user-supplied predictive DSI and triggers an intervention.

1. Take the participant to the starting point for the task. Begin timer.
2. User will perform the actions according to the assigned patient data sheet and described above.
3. Record Success:
    a. Completed according to proper steps.
    b. Completed with difficulty or help. Describe below in comments.
    c. Not completed.
    d. Comments:
4. Task Time Observed (seconds):
5. Task Time Optimal (seconds):
6. Results of Pathway Choice
    a. Correct
    b. Minor Deviations/Cycle (describe below)
    c. Major Deviations (describe below)
    d. Comments:
7. Record Errors and Verbalizations:
8. Ask participant: “overall, how would you rate this task? Rating: (5) Very Easy (4) Easy (3) Moderate (2) Difficult (1) Very Difficult”:

Associated Criteria:

- 170.315(b)(11) Decision Support Intervention

Task 6: User Triggers Evidenced-based DSI and Provides User Feedback

The user engages the previously activated evidenced-based DSI and triggers an intervention. User then records user feedback on intervention.

1. Take the participant to the starting point for the task. Begin timer.
2. User will perform the actions according to the assigned patient data sheet and described above.
3. Record Success:
    a. Completed according to proper steps.
    b. Completed with difficulty or help. Describe below in comments.
    c. Not completed.
    d. Comments:
4. Task Time Observed (seconds):
5. Task Time Optimal (seconds):
6. Results of Pathway Choice
    a. Correct
    b. Minor Deviations/Cycle (describe below)
    c. Major Deviations (describe below)
    d. Comments:
7. Record Errors and Verbalizations:
8. Ask participant: “overall, how would you rate this task? Rating: (5) Very Easy (4) Easy (3) Moderate (2) Difficult (1) Very Difficult”:

Associated Criteria:

- 170.315(b)(11) Decision Support Intervention

Task 7: Admin User Exports User Feedback

The admin user exports user feedback for evidenced-based DSI. The admin user confirms the file is in computable format with user feedback information.

1. Take the participant to the starting point for the task. Begin timer.
2. User will perform the actions according to the assigned patient data sheet and described above.
3. Record Success:
    a. Completed according to proper steps.
    b. Completed with difficulty or help. Describe below in comments.
    c. Not completed.
    d. Comments:
4. Task Time Observed (seconds):
5. Task Time Optimal (seconds):
6. Results of Pathway Choice
    a. Correct
    b. Minor Deviations/Cycle (describe below)
    c. Major Deviations (describe below)
    d. Comments:
7. Record Errors and Verbalizations:
8. Ask participant: “overall, how would you rate this task? Rating: (5) Very Easy (4) Easy (3) Moderate (2) Difficult (1) Very Difficult”:

Associated Criteria:

- 170.315(b)(11) Decision Support Intervention

Appendix D: System Usability Scale

Ratings: Strongly Agree (5) Agree (4) Neutral (3) Disagree (2) Strongly Disagree (1)

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