



June 20, 2018

Medical Informatics Engineering  
WebChart EHR Version 7.4

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For public release:

Medical Informatics Engineering attests that the usability standard/process and usability report submitted for the certification of WebChart EHR Version 7.4 is accurate and complete per the requirements of the ONC criterion 170.315(g)(3).

  
Douglas Horner  
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Signed: June 20, 2018

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For public release:

Medical Informatics Engineering used the following usability design report and guide in developing and designing the WebChart EHR Version 7.4 health IT system:

National Institute of Standards and Technology. (2010). *NIST Guide to the Processes Approach for Improving the Usability of Electronic Health Records* (NISTIR 7741). Gaithersburg, MD.  
[https://www.nist.gov/sites/default/files/documents/itl/hit/Guide\\_Final\\_Publication\\_Version.pdf](https://www.nist.gov/sites/default/files/documents/itl/hit/Guide_Final_Publication_Version.pdf).

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National Institute of Standards and Technology. (2010). *Customized Common Industry Format Template for Electronic Health Record Usability Testing* (NISTIR 7742). Gaithersburg, MD.  
[https://ws680.nist.gov/publication/get\\_pdf.cfm?pub\\_id=907312](https://ws680.nist.gov/publication/get_pdf.cfm?pub_id=907312).

A handwritten signature in black ink, appearing to read 'D. Horner', with a long, horizontal flourish extending to the right.

Douglas Horner  
CEO/CTO

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Signed: June 20, 2018

# EHR Usability Test Report of WebChart EHR Version 7.4

*Report based on ISO/IEC 25062:2006 Common Industry Format for Usability Test Reports*

WebChart EHR Version 7.4

Date of Usability Test: March 18, 2018 - April 12, 2018  
Date of Report: April 16, 2018  
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# 1 EXECUTIVE SUMMARY

Usability testing of the all-in-one, multifunctional and versatile WebChart EHR Version 7.4 was conducted by Medical Informatics Engineering, Inc., between March 18, 2018 and April 12, 2018, using one-on-one interactions via video conferencing, using Cisco WebEx technology. The purpose of this evaluation 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, a combined total of 10 healthcare providers and professionals matching the target demographic criteria served as participants and used the EHRUT in simulated, but representative tasks.

This study collected performance data on 54 scenarios driven by 12 safety-enhanced design certification criteria developed according to common tasks performed on an EHR:

## *Computerized Provider Order Entry (CPOE) - Medications / Drug-drug, Drug-allergy Interaction Checks for CPOE*

- Prescribe a medication and dismiss a drug-allergy alert.
- Change the medication dosage.
- Prescribe a medication and dismiss a drug-drug alert.
- View the medication order.

## *CPOE - Laboratory*

- Add a laboratory order (i.e., CBC with Automated Diff)
- Change the laboratory order.
- View laboratory orders and review the recent order.

## *CPOE - Diagnostic Imaging*

- Add a diagnostic imaging order (i.e., Xray Chest PA & Lateral).
- Change the diagnostic imaging order.
- View diagnostic imaging orders and view the recent order.

## *Demographics*

- Record patient date of birth, sex, primary language, race, ethnicity, and medical record number.
- Record gender identity and sexual orientation.
- Record date of death and preliminary cause of death.
- View/verify changes to demographics.

## *Problem List*

- Add an Outpatient Office Visit encounter, record patient diagnosis, and archive and close the encounter.
- Add an Outpatient Recheck Visit encounter, record condition in Past Medical History, and archive and close the encounter.
- Change a recorded condition on the Past Medical History of an outpatient chart.
- Add a Hospital Admission encounter for intake to ER.
- Open an Inpatient Visit encounter and change condition from Past Medical History and archive and close the encounter.
- Add a Hospital Discharge encounter, link the Hospital Admission Case, notate discharge, and archive and close encounter.

## *Medication List*

- Create a visit, add two medications, and archive and close the visit.
- Review presenting medications, make necessary correction, and save change.
- View Medications List and filter down to active medications.

*Medication Allergy List*

- Start an Outpatient Visit encounter and document a medication allergy with reaction.
- Make necessary changes to medication allergies of an outpatient chart and save.
- Start an Inpatient Visit encounter and document a medication allergy with reaction.
- Make necessary changes to medication allergies in an inpatient chart and save.

*Clinical Decision Support*

- Review and act on Demographics Clinical Decision Support.
- Review and act on Problem List Clinical Decision Support.
- Review and act on Medication Clinical Decision Support.
- Review and act on Medication Allergy Clinical Decision Support.
- Review and act on Vitals Clinical Decision Support.
- Review and act on Demographics combination Clinical Decision Support.
- Review and act on Laboratory Clinical Decision Support.
- View source of Clinical Decision Support.

*Implantable Device List*

- Start a Visit encounter to record implantable devices.
- Create two Implantable Device orders.
- Record the appropriate Device ID in each order.
- View Implantable Device Info.
- View all Implantable Devices.
- Edit, or replace an Implantable Device.
- Archive and close the Visit encounter.

*Clinical Information Reconciliation and Incorporation*

- Locate CDA document and reconcile data.
- Share reconciliation changes.
- View updated CCDA document.

*Electronic Prescribing*

- Create and transmit a prescription.
- Cancel prescription transmission.
- Request medication history.
- Approve prescription Refill Request.
- Approve prescription Change Request.
- Acknowledge Fill Status notification.

During the two (2) hour, one-on-one usability test, each participant was greeted by the administrator via video conferencing (WebEx). Each participant was reminded of the intent and purpose of the test and informed of the option to withdraw at any time. Most participants had prior experience with the EHR, though the level of experience varied widely across participants. The administrator introduced the test, and instructed the participant to complete a series of tasks (listed on-screen and presented one at a time) using the EHRUT. During the testing, the administrator timed the test and recorded user performance data electronically. The administrator kept assistance to a minimum, assisting only when participant was unable to continue. All complications, assistance, and issues were noted, along with participant verbalizations and behavior.

Participant screen 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 can be made from the identity of the participant to the data collected. Following the conclusion of the testing, participants were compensated with a Visa gift card 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.

Measure Task	N	Task Success	Path Deviation	Task Time		Errors	Task Ratings 5=Easy
	#	Mean (%)	Deviations (Observed/Optimal)	Mean (SD) Sec	Deviations (Observed/Optimal)	Mean (%)	Mean (SD)
A1.1 & A4.1 - Prescribe and dismiss drug allergy	10	80	8/0	210.2 (153.32)	144.2/66	7.27	4.1 (1.101)
A1.2 - Change dose of Rx	10	100	2/0	196.1 (101.60)	124.1/72	1.54	
A1.3 & A4.2 - Rx and dismiss drug-drug alert	10	100	1/0	99.3 (39.44)	53.3/46	1	
A1.4 - View the med order	10	100	0/0	7.4 (11.19)	6.4/1	0	
A2.1 - Add laboratory order	10	100	1/0	114.2 (65.93)	69.2/45	1.25	3.8 (0.789)
A2.2 - Change laboratory order	10	100	3/0	112.1 (59.87)	69.1/43	3.33	
A2.3 - View laboratory order	10	100	2/0	37.1 (50.78)	36.1/1	6.67	
A3.1 - Add radiology order	10	90	1/0	155.7 (83.84)	76.7/79	1.25	
A3.2 - Change radiology order	10	100	6/0	99.4 (45.75)	46.4/53	6	
A3.3 - View radiology order	10	100	0/0	21.4 (19.92)	20.4/1	0	3.1 (1.287)
A5.1 - Edit demographics	10	100	6/0	206.5 (160.08)	115.5/91	5.45	
A5.2 - Edit other demographics	10	100	3/0	85.4 (71.04)	57.4/28	5	
A5.3 - Edit death record	10	100	2/0	46.5 (45.95)	30.5/16	5	
A5.4 - Decline demographics	10	100	7/0	214.5 (120.31)	134.5/80	5.38	
A5.5 - View demographics	10	100	1/0	41.2 (58.28)	40.2/1	5	

A6.1 - Outpatient Visit Problem List	10	100	2/0	163.3 (107.18)	96.3/67	2.86	2.5 (1.080)
A6.2 - Outpatient Recheck Problem List	10	100	4/0	120.4 (53.33)	56.4/64	6.67	
A6.3 - Change Outpatient Problem List	10	100	2/0	83.4 (72.92)	54.4/29	3.33	
A6.4 - Inpatient Visit Problem List	10	100	3/0	156.7 (48.65)	83.7/73	2.5	
A6.5 - Change Inpatient Problem List	10	100	6/0	276 (176.66)	171/105	4.62	
A6.6 - Discharge Problem List	10	100	16/0	234.1 (125.59)	130.1/104	22.86	
A7.1 - Add medication to Meds List	10	100	2/0	145.8 (58.82)	57.8/88	1.54	4.5 (0.707)
A7.2 - Correct error on Meds List	10	100	2/0	80.4 (62.03)	43.4/37	2.86	
A7.3 - View Meds List	10	100	2/0	24.4 (22.19)	19.4/5	10	
A8.1 - Add outpatient medication allergy to Med Allergy List	10	100	0/0	99.6 (58.07)	57.6/42	0	4.4 (1.265)
A8.2 - Change outpatient allergy on Med Allergy List	10	100	1/0	73.6 (57.71)	33.6/40	1.11	
A8.3 - Add inpatient medication allergy to Med Allergy List	10	100	0/0	68.4 (30.22)	34.4/34	0	
A8.4 - Change inpatient allergy on Med Allergy List	10	100	0/0	66.2 (52.07)	35.2/31	0	
A9.1 - Review and act on Demographics Clinical Decision Support	10	100	7/0	119.1 (46.18)	75.1/44	7	3.6 (0.966)
A9.2 - Review and act on Problem List Clinical Decision Support	10	100	0/0	85.9 (32.58)	42.9/43	0	
A9.3 - Review and act on Problem List InfoButton Clinical Decision Support	10	100	4/0	98.7 (31.62)	50.7/48	10	
A9.4 - Review and act on Medication Clinical Decision Support	10	100	0/0	39.2 (25.85)	26.2/13	0	
A9.5 - Review and act on Medication Allergy Clinical Decision Support	10	100	0/0	34.7 (20.79)	20.7/14	0	
A9.6 - Review and act on Vitals Clinical Decision Support	10	100	0/0	20.3 (6.33)	7.3/13	0	
A9.7 - Review and act on combination Demographics Clinical Decision Support	10	100	4/0	132.6 (96.53)	102.6/30	8	
A9.8 - Review and act on Laboratory Clinical Decision Support	10	100	3/0	122.4 (46.59)	69.4/53	3.75	
A9.9 - View source of Clinical Decision Support	10	100	3/0	67.1 (24.47)	33.1/34	5	
A14.1 - Initiate visit for implantable devices	10	100	0/0	21.6 (10.62)	13.6/8	0	4.1 (0.994)
A14.2 - Add two orders for two implantable devices	10	100	4/0	75.1 (60.93)	48.1/27	20	
A14.3 - Add device IDs	10	100	2/0	125 (120.90)	93/32	2.86	

A14.4 - View each device info	10	100	3/0	81.1 (57.02)	47.1/34	7.5	
A14.5 - View all devices	10	100	0/0	14.4 (8.97)	10.4/4	0	
A14.6 - Change device	10	100	2/0	67.9 (38.57)	30.9/37	2.86	
A14.7 - Close and archive implantable device visit	10	100	0/0	17.9 (16.60)	9.9/8	0	
B2.1 - Clinical information reconciliation	10	100	3/0	52.9 (36.95)	33.9/19	10	4 (1.247)
B2.2 - Share data	10	100	1/0	84.1 (57.09)	83.1/1	0.29	
B2.3 - View updated CCDA document	10	100	2/0	43.43 (34.54)	29.43/14	6.67	
B3.1 - Electronically prescribe a new medication	10	100	3/0	126.2 (93.80)	69.2/57	2.73	4.1 (0.876)
B3.2 - Cancel electronic prescription	10	100	1/0	15.7 (16.41)	11.7/4	3.33	
B3.3 - Request medication history	10	100	1/0	38.2 (48.20)	34.2/4	5	
B3.4 - Approve medication electronic refill request	10	100	4/0	83.9 (52.10)	52.9/31	5	
B3.5 - Approve medication electronic change request	10	100	0/0	18.7 (11.75)	12.7/6	0	
B3.6 - Acknowledge fill status notification	10	90	0/0	9.7 (4.08)	5.7/4	0	

The results from the System Usability Scale scored subjective satisfaction with the system to be 75, based on performance with these tasks.

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

- Major findings
  - Usability involved some initial challenges due to lack of familiarity with specific workflows or standard processes (e.g., prescribing medications, patient registration); however, overall, the EHRUT is perceived as mostly intuitive and easy-to-use.
  - Some pages and sections are considered hard to navigate and utilize due to the amount of information and/or data presented. Additionally, though highly variable based on screen resolution, hardware, and environment, it should be noted that locating input fields and chart sections is perceived as difficult, often due to faint colors or page design.
  - Task instructions lacked sufficient details, sometimes causing unnecessary confusion. Confusion was also sometimes associated with terminology used (e.g., “Concluded”, “Add”).
- Areas for improvement
  - Streamlining workflows and simplifying optimal task paths can reduce confusion, clicks, and path deviations.
  - Terminology and page design need more consideration in the overall design process.
  - Instructional information should accommodate all types of users and proficiencies, and training resources should incorporate ongoing topics, such as system enhancements.

## 2 INTRODUCTION

The EHRUT tested for this study was WebChart EHR Version 7.4--designed to accommodate healthcare providers in outpatient and inpatient settings, as well as occupational and non-occupational healthcare settings. The EHRUT consists of robust modules and solutions for occupational health and compliance, clinical care, health surveillance, and reporting, using in-depth modules, clinical decision support, and point-and-click exams and encounter protocols. The usability testing attempted to represent realistic exercises and conditions.

The purpose of this study was to test and validate the usability of the current user interface, and provide evidence of usability in the EHR Under Test (EHRUT). To this end, measures of effectiveness, efficiency and user satisfaction, such as the time to complete each task, the number and types of errors, and path deviations, were captured during the usability testing.

## 3 METHOD

### 3.1 PARTICIPANTS

A total of 10 participants were tested on the EHRUT. Participants in the test were an assortment of healthcare professionals, such as providers, nurses, medical assistants, and the like. Participants were recruited by Medical Informatics Engineering, Inc. and were compensated with a Visa gift card for their time. In addition, participants had no direct connection to the development of or organization producing the EHRUT. Participants were not from the testing or supplier organization.

The following is a table (Table 2) 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 individual data cannot be tied back to individual identities.

	<b>Part ID</b>	<b>Gender</b>	<b>Age</b>	<b>Education</b>	<b>Occupation/ role</b>	<b>Professional Experience (in months)</b>	<b>Computer Experience (in months)</b>	<b>Product Experience (in months)</b>	<b>Assistive Technology Needs</b>
1	201501	F	40-49	Some college- No degree	Office Manager	192	396	51	No
2	201502	M	60-69	Doctorate Degree	MD	360	360	144	No
3	201503	F	30-39	Trade/technical/ vocational training	Medical Assistant - Manager	150	150	108	No
4	201504	F	40-49	Trade/technical/ vocational training	LPN	120	120	63	No
5	201505	F	30-39	Master's Degree	Nurse Practitioner	168	300	24	No
6	201506	F	40-49	Bachelor's Degree	Nurse	300	300	60	No
7	201507	F	60-69	Trade/technical/ vocational training	Retired Medical Coder	300	300	0	No
8	201508	F	40-49	Master's Degree	Medical Assistant - System Administrator; Trainer; Admissions Coordinator	288	300	88	No
9	201509	F	40-49	Associate Degree	Clinical Manager	216	216	72	No
10	201511	M	50-59	Doctorate Degree	Physician	408	384	0	No

Sixteen (16) participants (matching the demographics in the section on Participants) were recruited and 10 participated in the usability test. Six (6) participants failed to show for the study, or were no longer available to participate.

Each participant was scheduled for an individual two-hour session. A spreadsheet was used to keep track of the participant schedule and included each participant's demographic characteristics.

## 3.2 STUDY DESIGN

Overall, the objective of this test was to uncover areas where the application performed well – that is, effectively, efficiently, and with satisfaction – and areas where the application failed to meet the needs of the participants. The data from this test may serve as a baseline for future tests with an updated version of the same EHR and/or comparison with other EHRs, provided the same tasks are used. In short, this testing serves as both a means to record or benchmark current usability, but also to identify areas where improvements must be made.

During the usability test, participants interacted with one EHR. Each participant used the system in a location that was comfortable and suitable to their needs, and each 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.

## 3.3 TASKS

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

### *Computerized Provider Order Entry (CPOE) - Medications / Drug-drug, Drug-allergy Interaction Checks for CPOE*

- Prescribe a medication and dismiss a drug-allergy alert.
- Change the medication dosage.
- Prescribe a medication and dismiss a drug-drug alert.
- View the medication order.

### *CPOE - Laboratory*

- Add a laboratory order (i.e., CBC with Automated Diff)
- Change the laboratory order.
- View laboratory orders and review the recent order.

### *CPOE - Diagnostic Imaging*

- Add a diagnostic imaging order (i.e., Xray Chest PA & Lateral).
- Change the diagnostic imaging order.

- View diagnostic imaging orders and view the recent order.

#### *Demographics*

- Record patient date of birth, sex, primary language, race, ethnicity, and medical record number.
- Record gender identity and sexual orientation.
- Record date of death and preliminary cause of death.
- View/verify changes to demographics.

#### *Problem List*

- Add an Outpatient Office Visit encounter, record patient diagnosis, and archive and close the encounter.
- Add an Outpatient Recheck Visit encounter, record condition in Past Medical History, and archive and close the encounter.
- Change a recorded condition on the Past Medical History of an outpatient chart.
- Add a Hospital Admission encounter for intake to ER.
- Open an Inpatient Visit encounter and change condition from Past Medical History and archive and close the encounter.
- Add a Hospital Discharge encounter, link the Hospital Admission Case, notate discharge, and archive and close encounter.

#### *Medication List*

- Create a visit, add two medications, and archive and close the visit.
- Review presenting medications, make necessary correction, and save change.
- View Medications List and filter down to active medications.

#### *Medication Allergy List*

- Start an Outpatient Visit encounter and document a medication allergy with reaction.
- Make necessary changes to medication allergies of an outpatient chart and save.
- Start an Inpatient Visit encounter and document a medication allergy with reaction.
- Make necessary changes to medication allergies in an inpatient chart and save.

#### *Clinical Decision Support*

- Review and act on Demographics Clinical Decision Support.
- Review and act on Problem List Clinical Decision Support.
- Review and act on Medication Clinical Decision Support.
- Review and act on Medication Allergy Clinical Decision Support.
- Review and act on Vitals Clinical Decision Support.
- Review and act on Demographics combination Clinical Decision Support.
- Review and act on Laboratory Clinical Decision Support.
- View source of Clinical Decision Support.

#### *Implantable Device List*

- Start a Visit encounter to record implantable devices.
- Create two Implantable Device orders.
- Record the appropriate Device ID in each order.
- View Implantable Device Info.
- View all Implantable Devices.
- Edit, or replace an Implantable Device.
- Archive and close the Visit encounter.

#### *Clinical Information Reconciliation and Incorporation*

- Locate CDA document and reconcile data.
- Share reconciliation changes.
- View updated CCDA document.

#### *Electronic Prescribing*

- Create and transmit a prescription.
- Cancel prescription transmission.
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- Approve prescription Refill Request.
- Approve prescription Change Request.
- Acknowledge Fill Status notification.

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

## 3.4 PROCEDURES

At the start of the session, the administrator verbally provided an overview of the usability test and necessary instructions. The participant acknowledged understanding the instructions and was assigned a participant ID.

To ensure that the test ran smoothly and all data was thoroughly collected, each test session was witnessed and recorded by an experienced administrator. The usability testing administrator had some college education and trade/technical/vocational training, along with over 25 years experience with EHR technology, additional experience serving as a User Advisory Board Member (10 years), as well as several years deploying new systems and providing all necessary training to end users.

The administrator moderated the session, including administering instructions and tasks. The administrator also monitored task times, obtained post-task rating data, and took notes on participant comments, task success, path deviations, number and type of errors, and comments. Participants' demographic information, task success rate, time on task, errors, deviations, and verbal responses were recorded into a spreadsheet.

Participants were instructed to perform the tasks:

- As quickly as possible, making as few errors and deviations as possible.
- Without assistance; administrator was 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 an electronic, on-screen copy of each task requirement. Task timing began once the user finished reading the task and pressed the BEGIN button. The task time was stopped automatically, upon completion of the task. Scoring is discussed below in Usability Metrics.

Following the session, the administrator sent each participant a handwritten thank-you letter with compensation for their time.

## 3.5 TEST LOCATION

The test location varied by participant. The administrator and all participants worked in separate locations, using video conferencing (WebEx) for audio and visual needs, and to record each session, view the participant's screen, and to

communicate throughout the test, as needed. To ensure that the environment was comfortable for users, all talking and noise levels were kept to a minimum.

### 3.6 TEST ENVIRONMENT

The EHRUT would typically be used in a healthcare office or facility. In this instance, the testing was conducted via video conferencing, from an environment chosen by the participant. For testing, the minimum necessary requirements called for a browser supporting TLS 1.2 network protocol and a stable Internet connection. Each participant met the base requirements with no issues or needs for accommodation. The preferred interaction style for all participants when interacting with the EHRUT was keyboard and mouse.

The EHRUT used varying screen sizes, color settings, and resolution, according to the user's personal setup, as each test session was performed via video conferencing. The application is set up to accommodate various methods of access and performance. 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).

### 3.7 TEST FORMS AND TOOLS

During the usability test, various resources were used, including:

1. Instructions Script
2. Administrator Guide
3. Tasks/Exercises Checklist

Examples of these documents can be found in Appendices 3-5, respectively. The Tasks/Exercises Checklist was devised so as to be able to capture required data efficiently.

The participant's interaction with the EHRUT was captured and recorded digitally with screen capture and video conferencing software (WebEx) running on the test machine. Verbal comments were recorded during each test session, as well. Each test session was electronically transmitted to the administrator in real time.

### 3.8 PARTICIPANT INSTRUCTIONS

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

*Thank you for participating in our Safety-Enhanced Design Usability study. Your input is very important to us. Our session today will last approximately 120 minutes. During this time you will use an instance of WebChart EHR, Version 7.4. I will ask you to complete a few tasks using this system, and answer some questions regarding these experiences. 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 on-screen instructions very closely. Please note that we are not testing you; we are testing the system. Therefore, if you have*

*difficulty, all this means is that something needs to be improved in the system. I will be here in case you need specific help, but I am not able to instruct you or provide help in how to use the application.*

*Overall, we are interested in how easy (or how difficult) this system is to use, what in it would be useful to you, and how we could improve it. I did not have any involvement in its creation, so please be honest with your opinions. All of the information that you provide will be kept confidential, and your name will not be associated with your comments at any time. Should you feel it necessary, you are able to withdraw at any time during the testing.*

Following the procedural instructions, participants were shown the EHR and as their first task, were given time (i.e., 3 minutes) to explore the system and make comments. Once this task was complete, the administrator gave the following instructions:

*For each task, you will read the on-screen description and click “Begin” when you are ready to start the task. At that point, please perform the task to completion. The system will track your time on screen, and upon successful completion of the task, the highlighted exercise will display in green and the timer will stop. Repeat this process until all tasks are completed. 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 finished.*

Participants were then given 54 tasks to complete. Tasks are listed in the [Administrator’s Guide](#).

## 3.9 USABILITY METRICS

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

1. Effectiveness of WebChart EHR by measuring participant success rates and errors
2. Efficiency of WebChart EHR by measuring the average task time and path deviations
3. Satisfaction with WebChart EHR by measuring ease-of-use ratings

## 3.10 DATA SCORING

The following table (Table 3) details how tasks were scored, errors evaluated, and the time data analyzed.

<p><b>Effectiveness:</b> Task Success</p>	<p>A task was counted as a “Success” if the participant was able to achieve the correct outcome, without assistance, within the time allotted on a per task basis.</p> <p>The total number of successes were calculated for each task and then divided by the total number of times that task was attempted. The results are provided as a percentage.</p> <p>Task times were recorded for successes. Observed task times divided by the optimal time for each task is a measure of optimal efficiency.</p> <p>Optimal task performance time, as benchmarked by expert performance under realistic conditions, is recorded when constructing tasks. Target task times used for task times in the Tasks/Exercises Checklist and Spreadsheet must be operationally defined by taking multiple measures of optimal performance and dividing the outcome by the weakest, or least optimal participant time.</p>
<p><b>Effectiveness:</b> Task Failures</p>	<p>If the participant abandoned the task, did not reach the correct answer or performed it incorrectly, or reached the end of the allotted time before successful completion, the task was counted as a “Failure.” 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>
<p><b>Efficiency:</b> Task Deviations</p>	<p>The participant’s path (i.e., steps) through the application was recorded. Deviations occur if the participant, for example, went to a wrong screen, clicked on an incorrect menu item, followed an incorrect link, or interacted incorrectly with an on-screen control. This path was compared to the optimal path. The number of steps in the observed path is divided by the number of optimal steps to provide a ratio of path deviation. It is strongly recommended that task deviations be reported. Optimal paths (i.e., procedural steps) should be recorded when constructing tasks.</p>
<p><b>Efficiency:</b> Task Time</p>	<p>Each task was timed from when the participant clicked “Begin” until the participant completed the task and the system timer stopped. If he or she failed to click “Begin,” the time was started at the onset of performing the task and 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>
<p><b>Satisfaction:</b> Task Rating</p>	<p>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:” 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.</p>

**Table 3. Details of how observed data were score**

## 4 RESULTS

### 4.1 DATA ANALYSIS AND REPORTING

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

The usability testing results for the EHRUT are detailed, below (see Table 4). 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. Furthermore, the data should be presented in forms such as the table below, so that tasks can be easily identified and their performance results examined and compared.

Measure Task	N	Task Success	Path Deviation	Task Time		Errors	Task Ratings 5=Easy
	#	Mean (%)	Deviations (Observed/Optimal)	Mean (SD) Sec	Deviations (Observed/Optimal)	Mean (%)	Mean (SD)
A1.1 & A4.1 - Prescribe and dismiss drug allergy	10	80	8/0	210.2 (153.32)	144.2/66	7.27	4.1 (1.101)
A1.2 - Change dose of Rx	10	100	2/0	196.1 (101.60)	124.1/72	1.54	
A1.3 & A4.2 - Rx and dismiss drug-drug alert	10	100	1/0	99.3 (39.44)	53.3/46	1	
A1.4 - View the med order	10	100	0/0	7.4 (11.19)	6.4/1	0	
A2.1 - Add laboratory order	10	100	1/0	114.2 (65.93)	69.2/45	1.25	3.8 (0.789)
A2.2 - Change laboratory order	10	100	3/0	112.1 (59.87)	69.1/43	3.33	
A2.3 - View laboratory order	10	100	2/0	37.1 (50.78)	36.1/1	6.67	
A3.1 - Add radiology order	10	90	1/0	155.7 (83.84)	76.7/79	1.25	
A3.2 - Change radiology order	10	100	6/0	99.4 (45.75)	46.4/53	6	
A3.3 - View radiology order	10	100	0/0	21.4 (19.92)	20.4/1	0	3.1 (1.287)
A5.1 - Edit demographics	10	100	6/0	206.5 (160.08)	115.5/91	5.45	
A5.2 - Edit other demographics	10	100	3/0	85.4 (71.04)	57.4/28	5	
A5.3 - Edit death record	10	100	2/0	46.5 (45.95)	30.5/16	5	
A5.4 - Decline demographics	10	100	7/0	214.5 (120.31)	134.5/80	5.38	

A5.5 - View demographics	10	100	1/0	41.2 (58.28)	40.2/1	5	
A6.1 - Outpatient Visit Problem List	10	100	2/0	163.3 (107.18)	96.3/67	2.86	2.5 (1.080)
A6.2 - Outpatient Recheck Problem List	10	100	4/0	120.4 (53.33)	56.4/64	6.67	
A6.3 - Change Outpatient Problem List	10	100	2/0	83.4 (72.92)	54.4/29	3.33	
A6.4 - Inpatient Visit Problem List	10	100	3/0	156.7 (48.65)	83.7/73	2.5	
A6.5 - Change Inpatient Problem List	10	100	6/0	276 (176.66)	171/105	4.62	
A6.6 - Discharge Problem List	10	100	16/0	234.1 (125.59)	130.1/104	22.86	
A7.1 - Add medication to Meds List	10	100	2/0	145.8 (58.82)	57.8/88	1.54	4.5 (0.707)
A7.2 - Correct error on Meds List	10	100	2/0	80.4 (62.03)	43.4/37	2.86	
A7.3 - View Meds List	10	100	2/0	24.4 (22.19)	19.4/5	10	
A8.1 - Add outpatient medication allergy to Med Allergy List	10	100	0/0	99.6 (58.07)	57.6/42	0	4.4 (1.265)
A8.2 - Change outpatient allergy on Med Allergy List	10	100	1/0	73.6 (57.71)	33.6/40	1.11	
A8.3 - Add inpatient medication allergy to Med Allergy List	10	100	0/0	68.4 (30.22)	34.4/34	0	
A8.4 - Change inpatient allergy on Med Allergy List	10	100	0/0	66.2 (52.07)	35.2/31	0	
A9.1 - Review and act on Demographics Clinical Decision Support	10	100	7/0	119.1 (46.18)	75.1/44	7	3.6 (0.966)
A9.2 - Review and act on Problem List Clinical Decision Support	10	100	0/0	85.9 (32.58)	42.9/43	0	
A9.3 - Review and act on Problem List InfoButton Clinical Decision Support	10	100	4/0	98.7 (31.62)	50.7/48	10	
A9.4 - Review and act on Medication Clinical Decision Support	10	100	0/0	39.2 (25.85)	26.2/13	0	
A9.5 - Review and act on Medication Allergy Clinical Decision Support	10	100	0/0	34.7 (20.79)	20.7/14	0	
A9.6 - Review and act on Vitals Clinical Decision Support	10	100	0/0	20.3 (6.33)	7.3/13	0	
A9.7 - Review and act on combination Demographics Clinical Decision Support	10	100	4/0	132.6 (96.53)	102.6/30	8	
A9.8 - Review and act on Laboratory Clinical Decision Support	10	100	3/0	122.4 (46.59)	69.4/53	3.75	

A9.9 - View source of Clinical Decision Support	10	100	3/0	67.1 (24.47)	33.1/34	5	
A14.1 - Initiate visit for implantable devices	10	100	0/0	21.6 (10.62)	13.6/8	0	4.1 (0.994)
A14.2 - Add two orders for two implantable devices	10	100	4/0	75.1 (60.93)	48.1/27	20	
A14.3 - Add device IDs	10	100	2/0	125 (120.90)	93/32	2.86	
A14.4 - View each device info	10	100	3/0	81.1 (57.02)	47.1/34	7.5	
A14.5 - View all devices	10	100	0/0	14.4 (8.97)	10.4/4	0	
A14.6 - Change device	10	100	2/0	67.9 (38.57)	30.9/37	2.86	
A14.7 - Close and archive implantable device visit	10	100	0/0	17.9 (16.60)	9.9/8	0	
B2.1 - Clinical information reconciliation	10	100	3/0	52.9 (36.95)	33.9/19	10	4 (1.247)
B2.2 - Share data	10	100	1/0	84.1 (57.09)	83.1/1	0.29	
B2.3 - View updated CCDA document	10	100	2/0	43.43 (34.54)	29.43/14	6.67	
B3.1 - Electronically prescribe a new medication	10	100	3/0	126.2 (93.80)	69.2/57	2.73	4.1 (0.876)
B3.2 - Cancel electronic prescription	10	100	1/0	15.7 (16.41)	11.7/4	3.33	
B3.3 - Request medication history	10	100	1/0	38.2 (48.20)	34.2/4	5	
B3.4 - Approve medication electronic refill request	10	100	4/0	83.9 (52.10)	52.9/31	5	
B3.5 - Approve medication electronic change request	10	100	0/0	18.7 (11.75)	12.7/6	0	
B3.6 - Acknowledge fill status notification	10	90	0/0	9.7 (4.08)	5.7/4	0	

The results from the SUS (System Usability Scale) scored subjective satisfaction with the system to be **75**, based on performance with these tasks. Broadly interpreted, scores under 60 represent systems with poor usability; scores over 80 would be considered above average.

## 4.2 DISCUSSION OF THE FINDINGS

### 4.2.1 EFFECTIVENESS

Overall, only three of the tasks posed significant challenges to the participants. One challenge was simply due to technical difficulties experienced with the timer used. However, two challenges experienced were regarding the order of the steps outlined in the task instructions. Nonetheless, the effectiveness of the EHRUT was seen positively, in light of these findings.

### 4.2.2 EFFICIENCY

The number of steps taken to perform or complete tasks were somewhat inflated, due to experienced users utilizing alternative methods when navigating the EHRUT. Though task instructions were designed to guide the participant through the optimal path, some users performed the tasks according to their experience and knowledge of the industry.

### 4.2.3 SATISFACTION

Satisfaction was rated for each measure, as well as for the system, overall. The Likert Usability scale was followed, where 1 is considered *difficult* and 5 is considered *very easy*. Overall, the average participant satisfaction is 3.8, with a standard deviation of 1.0.

### 4.2.4 MAJOR FINDINGS

Several participants noted the amount of information presented on the pages, when editing demographics and electronically prescribing medications. Though most feedback was positive, the verbal report of the participants shows a dissatisfaction with “busy” pages and excessive detail.

### 4.2.5 AREAS FOR IMPROVEMENT

Overall, based on the interpretation of the quantitative findings, verbal reports, and administrator observations, the primary areas of improvement include page design and workflow. With an increased focus on ensuring pages are easy to navigate and read, reducing page content and “clutter”, as well as focusing on streamlining workflows, it is believed the EHRUT will continue to be a leading contender in the industry, with its minimally-invasive platform and intuitive design.

## 5 APPENDICES

The following appendices include supplemental data for this usability test report.

Following is a list of the appendices provided:

- 1: Email Blast - Call for EHR Users
- 2: Participant Demographics
- 3: Instructions Script
- 4: Administrator's Guide
- 5: Thank-You Letter Template

## 5.1 APPENDIX 1: EMAIL BLAST - CALL FOR EHR USERS

The purpose of the email blast is to ensure that the participants selected for the test represent the target user population as closely as possible.

### ○ Recruitment Email Script

Hi \_\_\_\_\_,

MIE has been busy in 2017 improving WebChart for our clients. One of our milestones is to continue to remain a *Certified Electronic Medical Record*, as verified by The Office of the National Coordinator for Health Information Technology (ONC).

The ONC Health IT Certification Program is a voluntary certification program established for the purposes of certifying vendors to health IT standards, implementation specifications, and certification criteria adopted by the Secretary of Health and Human Services. This program supports the availability of certified health IT for its encouraged and required use under federal, state, and private programs. For more information, HealthIT.gov has provided an [overview](#) of the program.

Each time MIE certifies under the ONC guidelines, we must conduct a *Safety and Usability Test*, which is where you come in. **MIE is looking for a minimum of 10 clinical users to test our changes and enhancements for certification.** Using a guided and timed process—don't worry, the timing is involved to help us design a better product, NOT to test you or your speed—the clinical users will perform basic tasks within the system, to ensure usability. The results of the testing will be published, in accordance with our certification requirements, but your identity will remain confidential.

There are 12 sections to work through. Below is a sample of what we would be asking users to do. This is for the Med List:

- Locate Sergio Acardi's chart (MIE-10027).
- Click the edit icon (pencil) on the Medications portlet on the Summary screen.
- Using the quick add link, add Benadryl, 25 mg capsule, with a frequency of PRN, managed by Dr. Welby.
- Add Rogaine Extra Strength for Men, kit 5%, for Alopecia.
- Click the add meds button.
- Edit (Correct Error) the Benadryl, 25 mg capsule to Benadryl 50 mg.
- Identify the current versus historical meds by clicking the Hide Discontinued link next to Medications - In-House or Medications - Other.
- Click the Summary tab when done.

Because this is so important to us, we would like to extend an offer to the volunteers: a thank-you, in the form of a gift card, will be sent to you for your

participation and willingness to help us all become better at what we do.

Also note that we intend to use this type of testing in the future, before new releases are distributed, to determine and address conflicts or issues experienced within the system. It is our intention to garner feedback, listen to our users, and make our products easy to use, in the ways our users benefit most from. So please, let us know if this is something that interests you or your colleagues in the future. **If you are interested and available to spend about an hour via WebEx, discussing the steps and process of the Usability Test, please respond to Kate Barton**, at [kbarton@mieweb.com](mailto:kbarton@mieweb.com) . If you are unable to participate this time, simply let us know, and we would be happy to keep you as a contact for future opportunities.

Looking forward to hearing from you,

Kate Barton  
Implementation Project Manager II  
[kbarton@mieweb.com](mailto:kbarton@mieweb.com)

## 5.2 Appendix 2: PARTICIPANT DEMOGRAPHICS

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

<b>Gender</b>	
Men	2
Women	8
Total (participants)	10

<b>Age</b>	
30-39	2
40-49	5
50-59	1
60-69	2
Total (participants)	10

<b>Education</b>	
Some College Credit, no degree	1
Trade/technical/vocational Training	3
Associate Degree	1
Bachelor's Degree	1
Master's Degree	2
Doctorate Degree (e.g., MD, DNP, DMD, PhD)	2
Total (participants)	10

<b>Occupation/Role</b>	
RN/LPN/MA/BSN	2
Prescribers	3
Analysts/Admin Staff	5
Total (participants)	10

<b>Years of Experience</b>	<b>Mean (yr)</b>	<b>Range (yr)</b>
Professional Experience	20.85	10 - 34
Computer Experience	23.55	10 - 33
EHR Experience	5.0833	0 - 12

<b>Assistive Technology Needs</b>	
Yes	0
No	10
Total (participants)	10

## 5.3 Appendix 3: INSTRUCTIONS SCRIPT

The following script was read to each participant at the start of the testing session.

*Thank you for participating in our Safety-Enhanced Design Usability study. Your input is very important to us. Our session today will last approximately 120 minutes. During this time you will use an instance of WebChart EHR, Version 7.4. I will ask you to complete a few tasks using this system, and answer some questions regarding these experiences. 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 on-screen instructions very closely. Please note that we are not testing you; we are testing the system. Therefore, if you have difficulty, all this means is that something needs to be improved in the system. I will be here in case you need specific help, but I am not able to instruct you or provide help in how to use the application.*

*Overall, we are interested in how easy (or how difficult) this system is to use, what in it would be useful to you, and how we could improve it. I did not have any involvement in its creation, so please be honest with your opinions. All of the information that you provide will be kept confidential, and your name will not be associated with your comments at any time. Should you feel it necessary, you are able to withdraw at any time during the testing.*

*For each task, you will read the on-screen description and click "Begin" when you are ready to start the task. At that point, please perform the task to completion. The system will track your time on screen, and upon successful completion of the task, the highlighted exercise will display in green and the timer will stop. Repeat this process until all tasks are completed. 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 finished.*

## 5.4 Appendix 4: ADMINISTRATOR'S GUIDE

### WebChart Usability Test

#### Administrator's Guide

**Date:** \_\_\_\_\_ **Time:** \_\_\_\_\_

**Participant #:** \_\_\_\_\_

**Location:** \_\_\_\_\_

#### **Prior to testing:**

- Confirm details with participant.
- Ensure EHRUT is running properly.
- Ensure testing tools and equipment are running properly.

#### **Prior to each participant:**

- Begin WebEx.
- Start session recording.

#### **Prior to each task:**

- Ensure session recording is remaining active.

#### **After each participant:**

- End session recording.

#### **After all testing:**

- Backup all data and video files.

### Orientation (2.5 minutes)

Thank you for participating in our Safety-Enhanced Design Usability study. Our session today is expected to last approximately **120 minutes**. During this time you will perform various common tasks in the WebChart electronic health record system.

I will ask you to complete all of the tasks using the WebChart system. 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, and with the fewest possible errors or deviations. Do not do anything more than asked or outlined in the task. Please notify me, if you get lost or have difficulty with a task. I will not be able to assist with any actions needed in order to complete the task. However, please save any detailed comments until the end of a task or the end of the session, when we can discuss all details freely.

Please note, I did not have any involvement in creating the WebChart EHR, so please be honest with all opinions regarding the system.

The product you will be using today is a robust EHR with several modules and solutions for occupational health and compliance, clinical care, health surveillance, and reporting, including features such as clinical decision support and point-and-click exams and encounter protocols. Keep in mind that some of the data may not make sense as it is placeholder data.

Please be advised, we are recording the screen and audio of the session today. 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?

### ○ Preliminary Questions (5 minutes)

1. What is your gender?
2. What is your age range?
3. What is your education level?
4. What is your job title/occupation?
5. How many years of professional experience do you have?
6. How many years of computer experience do you have?
7. How many years of experience do you have working with an EHR?
8. Are there any assistive technology needs we need to accommodate, today?

**Task 1: First Impressions (3 Minutes)**

- Show test participant the EHRUT.
- Emphasize not clicking or typing anything, yet.

This is the application you will be working with, today. Have you heard of it? If so, tell me what you know about it.

What do you notice? What are you able to do, here? Please be specific.

*Notes/Comments:*

**Task 2 A1-CPOE/A4: Prescribe Rx and Dismiss DUR Warning (66 Seconds)**

*Ensure the participant is set to begin.*

Locate Sergio Acardi's chart (MIE-10027). Click Allergies/Medications tab, and prescribe Amoxicillin Form: capsule 500mg. Dismiss the drug allergy warning, using the reason "Allergy not correct" and click Dismiss. Practitioner sig: 2 caps daily, Duration: 7d, Total Quantity: 14 Capsule, Refills: 0, May Substitute: Yes, Prescriber: Bates, Anna. Transmit the prescription to "MIE Test Pharmacy".

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 3 A1-CPOE: Change the Dose (72 Seconds)**

*Ensure the participant is set to begin.*

Prescribe sulfamethoxazole-trimethoprim, Form: tablet 400-80mg, Practitioner sig: 1 tab daily, Duration: 14d, Total Quantity: 14 Tablets, Refills: 0, May Substitute: Yes, Prescriber Bates, Anna. Click Do NOT Send on Unsent Prescriptions, Edit sulfamethoxazole-trimethoprim, Change Therapy, Reason: Increasing strength, Form: tablet 800-160mg. Transmit the prescription to "MIE Test Pharmacy"

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 4 A1-CPOE/A4: Prescribe Rx and Dismiss DUR Warning (46 Seconds)**

*Ensure the participant is set to begin.*

Prescribe Lisinopril, Form: tablet 5mg, Dismiss the drug-drug interaction and add the reason: Monitoring potassium levels then click Dismiss. Practitioner sig: 1 tab daily, Duration: 30d, Total Quantity: 30 Tablets, 3 Refills: 3, May Substitute: Yes, Prescriber Bates, Anna. Transmit the prescription to "MIE Test Pharmacy".

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 5 A1-CPOE: View Rx Order (1 Seconds)**

*Ensure the participant is set to begin.*

Click lisinopril link to view full medication details

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 6 A2-CPOE: Add Order (45 Seconds)**

*Ensure the participant is set to begin.*

Locate Sergio Acardi's chart (MIE-10027). Using the Add Order link, select to Schedule in "soon", with the Ordering provider: Dr. Butler, at Location: Value Labs, with the Diagnosis: (J41.0) Simple chronic bronchitis, and order the lab: CBC with Automated Diff

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

### **Task 7 A2-CPOE: Change Order (43 Seconds)**

*Ensure the participant is set to begin.*

From the Medical Records/Orders Documents tab, edit the order and change the location to Community Health and Hospitals. Remove the CBC with Automated Diff, and add Mono Screen, with the reason of RULE OUT

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 8 A2-CPOE: View Order (1 Seconds)**

*Ensure the participant is set to begin.*

Locate the orders documents in the Medical Record tab and view the recent Lab Order.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 9 A3-CPOE: Add Order (79 Seconds)**

*Ensure the participant is set to begin.*

Locate Sergio Acardi's chart (MIE-10027). Using the Add Order link, select to Schedule on 12-13-2017 with the Ordering provider: Dr. Karev. Select the location of Neighborhood Physicians Practice, with the Diagnosis: (J41.0)Chronic Bronchitis (simple). Use the Test/Order Name: Imaging and select Xray Chest PA & Lateral

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct

- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 10 A3-CPOE: Change Order (53 Seconds)**

*Ensure the participant is set to begin.*

Locate the Radiology Order just created, then from the order document, edit the order. Change Scheduled Date to 12-14-2017, Change the ordering physician to Dr. Butler, and Remove the Xray Chest PA & Lateral, replacing it with: Chest Xray PA Only, and include the reason of Bronchitis Symptoms

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 11 A3-CPOE: View Order (1 Seconds)**

*Ensure the participant is set to begin.*

Locate the orders documents and view the recent Radiology Order. Close the extra tabs/windows, if any.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

**Task 12 A5: Edit Demographics A (91 Seconds)**

*Ensure the participant is set to begin.*

Locate Nicole Simmons's chart then change the demographics. DOB (year) to 1970, Sex to Male, Primary language of Spanish. Remove all races and add Asian race. Remove all ethnicities and add Cuban ethnicity. Add MR number 11223344 and click Save.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)

**Administrator Comments:**

**Task 13 A5: Edit Demographics B (28 Seconds)**

Ensure the participant is set to begin.

Changes to Other Demographics. Gender Identity: Identifies as Male. Sexual Orientation: Bisexual. Click Next then Save.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)

**Administrator Comments:**

**Task 14 A5: Edit Demographics C (16 Seconds)**

Ensure the participant is set to begin.

Record Death Information. Date of Death: 11-10-2017. Prelim Cause of Death: GSW. Click Save

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

### **Task 15 A5: Edit Demographics D (80 Seconds)**

*Ensure the participant is set to begin.*

Change the DOB (year) to be 1978, Date of Death: 11-01-2017, Prelim Cause: Natural Causes. Change Sex to Unknown and primary language to Declined. Add an additional Race of Native Hawaiian or Other Pacific Islander. Remove Cuban from Ethnicity. Add 'Declined' to Ethnicity. Gender Identity: Choose not to disclose. Sexual Orientation: Choose not to disclose. Click Save

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

**Task 16 A5: View Demographics (1 Seconds)**

*Ensure the participant is set to begin.*

View/verify above changes saved in chart by going to the Admin-->Demographics page again.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 17 A6-OP: Add Office Visit Encounter (67 Seconds)**

*Ensure the participant is set to begin.*

Locate Sergio Acardi's chart (MIE-10027). Add a Visit encounter with the Date of visit: 11-08-2017. Add (E03.9)Hypothyroidism, unspecified to the Past medical history. Archive and Close the encounter.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

**Task 18 A6-OP: Add Recheck OV; Add Condition (64 Seconds)**

*Ensure the participant is set to begin.*

On the summary page, add another Visit encounter with the Date of visit: 11-11-2017. Add (E11.9) Type 2 Diabetes without complications to the Past medical history then Archive and Close the encounter.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

**Task 19 A6-OP: Change Condition (29 Seconds)**

*Ensure the participant is set to begin.*

In the Past medical history tab, change Hypothyroidism, unspecified to (E89.0) Hypothyroidism following Radioiodine therapy. Submit the change and view conditions.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

### **Task 20 A6-IP: Intake Admission to ER (73 Seconds)**

*Ensure the participant is set to begin.*

Locate William Hart's Chart (MIE-10019) from the QuickView tab. Add a Hospital Admission encounter with the Alex Karev as the Admitting Physician, for an ER Service, with the Admit priority of Stable, Date: 11-18-2017, Reason for Visit: 'Rapid Heartbeat'. In the Diagnosis section, Activate CHF & Hypertension and add GERD then Click Next. Click the Summary tab.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 21 A6-IP: Change Condition (105 Seconds)**

*Ensure the participant is set to begin.*

Open/start a new Visit Encounter and use the date 11-19-2017 with the location: Community Health and Hospitals, Provider: Alex Karev. Link the existing Hospital case. In the Past Medical History tab, change GERD to Gastrointestinal mucositis (K92.81), with a date of onset of 11-01-2017, then Archive and close the encounter and click the Summary tab

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 22 A6-IP: Discharge Patient (104 Seconds)**

*Ensure the participant is set to begin.*

Add a Hospital Discharge encounter and link the Hospital Admission Case. Mark Discharge: Yes then Close the Discharge Details Section (click on the Discharge Details bar). View Discharge link, then Archive and Close Encounter.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

### **Task 23 A7: Add Meds to Medication List (88 Seconds)**

*Ensure the participant is set to begin.*

Locate Sergio Acardi's chart (MIE-10027). From the Summary tab, Quick Links portlet, click Add Visit. Click Presenting medications section heading to open it, then add Benadryl, capsule 25mg, sig: PRN, Managed By: Dr. Welby. Add Rogaine Extra Strength for Men, kit 5%. Click Presenting medications section heading to save. Click Archive & Close button.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

**Task 24 A7: Correct Error (37 Seconds)**

*Ensure the participant is set to begin.*

Click the Summary tab. From the Quick Links portlet, click Add Visit. Click Presenting medications section heading to open it then Click Edit/Disc button for Benadryl and change Dosage to 50mg capsule. Click Presenting medications section heading to save.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 25 A7: View Med List (5 Seconds)**

*Ensure the participant is set to begin.*

Click Allergies/Medications tab. In the Medication History section, click the "Hide Discontinued" link to show only active meds.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

**Task 26 A8-OP: Add Med Allergy to Medication Allergy List (42 Seconds)**

*Ensure the participant is set to begin.*

Locate Christine Harris' chart (MIE-10008). Start a Visit Encounter and open the Allergies section. Add Carbamazepine allergy with Skin rash reaction then close the Allergies section.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

**Task 27 A8-OP: Change Allergies (40 Seconds)**

*Ensure the participant is set to begin.*

Open the Allergies section and Remove Sulfasalazine allergy. Change penicillin V potassium allergy to penicillin G benzathine. Add Codeine sulfate allergy with Skin rash reaction. Close the Allergies section.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 28 A8-IP: Add Med Allergy (34 Seconds)**

*Ensure the participant is set to begin.*

Locate Cory Rogers' chart (MIE-10032). Start a Visit Encounter and open the Allergies section. Add Carbamazepine allergy with Skin rash reaction. Close the Allergies section.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 29 A8-IP: Change Allergies (31 Seconds)**

*Ensure the participant is set to begin.*

Open the Allergies section. Remove Sulfasalazine allergy. Change penicillin V potassium allergy to penicillin G benzathine. Add Codeine sulfate allergy with Skin rash reaction. Close the Allergies section.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 30 A9-CDS: Demographics Alert (44 Seconds)**

*Ensure the participant is set to begin.*

Register Female patient named Julie Lewis dob: 5/5/1975. MR #121212 (press tab) & Save. Return to Summary tab and see warnings portlet Alert for past due for mammogram (based on age and sex).

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

**Task 31 A9-CDS: Problem List Alert (43 Seconds)**

*Ensure the participant is set to begin.*

In the Medical History portlet, Add the following Conditions: a) CHF - Congestive Heart failure (I50.9), b) Essential (primary) hypertension (I10), c) Type 2 diabetes mellitus (E11.9) without complications.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

**Task 32 A9-CDS: Problem List InfoButton (48 Seconds)**

*Ensure the participant is set to begin.*

On the Summary page, Medical History section, View a Search (PAT) link for one of the conditions. Return to Summary page. View the Warnings/Alerts exist for Diabetes (foot exam); Aspirin therapy (ASA), EF Requirement. Click the Allergies/Medications tab.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 33 A9-CDS: Medication Alert (13 Seconds)**

*Ensure the participant is set to begin.*

Using Quick Add, add the medication Atenolol 25mg. (this is a beta blocker). Return to Summary tab to see warnings portlet regarding the medication just entered (the Beta-Blocker: Pt shouldn't have allergy injection because of beta-blocker use appears).

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

**Task 34 A9-CDS: Medication Allergy List (14 Seconds)**

*Ensure the participant is set to begin.*

From the Allergies/Medications tab, add allergy to Neomycin using Quick Allergy link. Return to summary tab to see warnings portlet displaying based on allergy entry. (Neomycin Allergy-consider alternate MMR vaccine appears)

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

**Task 35 A9-CDS: Vital Signs Alert (13 Seconds)**

*Ensure the participant is set to begin.*

Vitals portlet key in BP of 150/100. Return to summary tab to see warnings portlet displaying based on vitals entry (BP >140/90 in hypertensive pt).

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

### **Task 36 A9-CDS: Combination (30 Seconds)**

*Ensure the participant is set to begin.*

Medical History tab, give condition of pregnancy (V22.0 Encounter for supervision of normal first pregnancy, first trimester), with onset date January 1, 2018. Return to Summary page to view warning of advanced maternal age.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

**Task 37 A9-CDS: Laboratory Test (53 Seconds)**

*Ensure the participant is set to begin.*

Note that on the Summary tab it shows EF required at least once every 2 years. Medical Records ->Observations tab. Add an observation LVEF (Echo) with today's date and the result of 60. Return to Summary screen and observe the EF warning is gone, since you recorded a recent lab value.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 38 A9-CDS: Verify Source of Clinical Decision (34 Seconds)**

*Ensure the participant is set to begin.*

Control tab -> Scripted Rules. Edit the Advanced Maternal Age scripted rule. Scroll through the warning Detail to see the source of the information. Click the Cancel button.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 39 A14-Device Implant: Open Visit Encounter (8 Seconds)**

*Ensure the participant is set to begin.*

Locate Nicole Simmons's chart (MIE-10030). Add a Visit Encounter.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 40 A14-Device Implant: Add ID Entry Points (27 Seconds)**

*Ensure the participant is set to begin.*

In the Tests and Procedures section. Add Implantable Device order twice using the autocomplete then Add to Exam.

**Success:**

- Easily completed

- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

### **Task 41 A14-Device Implant: Add Device Identification (32 Seconds)**

*Ensure the participant is set to begin.*

In the first Implantable Devices section, copy/paste this ENTIRE unique device ID in then press Tab: (01)10884521062856(11)141231(17)150707(10)A213B1(21)1234. Make the device Status = Active. In the second Implantable Devices section, copy/paste this ENTIRE unique device ID then press Tab:  
+B066000325011NS1/\$\$420020216LOT123456789012345/SXYZ456789012345678/16D20130202C1. Make the device Status = Active.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 42 A14-Device Implant: Add Device Info (34 Seconds)**

*Ensure the participant is set to begin.*

Expand the Implantable Device section with the Coated Braided Polyester you just entered, click the Device Info link below the Unique Device ID, then close the ACCESS GUDID window. Click on the Save & View button on the encounter.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 43 A14-Device Implant: View All Implantable Devices (4 Seconds)**

*Ensure the participant is set to begin.*

Navigate to the Implantable Devices tab, found under the Medical Record tab.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct

- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 44 A14-Device Implant: Change Implantable Device (37 Seconds)**

*Ensure the participant is set to begin.*

Return to the encounter by clicking the Visit link at the top. Replace the Coated Braided Polyester Implantable device with this ENTIRE Unique Device ID and press tab:  
 =/W4146EB0010T0475=,000025=A99971312345600=>014032=}013032&,100000000000  
 0XYZ123. Make the device Status = Inactive

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 45 A14-Device Implant: Archive & Close Encounter (8 Seconds)**

*Ensure the participant is set to begin.*

Archive and close the encounter.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 46 B2: Locate CDA Document (19 Seconds)**

*Ensure the participant is set to begin.*

Go to Doc ID 656, CDA Document for Nicole Simmons. Click on the "Reconcile" link in the header. The FroozHIE reconciliation tool will come up in a new window.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

**Task 47 B2: Share Data (1 Seconds)**

*Ensure the participant is set to begin.*

In the FrootHIE reconciliation window, move all new data over from the incoming (left) to the system (right) side. Each Section needs moved individually. Click the "Send Changes" button

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 48 B2: View Updated Document (14 Seconds)**

*Ensure the participant is set to begin.*

Make sure the "Patient Chart File Export" Portlet is on the summary screen. Click the CCDA "Store Document" link. Click on the "Click Here to view the document link" that pops up momentarily after that. Reviewing the document should show the new data that was imported in from the first document.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)

- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

**Task 49 B3-E-Rx: Create New Rx (57 Seconds)**

*Ensure the participant is set to begin.*

Navigate to chart for Broadway, Ellen (MR-77099). Go to Allergies/Medications tab. Prescribe metformin 500mg tab, 1 tab daily, 30d, for Gestational Diabetes Mellitus, 0 refills, with the Prescriber: Bates, Anna. Transmit prescription to MIE TEST Pharmacy.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

**Task 50 B3-E-Rx: Cancel Rx (4 Seconds)**

*Ensure the participant is set to begin.*

Click date link after "E-sent:" label for metformin and Cancel Prescription

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

### **Task 51 B3-E-Rx: Request Rx History (4 Seconds)**

*Ensure the participant is set to begin.*

Click the Med History link and Get History.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

**Task 52 B3-E-Rx: Approve Rx Refill Request (31 Seconds)**

*Ensure the participant is set to begin.*

Navigate to E-Chart > E-Rx > Worklist. Click the ID link for the pending refill request. Approve, then Click OK on warning displayed for unmatched medication. Send Approval.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:****Task 53 B3-E-Rx: Approve Rx Change Request (6 Seconds)**

*Ensure the participant is set to begin.*

Click the ID link for the pending change request. Approve and Submit.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

**Task 54 B3-E-Rx: Acknowledge Fill Status Notification (4 Seconds)**

*Ensure the participant is set to begin.*

Click the ID link for the unfilled script notice. Acknowledge.

**Success:**

- Easily completed
- Completed with difficulty or help (describe below)
- Not completed

**Task Time:** \_\_\_\_\_ Seconds

**Clicks/Steps:** \_\_\_\_\_

- Correct
- Minor Deviations/Cycles (describe below)
- Major Deviations (describe below)

**Observed Errors and Verbalizations:**

**Rating:** Overall, this task was \_\_\_\_\_.

*Show participant the rating scale. "Very Difficult" (1) to "Very Easy" (5)*

**Administrator Comments:**

## 5.5 Appendix 5: THANK-YOU LETTER TEMPLATE

April 23, 2018

Dear \_\_\_\_\_,

Thank you for participating in the usability testing of our WebChart EHR. We greatly appreciate the time you allocated to this. Your experiences and input will help drive future improvements and increased usability of our products.

Please accept the enclosed gift as a token of our appreciation and gratitude.

Best Regards,  
Kate Barton



