Electronic Health Record Usability Testing

(EHRUT) Report

EHR Usability Test Report of WEBeDoctor Physician Office 6.0

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

WEBeDoctor Physician Office 6.0

Date of Usability Test: November 22, 2024
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1. EXECUTIVE SUMMARY

A usability test of WEBeDoctor Physician Office 6.0 Ambulatory was conducted on November 22, 2024, by WEBeDoctor, Inc. 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, 23 healthcare providers matching the target demographic criteria served as participants and used EHRUT in simulated, but representative tasks.

This study collected performance data on 9 tasks conducted on EHR:

1. Computerized provider order entry (CPOE)
2. Drug-drug, drug-allergy interaction checks
3. Demographics
4. Problem List
5. Medication list
6. Medication allergy list
7. Electronic prescribing
8. Clinical information reconciliation
9. Decision support interventions

During the TWO-HOUR one-on-one usability test, each participant was greeted by the administrator and asked to review and sign an informed consent/release form (included in Appendix 3); they were instructed that they could withdraw at any time. Participants had prior experience with the EHR. The administrator introduced the test and instructed participants to complete a series of tasks (given one at a time) using the WEBeDoctor. During the testing, the administrator timed the test and, along with the data logger(s) recorded user performance data on paper and electronically. The administrator did not give the participant assistance in how to complete the task.

The Customized Common Industry Format Template for Electronic Health Record Usability Testing (NISTIR 7742) is used for usability test reports (ISO/IEC 25062:2006(E)).

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 test, participants were asked to complete a post-test questionnaire. Various recommended metrics, in accordance with the examples set forth in the NIST Guide to the Processes Approach for Improving the Usability of Electronic Health Records, were used to evaluate the usability of the EHRUT. Following is a summary of the performance and rating data collected on the EHRUT.

Task#	Measure	Task Success (Percentage Success / Failure)	Path Deviation (Observed / Optimal)	Path Deviation Mean (SD)	Task Time Deviations (Observed / Optimal)	Errors Mean (SD)	Task Ratings 5=Easy Mean (SD)
Enable a user to electronically record, Modify and review a medication	CPOE	100%	13	120 sec	120 sec	0	5
Enable a user to electronically record a lab order	CPOE	100%	11	120 sec	120 sec	0	5
Enable a user to electronically record a radiology order	CPOE	100%	7	180 sec	180 sec	0	5
Enable a user to be able to get Drug-Drug, Drug-Allergy Interaction checks	Drug to Drug	100%	25	300 sec	300 sec	0	5
Enable a user to add in patient demographic	Demographics	100%	6	120 sec	120 sec	0	5
Enable a user to add patient a problem to the problem list.	Problem List	100%	7	120 sec	120 sec	0	5
Enable a user to electronically record, modify and review a medication	Medication	100%	9	300 sec	300 sec	0	5
Enable a user to	Medication	100%	11	180 sec	180 sec	0	5

add a medication to the allergy list	allergy						
Enable user to be able to Reconcile and incorporate information for patients from an outside provider.	Reconcile	100%	19	600 sec	600 sec	0	5
Enable a user to be able to Electronically prescribe a medication for patient	ERX	100%	14	300 sec	300 sec	0	5
Enable Evidence-based decision support interventions when a patient's medications, allergies and intolerance, and problems are incorporated from a transition of care or referral summary received.	DSI	100%	14	280 sec	300 sec	0	5
Enable a user to provide electronic feedback data for evidence-based decision support interventions selected via the capability provided in	DSI	100%	12	250 sec	300 sec	0	5

paragraph (b)(11)(iii)(A) of this section and make available such feedback data to a limited set of identified users for export, in a computable format, including at a minimum the intervention, action taken, user feedback provided, user, date, and location.							
Enable a limited set of identified users to select evidence-based decision support interventions including problems, medications, allergies and intolerances, at least one demographic, laboratory, vital signs, UDI for a patient's implantable device(s), procedures.	DSI	100%	11	250 sec	350 sec	0	5
Enable a limited set of identified users to select predictive decision support interventions	DSI	100%	11	250 sec	350 sec	0	5

including problems, medications, allergies and intolerances, at least one demographic, laboratory, vital signs, UDI for a patient's implantable device(s), procedures.							
Modify source attributes for evidence-based decision support interventions.	DSI	100%	13	400 sec	400 sec	0	5
Modify source attributes for predictive decision support interventions.	DSI	100%	13	400 sec	400 sec	0	5

The results from the System Usability Scale scored subjective satisfaction with the system based on performance with these tasks to be 100%.

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

Major Findings:

- Overall, all the tasks were found to be very user-friendly.

- Users were comfortable performing the tasks and they were found satisfied with their experience with the new criterion.

- The new layout was very much appreciated by some of the participants.

Areas for Improvement:

- Considering the overall feedback from the participants, the workflows were very easy to perform. The users were quite comfortable to perform the tasks that were given to them. The

overall layout and smart search features were very useful for the participants; however, a few cosmetic changes were suggested that can be taken care of while designing the new features in the future.

2. NTRODUCTION

The EHRUT(s) tested for this study was WEBeDoctor Physician Office Version 6.0 Ambulatory. Designed to present medical information to healthcare providers in Ambulatory setting, the EHRUT consists of a fully integrated cloud-based EMR and Practice management software solution. 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 how easy the system is to use, how long it took for each participation to finish the task, were captured during the usability testing.

3. METHOD

3.1 PARTICIPANTS

A total of 23 participants were tested on the EHRUT(s). Participants in the test were MEDICAL DOCTORS AND NURSE PRACTICNER Participants were recruited by ANWER SIDDIQI OF WEBEDOCTOR INC In addition, participants had no direct connection to the development of or organization producing the EHRUT(s). Participants were not from the testing or supplier organization. Participants were given the opportunity to have the same orientation and level of training as the actual end users would have received.

For the test purposes, end-user characteristics were identified and translated into a recruitment screener used to solicit potential participants; an example of a screener is provided in Appendix [1].

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.

Sr. No.	Part ID	Gender	Age	Education	Occupation/ role	Professional Experience	Computer Experience	Product Experience	Assistive Technology Needs

1	ID01	Female	40-50	Doctorate degree	MD	84	84	84	No
2	ID02	Female	40-50	Doctorate degree	MD	36	36	36	No
3	ID03	Female	50-59	Doctorate degree	MD	36	36	36	No
4	ID04	Female	50-59	Doctorate degree	MD	5	5	5	No
5	ID05	Male	50-59	Doctorate degree	MD	48	48	48	No
6	ID06	Female	50-59	Doctorate degree	MD	180	180	180	No
7	ID07	Male	50-59	Doctorate degree	MD	180	180	180	No
8	ID08	Female	50-59	High School graduate	Biller	48	48	48	No
9	ID09	Female	20-29	High School graduate	Front desk staff	5	5	5	No
10	ID10	Female	20-29	Bachelor's degree	Office Admin	48	48	48	No
11	ID11	Female	50-59	Doctorate degree	MD	36	36	36	No
12	ID12	Male	50-59	Doctorate degree	MD	48	48	48	No
13	ID13	Male	50-59	Doctorate degree	MD	48	48	48	No
14	ID14	Male	40-49	Doctorate degree	MD	90	90	90	No
15	ID15	Male	40-49	Doctorate degree	MD	90	90	90	No
16	ID16	Male	40-49	Doctorate degree	MD	78	78	78	No
17	ID17	Male	50-59	Doctorate degree	MD	78	78	78	No

18	ID18	Male	50-59	Doctorate degree	MD	65	65	65		No
19	ID19	Female	50-59	Doctorate degree	MD	55	55	55		No
20	ID20	Female	50-59	Doctorate degree	MD	65	65	65		No
21	ID21	Female	50-59	Doctorate degree	MD	65	65	65		No
22	ID22	Female	40-49	Doctorate degree	MD	78	78	78		No
23	ID23	Female	40-49	Doctorate degree	MD	78	78	78		No

23 participants (matching the demographics in the section on Participants) were recruited and 23 participated in the usability test. 0 participants failed to show for the study.

Participants were scheduled for 2 HOUR sessions with 10MINS in between each session for debrief by the administrator(s) and data logger(s), and to reset systems to proper test conditions. A spreadsheet was used to keep track of the participant schedule and included each participant's demographic characteristics as provided by the recruiting firm.

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 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 Section 3.9 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:

1. Computerized provider order entry (CPOE)
2. Drug-drug, drug-allergy interaction checks
3. Demographics
4. Problem List
5. Medication list
6. Medication allergy list
7. Electronic prescribing
8. Clinical information reconciliation
9. Decision support interventions

Tasks were selected based on their importance with relationship to ONC certification criteria and were prioritized in accordance with the complexity and risk associated with the likelihood of user errors.

3.4 PROCEDURE

Upon arrival, participants were greeted; their identity was verified and matched with a name on the participant schedule. Participants were then assigned a participant ID. Each participant reviewed and signed an informed consent and release form (See Appendix 3). A representative from the test team witnessed the participant's signature.

To ensure that the test ran smoothly, two staff members participated in this test, the usability administrator and the data logger. The usability testing staff conducting the test were experienced usability practitioners with at least 3 YEARS OF USEAGE OF WEBEDOCTOR.

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

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

- As quickly as possible, making as few errors and deviations as possible.

- Without assistance, administrators were allowed to give immaterial guidance and clarification on tasks, but not instructions on use.

- Without using a think aloud technique.

For each task, the participants were given a written copy of the task. Task timing began once the administrator finished reading the question. The task time was stopped once the participant indicated they had successfully completed the task. Scoring is discussed below in Section 3.9.

Following the session, the administrator gave the participant the post-test questionnaire (e.g., the System Usability Scale, see Appendix 5), compensated them for their time, and thanked everyone for their participation.
Participants' demographic information, task success rate, time on task, errors, deviations, verbal responses, and post-test questionnaire were recorded into a spreadsheet.

Participants were thanked for their time and compensated. Participants signed a receipt and acknowledgement form (See Appendix 6) indicating that they had received the compensation.

3.5 TEST LOCATION

The test was conducted live on GOTOMEETING, each participation was at their own location and called into the live GOTOMEETING.

3.6 TEST ENVIRONMENT

The EHRUT would typically be used in a healthcare office or facility. In this instance, the testing was conducted in A LIVE WEB DEMO For testing, the computer used a DELL running WINDOWS. The participants used a mouse and keyboard when interacting with EHRUT.
WEBEDOCTOR used A 23 INCH MONITER. The application was set up by the WEBEDOCTOR according to the vendor's documentation describing the system set-up and preparation. The application itself was running on a GOTOMEETING using a WEBEDOCTOR on a DSL connection. Technically, the system performance (i.e., response time) was representative of what actual users would experience in a field implementation. Additionally, participants were instructed not to change any of the default system settings (such as control of font size).

3.7 TEST FORMS AND TOOLS

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

1. Informed Consent

2. Moderator's Guide
　　　3. Post test Questionnaire
　　　4. Incentive Receipt and Acknowledgment Form

Examples of these documents can be found in Appendices 3-6 respectively. The Moderator's Guide was devised to be able to capture the required data.

3.8 PARTICIPANT INSTRUCTIONS

The administrator reads the following instructions aloud to each participant (also see the full moderator's guide in Appendix [B4]):

> *Thank you for participating in this study. Your input is very important. Our session today will last about 2 HOURS. During that time, you will use an instance of an electronic health record. I will ask you to complete a few tasks using this system and answer some questions. You should complete the tasks as quickly as possible by making as few errors as possible. Please try to complete the tasks on your own following the instructions very closely. Please note that we are not testing you we are testing the system, therefore if you have difficulty all this means is that something needs to be improved in the system. I will be here in case you need specific help, but I am not able to instruct you or provide help in how to use the application.*
> *Overall, we are interested in how easy (or how difficult) this system is to use, what in it would be useful to you, and how we could improve it. I did not have any involvement in its creation, so please be honest with your opinions. All of the information that you provide will be kept confidential and your name will not be associated with your comments at any time. Should you feel it necessary you are able to withdraw at any time during the testing.*

Following the procedural instructions, participants were shown the EHR and as their first task, were given time (10 MINS) to explore the system and make comments. Once this task was complete, the administrator gave the following instructions:

For each task, I will read the description to you and say "Begin." At that point, please perform the task and say "Done" once you believe you have successfully completed the task. I would like to request that you not talk aloud or verbalize while you are doing the tasks. 9 I will ask you for your impressions about the task once you are done.

Participants were then given 6 tasks to complete. Tasks are listed in the moderator's guide in Appendix [B4].

3.9 USABILITY METRICS

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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 be assessed:

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

3.9.1 DATA SCORING

The following table (Table [x]) details how tasks were scored, errors evaluated, and the time data analyzed.10

Measures	Rationale and Scoring
Effectiveness: **Task Success**	A task was counted as a "Success" if the participant was able to achieve the correct outcome, without assistance, within the time allotted on a per task basis. (Refer to "Task Success" column in table). 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. Average of observed task times was used and shown against optimal time to measure optimal efficiency. (Refer to "Task Time Deviations" column in table). 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 an expert, optimal performance on a task was [x] seconds then allotted task time performance was [x * 1.25] seconds. This ratio should be aggregated across tasks and reported with mean and variance scores.
Effectiveness: **Task Failures**	If the participant abandoned the task, did not reach the correct answer or performed it incorrectly, or reached the end of the allotted time before

	successful completion, the task was counted as 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.11 This should also be expressed as the mean number of failed tasks per participant. On a qualitative level, an enumeration of errors and error types should be collected.
Efficiency: **Task Deviations**	The participant's path (i.e., steps) through the application was recorded. Deviations occur if the participant, for example, went to the wrong screen, clicked on an incorrect menu item, followed an incorrect link or interacted incorrectly with on-screen control. This path was compared to the optimal path. The number of steps in the observed path is divided by the number of optimal steps to provide a ratio of path deviation. It is strongly recommended that task deviations be reported. Optimal paths (i.e., procedural steps) should be recorded when constructing tasks.
Efficiency: **Task Time**	Each task was timed from when the administrator said "Begin" until the participant said, "Done." If he or she failed to say "Done," the time was stopped when the participant stopped performing the task. Only task times for tasks that were successfully completed were included in the average task time analysis. Average time per task was calculated for each task. Variance measures (standard deviation and standard error) were also calculated.
Satisfaction: **Task Rating**	Participant's subjective impression of the ease of use of the application was measured by administering both a simple post-task question as well as a post-session questionnaire. After each task, the participant was asked to rate "Overall, this task was:" on a scale of 1 (Very Difficult) to 5 (Very Easy). These data are averaged across participants. A 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 WEBEDOCTOR overall, the testing team administered the System Usability Scale (SUS) post-test questionnaire. Questions included, "I think I would like to use this system frequently," "I thought the system was easy to use," and "I would imagine that most people would learn to use this system very quickly." See full System Usability Score questionnaire in Appendix 5.13

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 [x])14. The results should be seen considering the objectives and goals outlined in Section 3.2 Study Design. The data should yield actionable results that, if corrected, yield material, have a positive impact on user performance.

Task#	Measure	Task Success (Percentage Success / Failure)	Path Deviation (Observed / Optimal)	Path Deviation Mean (SD)	Task Time Deviations (Observed / Optimal)	Errors Mean (SD)	Task Ratings 5=Easy Mean (SD)
Enable a user to electronically record, Modify and review a medication	CPOE	100%	13	120 sec	120 sec	0	5
Enable a user to electronically record a lab order	CPOE	100%	11	120 sec	120 sec	0	5
Enable a user to electronically record a radiology order	CPOE	100%	7	180 sec	180 sec	0	5
Enable a user to be able to get Drug-Drug, Drug-Allergy Interaction checks	Drug to Drug	100%	25	300 sec	300 sec	0	5
Enable a user to add in patient demographic	Demographics	100%	6	120 sec	120 sec	0	5
Enable a user to add patient a problem to the problem list.	Problem List	100%	7	120 sec	120 sec	0	5
Enable a user to electronically record, modify	Medication	100%	9	300 sec	300 sec	0	5

and review a medication							
Enable a user to add a medication to the allergy list	Medication allergy	100%	11	180 sec	180 sec	0	5
Enable user to be able to Reconcile and incorporate information for patients from an outside provider.	Reconcile	100%	19	600 sec	600 sec	0	5
Enable a user to be able to Electronically prescribe a medication for patient	ERX	100%	14	300 sec	300 sec	0	5
Enable Evidence-based decision support interventions when a patient's medications, allergies and intolerance, and problems are incorporated from a transition of care or referral summary received.	DSI	100%	14	280 sec	300 sec	0	5
Enable a user to provide electronic feedback data for evidence-based decision support interventions	DSI	100%	12	250 sec	300 sec	0	5

selected via the capability provided in paragraph (b)(11)(iii)(A) of this section and make available such feedback data to a limited set of identified users for export, in a computable format, including at a minimum the intervention, action taken, user feedback provided, user, date, and location.							
Enable a limited set of identified users to select evidence-based decision support interventions including problems, medications, allergies and intolerances, at least one demographic, laboratory, vital signs, UDI for a patient's implantable device(s), procedures.	DSI	100%	11	250 sec	350 sec	0	5
Enable a limited set of identified users to select predictive	DSI	100%	11	250 sec	350 sec	0	5

decision support interventions including problems, medications, allergies and intolerances, at least one demographic, laboratory, vital signs, UDI for a patient's implantable device(s), procedures.							
Modify source attributes for evidence-based decision support interventions.	DSI	100%	13	400 sec	400 sec	0	5
Modify source attributes for predictive decision support interventions.	DSI	100%	13	400 sec	400 sec	0	5

4.2 DISCUSSION OF THE FINDINGS

4.2.1 EFFECTIVENESS

Based on the success rate that the tests were done, the system is very easy to use, everything is very straightforward.

4.2.2 EFFICIENCY

Based on the observations of the task time and deviation data the efficiency of the client to get a task done was very quickly.

4.2.3 SATISFACTION

Based on the task ratings and SUS results data, the clients are satisfied with the system. But they do feel that there could be some improvement like the system speed could be a little faster, and that they vendor provide more education on the system.

4.2.4 MAJOR FINDINGS

Overall, all the tasks were found to be very user-friendly. Users were comfortable performing the tasks and they were found satisfied with their experience with the system and their ability to complete the tasks. The new layout was very much appreciated by some of the participants. For some participants, the medication module needed some level of guidance, however, once they cleared their doubts, it became easier for the participants to perform the tasks related to this module.

4.2.5 AREAS FOR IMPROVEMENT

Considering the overall feedback from the participants, the workflows were very easy to perform. The users were quite comfortable to perform the tasks that were given to them. The overall layout and smart search features were very useful for the participants; however, few cosmetic changes were suggested that can be taken care of while designing the new features in future.

5. APPENDICES

The following appendices include supplemental data for this usability test report. Following is a list of the appendices provided:

1. Sample Recruiting Screener

2. Participant demographics

3. Non-Disclosure Agreement (NDA) and Informed Consent Form

4. Example Moderator's Guide

5. System Usability Scale Questionnaire

6. Incentive receipt and acknowledgment form

5.1 APPENDIX 1: RECRUITING SCREENER

Hello, my name is Imran, I am calling from WEBeDoctor. We are recruiting individuals to participate in a usability study for an electronic health record. We would like to ask you a few questions to see if you qualify and if you would like to participate. This should only take a few minutes of your time. This is strictly for research purposes. If you are interested and qualify for the study. Can I ask you a few questions?

1. Are you male or female? [Recruit a mix of participants]

2. Have you participated in a focus group or usability test in the past 3 months? [If yes, Terminate]

3. Do you, or does anyone in your home, work in marketing research, usability research, web design […etc.]? [If yes, Terminate]

4. Do you, or does anyone in your home, have a commercial or research interest in an electronic health record software or consulting company? [If yes, Terminate]

5. Which of the following best describes your age? [23 to 39; 40 to 59; 60 - to 74; 75 and older] [Recruit Mix]

6. Which of the following best describes your race or ethnic group? [e.g., Caucasian, Asian, Black/African American, Latino/a or Hispanic, etc.]

7. Do you require any assistive technologies to use a computer? [if so, please describe]

Professional Demographics

8. What is your current position and title? (Must be healthcare provider)

- RN: Specialty
- Physician: Specialty
- Resident: Specialty
- Administrative Staff
- Other [Terminate]

9. How long have you been in this position?

10. Describe your work location (or affiliation) and environment? (Recruit according to the intended users of the application) [e.g., private practice, health system, government clinic, etc.]

11. Which of the following describes your highest level of education? [e.g., high school graduate/GED, some college, college graduate (RN, BSN), postgraduate (MD/PhD), other (explain)]

Computer Expertise

12. Besides reading email, what professional activities do you do on the computer? [e.g., access EHR, research; reading news; shopping/banking; digital pictures; programming/word processing, etc.] [If no computer use at all, Terminate]

13. About how many hours per week do you spend on the computer? [Recruit according to the demographics of the intended users, e.g., 0 to 10, 11 to 25, 26+ hours per week]

14. What computer platform do you usually use? [e.g., Mac, Windows, etc.]

15. What Internet browser(s) do you usually use? [e.g., Chrome, MS-Edge, IOS etc.]

16. In the last month, how often have you used an electronic health record?

17. How many years have you used an electronic health record?

18. How many EHRs do you use or are you familiar with?

19. How does your work environment patient record?
    - On paper
    - Some paper, some electronic
    - All electronic

Contact Information

Your background matches the people we're looking for.

Would you be able to participate on November 22,2024?

This study will take place at Online at GOTOMEETING. I will confirm your appointment a couple of days before your session and provide you with directions to our office. What time is the best time to reach you?

5.2 APPENDIX 2: PARTICIPANT DEMOGRAPHICS

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

Gender	
Men	9
Women	14
Total (participants)	23

Occupation/Role	
RN/BSN	
Physician	20
Admin Staff	3
Total (participants)	23

Years of Experience	
Years experience	
Facility Use of EHR - All paper	10
Some paper, some electronic	3
All electronic	10
Total (participants)	23

5.1 APPENDIX 3: NON-DISCLOSURE AGREEMENT (NDA) AND INFORMED CONSENT FORM

Non-Disclosure Agreement

THIS AGREEMENT is entered into as of November11, 2024, between ("the Participant") and WEBeDoctor, Inc,
located at 335 N Puente St # B, Brea, CA 92821.

The Participant acknowledges his or her voluntary participation in today's usability study may bring the Participant into possession of Confidential Information. The term "Confidential Information" means all technical and commercial information of a proprietary or confidential nature which is disclosed by Test Company, or otherwise acquired by the Participant, in today's study.

By way of illustration, but not limitation, Confidential Information includes trade secrets, processes, formulae, data, know-how, products, designs, drawings, computer aided design files and other computer files, computer software, ideas, improvements, inventions, training methods and materials, marketing techniques, plans, strategies, budgets, financial information, or forecasts.

Any information the Participant acquires relating to this product during this study is confidential and proprietary to Test Company and is being disclosed solely for the purposes of the Participant's participation in today's usability study. By signing this form, the Participant acknowledges that s/he will receive monetary compensation for feedback and will not disclose this confidential information obtained today to anyone else or any other organization.

Participant's printed name:
Signature:
Date:

Informed Consent

WEBeDoctor would like to thank you for participating in this study. The purpose of this study is to evaluate an electronic health records system. If you decide to participate, you will be asked to perform several tasks using the prototype and give your feedback. The study will last about *120* minutes. At the conclusion of the test, you will be compensated for your time.

Agreement:

I understand and agree that as a voluntary participant in the present study conducted by *WEBeDoctor* I am free to withdraw consent or discontinue participation at any time. I understand and agree to participate in the study conducted and videotaped by the *WEBeDoctor*.

I understand and agree that the purpose of this study is to make software applications more useful and usable in the future.

I understand and agree that the data collected from this study may be shared with outside of *WEBeDoctor* and *WEBeDoctor* client. I understand and agree that data confidentiality is assured, because only de-identified data – i.e., identification numbers not names – will be used in analysis and reporting of the results.

I agree to immediately raise any concerns or areas of discomfort with the study administrator. I understand that I can leave at any time.

Please check one of the following:
YES, I have read the above statement and agree to be a participant.

NO, I choose not to participate in this study.

Signature:
Date:

5.1 APPENDIX 4: EXAMPLE MODERATOR'S GUIDE

WEBeDoctor Usability Test

Administrator:
Data Logger:
Date:
Time:
Participant #
Location:

Orientation (10 minutes)
Thank you for participating in this study. Our session today will last ***120* minutes**. During that time, you will look at an electronic health record system.
I will ask you to complete a few tasks using this system and 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 to help you with anything to do with the system itself. Please save detailed comments until the end of a task or the end of the session when we can discuss freely.

I did not have any involvement in its creation, so please be honest with your opinions.

The product you will be using today *describes the state of the application, i.e., production version, early prototype, etc*. Some of the data may not make sense as it is placeholder data.

We are recording the audio and screenshots of our session today. All 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 (10 minutes)

1. What is your job title / appointment?
2. How long have you been working in this role?
3. What are some of your main responsibilities?
4. Tell me about your experience with electronic health records.

Task 1: Enable Evidence-based decision support interventions when a patient's medications, allergies and intolerance, and problems are incorporated from a transition of care or referral summary received. Supported requirement: (b)(11)(ii)(B)

Success:
☐ Yes
☐ No
☐ Easily completed
☐ Completed with difficulty or help Describe below
☐ Not completed
Comments:

Task Time: _____ seconds

Optimal Path: Scheduled visit, search for patient test, view interventions
☐ Correct
☐ Minor Deviations / Cycles Describe below
☐ Major Deviations Describe below
Comments:

Observed Errors and Verbalizations:
Comments:

Rating: Overall, this task was: _____
Show participant written scale: "Very Easy" (1) to "Very Difficult" (5)

Administrator / Notetaker Comments:

Task 2: Enable a user to provide electronic feedback data for evidence-based decision support interventions selected via the capability provided in paragraph (b)(11)(iii)(A) of this section and make available such feedback data to a limited set of identified users for export, in a computable format, including at a minimum the intervention, action taken, user feedback provided, user, date, and location. Supported requirement:(b)(11)(ii)(C)

Success:
☐ Yes
☐ No
☐ Easily completed
☐ Completed with difficulty or help Describe below
☐ Not completed
Comments:

Task Time: _____ seconds

Optimal Path: Scheduled visit, search for patient test, view interventions, feedback button, Actions button, Export button
☐ Correct
☐ Minor Deviations / Cycles Describe below
☐ Major Deviations Describe below
Comments:

Observed Errors and Verbalizations:
Comments:

Rating: Overall, this task was: _____
Show participant written scale: "Very Easy" (1) to "Very Difficult" (5)

Administrator / Notetaker Comments:

Task 3: Enable a limited set of identified users to select evidence-based decision support interventions including problems, medications, allergies and intolerances, at least one demographic, laboratory, vital signs, UDI for a patient's implantable device(s), procedures.
Supported requirement: (b)(11)(iii)(A)(1-8)

Success:
☐ Yes
☐ No
☐ Easily completed
☐ Completed with difficulty or help Describe below
☐ Not completed
Comments:

Task Time: _____ seconds

Optimal Path: Administration, user configuration, Enable DSI
☐ Correct
☐ Minor Deviations / Cycles Describe below
☐ Major Deviations Describe below
Comments:

Observed Errors and Verbalizations:
Comments:

Rating: Overall, this task was: _____
Show participant written scale: "Very Easy" (1) to "Very Difficult" (5)

Administrator / Notetaker Comments:

Task 4: Enable a limited set of identified users to select predictive decision support interventions including problems, medications, allergies and intolerances, at least one demographic, laboratory, vital signs, UDI for a patient's implantable device(s), procedures.
Supported requirement: (b)(11)(iii)(B)

Success:
☐ Yes
☐ No
☐ Easily completed
☐ Completed with difficulty or help Describe below
☐ Not completed
Comments:

Task Time: _____ seconds

Optimal Path: Administration, user configuration, Enable DSI
☐ Correct
☐ Minor Deviations / Cycles Describe below
☐ Major Deviations Describe below
Comments:

Observed Errors and Verbalizations:
Comments:

Rating: Overall, this task was: _____
Show participant written scale: "Very Easy" (1) to "Very Difficult" (5)

Administrator / Notetaker Comments:

Task 5: Modify source attributes for evidence-based decision support interventions.
Supported requirements for evidence-based DSI:
(b)(11)(iv)(A)(1)-(13),
(b)(11)(v)(A)(1),
(b)(11)(v)(B)(1)

Success:
☐ Yes
☐ No
☐ Easily completed
☐ Completed with difficulty or help Describe below
☐ Not completed

Comments:

Task Time: _____ seconds

Optimal Path: Customization, Configure Decision Support Interventions, Evidence-based Decision Support Interventions, edit intervention
☐ Correct
☐ Minor Deviations / Cycles Describe below
☐ Major Deviations Describe below
Comments:

Observed Errors and Verbalizations:
Comments:

Rating: Overall, this task was: _____
Show participant written scale: "Very Easy" (1) to "Very Difficult" (5)

Administrator / Notetaker Comments:

Task 6: Modify source attributes for predictive decision support interventions.
Supported requirements for predictive DSI:
(b)(11)(iv)(B)(1) through (b)(11)(iv)(B)(9),
(b)(11)(v)(A)(2) and (b)(11)(v)(B)(2)

Success:
☐ Yes
☐ No
☐ Easily completed
☐ Completed with difficulty or help Describe below
☐ Not completed
Comments:

Task Time: _____ seconds

Optimal Path: Customization, Configure Decision Support Interventions, Predictive Decision Support Interventions, edit intervention
☐ Correct
☐ Minor Deviations / Cycles Describe below
☐ Major Deviations Describe below
Comments:

Observed Errors and Verbalizations:
Comments:

Rating: Overall, this task was: _____

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

Administrator / Notetaker Comments:

Final Questions (*10 Minutes*)
What was your overall impression of this system?
What aspects of the system did you like most?
What aspects of the system did you like least?
Were there any features that you were surprised to see?
What features did you expect to encounter but did not see? That is, is there anything that is missing in this application?
Compare this system to other systems you have used.
Would you recommend this system to your colleagues?
Administer the SUS

5.1 APPENDIX 5: SYSTEM USABILITY SCALE QUESTIONNAIRE

In 1996, Brooke published a "low-cost usability scale that can be used for global assessments of systems usability" known as the System Usability Scale or SUS.16 Lewis and Sauro (2009) and others have elaborated on the SUS over the years. Computation of the SUS score can be found in Brooke's paper, in at http://www.usabilitynet.org/trump/documents/Suschapt.doc or in Tullis and Albert (2008).

	Strongly disagree				Strongly agree

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

1	2	3	4	5

2. I found the system unnecessarily complex

1	2	3	4	5

3. I thought the system was easy to use

1	2	3	4	5

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

1	2	3	4	5

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

1	2	3	4	5

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

1	2	3	4	5

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

1	2	3	4	5

8. I found the system very cumbersome to use

1	2	3	4	5

9. I felt very confident using the system

1	2	3	4	5

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

Task Modules	Risk rating	Participants

A1 COPE Medication	5	ID01, ID02, ID03, ID04, ID05, ID06, ID07, ID08, ID09, ID10, ID11, ID12, ID13
A2 COPE Laboratory	5	ID01, ID02, ID03, ID04, ID05, ID06, ID07, ID08, ID09, ID10, ID11, ID12, ID13
A3 COPE Radiology	5	ID01, ID02, ID03, ID04, ID05, ID06, ID07, ID08, ID09, ID10, ID11, ID12, ID13
A4 Drug-drug, Drug- allergy Interaction checks	5	ID01, ID02, ID03, ID04, ID05, ID06, ID07, ID08, ID09, ID10, ID11, ID12, ID13
A5 Demographics	5	ID01, ID02, ID03, ID04, ID05, ID06, ID07, ID08, ID09, ID10, ID11, ID12, ID13
A6 Problem list	5	ID01, ID02, ID03, ID04, ID05, ID06, ID07, ID08, ID09, ID10, ID11, ID12, ID13
A7 Medication list	5	ID01, ID02, ID03, ID04, ID05, ID06, ID07, ID08, ID09, ID10, ID11, ID12, ID13
A8 Medication Allergy List	5	ID01, ID02, ID03, ID04, ID05, ID06, ID07, ID08, ID09, ID10, ID11, ID12, ID13
A14 Implantable Device List	5	ID01, ID02, ID03, ID04, ID05, ID06, ID07, ID08, ID09, ID10, ID11, ID12, ID13
B2 clinical information and reconciliation Incorporation	5	ID01, ID02, ID03, ID04, ID05, ID06, ID07, ID08, ID09, ID10, ID11, ID12, ID13
B11 - Decision support interventions	5	ID14, ID15, ID16, ID17, ID18, ID19, ID20, ID21, ID22, ID23

5.1 APPENDIX 6: INCENTIVE RECEIPT AND ACKNOWLEDGMENT FORM

Acknowledgement of Receipt

I hereby acknowledge receipt of *$ _* for my participation in a research study run by *Test Company.*

Printed Name: _____
Address: _____
Signature: _____
Date: _____

Usability Researcher: _____
Signature of Usability Researcher: _____
Date: _____

Witness: _____
Witness Signature: _____
Date: _____