



Medgen EHR – Usability Test Report

170.315.G.3 – SAFETY ENHANCED DESIGN

DATE: 02/01/2018

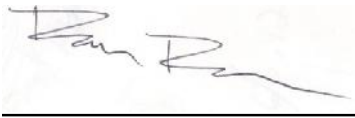
Medgen EHR Letter of Attestation for Test Criteria: 170.315.G.3:

Safety Enhanced Design

Date: 02/01/2018

This letter is being submitted in attestation to the accuracy of the information contained in the following Medgen EHR Safety-Enhanced Design Usability Report. This report is being submitted as part of the EHR certification requirements outlined in 170.315(g)(3)- Safety Enhanced Design.

Regards,

A handwritten signature in black ink, appearing to read "David DeBlasio", written over a horizontal line.

David DeBlasio
Senior Software Developer

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK



Medgen EHR Version 7.0 Usability Test Report

Product Name: Medgen EHR

Version: 7.0

Date of the testing: 12/21/17

Date of Report: 01/01/18

Report Prepared by: David DeBlasio
Senior Software Developer

Location of the Testing:

11 Grace Ave. Suite 208 Great Neck, NY 11021

Note: The following study was developed using the NISTIR 7742 template as a guide for reporting our findings: *Customized Common Industry Format Template for Electronic Health Record Usability Testing.*

Contents

1 Executive Summary	6
Major findings	9
Areas for improvement	9
2 Introduction	9
3 Method	9
Participants.....	9
Study Design.....	10
Tasks.....	11
Procedures	12
Test Location	12
Test Environment.....	12
Test Forms and Documents.....	13
Participant Instructions	13
Usability Metrics	13
4 Results	14
Data Analysis and Reporting.....	14
Discussion of the Findings.....	16
Appendix-1: RECRUITING SCREENER.....	18
Appendix-2: PARTICIPANT DEMOGRAPHICS.....	19
Appendix-3: NON-DISCLOSURE AGREEMENT AND INFORMED CONSENT FORM.....	20
Appendix-4: MODERATOR'S GUIDE.....	21
Appendix-5: SYSTEM USABILITY SCALE QUESTIONNAIRE	34
Appendix-6: INCENTIVE RECEIPT AND ACKNOWLEDGEMENT FORM	35
Appendix-7: TASK DETAIL MEMORY GUIDE.....	36

1 Executive Summary

A usability test of Medgen EHR version 7.0, was conducted on several accounts during 12/11/2017-12/21/2017 at 11 Grace Ave. Ste 208 Great Neck, NY 11021. 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, four providers and seven clinical personnel (MA's and RN's) took part in the testing that matches the target demographic criteria served as participants and used the EHRUT in simulated, but representative tasks.

User-Centered Design Process

NIST 7742 was referenced for Medgen EHR's user-centered design process.

According to the *National Institute of Standards and Technology (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 goals are for users to interact with the system safely, effectively, efficiently, and with an acceptable level of satisfaction. To this end, design to optimize for safety, effectiveness, efficiency and user satisfaction was utilized throughout the design and development cycle.

The following key principles of the NISTIR 7742 were followed:

- The design is based on the understanding of specific user group needs, workflows and environments.
- Users are involved throughout the design and development.
- The design is driven and refined by user-centered evaluation and feedback.
- The design addressed the whole user experience.
- The design is adapted with users until performance objectives are met.
- The process is iterative.

Reference:

National Institute of Standards and Technology. (2010). *NIST Guide to the Processes Approach for Improving the Usability of Electronic Health Records* (NISTIR 7742). Gaithersburg, MD.

www.nist.gov/manuscript-publicationsearch.cfm?pub_id=907313.

http://ws680.nist.gov/publication/get_pdf.cfm?pub_id=907312

This study collected performance data on the following categories typically conducted on Medgen EHR.

Description
§170.315(a)(1)(2)(3) CPOE – Medications – Laboratory – Diagnostic Imaging
§170.315(a)(4) Drug-drug, Drug-allergy interaction checks
§170.315 (a)(5) Demographics
§170.315 (a)(6) Problem List
§170 315(a)(7) Medication List
§170 315(a)(8) Medication allergy List
§170 315(a)(9) Clinical Decision Support
§170 315 (a)(14) Implantable Device List
§170 315(b)(2) Clinical Information Reconciliation and Incorporation
§170.315(b)(3) Electronic Prescribing

During the sixty-minute 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 Medgen EHR but no additional training was provided for the purposes of the usability tests. The administrator introduced the test, and instructed participants to complete a series of tasks (given one at a time) using the EHRUT. During the testing, the administrator timed the test, along with the data logger(s) recorded user performance data on paper and electronically. The administrator did not give the participant assistance in way to complete the task. Participant screens, and audio were recorded for subsequent analysis.

The following types of data were collected for each participant:

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

All participant data was de-identified – no correspondence could be made from the identity of the participant to the data collected. Following the conclusion of the testing, participants were asked to complete a post-test questionnaire and were compensated \$100 for their participation and 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.

Meaningful Use Criteria and Task	N #	Task Success	Path Deviation Total Observed /Optimal	Path Deviation Average Observed/Optimal	Task Time (in Seconds) Mean (SD)	Errors Mean (SD)	Task Efficiency (5=Easy) Mean (SD)
§170 315(a)(6) Medication List Record the patient medication	12						
§170 315(a)(6) Medication List Access and change the patient medication	12						
§170 315(a)(7) Medication allergy List Record patient allergies/med allergies	12						
§170 315(a)(7) Medication allergy List Access and update patient allergies/med allergies	12						

§170.315(b)(4) Clinical Information Reconciliation Reconcile clinical information	12						
§170.315(a)(1) CPOE Record Radiology Order	12						
§170.315(a)(1) CPOE Access/Change Radiology Order	12						
§170.315(a)(1) CPOE Record Lab Order	12						
§170.315(a)(1) CPOE Access/Change Lab Order	12						
§170.315(a)(8) Clinical Decision Support Review/Configure Clinical Decision Support and Therapeutic References	12						
§170.315(a)(1) CPOE §170.315(a)(2) Drug-drug, Drug-allergy interaction checks Record Medication Order/Review Drug-Drug, Drug-Allergy interaction check	12						
§170.315(a)(1) CPOE Access and Change Medication Order	12						
§170.315(b)(3) Electronic Prescribing Electronic Prescribing	12						
§170.315(a)(2) Drug-drug, Drug-allergy interaction checks Adjustment of severity level of drug-drug intervention	12						

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

Major findings

The study determined that our intended audience finds the system easy to use. User satisfaction rating was high and task time fell into acceptable range for the majority of the features. Participants expressed their satisfaction of the system, expressly the system's feature of creating provider specific medication favorite lists.

Electronic prescribing did fall into the task time allotted but users felt that the task took longer than what the user felt to be efficient for workflow process. Clinical information reconciliation took longer than optimal but our findings show that this was due to the fact that the users were not completely familiar with recent updates to this feature.

Participants of the study expressed their frustration of the system for having to create a new script when they simply wanted to change the dosage. Participants were able to point out areas of the system that they felt were less intuitive than others such as the clinical decision support.

Areas for improvement

The study confirmed the need to train users on the use of the clinical information reconciliation feature. The team will consider how to optimize the layout of the medication entry and e-prescribing layout to reduce the average task time in performing these functionalities.

2 Introduction

The EHRUT(s) tested for this study was Medgen EHR Version 7.0. The testing was conducted remotely. The usability testing environment, patient scenario, workflow and tasks attempted to simulate realistic implementations, workflows 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, user satisfaction, and time to complete task, were captured during the usability testing.

Intended Users

Intended users of the EHRUT are clinicians working in an ambulatory setting, registered nurses or medical assistants (RNs and MAs) and physicians (or midlevels; MDs and PAs). Users may have varying levels of experience in the clinical setting and may have varying years of experience with the EHRUT. They can be expected to have received training on the EHRUT, and to be frequent users (weekly or daily use). The usability test focused on discovering issues of skilled users.

3 Method

Participants

A total of 12 participants were tested on the EHRUT(s). Participants in the test were physicians, physician assistant, nurses and medical assistants. Participants of the test had to be current users of the system for a minimum of one year and

currently work with patients on a daily or weekly basis. They were compensated \$100 for their time. In addition the participant did not participate in a focus group or usability test in the last 12 months nor do they or anyone in their home work in marketing research, usability research, or web design. Participants had no direct connection to the development of/or organization producing Medgen EHR. 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. Our participants match the description of the intended user population.

Participant Demographic Data

P-ID	Age	Gender	Yrs. in Healthcare	Occupation/ Role	Product Experience	Specialty	Assistive Technology
01	30-39	F	1	MA	>1	Pulmonary	No
02	50-59	F	8	MA	>4	Pulmonary	No
03	50-59	F	7	MA	>2	Pulmonary	No
04	30-39	F	2	RN	>2	Family Med	No
05	40-49	F	5	MA	>3	Family Med	No
06	60-69	M	30	MD	>3	Family Med	No
07	30-39	M	3	PA	>1	Family Med	No
08	30-39	M	4	DPM	>3	Podiatry	No
09	50-59	F	25	MD	>3	OBGYN	No
10	30-39	F	15	MA	>2	OBGYN	No
11	40-49	F	3	MA	>2	OBGYN	No
12	30-39	F	16	MA/OM	>4	OBGYN	No

100% of all participants recruited for the test showed up to participate in the test.

Participants were advised that the test would take 60 minutes. Chart can also be found in Appendix 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 Medgen EHR. Each participant used the system 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

Tasks

A number of tasks were constructed that would be realistic and representative of the kinds of activities a user might do with Medgen EHR.

Tasks were selected based on their frequency of use, criticality of function, and those that may be most troublesome for users. Tasks were constructed in light of the study objectives. User tasks were prioritized in accordance with risk associated with user errors.

Task	Task Detail	Meaningful Use Criterion Tested	Risk
1	Record the patient medication Access and change the patient medication	§170 315(a)(7) Medication List	High
2	Record a problem Access and change problem	§170 315(a)(6) Problem List	High
3	Access and update patient allergies/med allergies	§170 315(a)(8) Medication allergy List	Moderate
4	Reconcile clinical information	§170 315(b)(2) Clinical Information Reconciliation	High
5	Record Radiology Order, Access/Change Order	§170.315(a)(3) CPOE	Low
6	Record Lab Order, Access/Change Order	§170.315(a)(2) CPOE	Low
7	Record Medication, Access/Change Order	§170.315(a)(1) CPOE	Moderate
8	Review Clinical Decision Support Identify Therapeutic References Configure Clinical Decision Support	§170 315(a)(9) Clinical Decision Support	High
9	Record Medication Order/Review Drug-Drug, Drug-Allergy interaction check Adjust severity	§170.315(a)(7) §170.315(a)(4) Drug- drug, Drug-allergy interaction checks	Moderate
10	Record/Update Demographics	§170.315(a)(5)	Moderate
11	Electronic Prescribing	§170 315(b)(3) Electronic Prescribing	High
12	Record/Change Implant Device	§170.315(a)(14) Implantable Device	High

Procedures

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. Prior to test date, each participant reviewed and signed an informed consent and release form (See Appendix 3).

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 was experienced usability practitioners with a minimum of two years of experience, and at minimum a bachelor degree.

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): (Please refer to Appendix 4 for testing scripts)

- 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.

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.

Following the session, the administrator gave the participant the post-test questionnaire (See Appendix 5), and thanked 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.

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

Test Location

The testing was done remotely. The moderator and the data logger worked from a an online meeting site where they could see the participant's screen and listen to the audio of the session. To ensure that the environment was comfortable for users, noise levels were kept to a minimum.

Test Environment

The EHRUT would typically be used in a healthcare office or facility. In this instance, the testing was conducted via an on-line meeting site. The application was set up by a Medgen EHR representative according to our documentation of system set-up and preparation. The application was run in Google Chrome and in our test account on a WAN connection. The participants used both the keyboard and mouse while interacting with the system.

Test Forms and Documents

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

- 1) Informed Consent
- 2) Moderator's Guide
- 3) Task Detail Memory Guide
- 4) Post-test Questionnaire
- 5) Incentive Receipt and Acknowledgement Form

Examples of these documents can be found in the Appedixes. The Moderator's Guide was devised so as to be able to capture required data.

Participant Instructions

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

Hello. Welcome, my name is ____ and I'm a moderator. We also have ____ with us, he is the data logger. Thank you for participating in this study. Your input is very important. Our session today will last about 60 minutes. During that time you will use an instance of an electronic health record. I will ask you to complete a few tasks using this system and answer some questions. You should complete the tasks as quickly as possible making as few errors as possible. Please try to complete the tasks on your own following the instructions very closely. Please note that we are not testing you we are testing the system, therefore if you have difficulty all this means is that something needs to be improved in the system. I will be here in case you need specific help, but I am not able to instruct you or provide help in how to use the application. Overall, we are interested in how easy (or how difficult) this system is to use, what in it would be useful to you, and how we could improve it. 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. I did not have any involvement in it's creation, so please be honest with your opinions.

Following the procedural instructions, participants were shown Medgen HER. The administrator gave the following instructions:

For each task, I will read the description to you and say "Begin." At that point, please perform the task and say "Done" once you believe you have successfully completed the task. I will ask you your impressions about the task once you are done. Do you have any questions or concerns before we begin?

Participants were then given 16 tasks to complete. Tasks and additional details can be found on Appendix 4.

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 Medgen EHR Version 7.0 by measuring participant success rates and errors.
2. Efficiency of Medgen EHR Version 7.0 by measuring the average task time and path deviations.
3. Satisfaction with Medgen EHR Version 7.0 by measuring ease of use ratings.

Data Scoring

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

Task Measures Score card

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.
Effectiveness: Task Failure	If the participant abandons the task, did not reach the correct answer or performed it incorrectly or was helped more than one time before successful completion, the task was counted as a 'Failure'. The number of errors was calculated and recorded for each task.
Efficiency: Task Deviations	The participant's path through the application is recorded. Deviations occur if the participant, for example chooses a path to task completion which requires more steps than the optimal, follow an incorrect link or performs any steps to correct a previous error. Task deviations were recorded and compared to the optimal path.
Efficiency: Task Time	Each scenario was timed from when the administrator said 'Begin' until the participant said 'Done' for the task. Only the times for scenarios where all subtasks were included in the average task time analysis.
Satisfaction: Task Rating	To measure the participant's satisfaction with the system, the post-session questionnaire was provided. Appendix 5 After each task the participant was asked to rate the individual task as well.

4 Results

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. There were no testing irregularities or issues that affected data collection or interpretation of the results.

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

Test results provided an analysis of the use, tested performance and error rates in order to identify risk prone errors – with a potential likelihood of occurrence and adverse consequences.

Meaningful Use Criteria and Task	N #	Task Success	Path Deviation Total Observed /Optimal	Path Deviation Average Observed/Optimal	Task Time (in Seconds) Mean (SD)	Errors Mean (SD)	Task Efficiency (5=Easy) Mean (SD)
§170.315(a)(7) Medication List Record the patient medication	12	12	26/24	4.33/4.0	23.5 (9.64)	.17 (.40)	4.5 (.54)
§170.315(a)(7) Medication List Access and change the patient medication	12	12	25/24	4.16/4.0	25.8 (17.33)	0 (0)	4.3 (.75)
§170.315(a)(8) Medication allergy List Record patient allergies/med allergies	12	9	52/48	8.66/8	21.3 (6.41)	.83 (.75)	4.1 (.75)
§170.315(a)(8) Medication allergy List Access and update patient allergies/med allergies	12	12	28/24	4.66/4.0	12.5 (6.94)	.67 (.81)	4.6 (.51)
§170.315(b)(2) Clinical Information Reconciliation Reconcile clinical information	12	10	28/24	4.66/4.0	55.8 (58.91)	.67 (.75)	4.5 (.51)
§170.315(a)(3) CPOE Record Radiology Order	12	11	26/24	4.33/4.0	27.6 (18.17)	.17 (.40)	4.5 (.54)
§170.315(a)(3) CPOE Access/Change Radiology Order	12	11	31/30	5.16/4.0	18 (10.46)	.17 (.40)	4 (.63)
§170.315(a)(2) CPOE Record Lab Order	12	12	30/24	5.0/4.0	20.8 (12.70)	.33 (.51)	4.3 (.51)
§170.315(a)(2) CPOE Access/Change Lab Order	12	12	25/24	4.16/4.0	15.5 (6.80)	0 (0)	4 (.63)

§170.315(a)(9) Clinical Decision Support Review/Configure Clinical Decision Support and Therapeutic References	12	12	31/30	5.16/4.0	19.8 (7.22)	.17 (0)	4.3 (.51)
§170.315(a)(4) Drug-drug, Drug-allergy interaction checks Record Medication Order/Review Drug-Drug, Drug- Allergy interaction check	12	12	47/42	7.83/7.0	45 (11.00)	.17 (.40)	4 (.63)
§170.315(a)(1) CPOE Access and Change Medication Order	12	12	24/24	4.0/4.0	21.8 (7.60)	0 (0)	4 (.63)
§170.315(b)(3) Electronic Prescribing	12	12	30/30	5.0/5.0	15 (2.94)	0 (0)	3.8 (.75)
§170.315(a)(6) Record and change problem	12	12	32/30	5.33/5.0	22 (10.86)	.17 (.40)	4.8 (.40)
§170.315(a)(5) Record Demographics for Race, Ethnicity, Language, Sexual Orientation, Gender Identity	12	12	30/30	5.0/5.0	15 (2.94)	0 (0)	4.5 (.54)
§170.315(a)(14) Record Implant Device Change Status, Access UDI info	12	12	30/30	4.0/4.0	21.8 (7.60)	0 (0)	4.5 (.54)

Discussion of the Findings

Effectiveness

In most tasks assigned to participants the task was completed effectively. Error rates were relatively low. There were no errors recorded for the following tasks 1.2, 5.2, 7.2, 7.3, 8.1. While participants believed that the efficiency can be improved on for electronic prescribing no errors

were recorded for this task. The tasks with the highest number of errors were changing patient prescription dosae and reconciliation of clinical information. This will be addressed by providing clients knowledge and training of the reconciliation of clinical information feature and by working on enhancing the change prescription dosage.

Efficiency

Participants for the most part followed the optimal paths to complete each assigned task. There were minor path deviations in some tasks and the task that participants found to be the least effective was e-prescribing. The task that took the longest to complete on average was reconciliation of clinical information and recording medication orders; this was deduced to be

partly due to the reconciliation of clinical information feature being new to the clients and the time that it took for participants to change the medication information.

Satisfaction

12 participants completed the System Usability Scale questionnaire at the end of their session and the system scored an average of 71. Users overall expressed satisfaction with the system and there was a strong correlation between users who use the system frequently and have more experience with the system to have a higher satisfaction rating.

Major Findings and Areas for Improvement

The study determined that our intended audience finds the system easy to use. User satisfaction rating was high and task time fell into acceptable range for the majority of the features. Participants expressed their satisfaction of the system, expressing the system's easy navigation features.

Electronic prescribing did fall into the task time allotted but users felt that the task took longer than what the user felt to be efficient for workflow process. Clinical information reconciliation took longer than optimal but our findings show that this was due to the fact that this feature was recently updated in the system.

Participants of the study expressed their frustration of the system related to prescribing medications. Participants were able to point out areas of the system that they felt were less intuitive than others such as the clinical decision support.

The study confirmed the need to train users on the use of the clinical information reconciliation feature. The team will consider how to optimize the layout of the medication entry and e-prescribing layout to reduce the average task time in performing these functionalities. The usability test also emphasized the need to clearly educate users on how to configure clinical decision support rules.

The study demonstrated that those who use the system frequently and have more experience with the system are the most satisfied users. In some tasks, a number of participants displayed correct but not the optimal method for completing the task. Concerns brought to our attention through this test that can be addressed or improved on through additional client training will be addressed by the Customer Support and training team.

Appendix-1: RECRUITING SCREENER

We're conducting a usability study with Medgen EHR users in which you'll be asked to complete a series of tasks in Medgen EHR. We're testing how well the system works for you, not how well you use the system. After the scenarios, you will have time to discuss your ideas for improving the product. This is strictly for research purposes.

The study will be conducted remotely and you will log into a special test account. You won't use your own account, and none of your personal or patient information will be displayed. If you are interested and qualify for the study you will be compensated for your time and participation.

Are you interested in participating? [If so] may I ask you a few questions?

- 1) How long have you been using Medgen EHR? [If less than a year, Terminate]
- 2) Do you currently treat patients/interact with patients on a daily or weekly basis? [If no, Terminate]
- 3) Have you participated in a focus group or usability test in the past 12 months? [If yes, Terminate]
- 4) Do you, or does anyone in your home, work in marketing research, usability research, web design [...etc.]? [If yes, Terminate]
- 5) 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]
- 6) What is your current position and title?
__ Physician: Specialty _____
__ RN: Specialty _____
__ NP: Specialty _____
__ Administrative Staff _____
__ Other [Terminate]
- 7) How long have you held this position? _____
· All other data collected was for background information.

Appendix-2: PARTICIPANT DEMOGRAPHICS

Participant Demographic Data

P-ID	Age	Gender	Yrs. in Healthcare	Occupation/ Role	Product Experience	Specialty	Assistive Technology
01	30-39	F	1	MA	>1	Pulmonary	No
02	50-59	F	8	MA	>4	Pulmonary	No
03	50-59	F	7	MA	>2	Pulmonary	No
04	30-39	F	2	RN	>2	Family Med	No
05	40-49	F	5	MA	>3	Family Med	No
06	60-69	M	30	MD	>3	Family Med	No
07	30-39	M	3	PA	>1	Family Med	No
08	30-39	M	4	DPM	>3	Podiatry	No
09	50-59	F	25	MD	>3	OBGYN	No
10	30-39	F	15	MA	>2	OBGYN	No
11	40-49	F	3	MA	>2	OBGYN	No
12	30-39	F	16	MA/OM	>4	OBGYN	No

- 100% of all participants recruited for the test showed up to participate in the test.

Appendix-3: NON-DISCLOSURE AGREEMENT AND INFORMED CONSENT FORM

Comtron Corp. 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 60 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 *Comtron Corp* .I am free to withdraw consent or discontinue participation at any time. I understand and agree to participate in the study conducted and recorded by the *Comtron Corp*.

During the evaluation, I understand that I may learn information that is confidential to *Comtron Corp*. I agree to treat all confidential information received during this evaluation in accordance with this non-disclosure agreement. Accordingly, I will not disclose confidential information to any third parties.

I understand and consent to the use and release of the videotape by *Comtron Corp*. I understand that the information and videotape is for research purposes only and that my name and image will not be used for any purpose other than research. I relinquish any rights to the videotape and understand the videotape may be copied and used by *Comtron Corp*. without further permission. 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 third parties. 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.

Name (Please Print)

Signature

Date

Appendix-4: MODERATOR'S GUIDE

Moderator's Guide

Administrator: _____

Data Logger: _____

Date: _____

Participant #: _____

Location: _____

Prior to testing

- Confirm schedule with Participants
- Ensure EHRUT lab environment is running properly
- Ensure lab and data recording equipment is running properly
- Provide NDA form

Prior to each participant:

- Reset application
- Start session recordings

Prior to each task:

- Reset application to starting point for next task

After each participant:

- End session recordings

After all testing

- Back up all video and data files

Orientation

Hello. Welcome, my name is ____ and I'm a moderator. We also have ____ with us, she is the data logger. Thank you for participating in this study. Your input is very important. Our session today will last about 60 minutes. During that time you will use an instance of an electronic health record. I will ask you to complete a few tasks using this system and answer some questions. You should complete the tasks as quickly as possible making as few errors as possible. Please try to complete the tasks on your own following the instructions very closely. Please note that we are not testing you we are testing the system, therefore if you have difficulty all this means is that something needs to be improved in the system. I will be here in case you need specific help, but I am not able to instruct you or provide help in how to use the application. Overall, we are interested in how easy (or how difficult) this system is to use, what in it would be useful to you, and how we could improve it. 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. I did not have any involvement in it's creation, so please be honest with your opinions.

<Review NDA form with participant>

For each task, I will read the description to you and say "Begin." At that point, please perform the task and say "Done" once you believe you have successfully completed the task. I will ask you your impressions about the task once you are done. Do you have any questions or concerns before we begin?

Preliminary Questions

- 1) What is your job title?
- 2) How long have you been in this profession?
- 3) What is your specialty?
- 4) How many years have you used Medgen EHR?
- 5) How often do you interact with patients?

Please note again that once I say 'Begin', I will not be talking with you while you do the activities so please be sure to make it clear to me once you are done with a task but saying 'Done'.

SCENARIO 1

Mr. John Smith, 56, with high cholesterol has come in today for back pain. He has also recently seen a specialist for a sinus infection.

TASKS

Take the participant to the starting point for each task.

1.1: Record the patient medication

The patient states that he is currently taking 20mg of Lipitor. Record this information.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path: Medications → Search → Select → Add Current Medication.

- Correct
- Minor Deviations - Describe below
- Major Deviations - Describe below

Comments:

Observed Errors and Verbalizations:

Comments:

Rating:

Rate how much you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree):

Ease of Use: System was easy to use for this task _____

Efficiency: I was able to complete this task quickly _____

Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:

1.2 Access and change the patient medication

After entry, the patient remembers that he is taking *40mg of Lipitor*. Please update the patient's record for the medication.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path: Select → Correct → Change Dosage → Save.

- Correct
- Minor Deviations - Describe below
- Major Deviations - Describe below

Comments:

Observed Errors and Verbalizations:

Comments:

Rating:

Rate how much you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree):

- Ease of Use: System was easy to use for this task _____
- Efficiency: I was able to complete this task quickly _____
- Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:**2.1: Record patient allergies/med allergies**

Mr. Smith has recently developed an allergy to *Penicillin*. His reaction is a *minor rash*. Use the system to record the patient's allergy.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path: Allergies → (+) Add New → Select Medication Search Button → Search → Select → Check off 'Rash' → Select Mild → Save.

- Correct
- Minor Deviations - Describe below
- Major Deviations - Describe below

Comments:

Observed Errors and Verbalizations:**Comments:****Rating:**

Rate how much you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree):

- Ease of Use: System was easy to use for this task _____
- Efficiency: I was able to complete this task quickly _____
- Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:

2.2: Access and update patient allergies/med allergies

He also states that his allergy to *aspirin* has become *severe*. Review and update the reaction to his aspirin allergy.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path: Select → Update → Select 'Severe' in severity slot → Save.

- Correct
- Minor Deviations - Describe below
- Major Deviations - Describe below

Comments:

Observed Errors and Verbalizations:

Comments:

Rating:

Rate how much you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree):

Ease of Use: System was easy to use for this task _____

Efficiency: I was able to complete this task quickly _____

Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:

3.1: Reconcile clinical information

The patient has brought with him a file called a CDA he received from his specialist that contains *Problems, Medications, and Allergies* from his previous provider. The file has already been uploaded to the patient chart and is ready to be reconciled with the patient chart. Locate the Clinical Reconciliation section. Select the document and choose the reconcile option. Review the sections of the CDA, select each of the new *Problems, Medications* and *Allergies* and add the new information to the patient's active list then merge information.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path: Clinical Reconciliation → Select → Reconcile →

- a) Select Problems Tab -> Select Problems to reconcile → Commit Merged List.
- b) Select Medications Tab -> Select Medications to reconcile → Commit Merged List.
- c) Select Medications Allergy Tab -> Select Allergies to reconcile → Commit Merged List.

- Correct
 - Minor Deviations - Describe below
 - Major Deviations - Describe below
- Comments:

Observed Errors and Verbalizations:
Comments:

Rating:

Rate how much you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree):

- Ease of Use: System was easy to use for this task _____
- Efficiency: I was able to complete this task quickly _____
- Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:

3.2 Generate CDA

You decide to send Mr. Smith's Cardiologist up to date chart information. From the demographics section of the chart, under patient reports create an Electronic Copy of Health Information a CDA document. In the Reason for Referral add the comment; "Updated Chart, create document, select the provider and Send File Via Direct.

Success:

- Successful without assistance
 - Completed with difficulty or help - Describe below
 - Not completed
- Comments:

Task Time: _____ Seconds

Optimal Path: Demographics→Patient Reports →Select Electronic Copy of Health Information→Add Reason for Referral→Create→Selelct Provider→Send File Via Direct→Choose Contact Dr. Bradley→Send

- Correct
 - Minor Deviations - Describe below
 - Major Deviations - Describe below
- Comments:

Observed Errors

Rating:

Rate how much do you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree:

Ease of Use: System was easy to use for this task _____

Efficiency: I was able to complete this task quickly _____

Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:

4.1: Record Radiology Order (Labs/Imaging)

You believe that the problem is just a common backache, but decide to take extra precaution on the patient because of his age and other medical conditions.

Order a back *X-ray Spine Thoracic and Lumbar X-Ray Scoliosis*.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path: Order Entry → New Order → Select 'Radiology'(Generic) → Locate/Select Test → Save.

- Correct

- Minor Deviations - Describe below
- Major Deviations - Describe below

Comments:

**Observed Errors and Verbalizations:
Comments:**

Rating:

Rate how much you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree):

Ease of Use: System was easy to use for this task _____

Efficiency: I was able to complete this task quickly _____

Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:

4.2: Access/Change Radiology Order (Labs/Imaging)

You've forgotten to add a comment to this order. Access the previous order and add a comment 'Please perform ASAP'.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path: Select → Update Order → Add Comment → Save.

- Correct
- Minor Deviations - Describe below
- Major Deviations - Describe below

Comments:

**Observed Errors and Verbalizations:
Comments:**

Rating:

Rate how much you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree):

Ease of Use: System was easy to use for this task _____

Efficiency: I was able to complete this task quickly _____
Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:

5.1 Record Lab Order (Labs/Imaging)

You also decide to order a *CBC W Auto Differential panel*.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path: New Order → Select 'Lab (Generic)' → Locate/Select CBC → Save.

- Correct
- Minor Deviations - Describe below
- Major Deviations - Describe below

Comments:

Observed Errors and Verbalizations:

Comments:

Rating:

Rate how much you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree):

Ease of Use: System was easy to use for this task _____
Efficiency: I was able to complete this task quickly _____
Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:

5.2: Access/Change Lab Order (Labs/Imaging)

You review his chart and decide to order a *lipid panel* instead. Update the previous order to reflect this information.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path: Update Order → Deselect CBC → Select Lipid Panel → Save.

- Correct
- Minor Deviations - Describe below
- Major Deviations - Describe below

Comments:

Observed Errors and Verbalizations:

Comments:

Rating:

Rate how much you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree):

Ease of Use: System was easy to use for this task _____

Efficiency: I was able to complete this task quickly _____

Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:

SCENERIO 2

Patient Jane Doe is a 68 year old female who also comes into the clinic with a cough and fever. This patient has Type II Diabetes and Ischemic Vascular Disease. She is mildly allergic to Penicillin and is currently taking Aspirin. Their most recent Hemoglobin A1c level was 9.5. Her most recent blood pressure was 145 / 95.

6.1: Clinical Decision Support

Review the patient's Clinical Decision Support upon entry of chart. Verify that a clinical decision support rule triggers related to a patient's problem, medication, vitals, age, and allergy. For each CDS rule view the source and therapeutic resources. Add the comment 'Already Completed' to any of the system alert. Only for administrators attempt to modify the configuration of the Clinical Decision Support Rule for "Flu Vaccine" by changing the age from ≥ 65 to ≥ 70 years of age.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path (View CDS Rules): Open Patient Chart

Optimal Path (Source and Reference): Alerts & Reminders → Click Source Icon → Click Reference Icon

Optimal Path (Add Comment) : Health Maintenance → Select → Update Record → Add Comment → Save.

Optimal Path (Configuration) : Setup → Clinical Decision Support → Clinical Decision Support Rules → Select on "Flu Vaccine" Update Record → Modify the parameter for age.

- Correct
- Minor Deviations - Describe below
- Major Deviations - Describe below

Comments:

Observed Errors and Verbalizations:

Comments:

Rating:

Rate how much you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree):

Ease of Use: System was easy to use for this task _____

Efficiency: I was able to complete this task quickly _____

Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:

7.1 Record Medication Order / Drug-Drug, Drug-Allergy interaction check

You decide to prescribe Ms. Doe *Penicillin G Potassium 250mg once a day for 15 days* for her cough and fever. Override the interaction check warning by entering the following comment: patient tolerated medication previously.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path: Medications → Add → Search Penicillin → Select Template → Add override comment → Continue → Save.

- Correct
- Minor Deviations - Describe below
- Major Deviations - Describe below

Comments:

Observed Errors and Verbalizations:

Comments:

Rating:

Rate how much you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree):

Ease of Use: System was easy to use for this task _____

Efficiency: I was able to complete this task quickly _____

Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:

7.2 Access and Change Medication Order

Due to her allergic reaction you decide to provide reduce the duration. Access and change the medication or to *Penicillin G Potassium 250mg once a day for 10 days*.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path: Select medication → Correct → Update Duration → Save.

- Correct
- Minor Deviations - Describe below
- Major Deviations - Describe below

Comments:

Observed Errors and Verbalizations:

Comments:

Rating:

Rate how much you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree):

- Ease of Use: System was easy to use for this task _____
- Efficiency: I was able to complete this task quickly _____
- Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:

7.3 Electronic Prescribing

Before you can send the prescription you need to check the Eligibility and Rx History for the patient. Using the Electronic Transaction button perform.

Now, e-prescribe *Penicillin V Potassium 250mg once a day for 10 days*.
Choose to e-prescribe to Ms. Doe's test pharmacy.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path: Select → E-script → Verify → Select Pharmacy → Send.

- Correct
- Minor Deviations - Describe below
- Major Deviations - Describe below

Comments:

Observed Errors and Verbalizations:

Comments:

Rating:

Rate how much you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree):

- Ease of Use: System was easy to use for this task _____
- Efficiency: I was able to complete this task quickly _____
- Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:

7.4 RX Cancel

After sending the prescription you decide this medication may not be appropriate for Ms Doe and decide to cancel the prescription. Select the medication and view the escript log. From the top of the log window select the medication for new RX and click cancel new Rx request.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path: Select medication → Correct → Update Duration → Save.

- Correct
- Minor Deviations - Describe below
- Major Deviations - Describe below

Comments:

Observed Errors and Verbalizations:

Rating:

Rate how much do you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree:

Ease of Use: System was easy to use for this task _____

Efficiency: I was able to complete this task quickly _____

Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:

--

7.5 Refill Prescription

From the User Inbox locate the RX Request and Rx Change tab. Scroll to find the Unknown Patient dated 12/7/2017 link the patient to Debra Tucker. Review the refill request for this patient. Approve and send the response for Levalbuterol, select done. Do not sign off. Begin.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path:

User Inbox → Select Refill Request → Select Unknown Patient → Link → Approve → Send Response → Done.

- Correct
- Minor Deviations - Describe below
- Major Deviations - Describe below

Comments:

Observed Errors and Verbalizations:

Rating:

Rate how much do you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree:

Ease of Use: System was easy to use for this task _____

Efficiency: I was able to complete this task quickly _____

Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:

8.1 Drug-Drug/Drug-allergy interaction check

Adjust the severity level of drug-drug interventions from *mild to severe*.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path: Setup → Medication Information → Interactions → Select Severity → Save.

- Correct
- Minor Deviations - Describe below
- Major Deviations - Describe below

Comments:

Observed Errors and Verbalizations: Comments:

Rating:

Rate how much you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree):

- Ease of Use: System was easy to use for this task _____
- Efficiency: I was able to complete this task quickly _____
- Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:

9.1 Implantable Device

Ms. Doe states that last month she had surgery on her Right Knee. She stated there was a suture device still implanted. She tells you it is a Type of suture called Ti-Cron and gives you her card.

Record the ID # (01)10884521062856(11)141231(17)150707(10)A213B1(21)1234.

Click on the Implant to reveal device description, identifiers, and attributes.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path: Implant→Add New Device →Enter Device Name →Date→Add UDI→Save.

- Correct
- Minor Deviations - Describe below
- Major Deviations - Describe below

Comments:

**Observed Errors
and Verbalizations: Comments:**

Rating:

Rate how much do you agree with the following statements (1 to 5 where 1 is strongly disagree and 5 is strongly agree:

- Ease of Use: System was easy to use for this task _____
- Efficiency: I was able to complete this task quickly _____
- Satisfaction: I am satisfied with the system for this task _____

Administrator Comments:

9.2 Change UDI Status

You notice that Ms Doe has another implant device listed. You ask her if it is still an active device. She tells you it is not. Update the record.

Success:

- Successful without assistance
- Completed with difficulty or help - Describe below
- Not completed

Comments:

Task Time: _____ Seconds

Optimal Path: Implant→Select →Set as Inactive→Save.

- Correct
- Minor Deviations - Describe below
- Major Deviations - Describe below

Comments:

Observed Errors

Final Questions

What was your overall impression of the 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

Appendix-5: SYSTEM USABILITY SCALE QUESTIONNAIRE

	Strong 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					

Source: <http://www.usabilitynet.org/trump/documents/Suschapt.doc>

Appendix-6: INCENTIVE RECEIPT AND ACKNOWLEDGEMENT FORM

Acknowledgement of Receipt

Invoice Date: _____

I hereby acknowledge receipt of a \$100.00 Visa gift card for my participation in a research study run by Comtron Corp.

Printed Name: _____

Address: _____

Phone: _____

Email: _____

Signature: _____ Date: _____

Usability Researcher: _____

Usability Reasearcher Signature: _____

Appendix-7: TASK DETAIL MEMORY GUIDE

SCENARIO 1

Mr. John Smith, 56, with high cholesterol has come in today for back pain. He has also recently seen a specialist for a sinus infection.

Take the participant to the starting point for each task.

1.1: Record the patient medication

20mg of Lipitor

1.2 Access and change the patient medication

Update medication to 40mg of Lipitor.

2.1: Record patient allergies/med allergies

Record patient allergy: Penicillin. His reaction is a minor rash.

2.2: Access and update patient allergies/med allergies

Review and update the reaction to his aspirin allergy to severe.

3.1: Reconcile clinical information

*Analyze the screen and add any information missing to the patient's chart. * Problems*

4.1: Record Radiology Order (Labs/Imaging)

Order a back X-ray Spine Thoracic and Lumbar X-Ray Scoliosis. From 'Radiology (Generic).'

4.2: Access/Change Radiology Order (Labs/Imaging)

Access the previous order and add comment 'Please perform ASAP'.

5.1 Record Lab Order (Labs/Imaging)

Order a CBC W Auto Differential panel from 'Lab (Generic)'

5.2: Access/Change Lab Order (Labs/Imaging)

Access and update the previous order to a lipid panel.

SCENERIO 2

Patient Jane Doe is a 68 year old female who also comes into the clinic with a cough and fever. This patient has Type II Diabetes and Ischemic Vascular Disease. She is mildly allergic to Penicillin and is currently taking Aspirin. Their most recent Hemoglobin A1c level was 9.5. Her most recent blood pressure was 145 / 95

6.1: Clinical Decision Support View CDS rules along with references. Add the comment 'Already Completed' to any of the system alert. Configure a CDS rule.

7.1 Record Medication Order / Drug-Drug, Drug-Allergy interaction check

Prescribe Ms. Doe Penicillin G Potassium 250mg once a day for 15 days for her back pain. Override the interaction check by entering the following comment: patient tolerated medication previously.

7.2 Access and Change Medication Order

Change the medication previous prescription to Penicillin G Potassium 250mg once a day for 10 days.

7.3 Electronic Prescribing

E-prescribe Penicillin G Potassium 250mg once a day for 10 days.

E-prescribe medication to Ms. Doe's local pharmacy.

8.1 Drug-Drug/Drug-allergy interaction check

Adjust the severity level of drug-drug interventions from mild to severe.