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Date: 01/13/2014

ATTN: To whom it may concern,

This letter is regarding AllegianceMD Software Inc. Usability study performed on the AllegianceMD EHR program – Veracity version 8.1 for certification of ONC Test Procedure 170.314.g.3 Safety Enhanced Design.

With this letter AllegianceMD Software Inc. attests to the validity and authenticity of the study conducted on our EHR program Veracity version 8.1. The study followed the guidelines and methodology set forth in the NISTIR 7741 NIST Guide (*NISTIR 7741 NIST Guide to the Processes Approach for Improving the Usability of Electronic Health Records, November 2010, and reported in NISTIR 7742 Customized Common Industry Format Template for Electronic Health Record Usability Testing, November 2010*)



Mohamed Elmawi, COO

EHR Usability Test Report of the AllegianceMD Software Inc. EHR Program Veracity - version 8.1

Report based on the NISTIR 7741 NIST Guide to the Processes Approach for Improving the Usability of Electronic Health Records, November 2010, and reported in NISTIR 7742 Customized Common Industry Format Template for Electronic Health Record Usability Testing , November 2010.

EHR Under Test: Veracity – version 8.1 by AllegianceMD Software Inc.
Usability Test Period: 12/09/2013 to 12/13/2013
Date of Report: 01/13/2014
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The Veracity – version 8.1 program is a web-based EHR program
accessed online at
<https://veracity.allegiancemd.com>

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Executive Summary

AllegianceMD's user-centered design (UCD) process follows the NISTIR 7741 usability design standard. A Usability Test of the AllegianceMD software Inc. EHR program, Veracity – version 8.1, was conducted between 12/08/2013 and 12/13/2013. The test was based on the NISTIR 7742 Customized Common Industry Format template and performed online from the AllegianceMD engineering and support office located in Tulsa, Oklahoma. Testing was moderated by trained AllegianceMD staff that connected to the test participant's own computers.

The purpose of this study was to test and validate the usability of the current user interface, and provide evidence of usability in the Veracity – version 8.1 EHR program. During the usability test, # healthcare workers matching the target demographic criteria served as participants, and used the Veracity – version 8.1 EHR program in simulated, but representative tasks. AllegianceMD's target demographic for testing was typical Veracity EHR users.

This study collected performance data on one or more of the following task categories, typically conducted in conjunction with the requirements set forth in ONC's 2014 Final Rule Standard 70.314.g.3 - Safety Enhanced Design:¹

- Computerized Provider Order Entry
- Drug-Drug & Drug-Allergy Interaction
- Electronic Prescribing
- Medication Allergy List
- Medication List
- Clinical Decision Support
- Clinical Information Reconciliation

Each task category is represented here as a separate section. During the one hour test session, each participant was greeted by the test moderator (administrator) and given a brief overview of what to expect; they were instructed that they could withdraw at any time. Participants represented a sample of both experienced and novice Veracity EHR users. All participants had gone through the standard AllegianceMD - Veracity EHR program online training sessions previously. The administrator introduced the test, and instructed participants to complete a series of tasks (given one at a time) using the Veracity – version 8.1 EHR program. During the testing, the moderators assistant (note taker) timed the test and recorded user performance data. Assistance was generally not allowed. However, if a moderator gave assistance to the user, this was noted on the efficiency section data sheet.

The following types of data were collected for each participant:

- Task Efficiency
- Time to complete the tasks
- Task Effectiveness
- Task Satisfaction
- Participant's verbalization's

All participant data was de-identified – no correspondence could be made from the identity of the participant to the data collected. Data was collected and metrics calculated as proposed in the *NISTIR 7741 NIST Guide to the Processes Approach for Improving the Usability of Electronic Health Records, November 2010*. A general summary of the results is shown below in the **Table 1: Summary of Results**.

¹ This certification criterion is from the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule issued by the

As a post-test questionnaire, the System Usability Scale (SUS) was given to all the participants at the end of the study. This allowed for an overall satisfaction score comparable to other EHRs. The overall mean score of the SUS was 83.95. This positions Veracity – version 8.1 above the 80 point mark for high usability.² This shows AllegianceMD is on track in the usability of our system. Comments about AllegianceMD's - Veracity EHR program overall were also gathered here.

Table 1: Summary of Results

Medication List		Clinical Decision Support	
Effectiveness – Task Successes	96.96%	Effectiveness – Task Successes	100.00%
Effectiveness – Task Failures	3.04%	Effectiveness – Task Failures	0.00%
Average Time of Completion	91.64 Seconds	Average Time of Completion	67.18 Seconds
Average Task Efficiency Score	4.75	Average Task Efficiency Score	4.27
Average Task Satisfaction Score	4.66	Average Task Satisfaction Score	4.68
Medication Allergy List		Clinical Information Reconciliation	
Effectiveness – Task Successes	96.96%	Effectiveness – Task Successes	92.92%
Effectiveness – Task Failures	3.03%	Effectiveness – Task Failures	7.08%
Average Time of Completion	52.70 Seconds	Average Time of Completion	154.41 Seconds
Average Task Efficiency Score	4.66	Average Task Efficiency Score	4.50
Average Task Satisfaction Score	4.60	Average Task Satisfaction Score	4.62
CPOE		Drug-Drug & Drug-Allergy Interactions	
Effectiveness – Task Successes	96.69%	Effectiveness – Task Successes	95.45%
Effectiveness – Task Failures	3.04%	Effectiveness – Task Failures	4.55%
Average Time of Completion	290.81 Seconds	Average Time of Completion	99.77 Seconds
Average Task Efficiency Score	4.56	Average Task Efficiency Score	3.81
Average Task Satisfaction Score	4.42	Average Task Satisfaction Score	4.08
E-Prescribing		Key	
Effectiveness – Task Successes	100.00%	<i>Percentage of successful attempts</i>	
Effectiveness – Task Failures	0.00%	<i>Percentage of failed attempts</i>	
Average Time of Completion	56.77 Seconds	<i>Average time of completion in Seconds</i>	
Average Task Efficiency Score	4.54	<i>1-5 scale with 1=unable to complete and 5=complete with no deviation</i>	
Average Task Satisfaction Score	4.45	<i>1-5 scale with 1=very difficult and 5=very easy</i>	
System Usability Score: 83.95%			
Where broadly interpreted, scores under 60.00% represent systems with poor usability; scores over 80.00% would be considered above average.			

Major Findings

The Veracity version 8.1 EHR program performed as expected.

The only main areas of concern are reducing the click rate for many of the tasks to further improve the ease of use and improve the speed tasks can be completed. Also to improve the search capabilities on the Medications List and the Allergies List as this was the area most users experienced a reduction of efficiency and caused some to deviate from the normal path of task completion. This information was passed on to our engineering department to further investigate.

² See Tullis, T. & Albert, W. (2008). *Measuring the User Experience*. Burlington, MA: Morgan Kaufman (p. 149). Broadly interpreted, scores under 60 represent systems with poor usability; scores over 80 would be considered above average.

Introduction

The focus of this usability study is the Veracity – version 8.1 program from AllegianceMD Software Inc., Specifically the EHR portion of the software that was designed as a complete electronic health records system for ambulatory medical practices. The Veracity – version 8.1 program in addition to being a complete EHR system also incorporates Scheduling, Medical Billing and Practice all in one seamless design. The study was conducted utilizing intended users of the Veracity – version 8.1 program (Medical Professionals: Doctors, Nurses, Physician Assistants and Medical Assistants, Practice Administrators...)

The purpose of this testing is to test and validate the Veracity – version 8.1 programs EHR user interface for usability and to provide evidence of said usability as required to meet the guidelines as set forth by ONC's 2014 Final Rule Standard 170.314.g.3. AllegianceMD has attempted to provide the users performing the tests with as realistic a set of exercises and conditions as possible. To this end, measures of efficiency, effectiveness, and user satisfaction were captured during the usability testing for the following task modules:

- Computerized Provider Order Entry § 170.314(a)(1)
- Drug-Drug & Drug-Allergy Interaction § 170.314(a)(2)
- Electronic Prescribing § 170.314(b)(3)
- Medication Allergy List § 170.314(a)(7)
- Medication List § 170.314(a)(6)
- Clinical Decision Support § 170.314(a)(8)
- Clinical Information Reconciliation § 170.314(b)(4)

Each of these modules were tested according to their ONC Final Rule Standard, referenced by their § 170.314(x)(y) certification criteria.³

Method

Participants

A total of 11 users participated in the testing of the Veracity – version 8.1 program. The participants in the test were typical users of the Veracity EHR and on average had a #.# years experience using the AllegianceMD - Veracity EHR program. Some were newer users just having started to utilize the program while others were quite experienced users having utilized the Veracity EHR for many years. All users had previous training on the Veracity EHR program. Both standard EHR training that all Medical staff and providers undergo when first starting to use the Veracity EHR and ongoing followup training as needed.

The names of the users participating in the testing were replaced with Participant IDs, so that an individual's data cannot be tied back to individual identities. A total of 11 participants accepted invitations to participate and all 11 kept their scheduled appointment to test the system.

Users that elected to participate in the testing were on average between 45 and 65 with a average age of 51.45 years. Users tended to feel that they had at least a moderate knowledge of the computer systems and the software being utilized in the practice and all felt that “a lack of training” would not be a issue. There was a 4/7 split between male and female users, and a majority of participants were providers. The specialties of the practices varied from General/Family practice to quite specialized OB/GYN and Podiatry.

No users participating in the testing had any direct connection to the development of the Veracity EHR program or had any involvement with any organization producing any of the Veracity EHR program's functions. Likewise no user participants were from the testing or supplier organization.

A breakdown of the demographics of the participants is shown below in **Table 2: Demographic Summary Chart**.

³ This certification criterion is from the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule issued by the Department of Health and Human Services (HHS) on September 4, 2012.

Table 2: Demographic Summary Chart.

Participants Registered for Test	11	user self rating 0-3 of computer experience 0=low and 3=High	2.36
Participants Tested	11	Average number years working with medical records	23.87
No-Show/Forgot, overbooked, unable to participate, declined	0	Average number years - Paper Only	19.00
Gender - Male	4	Average number years - both Paper & Electronic	1.41
Gender - Female	7	Average number years – Electronic Only	3.46
Average Age	51.45	Average number of years using the Veracity EHR	2.31
Occupation – Provider	6	Number of providers ePrescribing in the Veracity EHR	10 out of 11
Occupation - Nurse	2	Number of providers participating in Meaningful Use Program	8 out of 11
Occupation - Practice Administrator	2	Number of providers participating in PQRS Program	2 out of 11
Occupation – Medical Assistant	1		
Practice Specialty - Neurology	1	Practice Location - California	2
Practice Specialty – Family Practice	3	Practice Location - Colorado	1
Practice Specialty - Pediatrics	2	Practice Location - Tennessee	3
Practice Specialty - Podiatry	2	Practice Location - Georgia	1
Practice Specialty – Internal Medicine	1	Practice Location – New Mexico	1
Practice Specialty – Mental Health	1	Practice Location - Pennsylvania	1
Practice Specialty – OB/GYN	1	Practice Location - Louisiana	2
Platform – Desktop	5	Operating System – Microsoft Windows 8	4
Platform - Laptop	6	Operating System – Microsoft Windows 7	6
Web Browser - Mozilla FireFox	11	Operating System – Microsoft Windows XP or older	1

Study Design

The process was based on the NISTIR 7741 NIST Guide to the Processes Approach for Improving the Usability of Electronic Health Records, November 2010 by Robert M. Schumacher and Svetlana Z. Lowry. Overall, the objective of this test was to uncover areas where the software performed efficiently, effectively, and with a high degree of satisfaction; and areas where the application failed to meet the needs of the participants. The data from these tests 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.

Participants were scheduled for one session of approximately 60 minutes with 5 minutes in between each task for a debriefing by the moderator, and to reset systems to the proper test conditions. All 11 participants were tested on all tasks.

All tests were kept within the overall time allowed, typically 60 minutes. An Excel document was used to keep track of the participants scheduled and the task modules that were completed.

During the usability test, participants interacted with only the Veracity – version 8.1 EHR program's EHR. Each participant used the system by connecting with the test moderator through a webinar (AllegianceMD uses GatherPlace by GatherWorks, Inc.) and was provided with the same instructions. The system was evaluated for efficiency, effectiveness, and satisfaction, as defined by the following measures. Data for each was collected and analyzed for each test participant:

- Time to complete the tasks
- If the task was completed and without assistance
- Number and types of errors and/or path deviations
- Participant's satisfaction ratings of the system
- Participant's verbalization's

At the end of the test session, the user was also asked to respond to generalized statements on the Veracity – version 8.1 EHR

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program's usability using the SUS scale, see Data Scoring below for further details.

Tasks

A total of 7 test categories each incorporating a set of specific tasks were constructed that would be realistic and representative of the kinds of activities a user might do with this EHR:

- 1- Patient's Medication List (170.314 (a)(6))
 - a. Electronically Record Patient Active Medication List
 - b. Electronically Change Patient Active Medication List
 - c. Electronically Access Patient Active Medication List
- 2. Patient's Allergy List (170.313 (a)(7))
 - a. Electronically Record Patient Active Medication Allergy List
 - b. Electronically Change Patient Active Medication Allergy List
 - c. Electronically Access Patient Active Medication Allergy List
- 3. Drug-Drug & Drug-Allergy Interaction § 170.314(a)(2)
 - a. Create Drug-Drug and drug-allergy interventions prior to CPOE completion.
 - b. Adjustment of severity level of drug-drug interventions.
 - c. Limit the ability to adjust severity levels to an identified set of users or available as a system administrative function.
- 4. Computerized Provider Order Entry § 170.314(a)(1)
 - a. Medication Order
 - i. Electronically Record Medication Order
 - ii. Electronically Change Medication Order
 - iii. Electronically Access Medication Order
 - b. Lab Order
 - i. Electronically Record Lab Order
 - ii. Electronically Change Lab Order
 - iii. Electronically Access Lab Order
 - c. Radiology Order
 - i. Electronically Record Radiology Order
 - ii. Electronically Change Radiology Order
 - iii. Electronically Access Radiology Order
- 5. Clinical Decision Support § 170.314(a)(8)
 - a. Select/Activate Clinical Decision Support Interventions
 - b. Trigger Clinical Decision Support Interventions
 - c. Identify Diagnostic and Therapeutic Reference Resources
 - d. Configure Clinical Decision Support Interventions and Diagnostic and Therapeutic Reference Resources
 - e. Review Source Attributes for Clinical Decision Support Resources
- 6. Electronic Prescribing § 170.313 (b)(3)
 - a. Electronically Create Prescriptions
- 7. Clinical Reconciliation § 170.314 (b)(4)
 - a. Medication List
 - i. Electronically and Simultaneously Display Medication List Data in a single View
 - ii. Create a Single Reconciled Medication List
 - iii. Review, Validate, Confirm and Submit the Final Reconciled Medication List
 - b. Allergy List
 - i. Electronically and Simultaneously Display Medication Allergy List Data in a Single View
 - ii. Create as Single Reconciled Medication Allergy List
 - iii. Review, Validate, Confirm and Submit the Final Reconciled Medication Allergy List
 - c. Problems List
 - i. Electronically and Simultaneously Display Problem List Data in a Single View
 - ii. Create a Single Reconciled Problem List
 - iii. Review, Validate, Confirm and Submit the Final Reconciled Problem List

A summary of the prioritization of tasks is shown below in **Table 3: Criticalness Survey**. The Medication List and e-Prescribing functions were found to be the most used of the functions being tested. The functions where the users felt the most risk of error was possible was tied between the Drug-Drug & Drug-Allergy Interaction and the e-Prescribing functions.

Table 3: Criticalness Survey

Frequency between 1-7 users used this function within the Veracity – version 8.1 EHR program 1= most used to 7= least used	
Function	Mean Score
Medication List	1.27
Electronic Prescribing	1.45
Computerized Provider Order Entry	1.54
Drug-Drug & Drug-Allergy Interactions	1.72
Medication Allergy List	2.09
Clinical Information Reconciliation	2.36
Clinical Decision Support	3.45
Prioritization 1-7 of Veracity – version 8.1 EHR functions in accordance of risk associated with user errors 1=Highest risk of a serious user error to 7=Least risk of a serious user error	
Function	Mean Score
Electronic Prescribing	4.63
Drug-Drug & Drug-Allergy Interactions	4.63
Clinical Information Reconciliation	4.72
Clinical Decision Support	4.90
Medication List	5.09
Computerized Provider Order Entry	5.36
Medication Allergy List	5.45

System Usability Scale -

Statement	Average Score (pre-SUS adjustment)	Average Score (post-SUS adjustment)
1. I think that I would like to use this system frequently.	4.90	3.90
2. I found the system unnecessarily complex	1.90	3.09
3. I thought the system was easy to use	4.45	3.45
4. I think I would need the support of a technical person to use this system	2.18	2.81
5. I found the various functions in this system were well integrated	4.63	3.63
6. I thought there was too much inconsistency in this system	1.81	3.18
7. I would imagine that most people would learn to use this system very quickly	4.54	3.54
8. I found the system very cumbersome to use	1.54	3.45
9. I felt very confident using the system	4.81	3.81
10. I need to learn a lot of things before I could get going with this system	2.27	2.72

System Usability Score: 83.95%

Where broadly interpreted, scores under 60.00% represent systems with poor usability; scores over 80.00% would be considered above average.

Procedures

Online Procedures

Upon reaching the participant over the phone, their identity was verified and matched with the name of the participant scheduled. The participants were given an account login and password to reach a per-configured Veracity – version 8.1 EHR program account. This account allowed the user to access functions that have not yet been released in the current pretest Veracity EHR program.

The participants were typically asked to respond to the Introduction/Demographics section, the 7 test sections, and the Closing section. For each task, the participants were given a digital summary of the task that we recommended that they print out for easy reference. During the 7 test sections the participant was often asked to find something in the EHR, to add something to the EHR, and/or to change something in the EHR. These tests are reflective of the tasks used for the 2014 EHR Certification and Meaningful Use standards.

After the tasks were complete, the participant was asked to complete the SUS Survey in the Closing section.

The user Participants demographic information (De-Identified), task success rates, times, errors, deviations, and verbal responses, and the post-test questionnaire were then recorded into a master spreadsheet that was used to compile all the testing data.

Test Location

The testing was conducted online by a test moderator in the AllegianceMD engineering and support office located in Tulsa, Oklahoma. As noted above in the study design the moderator at the beginning of the call connected with the user participants computer utilizing GatherPlace, a webinar program. The exact location of the participant was not noted, but it was assumed it was a typical location that was comfortable for the user, and where he/she did most of their daily work with the EHR program. This test procedure is very familiar to most of the participants, as AllegianceMD conducts extensive online training in this manner and customer support will frequently help users also utilizing the GatherPlace webinar program.

Test Environment

The Veracity – version 8.1 EHR program would typically be used in a healthcare office or facility. The online testing participants used their own computers, as AllegianceMD's - Veracity EHR program is a web-based program. It is assumed, since the participants were able to access their accounts, that they were meeting the basic minimum system requirements to use an online program. AllegianceMD's - Veracity EHR program is designed to be used on computers, notebooks and tablets running Microsoft Windows or on a Apple Mac or Mac Book utilizing Apple OS 10.6 – 10.9 (newest).

Technically, the system performance (i.e., response time) was representative to what actual users would experience in a live implementation. Test moderators were instructed to note any problems encountered, if any, during the testing. No extraordinary performance issues were noted.

Test Forms and Tools

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

- Testing Script.
- Introduction & Demographic section.
- The test module(s) sections.
- Post-test (SUS) questionnaire and Closing section.
- Test Administrators' timer.
- GatherPlace webinar program to connect to users computer.

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Participant Instructions

Introduction Script

The administrator reads the following introductory instructions aloud to each participant:

Thank you for participating in this study. Your input is very important. Our total session today will last about 60 minutes. During that time you will use an instance of AllegianceMD's - Veracity – version 8.1 electronic health record program. Overall, we are interested in how easy, or how difficult, certain functions in this system are to use, what in it would be useful to you as a provider, The goal of this testing is not to pat ourselves on the back but to learn from your performance on how we could improve it. 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.

We realize you are helping us; should you feel it necessary, you are able to withdraw at any time during the testing, for any reason.

First off – did you print off the Key Data Points sheet I e-mailed over to you? (if not have them print it) I sent that over so you can have that handy while testing to make things move along quicker for you.

There are two steps I need from you to start, if you are willing. One is to open a web browser, and go to AllegianceMD's home page, www.allegiancemd.com. You can do that now.

While that is pulling up I have just a few technical questions to ask. (fill out answers on demographics work sheet – Questions A, B, C and D)

- *What web browser you are using?*
 - Check one: Mozilla FireFox___ Chrome___ Safari___ IE___
 - *What Version is it?:* _____
- *What type of computer are you using?*
 - Check one: Desktop___ Notebook___ Tablet___ Mac___ Mac Book___
- *What operating system is your computer running?*
 - If Windows Check one: 8___ 7___ Vista___ XP___ Older___
 - If Mac/Mac Book Check one: OS 10.6___ OS 10.7___ OS 10.8___ OS 10.9___

Now the second step is to click on webinar so we can activate GatherPlace just like you do during training and support calls. Go ahead and enter the following access code (Generated at time of call) and enter your initials in the name field then click join. Just a reminder that if it asks permission to allow JAVA to run click yes and once 1,2,3 and 6 and 7 are checked click continue. Depending on your computers settings it may ask for permission to run GatherPlace Click run. I now see we are connected, I am going to reverse the we are looking at your screen, Please click OK. Great now we are on the same screen.

I will now log you into the Veracity – version 8.1 EHR testing account.

For this first part of the study, we need to gather some non-identifying demographic data. Please keep in mind that any identifying information given during the testing will be scrubbed and replaced with with a generic code. Nothing can be traced back to you or the practice.

Should you feel it necessary you are able to withdraw at any time during the testing.

Demographics were collected next utilizing the demographics questionnaire and the demographics answer sheet.

Demographics Questionnaire - All the blanks need to be filled. Where possible, use numeric codes to facilitate data collection. If you cannot use a code, or feel a code is inappropriate, then write in a response. Use N/A (not available) only if no other options are available. Capture any pertinent comments and/or questions in the notes section.

Previously asked technical questions:

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- *What web browser you are using?*
 - Check one: Mozilla FireFox___ Chrome___ Safari___ IE___
 - *What Version is it?:* _____
- *What type of computer are you using?*
 - Check one: Desktop___ Notebook___ Tablet___ Mac___ Mac Book___
- *What operating system is your computer running?*
 - If Windows Check one: 8___ 7___ Vista___ XP___ Older___
 - If Mac/Mac Book Check one: OS 10.6___ OS 10.7___ OS 10.8___ OS 10.9___

Demographic Questions:

1. Participant ID: Use MonthDayYearHourMinute (MMDDYYHHMM) _____
This is only a unique control identifier so as to keep track of the paperwork
2. Test Date: _____
3. Test Time: (now) _____
4. Test Administrator: _____
5. Location of tester: _____
6. State of participant: _____
7. Occupation: (Use Numbers) Provider-1, PA/Nurse-2, Admin-3, Other-4: _____ (if other: _____)
8. Specialty of Practice: _____
9. Gender: _____ (M or F)
10. Age: _____
Computer Experience: Have the participant self report. If there seems to be a discrepancy, add to notes section.
11. Years of health records experience - How many years has the participant been working with health records? _____
12. Total: Total years using health records. _____
13. Only Paper Usage: Only paper records used in the office. _____
14. Some Paper, Some Electronic: A mixture of paper and computer records. _____
15. All Electronic: Where most of the office functions (>85%) are computerized. _____
16. Years of Veracity EHR Experience: _____ Does the practice utilize the e-Prescription section: _____ (Y or N)
17. Meaningful Use: Is the participant involved with Meaningful Use? Use the codes:
Not doing-0, Started Stage one-1, Started Stage two, Haven't started-3, Don't know about-4
18. PQRS: Is the participant doing the PQRS requirements for Medicare Plan B? Use the codes:
Not doing-0, Started Stage one-1, Started Stage two, Haven't started-3, Don't know about-4

In just a moment I will be asking you to complete a few tasks using this system, and then answer some questions about what you just did. You should complete the tasks as quickly as possible, making as few errors as possible. Please try to complete the tasks on your own to the best of your ability, following the instructions very closely. Each task has a corresponding Key Data Points list on the sheet I had you print out. You may find it helpful s it summarizes each section. Please note that we are not testing you specifically, 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.

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 try not to talk aloud or verbalize while you are doing the tasks. Once finished with the task I will then ask you your impressions about the task you just performed. During these tasks, I may take your comments and refocus them to the task on hand. When all the tasks are complete, ALL comments and questions can be taken regarding ANY part of the Veracity EHR program's functions. Any questions so far?

Participants were then given 7 task scenarios to complete. Testing scenarios were based off of the MU Test Procedures/Test Data documents for each corresponding component (<http://www.healthit.gov/policy-researchers-implementers/2014-edition-final-test-method>)

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After each set of tasks the following will be filled out:

Time in seconds, to complete task _____

Rate the efficiency of the participant's paths used _____.

- 1 = Could not complete at all.
- 2 = Gave up but would have got there eventually with more time or guidance.
- 3 = Got there eventually within the time but with many wrong paths and corrections.
- 4 = Completed within time but with different paths.
- 5 = Completed without major deviations.

The task was completed successfully?: _____ (Y or N)

and the Satisfaction section

Thank you for testing that. I have one more question regarding the task

How would you rate the ability to add allergies to the Medication Allergy List on a five point scale where 1 is very difficult, 3 is average, and 5 is very easy? _____

*Do you have any other questions, comments or suggestions related to this task?
If not...
Let's move on to the next step.*

Once all Testing is completed the following will be asked:

Survey

For the following questions answer with 1,2,3,4,or 5 . All are based on a five point scale, where a 1 is, "You strongly disagree with the statement," to 5 where, "You strongly agree with the statement." Do not dwell too long on a statement, and give us your initial impression. No opinion or "can't respond" would rate a 3 on the scale.

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

Comments:

Test time ended: _____

Criticalness Survey Questions Asked at end of Testing:

Please rank the order of the following EHR functions:

- Frequency users utilize this function within our system where between 1 and 7 with 1= Most used and 7 = Least used:
 - Prioritize in accordance of risk associated with user errors between 1 and 7 with 1= Most risk of a user making a serious error and 7 = Least risk of a user making a serious error:
1. Computerized Provider Order Entry: Frequency _____, User Error Risk _____
 2. Drug-Drug & Drug-Allergy Interactions: Frequency _____, User Error Risk _____
 3. Medication List: Frequency _____, User Error Risk _____
 4. Medication Allergy List: Frequency _____, User Error Risk _____
 5. Clinical Decision Support: Frequency _____, User Error Risk _____
 6. Electronic Prescribing: Frequency _____, User Error Risk _____
 7. Clinical Information Reconciliation: Frequency _____, User Error Risk _____

Usability Metrics

According to the NISTIR 7741 NIST Guide to the Processes Approach for Improving the Usability of Electronic Health Records, November 2010, 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 efficiently, effectively, and with an acceptable level of satisfaction. To this end, metrics for efficiency, effectiveness, and user satisfaction were captured during the usability testing.

The goals of the test were to assess:

1. Efficiency of the Veracity – version 8.1 EHR program by measuring the average task time and path efficiency.
2. Effectiveness of the Veracity – version 8.1 EHR program by measuring participant success rates.
3. Satisfaction with the Veracity – version 8.1 EHR program by measuring ease of use ratings.

Data Scoring

The following 3 tables outline how data was collected for tasks, how tasks were scored, how errors were evaluated, and how the time data was analyzed . A general summary follows.

Demographics Calculations Table

Data	Format	Parameters	Notes	Calculation Type
Participant ID	Number	Unique Number	MonthDayYearHourMinute MMDDYYHHMM	None/a Control
Test Date	Number	Date	-	None/a Control
Test Time	Number	Time	Timed user from start to finish for each task performed.	Mean time for completion
Test Moderator	Text	Name	-	None/a Control
Location of Participant	Text	Text	-	None/a Control
State of Participant	Text	Text	-	Frequency
Occupation	Number	1,2,3,4	1-Provider, 2-Nurse or PA, 3-Admin and 4-Other	Frequency
Specialty	Text	None	-	Frequency
Gender	Text	M or F	-	Frequency
Age	Number	Years	-	mean Age
Computer experience	Number	0 to 3	Never-0, Light-1, Moderate-2, Heavy-3	Mean score
Only Paper	Number	Years	-	Mean years
Paper & Electronic	Number	Years	-	Mean years
All Electronic	Number	Years	-	Mean years

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Total	Number	Years	-	Mean years
Years Veracity Experience	Number	Years	-	Mean years
E-Prescribe in Veracity	Text	Yes or No	-	Frequency
MU	Number	0,1,2,3,4	No-0, Stage 1-1, Stage 2-2, Not Started-3, Did not know-4	Frequency
PQRS	Number	0,1,2,3,4	No-0, Stage 1-1, Stage 2-2, Not Started-3, Did not know-4	Frequency
Comments/Notes	Text	None	-	Frequency
Browser	Text	None	-	Frequency
Computer Type	Text	None	-	Frequency
Operating System	Text	None	-	Frequency

Task Calculations Table

Data	Format	Parameters	Notes	Calculation Type	Equation Notes
Time	Number	Time	-	mean number	Observed Task Time
Path Efficiency	Number	1,2,3,4,or 5	Moderator rates the efficiency of the participant's paths used using a 5 point scale where 1= could not complete, 2= timed out but would have gotten there eventually with more time or guidance, 3 = got there eventually within the time allotted but with many wrong paths and corrections, 4 = completed within time but with different paths, 5 = completed without major deviations	mean number	-
Task Success	Text	Yes or No	1 Yes – 2 No	Percentage	Total # successful/Total # Task Attempted
Task Fail	Text	Yes or No	1 Yes – 2 No	Percentage	Total # Failed/Total # Task Attempted
Satisfaction	Number	1,2,3,4,or 5	How would you rate the Task on a 5 point scale with 1 being very difficult, 3 being average, and 5 being very easy	mean number	-
Comments/Notes	Text	-	-	N/A	-

SUS Calculations Table

Data	Format	Parameters	Notes	Calculation Type	Equation Notes
1. I think that I would like to use this system frequently.	Number	1,2,3,4,or 5	Measured on a five point agreement scale, where a 1 is strongly in disagreement with that statement to 5 strongly agreeing with that statement	custom	Scale - 1
2. I found the system unnecessarily complex	Number	1,2,3,4,or 5	Measured on a five point agreement scale, where a 1 is strongly in disagreement with that statement to 5 strongly agreeing with that statement	custom	Scale - 5
3. I thought the system was easy to use	Number	1,2,3,4,or 5	Measured on a five point agreement scale, where a 1 is strongly in disagreement with that statement to 5 strongly agreeing with that statement	custom	Scale - 1
4. I think I would need the support of a technical person to use this system	Number	1,2,3,4,or 5	Measured on a five point agreement scale, where a 1 is strongly in disagreement with that statement to 5 strongly agreeing with that statement	custom	Scale - 5
5. I found the various functions in this system were well integrated	Number	1,2,3,4,or 5	Measured on a five point agreement scale, where a 1 is strongly in disagreement with that statement to 5 strongly agreeing with that statement	custom	Scale - 1
6. I thought there was too much inconsistency in this system	Number	1,2,3,4,or 5	Measured on a five point agreement scale, where a 1 is strongly in disagreement with that statement to 5 strongly agreeing with that statement	custom	Scale - 5

7. I would imagine that most people would learn to use this system very quickly	Number	1,2,3,4,or 5	Measured on a five point agreement scale, where a 1 is strongly in disagreement with that statement to 5 strongly agreeing with that statement	custom	Scale - 1
8. I found the system very cumbersome to use	Number	1,2,3,4,or 5	Measured on a five point agreement scale, where a 1 is strongly in disagreement with that statement to 5 strongly agreeing with that statement	custom	Scale - 5
9. I felt very confident using the system	Number	1,2,3,4,or 5	Measured on a five point agreement scale, where a 1 is strongly in disagreement with that statement to 5 strongly agreeing with that statement	custom	Scale - 1
10. I need to learn a lot of things before I could get going with this system	Number	1,2,3,4,or 5	Measured on a five point agreement scale, where a 1 is strongly in disagreement with that statement to 5 strongly agreeing with that statement	custom	Scale - 5
System usability = (sum of above) times 2.5					
Comments/Notes	Text	None	-	-	-
Calculation Notes: SUS yields a single number representing a composite measure of the overall usability of the system being studied. Note that scores for individual items are not meaningful on their own.					
To calculate the SUS score, first sum the score contributions from each item. Each item's score contribution will range from 0 to 4. for items 1,3,5,7 and 9 the score contribution is the scale position minus 1. For items 2,4,6,8 and 10 the contribution is 5 minus the scale position. Multiplying the sum of the scores by 2.5 to obtain the overall value of SU.					
SUS scores have a range of 0 to 100.1					
Brooke, J.: SUS: A "quick and dirty" usability scale. In: Jordan, P. W., Thomas, B., Weerdmeester, B.A., McClelland (eds.) Usability Evaluation in Industry pp. 189—194. Taylor & Francis, London, UK (1996). SUS is copyrighted to Digital Equipment Corporation, 1986.					

Criticalness Survey Questions Asked at end of Testing:

Please rank the order of the following EHR functions:

- Frequency users utilize this function within our system where between 1 and 7 with 1= Most used and 7 = Least used:
 - Prioritize in accordance of risk associated with user errors between 1 and 7 with 1= Most risk of a user making a serious error and 7 = Least risk of a user making a serious error:
1. Computerized Provider Order Entry: Frequency _____, User Error Risk _____
 2. Drug-Drug & Drug-Allergy Interactions: Frequency _____, User Error Risk _____
 3. Medication List: Frequency _____, User Error Risk _____
 4. Medication Allergy List: Frequency _____, User Error Risk _____
 5. Clinical Decision Support: Frequency _____, User Error Risk _____
 6. Electronic Prescribing: Frequency _____, User Error Risk _____
 7. Clinical Information Reconciliation: Frequency _____, User Error Risk _____

Efficiency: Task Time

Each task performed by the participant was timed in seconds. Utilizing this data then allowed for a mean time for completion for each task.

Efficiency: Task Deviations

Best paths (i.e., procedural steps) were recorded when constructing tasks. These paths were noted on the test administrator's Moderator's Guide, with their scripts and notes sheets. The test administrators were instructed to note any wide deviations off the optimal path.

After the task was done or stopped, the test administrator was asked to rate the participant's choice of paths. The administrator rated the efficiency of the participant's paths using a five point scale with the following:

- 1 = Could not complete
- 2 = Timed out, but would have got there eventually with more time or guidance
- 3 = Got there eventually within the time but with many wrong paths and corrections

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- 4 = Completed within time but with different paths
- 5 = Completed without major deviations

An average across participant score was then calculated for each task.

Effectiveness: Task Success

task was counted as a "Success" if the participant was able to achieve the correct outcome, without assistance, within the time allotted on a per task basis. The total number of successes were calculated for each task and then divided by the total number of times that task was attempted. The results are provided as a percentage, tasks completed over tasks attempted.

The Task was accessed successfully?: Yes No

Satisfaction: Task Rating

The 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.

Post-Task Rating

For the post-task measurement, after each task, the participant was asked, "How would you rate the [task] on a five point scale where, 1 is very difficult, 3 is average, and 5 is very easy?" These data points are averaged across participants. Common convention is that average ratings for systems judged easy to use should be 3.3 or above.

How would you rate the Task on a five point scale, where 1 is very difficult, 3 is average, and 5 is very easy?

1= Very difficult 2= Difficult 3= Average 4= Easy 5= Very easy

Post-Session Rating

For the post-session measurement, participants' confidence in, and likeability of, the AllegianceMD - Veracity EHR program EHR overall were tested by the administrators, using 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."
- "I would imagine that most people would learn to use this system very quickly."

These kinds of statements were rated on a five point scale, where 1 is strongly disagree, and 5 is strongly agree.

Results

Data Analysis and Reporting

Final Results

Medication Allergy List Task Results Patient's Allergy List (170.314 (a)(7))		CPOE Task Results (170.314 (a)(1))	
Task 1 - Electronically Record Patient Active Medication Allergy List		Task 1 - Electronically Access Medication Order	
Effectiveness – Task Successes	90.90%	Effectiveness – Task Successes	100.00%
Effectiveness – Task Failures	9.10%	Effectiveness – Task Failures	0.00%
Average Time of Completion	22.06 Seconds	Average Time of Completion	5.62 Seconds
Average Task Efficiency Score	4.45	Average Task Efficiency Score	4.81
Average Task Satisfaction Score	4.54	Average Task Satisfaction Score	4.90
Task 2 - Electronically Change Patient Active Medication Allergy List		Task 2 - Electronically Access Lab Order	
Effectiveness – Task Successes	100.00%	Effectiveness – Task Successes	100.00%
Effectiveness – Task Failures	0.00%	Effectiveness – Task Failures	0.00%
Average Time of Completion	20.33 Seconds	Average Time of Completion	12.58 Seconds
Average Task Efficiency Score	4.81	Average Task Efficiency Score	4.45
Average Task Satisfaction Score	4.45	Average Task Satisfaction Score	4.54
Task 3 - Electronically Access Patient Active Medication Allergy List & History		Task 3 - Electronically Access Radiology Order	
Effectiveness – Task Successes	100.00%	Effectiveness – Task Successes	90.90%
Effectiveness – Task Failures	0.00%	Effectiveness – Task Failures	9.10%
Average Time of Completion	10.31 Seconds	Average Time of Completion	9.49 Seconds
Average Task Efficiency Score	4.72	Average Task Efficiency Score	4.72
Average Task Satisfaction Score	4.81	Average Task Satisfaction Score	4.90
Medication Allergy List – Combined Summary of Results		Task 4 - Electronically Record Medication Order	
Effectiveness – Task Successes	96.96%	Effectiveness – Task Successes	100.00%
Effectiveness – Task Failures	3.03%	Effectiveness – Task Failures	0.00%
Average Time of Completion	52.70 Seconds	Average Time of Completion	66.03 Seconds
Average Task Efficiency Score	4.66	Average Task Efficiency Score	4.09
Average Task Satisfaction Score	4.60	Average Task Satisfaction Score	4.18
Clinical Decision support Task Results (170.314 (a)(8))		Task 5 - Electronically Record Lab Order	
Task 1 – Show how to Select/Activate Clinical Decision Support Interventions		Task 6 - Electronically Record Radiology Order	
Effectiveness – Task Successes	100.00%	Effectiveness – Task Successes	90.90%
Effectiveness – Task Failures	0.00%	Effectiveness – Task Failures	9.10%
Average Time of Completion	48.96 Seconds	Average Time of Completion	46.99 Seconds
Average Task Efficiency Score	4.09	Average Task Efficiency Score	4.36
Average Task Satisfaction Score	4.63	Average Task Satisfaction Score	4.00
Task 2 - Trigger Clinical Decision Support Interventions		Task 7 - Electronically Change Medication Order	
Effectiveness – Task Successes	100.00%	Effectiveness – Task Successes	90.90%
Effectiveness – Task Failures	0.00%	Effectiveness – Task Failures	9.10%
Average Time of Completion	18.22 Seconds	Average Time of Completion	48.21 Seconds
Average Task Efficiency Score	4.45	Average Task Efficiency Score	4.18
Average Task Satisfaction Score	4.72	Average Task Satisfaction Score	4.09
Clinical Decision support - Combined Summary of Results		Task 7 - Electronically Change Medication Order	
Effectiveness – Task Successes	100.00%	Effectiveness – Task Successes	90.90%
		Effectiveness – Task Failures	9.10%

Effectiveness – Task Failures	0.00%
Average Time of Completion	67.18 Seconds
Average Task Efficiency Score	4.27
Average Task Satisfaction Score	4.68

Average Time of Completion	35.61 Seconds
Average Task Efficiency Score	4.72
Average Task Satisfaction Score	4.63

Electronic Prescribing Task Results Task Results (170.313 (b)(3))	
Effectiveness – Task Successes	100.00%
Effectiveness – Task Failures	0.00%
Average Time of Completion	56.77 Seconds
Average Task Efficiency Score	4.54
Average Task Satisfaction Score	4.45

Task 8 - Electronically Change Lab Order	
Effectiveness – Task Successes	100.00%
Effectiveness – Task Failures	0.00%
Average Time of Completion	37.73 Seconds
Average Task Efficiency Score	4.81
Average Task Satisfaction Score	4.45

Clinical Information Reconciliation Task Results (170.314 (b)(4))	
Task 1 - Electronically and Simultaneously Display Medication List Data in a single View	
Effectiveness – Task Successes	100.00%
Effectiveness – Task Failures	0.00%
Average Time of Completion	16.82 Seconds
Average Task Efficiency Score	4.90
Average Task Satisfaction Score	4.72

Task 9 - Electronically Change Radiology Order	
Effectiveness – Task Successes	100.00%
Effectiveness – Task Failures	0.00%
Average Time of Completion	28.55 Seconds
Average Task Efficiency Score	4.90
Average Task Satisfaction Score	4.09

Task 2 - Create a Single Reconciled Medication List	
Effectiveness – Task Successes	100.00%
Effectiveness – Task Failures	0.00%
Average Time of Completion	34.95 Seconds
Average Task Efficiency Score	4.45
Average Task Satisfaction Score	4.54

CPOE - Combined Summary of Results	
Effectiveness – Task Successes	96.69%
Effectiveness – Task Failures	3.04%
Average Time of Completion	290.81 Seconds
Average Task Efficiency Score	4.56
Average Task Satisfaction Score	4.42

Task 3 - Review, Validate, Confirm and Submit the Final Reconciled Medication List	
Effectiveness – Task Successes	90.90%
Effectiveness – Task Failures	9.10%
Average Time of Completion	7.95 Seconds
Average Task Efficiency Score	4.63
Average Task Satisfaction Score	4.81

Drug-Drug and Drug-Allergy Interactions Task Results (170.314 (a)(2))	
Task 1 – Indicate Drug-Drug and drug-allergy interventions	
Effectiveness – Task Successes	90.90%
Effectiveness – Task Failures	9.10%
Average Time of Completion	51.70 Seconds
Average Task Efficiency Score	3.18
Average Task Satisfaction Score	3.63

Task 4 - Electronically and Simultaneously Display Medication Allergy List Data in a Single View	
Effectiveness – Task Successes	90.90%
Effectiveness – Task Failures	9.10%
Average Time of Completion	5.59 Seconds
Average Task Efficiency Score	4.54
Average Task Satisfaction Score	4.72

Task 2 - Adjustment of severity level of drug-drug / drug-allergy interventions.	
Effectiveness – Task Successes	100.00%
Effectiveness – Task Failures	0.00%
Average Time of Completion	48.07 Seconds
Average Task Efficiency Score	4.45
Average Task Satisfaction Score	4.54

Task 5 - Create as Single Reconciled Medication Allergy List	
Effectiveness – Task Successes	100.00%
Effectiveness – Task Failures	0.00%
Average Time of Completion	15.51 Seconds
Average Task Efficiency Score	4.45
Average Task Satisfaction Score	4.27

drug-drug / drug-allergy interventions - Combined Summary of Results	
Effectiveness – Task Successes	95.45%
Effectiveness – Task Failures	4.55%
Average Time of Completion	99.77 Seconds
Average Task Efficiency Score	3.81
Average Task Satisfaction Score	4.08

Task 6 - Review, Validate, Confirm and Submit the Final Reconciled Medication Allergy List	
Effectiveness – Task Successes	90.90%
Effectiveness – Task Failures	9.10%
Average Time of Completion	13.04 Seconds

Medication List Task Results Patient's Medication List (170.314 (a)(6))	
Task 1 - Electronically Record Patient Active Medication List	
Effectiveness – Task Successes	100.00%
Effectiveness – Task Failures	0.00%
Average Time of Completion	41.24 Seconds

Average Task Efficiency Score	4.36	Average Task Efficiency Score	4.81
Average Task Satisfaction Score	4.72	Average Task Satisfaction Score	4.63
Task 7 - Electronically and Simultaneously Display Problem List Data in a Single View		Task 2 - Electronically Change Patient Active Medication List	
Effectiveness – Task Successes	90.90%	Effectiveness – Task Successes	90.90%
Effectiveness – Task Failures	9.10%	Effectiveness – Task Failures	9.10%
Average Time of Completion	7.50 Seconds	Average Time of Completion	31.07 Seconds
Average Task Efficiency Score	4.63	Average Task Efficiency Score	4.54
Average Task Satisfaction Score	4.90	Average Task Satisfaction Score	4.63
Task 8 - Create a Single Reconciled Problem List		Task 3 - Electronically Access Patient Active Medication List & History	
Effectiveness – Task Successes	90.90%	Effectiveness – Task Successes	100.00%
Effectiveness – Task Failures	9.10%	Effectiveness – Task Failures	0.00%
Average Time of Completion	41.13 Seconds	Average Time of Completion	19.33 Seconds
Average Task Efficiency Score	4.36	Average Task Efficiency Score	4.90
Average Task Satisfaction Score	4.27	Average Task Satisfaction Score	4.72
Task 9 - Review, Validate, Confirm and Submit the Final Reconciled Problem List		Medication List – Combined Summary of Results	
Effectiveness – Task Successes	90.90%	Effectiveness – Task Successes	96.96%
Effectiveness – Task Failures	9.10%	Effectiveness – Task Failures	3.04%
Average Time of Completion	11.92 Seconds	Average Time of Completion	91.64 Seconds
Average Task Efficiency Score	4.27	Average Task Efficiency Score	4.75
Average Task Satisfaction Score	4.63	Average Task Satisfaction Score	4.66
Clinical Information Reconciliation - Combined Summary of Results		Key	
Effectiveness – Task Successes	92.92%	<i>Percentage of successful attempts</i>	
Effectiveness – Task Failures	7.08%	<i>Percentage of failed attempts</i>	
Average Time of Completion	154.41 Seconds	<i>Average time of completion in Minutes:Seconds</i>	
Average Task Efficiency Score	4.50	<i>1-5 scale with 1=unable to complete and 5=complete with no deviation</i>	
Average Task Satisfaction Score	4.62	<i>1-5 scale with 1=very difficult and 5=very easy</i>	
System Usability Score: 83.95%			
Where broadly interpreted, scores under 60.00% represent systems with poor usability; scores over 80.00% would be considered above average.			

Table 3: Criticalness Survey

Frequency between 1-7 users used this function within the Veracity – version 8.1 EHR program 1= most used to 7= least used	
Function	Mean Score
Medication List	1.27
Electronic Prescribing	1.45
Computerized Provider Order Entry	1.54
Drug-Drug & Drug-Allergy Interactions	1.72
Medication Allergy List	2.09
Clinical Information Reconciliation	2.36
Clinical Decision Support	3.45

**Prioritization 1-7 of Veracity – version 8.1 EHR functions in accordance of risk associated with user errors
1=Highest risk of a serious user error to 7=Least risk of a serious user error**

Function	Mean Score
Electronic Prescribing	4.63
Drug-Drug & Drug-Allergy Interactions	4.63
Clinical Information Reconciliation	4.72
Clinical Decision Support	4.90
Medication List	5.09
Computerized Provider Order Entry	5.36
Medication Allergy List	5.45

System Usability Scale -

Statement	Average Score (pre-SUS adjustment)	Average Score (post-SUS adjustment)
1. I think that I would like to use this system frequently.	4.90	3.90
2. I found the system unnecessarily complex	1.90	3.09
3. I thought the system was easy to use	4.45	3.45
4. I think I would need the support of a technical person to use this system	2.18	2.81
5. I found the various functions in this system were well integrated	4.63	3.63
6. I thought there was too much inconsistency in this system	1.81	3.18
7. I would imagine that most people would learn to use this system very quickly	4.54	3.54
8. I found the system very cumbersome to use	1.54	3.45
9. I felt very confident using the system	4.81	3.81
10. I need to learn a lot of things before I could get going with this system	2.27	2.72

System Usability Score: 83.95%

Where broadly interpreted, scores under 60.00% represent systems with poor usability; scores over 80.00% would be considered above average.

Recap of Major Findings

The Veracity version 8.1 EHR program performed as expected.

The only main areas of concern are reducing the click rate for many of the tasks to further improve the ease of use and improve the speed tasks can be completed. Also to improve the search capabilities on the Medications List and the Allergies List as this was the area most users experienced a reduction of efficiency and caused some to deviate from the normal path of task completion. This information was passed on to our engineering department to further investigate.

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Date: 01/13/2014

ATTN: To whom it may concern,

This letter is regarding AllegianceMD Software Inc. Quality Management procedures as required in the ONC stage 2 Meaningful Use requirements Criterion # 170.314(g)(4).

AllegianceMD Software inc. employs a in-house client relation management software program for managing Tickets, Tasks and Issues. Our development Team also utilizes this system for project management relating to the development, testing, implementation and ongoing maintenance of our software programs; including Veracity version 8.1.

From a support viewpoint all issues that arise during support calls are logged as a ticket in the system. Each ticket has a unique ID assigned to it and is also assigned to a specific support representative based on the issue at hand. If the issue is resolved at the time of the initial notification the support rep will log the solution to the issue on the ticket and mark it closed. If the issue is unresolved it is then elevated to the next level where a support technician will work to resolve the issue or if it is technical in nature forward it on to the engineering department. Once resolved the client is then notified that the ticket is resolved and the support representative makes sure their are no other lingering issues.

From a engineering standpoint all projects regarding the development our software programs are headed by a project manager to ensure smooth communication amongst all parties involved. Just as with the support department each project is assigned a ticket with a unique ID assigned and along with a general classification of the project and it is then assigned to a engineering team.

Any software updates or new features go through a rigorous testing process before they are put into production. The general steps are as follow: Once a issue or new project is identified the engineering team assigned first determines what the desired end result or goal of the project is. The project manager will then review this with both the engineering team and with any other individuals that are pertinent. At that point if approved to proceed the ticket is placed into the pending development Queue. Once in development the engineering team and the project manager remain in communication and will meet if necessary to discuss the project at hand during the different stages of development. Once a project is pending completion it is then reviewed and tested for any unforeseen issues in a live testing environment. At this point the project manager also evaluates the "Beta Test" of the project to ensure that it is meeting any and all predetermined specifications and requirements. Once a project has gone through initial testing it is then sent back to the engineering team for cleanup. Once the software makes it through the testing process without any issues and it is meeting and fulfilling its predetermined specifications and requirements it is put into production. At this point the ticket is logged and closed and if required any clients that would require updated training due to the changes are contacted.


Mohamed Elmawi, COO



Audit Log

To Whom It May Concern:

This letter is in regard to the Meaningful Use Stage 2 certification for AllegianceMD Cloud based veracity 8.1 regarding §170.314(d)(2) – Auditable Events and Tamper Resistance.

In Veracity Application, auditing is always enabled (always on), and it is not possible to turn off. No system user or administrator can turn off auditing.

Cloud-based users do not have direct access to the underlying database for the product. The application has already met HIPAA-level encryption security standards. There are very small number AllegianceMD employees that have direct access to the database. Any changes made are logged using binary log format.

Please accept this letter as an attestation of our security protocol to meet §170.314(d)(2).

Sincerely,

A handwritten signature in black ink, appearing to read "Mohamed Elmawi", is written over a horizontal line.

Mohamed Elmawi, COO