



ONC HIT Certification Program Test Results Summary for 2014 Edition EHR Certification

Part 1: Product and Developer Information

1.1 Certified Product Information

Product Name: Cloud MD
Product Version: 4.1
Domain: Ambulatory
Test Type: Complete EHR

1.2 Developer/Vendor Information

Developer/Vendor Name: Cloud Medical Software Corporation
Address: 1291 Galleria Dr Ste 200 Henderson NV 89014
Website: <http://www.cloud-mds.com>
Email: lduckworth@cloud-mds.com
Phone: 832-265-3333
Developer/Vendor Contact: Laura Duckworth



Part 2: ONC-Authorized Certification Body Information


2.1 ONC-Authorized Certification Body Information

ONC-ACB Name: Drummond Group
Address: 13359 North Hwy 183, Ste B-406-238, Austin, TX 78750
Website: www.drummondgroup.com
Email: ehr@drummondgroup.com
Phone: 817-294-7339
ONC-ACB Contact: Bill Smith

This test results summary is approved for public release by the following ONC-Authorized Certification Body Representative:

Bill Smith
 ONC-ACB Authorized Representative

Certification Committee Chair
 Function/Title


8/6/2014
 Signature and Date

2.2 Gap Certification

The following identifies criterion or criteria certified via gap certification

§170.314			
<input checked="" type="checkbox"/> (a)(1)	<input type="checkbox"/> (a)(17)	<input checked="" type="checkbox"/> (d)(5)	<input type="checkbox"/> (d)(9)
<input checked="" type="checkbox"/> (a)(6)	<input type="checkbox"/> (b)(5)*	<input checked="" type="checkbox"/> (d)(6)	<input checked="" type="checkbox"/> (f)(1)
<input checked="" type="checkbox"/> (a)(7)	<input checked="" type="checkbox"/> (d)(1)	<input checked="" type="checkbox"/> (d)(8)	

*Gap certification allowed for Inpatient setting only

No gap certification



2.3 Inherited Certification

The following identifies criterion or criteria certified via inherited certification

§170.314			
<input type="checkbox"/> (a)(1)	<input type="checkbox"/> (a)(14)	<input type="checkbox"/> (c)(3)	<input type="checkbox"/> (f)(1)
<input type="checkbox"/> (a)(2)	<input type="checkbox"/> (a)(15)	<input type="checkbox"/> (d)(1)	<input type="checkbox"/> (f)(2)
<input type="checkbox"/> (a)(3)	<input type="checkbox"/> (a)(16) <i>Inpt. only</i>	<input type="checkbox"/> (d)(2)	<input type="checkbox"/> (f)(3)
<input type="checkbox"/> (a)(4)	<input type="checkbox"/> (a)(17) <i>Inpt. only</i>	<input type="checkbox"/> (d)(3)	<input type="checkbox"/> (f)(4) <i>Inpt. only</i>
<input type="checkbox"/> (a)(5)	<input type="checkbox"/> (b)(1)	<input type="checkbox"/> (d)(4)	<input type="checkbox"/> (f)(5) <i>Optional & Amb. only</i>
<input type="checkbox"/> (a)(6)	<input type="checkbox"/> (b)(2)	<input type="checkbox"/> (d)(5)	
<input type="checkbox"/> (a)(7)	<input type="checkbox"/> (b)(3)	<input type="checkbox"/> (d)(6)	<input type="checkbox"/> (f)(6) <i>Optional & Amb. only</i>
<input type="checkbox"/> (a)(8)	<input type="checkbox"/> (b)(4)	<input type="checkbox"/> (d)(7)	
<input type="checkbox"/> (a)(9)	<input type="checkbox"/> (b)(5)	<input type="checkbox"/> (d)(8)	<input type="checkbox"/> (g)(1)
<input type="checkbox"/> (a)(10)	<input type="checkbox"/> (b)(6) <i>Inpt. only</i>	<input type="checkbox"/> (d)(9) <i>Optional</i>	<input type="checkbox"/> (g)(2)
<input type="checkbox"/> (a)(11)	<input type="checkbox"/> (b)(7)	<input type="checkbox"/> (e)(1)	<input type="checkbox"/> (g)(3)
<input type="checkbox"/> (a)(12)	<input type="checkbox"/> (c)(1)	<input type="checkbox"/> (e)(2) <i>Amb. only</i>	<input type="checkbox"/> (g)(4)
<input type="checkbox"/> (a)(13)	<input type="checkbox"/> (c)(2)	<input type="checkbox"/> (e)(3) <i>Amb. only</i>	

No inherited certification



Part 3: NVLAP-Accredited Testing Laboratory Information

Report Number: [KAM-020514-2112_RS_CloudMD](#)

Test Date(s): [01/25/14](#), [01/26/14](#), [02/05/14](#)

3.1 NVLAP-Accredited Testing Laboratory Information

ATL Name: Drummond Group EHR Test Lab
Accreditation Number: [NVLAP Lab Code 200979-0](#)
Address: 13359 North Hwy 183, Ste B-406-238, Austin, TX 78750
Website: www.drummondgroup.com
Email: ehr@drummondgroup.com
Phone: 512-335-5606
ATL Contact: Beth Morrow

For more information on scope of accreditation, please reference [NVLAP Lab Code 200979-0](#).

Part 3 of this test results summary is approved for public release by the following Accredited Testing Laboratory Representative:

[Kyle Meadors](#)

ATL Authorized Representative

8/6/2014

Signature and Date

Test Proctor

Function/Title

[Nashville, TN](#)

Location Where Test Conducted

3.2 Test Information

3.2.1 Additional Software Relied Upon for Certification

Additional Software	Applicable Criteria	Functionality provided by Additional Software
DrFirst Rcopia	a.1, a.2, a.10, b.3	eRx provider
Microsoft HealthVault	e.1, e.3	Online portal

Additional Software	Applicable Criteria	Functionality provided by Additional Software
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No additional software required

3.2.2 Test Tools

Test Tool	Version
<input checked="" type="checkbox"/> Cypress	<input type="text" value="2.4.1"/>
<input checked="" type="checkbox"/> ePrescribing Validation Tool	<input type="text" value="1.0.3"/>
<input type="checkbox"/> HL7 CDA Cancer Registry Reporting Validation Tool	<input type="text" value="1.0.3"/>
<input type="checkbox"/> HL7 v2 Electronic Laboratory Reporting (ELR) Validation Tool	<input type="text" value="1.7"/>
<input checked="" type="checkbox"/> HL7 v2 Immunization Information System (IIS) Reporting Validation Tool	<input type="text" value="1.7.1"/>
<input checked="" type="checkbox"/> HL7 v2 Laboratory Results Interface (LRI) Validation Tool	<input type="text" value="1.7"/>
<input checked="" type="checkbox"/> HL7 v2 Syndromic Surveillance Reporting Validation Tool	<input type="text" value="1.7"/>
<input checked="" type="checkbox"/> Transport Testing Tool	<input type="text" value="174"/>
<input checked="" type="checkbox"/> Direct Certificate Discovery Tool	<input type="text" value="2.1"/>

No test tools required

3.2.3 Test Data

- Alteration (customization) to the test data was necessary and is described in Appendix [*insert appendix letter*]
- No alteration (customization) to the test data was necessary

3.2.4 Standards

3.2.4.1 Multiple Standards Permitted

The following identifies the standard(s) that has been successfully tested where more than one standard is permitted

Criterion #	Standard Successfully Tested	
(a)(8)(ii)(A)(2)	<input type="checkbox"/> §170.204(b)(1) HL7 Version 3 Implementation Guide: URL-Based Implementations of the Context-Aware Information Retrieval (Infobutton) Domain	<input type="checkbox"/> §170.204(b)(2) HL7 Version 3 Implementation Guide: Context-Aware Knowledge Retrieval (Infobutton) Service-Oriented Architecture Implementation Guide

Criterion #	Standard Successfully Tested	
(a)(13)	<input checked="" type="checkbox"/> §170.207(a)(3) IHTSDO SNOMED CT® International Release July 2012 and US Extension to SNOMED CT® March 2012 Release	<input type="checkbox"/> §170.207(j) HL7 Version 3 Standard: Clinical Genomics; Pedigree
(a)(15)(i)	<input checked="" type="checkbox"/> §170.204(b)(1) HL7 Version 3 Implementation Guide: URL-Based Implementations of the Context-Aware Information Retrieval (Infobutton) Domain	<input type="checkbox"/> §170.204(b)(2) HL7 Version 3 Implementation Guide: Context-Aware Knowledge Retrieval (Infobutton) Service-Oriented Architecture Implementation Guide
(a)(16)(ii)	<input type="checkbox"/> §170.210(g) Network Time Protocol Version 3 (RFC 1305)	<input type="checkbox"/> §170.210(g) Network Time Protocol Version 4 (RFC 5905)
(b)(2)(i)(A)	<input type="checkbox"/> §170.207(i) The code set specified at 45 CFR 162.1002(c)(2) (ICD-10-CM) for the indicated conditions	<input checked="" type="checkbox"/> §170.207(a)(3) IHTSDO SNOMED CT® International Release July 2012 and US Extension to SNOMED CT® March 2012 Release
(b)(7)(i)	<input type="checkbox"/> §170.207(i) The code set specified at 45 CFR 162.1002(c)(2) (ICD-10-CM) for the indicated conditions	<input checked="" type="checkbox"/> §170.207(a)(3) IHTSDO SNOMED CT® International Release July 2012 and US Extension to SNOMED CT® March 2012 Release
(e)(1)(i)	Annex A of the FIPS Publication 140-2 <i>[list encryption and hashing algorithms]</i> AES SHA1	
(e)(1)(ii)(A)(2)	<input type="checkbox"/> §170.210(g) Network Time Protocol Version 3 (RFC 1305)	<input checked="" type="checkbox"/> §170.210(g) Network Time Protocol Version 4 (RFC 5905)
(e)(3)(ii)	Annex A of the FIPS Publication 140-2 <i>[list encryption and hashing algorithms]</i> AES SHA1	
Common MU Data Set (15)	<input type="checkbox"/> §170.207(a)(3) IHTSDO SNOMED CT® International Release July 2012 and US Extension to SNOMED CT® March 2012 Release	<input checked="" type="checkbox"/> §170.207(b)(2) The code set specified at 45 CFR 162.1002(a)(5) (HCPCS and CPT-4)

Criterion #	Standard Successfully Tested
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None of the criteria and corresponding standards listed above are applicable

3.2.4.2 Newer Versions of Standards

The following identifies the newer version of a minimum standard(s) that has been successfully tested

Newer Version	Applicable Criteria

No newer version of a minimum standard was tested

3.2.5 Optional Functionality

Criterion #	Optional Functionality Successfully Tested
<input checked="" type="checkbox"/> (a)(4)(iii)	Plot and display growth charts
<input type="checkbox"/> (b)(1)(i)(B)	Receive summary care record using the standards specified at §170.202(a) and (b) (Direct and XDM Validation)
<input type="checkbox"/> (b)(1)(i)(C)	Receive summary care record using the standards specified at §170.202(b) and (c) (SOAP Protocols)
<input type="checkbox"/> (b)(2)(ii)(B)	Transmit health information to a Third Party using the standards specified at §170.202(a) and (b) (Direct and XDM Validation)
<input type="checkbox"/> (b)(2)(ii)(C)	Transmit health information to a Third Party using the standards specified at §170.202(b) and (c) (SOAP Protocols)
<input type="checkbox"/> (f)(3)	Ambulatory setting only – Create syndrome-based public health surveillance information for transmission using the standard specified at §170.205(d)(3) (urgent care visit scenario)
<input type="checkbox"/> Common MU Data Set (15)	Express Procedures according to the standard specified at §170.207(b)(3) (45 CFR162.1002(a)(4): Code on Dental Procedures and Nomenclature)
<input type="checkbox"/> Common MU Data Set (15)	Express Procedures according to the standard specified at §170.207(b)(4) (45 CFR162.1002(c)(3): ICD-10-PCS)

No optional functionality tested

3.2.6 2014 Edition Certification Criteria* Successfully Tested

Criteria #	Version		Criteria #	Version	
	TP**	TD***		TP	TD
<input type="checkbox"/> (a)(1)	1.2	1.5	<input checked="" type="checkbox"/> (c)(3)	1.6	1.6
<input checked="" type="checkbox"/> (a)(2)	1.2		<input type="checkbox"/> (d)(1)	1.2	
<input checked="" type="checkbox"/> (a)(3)	1.2	1.4	<input checked="" type="checkbox"/> (d)(2)	1.4	
<input checked="" type="checkbox"/> (a)(4)	1.4	1.3	<input checked="" type="checkbox"/> (d)(3)	1.3	
<input checked="" type="checkbox"/> (a)(5)	1.4	1.3	<input checked="" type="checkbox"/> (d)(4)	1.2	
<input type="checkbox"/> (a)(6)	1.3	1.4	<input type="checkbox"/> (d)(5)	1.2	
<input type="checkbox"/> (a)(7)	1.3	1.3	<input type="checkbox"/> (d)(6)	1.2	
<input checked="" type="checkbox"/> (a)(8)	1.2		<input checked="" type="checkbox"/> (d)(7)	1.2	
<input checked="" type="checkbox"/> (a)(9)	1.3	1.3	<input type="checkbox"/> (d)(8)	1.2	
<input checked="" type="checkbox"/> (a)(10)	1.2	1.4	<input type="checkbox"/> (d)(9) <i>Optional</i>	1.2	
<input checked="" type="checkbox"/> (a)(11)	1.3		<input checked="" type="checkbox"/> (e)(1)	1.7	1.4
<input checked="" type="checkbox"/> (a)(12)	1.3		<input checked="" type="checkbox"/> (e)(2) <i>Amb. only</i>	1.2	1.5
<input checked="" type="checkbox"/> (a)(13)	1.2		<input checked="" type="checkbox"/> (e)(3) <i>Amb. only</i>	1.3	
<input checked="" type="checkbox"/> (a)(14)	1.2		<input type="checkbox"/> (f)(1)	1.2	1.2
<input checked="" type="checkbox"/> (a)(15)	1.5		<input checked="" type="checkbox"/> (f)(2)	1.3	1.7.1
<input type="checkbox"/> (a)(16) <i>Inpt. only</i>	1.3	1.2	<input checked="" type="checkbox"/> (f)(3)	1.3	1.7
<input type="checkbox"/> (a)(17) <i>Inpt. only</i>	1.2		<input type="checkbox"/> (f)(4) <i>Inpt. only</i>	1.3	1.7
<input checked="" type="checkbox"/> (b)(1)	1.6	1.3	<input type="checkbox"/> (f)(5) <i>Optional & Amb. only</i>	1.2	1.2
<input checked="" type="checkbox"/> (b)(2)	1.4	1.5	<input type="checkbox"/> (f)(6) <i>Optional & Amb. only</i>	1.3	1.0.3
<input checked="" type="checkbox"/> (b)(3)	1.4	1.2	<input type="checkbox"/> (g)(1)	1.6	1.8
<input checked="" type="checkbox"/> (b)(4)	1.3	1.4	<input checked="" type="checkbox"/> (g)(2)	1.6	1.8
<input checked="" type="checkbox"/> (b)(5)	1.4	1.7	<input checked="" type="checkbox"/> (g)(3)	1.3	
<input type="checkbox"/> (b)(6) <i>Inpt. only</i>	1.3	1.7	<input checked="" type="checkbox"/> (g)(4)	1.2	
<input checked="" type="checkbox"/> (b)(7)	1.4	1.5			
<input checked="" type="checkbox"/> (c)(1)	1.6	1.6			
<input checked="" type="checkbox"/> (c)(2)	1.6	1.6			

No criteria tested

*For a list of the 2014 Edition Certification Criteria, please reference <http://www.healthit.gov/certification> (navigation: 2014 Edition Test Method)

**Indicates the version number for the Test Procedure (TP)

***Indicates the version number for the Test Data (TD)





3.2.7 2014 Clinical Quality Measures*

Type of Clinical Quality Measures Successfully Tested:

- Ambulatory
- Inpatient
- No CQMs tested

*For a list of the 2014 Clinical Quality Measures, please reference <http://www.cms.gov> (navigation: 2014 Clinical Quality Measures)

Ambulatory CQMs							
CMS ID	Version	CMS ID	Version	CMS ID	Version	CMS ID	Version
<input checked="" type="checkbox"/> 2		<input type="checkbox"/> 90		<input type="checkbox"/> 136		<input type="checkbox"/> 155	
<input type="checkbox"/> 22		<input type="checkbox"/> 117		<input type="checkbox"/> 137		<input type="checkbox"/> 156	
<input type="checkbox"/> 50		<input checked="" type="checkbox"/> 122	v2	<input checked="" type="checkbox"/> 138	v2	<input type="checkbox"/> 157	
<input type="checkbox"/> 52		<input type="checkbox"/> 123		<input type="checkbox"/> 139		<input type="checkbox"/> 158	
<input type="checkbox"/> 56		<input type="checkbox"/> 124		<input type="checkbox"/> 140		<input type="checkbox"/> 159	
<input type="checkbox"/> 61		<input type="checkbox"/> 125		<input type="checkbox"/> 141		<input type="checkbox"/> 160	
<input type="checkbox"/> 62		<input checked="" type="checkbox"/> 126	v2	<input type="checkbox"/> 142		<input type="checkbox"/> 161	
<input type="checkbox"/> 64		<input type="checkbox"/> 127		<input type="checkbox"/> 143		<input checked="" type="checkbox"/> 163	v2
<input type="checkbox"/> 65		<input type="checkbox"/> 128		<input type="checkbox"/> 144		<input type="checkbox"/> 164	
<input type="checkbox"/> 66		<input type="checkbox"/> 129		<input type="checkbox"/> 145		<input checked="" type="checkbox"/> 165	v2
<input checked="" type="checkbox"/> 68	v3	<input type="checkbox"/> 130		<input type="checkbox"/> 146		<input type="checkbox"/> 166	
<input checked="" type="checkbox"/> 69	v2	<input type="checkbox"/> 131		<input checked="" type="checkbox"/> 147	v2	<input type="checkbox"/> 167	
<input type="checkbox"/> 74		<input type="checkbox"/> 132		<input type="checkbox"/> 148		<input type="checkbox"/> 169	
<input type="checkbox"/> 75		<input type="checkbox"/> 133		<input type="checkbox"/> 149		<input type="checkbox"/> 177	
<input type="checkbox"/> 77		<input type="checkbox"/> 134		<input type="checkbox"/> 153		<input type="checkbox"/> 179	
<input type="checkbox"/> 82		<input type="checkbox"/> 135		<input checked="" type="checkbox"/> 154	v2	<input type="checkbox"/> 182	

Inpatient CQMs							
CMS ID	Version	CMS ID	Version	CMS ID	Version	CMS ID	Version
<input type="checkbox"/> 9		<input type="checkbox"/> 71		<input type="checkbox"/> 107		<input type="checkbox"/> 172	
<input type="checkbox"/> 26		<input type="checkbox"/> 72		<input type="checkbox"/> 108		<input type="checkbox"/> 178	
<input type="checkbox"/> 30		<input type="checkbox"/> 73		<input type="checkbox"/> 109		<input type="checkbox"/> 185	
<input type="checkbox"/> 31		<input type="checkbox"/> 91		<input type="checkbox"/> 110		<input type="checkbox"/> 188	
<input type="checkbox"/> 32		<input type="checkbox"/> 100		<input type="checkbox"/> 111		<input type="checkbox"/> 190	
<input type="checkbox"/> 53		<input type="checkbox"/> 102		<input type="checkbox"/> 113			
<input type="checkbox"/> 55		<input type="checkbox"/> 104		<input type="checkbox"/> 114			
<input type="checkbox"/> 60		<input type="checkbox"/> 105		<input type="checkbox"/> 171			



3.2.8 Automated Numerator Recording and Measure Calculation

3.2.8.1 Automated Numerator Recording

Automated Numerator Recording Successfully Tested			
<input type="checkbox"/> (a)(1)	<input type="checkbox"/> (a)(9)	<input type="checkbox"/> (a)(16)	<input type="checkbox"/> (b)(6)
<input type="checkbox"/> (a)(3)	<input type="checkbox"/> (a)(11)	<input type="checkbox"/> (a)(17)	<input type="checkbox"/> (e)(1)
<input type="checkbox"/> (a)(4)	<input type="checkbox"/> (a)(12)	<input type="checkbox"/> (b)(2)	<input type="checkbox"/> (e)(2)
<input type="checkbox"/> (a)(5)	<input type="checkbox"/> (a)(13)	<input type="checkbox"/> (b)(3)	<input type="checkbox"/> (e)(3)
<input type="checkbox"/> (a)(6)	<input type="checkbox"/> (a)(14)	<input type="checkbox"/> (b)(4)	
<input type="checkbox"/> (a)(7)	<input type="checkbox"/> (a)(15)	<input type="checkbox"/> (b)(5)	

Automated Numerator Recording was not tested

3.2.8.2 Automated Measure Calculation

Automated Measure Calculation Successfully Tested			
<input checked="" type="checkbox"/> (a)(1)	<input checked="" type="checkbox"/> (a)(9)	<input type="checkbox"/> (a)(16)	<input type="checkbox"/> (b)(6)
<input checked="" type="checkbox"/> (a)(3)	<input checked="" type="checkbox"/> (a)(11)	<input type="checkbox"/> (a)(17)	<input checked="" type="checkbox"/> (e)(1)
<input checked="" type="checkbox"/> (a)(4)	<input checked="" type="checkbox"/> (a)(12)	<input checked="" type="checkbox"/> (b)(2)	<input checked="" type="checkbox"/> (e)(2)
<input checked="" type="checkbox"/> (a)(5)	<input checked="" type="checkbox"/> (a)(13)	<input checked="" type="checkbox"/> (b)(3)	<input checked="" type="checkbox"/> (e)(3)
<input checked="" type="checkbox"/> (a)(6)	<input checked="" type="checkbox"/> (a)(14)	<input checked="" type="checkbox"/> (b)(4)	
<input checked="" type="checkbox"/> (a)(7)	<input checked="" type="checkbox"/> (a)(15)	<input checked="" type="checkbox"/> (b)(5)	

Automated Measure Calculation was not tested

3.2.9 Attestation

Attestation Forms (as applicable)	Appendix
<input checked="" type="checkbox"/> Safety-Enhanced Design*	A
<input checked="" type="checkbox"/> Quality Management System**	B
<input checked="" type="checkbox"/> Privacy and Security	C

*Required if any of the following were tested: (a)(1), (a)(2), (a)(6), (a)(7), (a)(8), (a)(16), (b)(3), (b)(4)

**Required for every EHR product

3.3 Appendices

Attached below.



Test Results Summary Change History

NOTE – This EHR is a reseller of AstraJet 4.1. Test report sections and attestations are based on the original testing for AstraJet 4.1.

Test Report ID	Description of Change	Date

2014 Edition Test Report Summary

Usability Test Report

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

Product Name: AstralJet

Product Version: V4

Date of Usability

Test: 12/15/2013

Date of Report: 12/17/2013

Report Prepared

By:

Walk-in Family Medicine

Contact Person: Michele Welter

Phone Number: 561-358-8593

Email Address: wifmc@aol.com

Mailing Address: 3795 W. Boynton
Beach Blvd Suite D

Boynton Beach, FL 33436

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EXECUTIVE SUMMARY

A usability test of AstralJet version V4 was conducted on 12/15/2013 in Boynton Beach, FL by Walk-in Family Medicine. 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, 1 healthcare provider and 5 intended users Matching the target demographic criteria served as participants and used the EHRUT in Simulated, but representative tasks. This study collected performance data on 30 tasks typically conducted on an HER. Below is the list of task performed in order based on the risk associated with the task.

1. **CREATE PROBLEM LIST INTERVENTION**
2. **CREATE MEDICATION LIST INTERVENTION**
3. **CREATE MEDICATION ALLERGY LIST INTERVENTION**
4. **CREATE DEMOGRAPHICS INTERVENTION**
5. **CREATE LAB TESTS AND RESULTS INTERVENTION**
6. **CREATE VITAL SIGNS INTERVENTION**
7. **IDENTIFY USER THERAPEUTIC REFERENCE INFO**
8. **CONFIGURE CDS INTERVENTIONS (ENABLE/DISABLE)**
9. **CREATE DRUG-DRUG AND DRUG-ALLERGY INTERVENTION**
10. **ADJUSTMENT OF SEVERITY LEVEL OF DRUG-DRUG INTERVENTION**

- 11.ENABLE/DISABLE DRUG-DRUG INTERVENTIONS**
- 12.RECORD MEDICATION ALLERGY**
- 13.CHANGE MEDICATION ALLERGY**
- 14.ACCESS MEDICATION ALLERGY**
- 15.CREATE PRESCRIPTION**
- 16.RECORD MEDICATION ORDER**
- 17.CHANGE MEDICATION ORDER**
- 18.RECORD LABORATORY ORDER**
- 19.CHANGE LABORATORY ORDER**
- 20.RECORD RADIOLOGY/IMAGING ORDER**
- 21.CHANGE RADIOLOGY/IMAGING ORDER**
- 22.ACCESS MEDICATION ORDER**
- 23.ACCESS LABORATORY ORDER**
- 24.ACCESS RADIOLOGY/IMAGING ORDER**
- 25.RECORD MEDICATION**
- 26.CHANGE MEDICATION**
- 27.ACCESS MEDICATION**
- 28.RECONCILE PATIENT'S ACTIVE MEDICATION LIST WITH ANOTHER SOURCE**
- 29.RECONCILE PATIENT'S ACTIVE PROBLEM LIST WITH ANOTHER SOURCE**
- 30.RECONCILE PATIENT'S ACTIVE MEDICATION ALLERGY LIST WITH ANOTHER SOURCE**

INTRODUCTION

The EHRUT tested for this study was Astraljet V4. Designed to present medical information to healthcare providers in outpatient facility types and specialty settings. The EHRUT consists of EMR & PM which is used to provide full EMR Scheduling, Ordering and transferring of Electronic Health Records. The usability testing attempted to represent realistic exercises and conditions. The purpose of this study was to test and validate the usability of the current user interface, and provide evidence of usability in the EHR Under Test (EHRUT). To this end, measures of effectiveness, efficiency and user satisfaction, such as task times and error rates were captured during the usability testing

Process

Our user-centered design process is based on ISO 9241-210. The goal of the process is to engineer our software for the end users. User requirements are considered right from the beginning and included into the whole product cycle. These requirements are noted and refined through investigative methods, usability testing, and a in house ticketing system.

BELOW ARE THE 6 KEY PRINCIPLES OF OUR DESIGN PROCESS:

- 1. THE DESIGN IS BASED UPON AN EXPLICIT UNDERSTANDING OF USERS, TASKS AND ENVIRONMENTS**
- 2. USERS ARE INVOLVED THROUGHOUT DESIGN AND DEVELOPMENT.**
- 3. THE DESIGN IS DRIVEN AND REFINED BY USER-CENTERED EVALUATION.**
- 4. THE PROCESS IS ITERATIVE.**
- 5. THE DESIGN ADDRESSES THE WHOLE USER EXPERIENCE.**
- 6. THE DESIGN TEAM INCLUDES MULTIDISCIPLINARY SKILLS AND PERSPECTIVES.**

Intended Users

The intended users of our EHR software are primary care providers (including physicians, physician assistants, and nurse practitioners) in the primary care setting taking care of patients, whose goals and tasks may vary depending on their role and responsibilities. Although nonclinicians may use the system, the focus is narrowed to ensure adequate attention to the main users of the EHR in primary care settings.

PARTICIPANTS

Part					Professional	Computer	Product
ID	Gender	Age	Education	Occupation	Experience	Experience	Experience
001	F	43	Medical Assistant	Medical Assistant	15yrs	10yrs	1yr
002	F	45	Medical School	Nurse	25yrs	15yrs	3
003	F	18	High School	Front Desk	1yr	3yrs	1yr
004	M	58	Medical School	Doctor	20yrs	8yrs	1yr
005	F	34	Medical School	Nurse	8yrs	11yrs	4months

A total of 5 participants were tested on the EHRUT. Participants in the test were outpatient healthcare workers. Participants were recruited by Walkin Family Medicine and were compensated \$100 for their time. Recruited participants had a mix of backgrounds and demographic characteristics. The following is a table of participants by characteristics, including demographics, professional experience, and computer experience. Participant names were replaced with Participant IDs so that an individual's data cannot be tied back to individual identities.

During the 2 hour one-on-one usability test, each participant was greeted by the administrator and asked to review and sign an informed consent/release form; they were instructed that they could withdraw at any time. Participants had prior experience with the EHR. The administrator introduced the test, and instructed participants to complete a series of tasks (given one at a time) using the EHRUT. During the testing, the administrator timed the test and, along with the data logger(s) recorded user performance data on paper and electronically. The administrator did not give the participant assistance in how to complete the task.

THE 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 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 with \$100 for their time.

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

Clinical Decision Support

TASKS	COMPLETED	TIME	ERRORS	DEVIATIONS	RATING
CREATE PROBLEM LIST INTERVENTION	2	140 SEC	0	1	3
CREATE MEDICATION LIST INTERVENTION	2	132 SEC	0	0	4
CREATE MEDICATION ALLERGY LIST INTERVENTION	2	50 SEC	0	0	4
CREATE DEMOGRAPHICS INTERVENTION	2	61 SEC	0	0	3
CREATE LAB TESTS AND RESULTS INTERVENTION	2	50 SEC	0	0	3
CREATE VITAL SIGNS INTERVENTION	2	45 SEC	0	0	4
IDENTIFY USER THERAPEUTIC REFERENCE INFO	2	30 SEC	0	0	3
CONFIGURE CDS INTERVENTIONS (ENABLE/DISABLE)	2	10 SEC	0	0	4
TOTAL COMPLETED/AVERAGE TIME AND RATING:	16	64.75SEC	0	1	3.5

PARTICIPANTS: 2

Total Time Per Module: 24min

Time Per Task: 3min

Rating Scale: Very Easy (1) to Very Difficult (5)

- **MAJOR FINDINGS**

- CREATING INTERVENTIONS CORRECTLY IS TIME CONSUMING
- ONCE USER CREATED THE FIRST INTERVENTION, USER WAS ABLE TO COMPLETE THE FOLLOWING TASK MUCH QUICKER
- ENABLING/DISABLE INTERVENTIONS ARE MUCH FASTER THAT CREATING THEM

- **AREAS FOR IMPROVEMENT**

- ADD INTERVENTIONS CATEGORIES TO CDS UI
- IDENTIFYING USER THERAPEUTIC REFERENCE INFO NEEDS TO BE MORE STREAMLINED. SEARCH RESULTS NEED REFINING

Drug-drug, drug-allergy interaction checks

TASKS	COMPLETED	TIME	ERRORS	DEVIATIONS	RATING
CREATE DRUG-DRUG AND DRUG-ALLERGY INTERVENTION	2	180SEC	0	2	3
ADJUSTMENT OF SEVERITY LEVEL OF DRUG-DRUG INTERVENTION	2	20SEC	0	1	3
ENABLE/DISABLE DRUG-DRUG INTERVENTIONS	2	15SEC	0	0	4
TOTAL COMPLETED/AVERAGE TIME AND RATING:	6	71.66SEC	0	3	3.3

PARTICIPANTS: 2

Total Time Per Module: 9min

Time Per Task: 3min

Rating Scale: Very Easy (1) to Very Difficult (5)

- **MAJOR FINDINGS**

- PARTICIPANTS WERE CONFUSED ON WHERE TO CREATE DRUG-DRUG AND DRUG ALLERGY INTERVENTIONS
- PARTICIPANTS WERE CONFUSED ON WHERE TO ADJUST SEVERITY LEVELS OF DRUG-DRUG INTERVENTIONS
- DUE TO THIRD PARTY E-PRESCRIBING ALL FUNCTIONS ARE NOT IN THE NATIVE UI

- **AREAS FOR IMPROVEMENT**

- MOVE ALL THESE FEATURES TO DR FIRST PORTAL, OR PLACE THE ENABLING AND DISABLING IN THE NATIVE UI

Medication Allergy List

TASKS	COMPLETED	TIME	ERRORS	DEVIATIONS	RATING
RECORD MEDICATION ALLERGY	3	40 SEC	0	0	3
CHANGE MEDICATION ALLERGY	3	32 SEC	0	0	4
ACCESS MEDICATION ALLERGY	3	10 SEC	0	0	4
TOTAL COMPLETED/AVERAGE TIME AND RATING:	9	27.33SEC	0	0	3.6

PARTICIPANTS: 3

Total Time Per Module: 9min

Time Per Task: 3min

Rating Scale: Very Easy (1) to Very Difficult (5)

- **MAJOR FINDINGS**

- USERS FOUND RECORDING, CHANGING, AND ACCESSING MEDICATION ALLERGIES EASY AND NOT COMPLEX
- USERS FELT CONFIDENT USING THE SUMMARY SCREEN TO PERFORM TASKS

- **AREAS FOR IMPROVEMENT**

- ADD EDIT/RIGHT CLICK ON SUMMARY SCREEN

Electronic Prescribing

TASKS	COMPLETED	TIME	ERRORS	DEVIATIONS	RATING
CREATE PRESCRIPTION	2	40 SEC	0	0	3
TOTAL COMPLETED/AVERAGE TIME AND RATING:	2	40SEC	0	0	3

PARTICIPANTS: 2

Total Time Per Module: 3min

Time Per Task: 3min

Rating Scale: Very Easy (1) to Very Difficult (5)

- **MAJOR FINDINGS**
 - USERS FOUND CREATING PRESCRIPTIONS EASY AND NOT COMPLEX
 - ACCESSING PRESCRIPTIONS FROM THE SUMMARY SCREEN INCREASED SPEED
- **AREAS FOR IMPROVEMENT**
 - ADD EDIT/RIGHT CLICK ON SUMMARY SCREEN

Computerized Provider Order Entry

TASKS	COMPLETED	TIME	ERRORS	DEVIATIONS	RATING
RECORD MEDICATION ORDER	3	40 SEC	0	0	3
CHANGE MEDICATION ORDER	3	32 SEC	0	0	4
ACCESS MEDICATION ORDER	3	10 SEC	0	0	4
RECORD LABORATORY ORDER	3	61 SEC	0	0	3
CHANGE LABORATORY ORDER	3	50 SEC	0	0	3
ACCESS LABORATORY ORDER	3	10 SEC	0	0	4
RECORD RADIOLOGY/IMAGING ORDER	3	39 SEC	0	0	3
CHANGE RADIOLOGY/IMAGING ORDER	3	14 SEC	0	0	4
ACCESS RADIOLOGY/IMAGING ORDER	3	9 SEC	0	0	4
TOTAL COMPLETED/AVERAGE TIME AND RATING:	27	29.44 SEC	0	0	3.5

PARTICIPANTS: 3

Total Time Per Module: 27min

Time Per Task: 3min

Rating Scale: Very Easy (1) to Very Difficult (5)

- **MAJOR FINDINGS**

- LABORATORY ORDERS ARE UNDER DIAGNOSTICS TAB
- RADIOLOGY IS UNDER DOCUMENTS TAB

- **AREAS FOR IMPROVEMENT**

- ADD LABORATORY/DIAGNOSTICS TO UI BUTTON
- ADD SEPARATE BUTTON FOR RADIOLOGY IN UI

Medication List

TASKS	COMPLETED	TIME	ERRORS	DEVIATIONS	RATING
RECORD MEDICATION	3	40 SEC	0	0	3
CHANGE MEDICATION	3	32 SEC	0	0	4
ACCESS MEDICATION	3	10 SEC	0	0	4
TOTAL COMPLETED/AVERAGE TIME AND RATING:	9	27.33SEC	0	0	3.6

3

PARTICIPANTS:

Total Time Per Module: 9min

Time Per Task: 3min

Rating Scale: Very Easy (1) to Very Difficult (5)

- **MAJOR FINDINGS**

- USERS FOUND RECORDING, CHANGING, AND ACCESSING MEDICATIONS EASY AND NOT COMPLEX
- USERS FELT CONFIDENT USING THE SUMMARY SCREEN TO PERFORM TASKS

- **AREAS FOR IMPROVEMENT**

- ADD EDIT/RIGHT CLICK ON SUMMARY SCREEN

Clinical information reconciliation

TASKS	COMPLETED	TIME	ERRORS	DEVIATIONS	RATING
RECONCILE PATIENT'S ACTIVE MEDICATION LIST WITH ANOTHER SOURCE	4	40 SEC	0	1	3
RECONCILE PATIENT'S ACTIVE PROBLEM LIST WITH ANOTHER SOURCE	4	41 SEC	0	0	4
RECONCILE PATIENT'S ACTIVE MEDICATION ALLERGY LIST WITH ANOTHER SOURCE	4	40 SEC	0	0	4
TOTAL/AVERAGE PER PARTICIPANT:	12	40.33 SEC	0	1	3.6

PARTICIPANTS: 4

9min

Total Time Per Module :

Time Per Task: 3 min

Rating Scale: Very Easy (1) to Very Difficult (5)

- **MAJOR FINDINGS**

- PARTICIPANTS HAD DIFFICULTY REMEMBERING WHERE TO RECONCILE
- ONCE USER WAS ON THE CORRECT SCREEN, THE FOLLOWING TASK WERE EASILY ACCOMPLISHED

- **AREAS FOR IMPROVEMENT**

- RECONCILE SHOULD HAVE A SEPARATE BUTTON IN THE UI

EFFECTIVENESS

Based on task success rates, and path deviations data, software is effective at providing full EHR capabilities. Users had little problems with effectively using the EHR software.

EFFICIENCY

Based on the observations of the task times and deviation data, software UI and workflow are very efficient for everyday use. Users had little difficulty with navigating UI performing all tasks.

SATISFACTION

Based on the results from the System Usability Scale, users had a high level of satisfaction with the system. Users were able complete all task in the allotted time and had a positive experience using the ERH software.

Results

The scoring of the usability test were calculated according to the methods specified in the Usability Metrics Scale.

The results from the SUS (System Usability Scale) scored the subjective satisfaction with our EHR software based on the System Usability Scale Questionnaire to be a score of 70. Broadly interpreted, scores under 60 represent systems with poor usability; scores over 80 would be considered above average. Based on the findings and participant feedback, our EHR software falls into the average to almost above average range. Once the major findings and areas for improvement are incorporated into the software, we hope to increase the usability score significantly.

MAJOR FINDINGS

- CPOE MAJOR FINDINGS

- LABORATORY ORDERS ARE UNDER DIAGNOSTICS TAB
- RADIOLOGY IS UNDER DOCUMENTS TAB

- DRUG-DRUG AND DRUG ALLERGY MAJOR FINDINGS

- PARTICIPANTS WERE CONFUSED ON WHERE TO CREATE DRUG-DRUG AND DRUG ALLERGY INTERVENTIONS
- PARTICIPANTS WERE CONFUSED ON WHERE TO ADJUST SEVERITY LEVELS OF DRUG-DRUG INTERVENTIONS

- MEDICATION LIST MAJOR FINDINGS

- USERS FOUND RECORDING, CHANGING, AND ACCESSING MEDICATIONS EASY AND NOT COMPLEX
- USERS FELT CONFIDENT USING THE SUMMARY SCREEN TO PERFORM TASKS

- MEDICATION ALLERGY LIST MAJOR FINDINGS

- USERS FOUND RECORDING, CHANGING, AND ACCESSING MEDICATION ALLERGIES EASY AND NOT COMPLEX
- USERS FELT CONFIDENT USING THE SUMMARY SCREEN TO PERFORM TASKS

- CDS MAJOR FINDINGS

- CREATING INTERVENTIONS CORRECTLY IS TIME CONSUMING
- ONLY ADMINISTRATORS SHOULD HAVE ACCESS TO INTERVENTIONS
- ONCE USER CREATED THE FIRST INTERVENTION, USER WAS ABLE TO COMPLETE THE FOLLOWING TASK MUCH QUICKER

- ELECTRONIC PRESCRIBING MAJOR FINDINGS

- USERS FOUND CREATING PRESCRIPTIONS EASY AND NOT COMPLEX
- ACCESSING PRESCRIPTIONS FROM THE SUMMARY SCREEN INCREASED SPEED

- CLINICAL RECONCILIATION MAJOR FINDINGS

- PARTICIPANTS HAD DIFFICULTY REMEMBERING WHERE TO RECONCILE
- ONCE USER WAS ON THE CORRECT SCREEN, THE FOLLOWING TASK WERE EASILY ACCOMPLISHED

AREAS FOR IMPROVEMENT

- **CPOE AREAS FOR IMPROVEMENT**
 - ADD LABORATORY/DIAGNOSTICS TO UI BUTTON
 - ADD SEPARATE BUTTON FOR RADIOLOGY IN UI
- **DRUG-DRUG AND DRUG ALLERGY AREAS FOR IMPROVEMENT**
 - MOVE FEATURES TO DR FIRST PORTAL
- **MEDICATION LIST AREAS FOR IMPROVEMENT**
 - ADD EDIT/RIGHT CLICK ON SUMMARY SCREEN
- **MEDICATION ALLERGY LIST AREAS FOR IMPROVEMENT**
 - ADD EDIT/RIGHT CLICK ON SUMMARY SCREEN
- **CDS AREAS FOR IMPROVEMENT**
 - ADD INTERVENTIONS CATEGORIES TO CDS UI
 - IDENTIFYING USER THERAPEUTIC REFERENCE INFO NEEDS TO BE MORE STREAMLINED. SEARCH RESULTS NEED REFINING
- **ELECTRONIC PRESCRIBING AREAS FOR IMPROVEMENT**
 - ADD EDIT/RIGHT CLICK ON SUMMARY SCREEN
- **CLINICAL RECONCILIATION AREAS FOR IMPROVEMENT**
 - RECONCILE SHOULD HAVE A SEPARATE BUTTON IN THE UI

Risk Analysis

Risk Analysis	Task: Prioritized in order	Description (Defined Risk)	Approach Response to Risk	Risk Mitigation or Resolution Plan	Likely-hood	Severity																																																
Clinical decision support																																																						
1	<u>Create Problem List Intervention</u>	Risk incorrect problem intervention	Likely hood is miniman due to only a qualified user is allowed to do task	Verify user rights and interventions are functioning correctly	1	3																																																
2	<u>Create Medication List Intervention</u>	Risk incorrect medication list intervention	Likely hood is miniman due to only a qualified user is allowed to do task	Verify user rights and interventions are functioning correctly	2	3																																																
3	<u>Create Medication Allergy List Intervention</u>	Risk incorrect medication allergy list intervention	Likely hood is miniman due to only a qualified user is allowed to do task	Verify user rights and interventions are functioning correctly	2	3																																																
4	<u>Create Demographics Intervention</u>	Risk incorrect demographic intervention	Likely hood is miniman due to only a qualified user is allowed to do task	Verify user rights and interventions are functioning correctly	1	3																																																
5	<u>Create Lab Tests and Results Intervention</u>	Risk incorrect lab test intervention	Likely hood is miniman due to only a qualified user is allowed to do task	Verify user rights and interventions are functioning correctly	2	3																																																
6	<u>Create Vital Signs Intervention</u>	Risk incorrect vital sign intervention	Likely hood is miniman due to only a qualified user is allowed to do task	Verify user rights and interventions are functioning correctly	1	3																																																
7	<u>Identify User Therapeutic Reference Info</u>	Risk of wrong information	Likely hood is miniman due to only a qualified user is allowed to do task	Verify user rights and interventions are functioning correctly	1	2																																																
8	<u>Configure CDS interventions (Enable/Disable)</u>	Risk of allowing or not allowing correct intervention	Likely hood is miniman due to only a qualified user is allowed to do task	Verify user rights and interventions are functioning correctly	2	3																																																
Drug-drug, drug-allergy interaction checks																																																						
9	<u>Create drug-drug and drug-allergy intervention</u>	Risk of Createing drug-drug and drug-allergy intervention	Likely hood is miniman due to only a qualified user is allowed to do task	Verify user rights and interventions are functioning correctly	1	3																																																
10	<u>Adjustment of severity level of drug-drug intervention</u>	Risk of Adjusting the severity level of drug-drug interventions incorrectly	Likely hood is miniman due to only a qualified user is allowed to do task	Verify user rights and interventions are functioning correctly	1	3																																																
11	<u>Enable/Disable drug-drug interventions</u>	Risk of allowing or not allowing correct intervention	Likely hood is miniman due to only a qualified user is allowed to do task	Verify user rights and interventions are functioning correctly	1	3																																																
Medication allergy list																																																						
12	<u>Record Medication Allergy</u>	Risk of recording wrong Medication Allergy	Likely hood is miniman due to only a qualified user is allowed to do task	Verify user rights for task at hand	1	3																																																
13	<u>Change Medication Allergy</u>	Risk of Changing to wrong medication allergy	Likely hood is miniman due to only a qualified user is allowed to do task	Verify user rights for task at hand	1	3																																																
14	<u>Access Medication Allergy</u>	Risk only at admin user level. All other users would not have access to change medication	Likely hood is miniman due to only a qualified user is allowed to change medication allergy	Verify user rights for task at hand	1	1																																																
Electronic prescribing																																																						
15	<u>Create prescription</u>	Risk only at admin user level. All other users would not have access to prescribe medications	Likely hood is miniman due to only a qualified user is allowed to prescribe medications	Verify user rights and interventions are functioning correctly	1	3																																																
Computerized provider order entry																																																						
16	<u>Record Medication Order</u>	Risk of recording wrong Medication	Likely hood is miniman due to only a qualified user is allowed to prescribe medications	Verify user rights and interventions are functioning correctly	1	3																																																
17	<u>Change Medication Order</u>	Risk of changing to wrong medication order	Likely hood is miniman due to only a qualified user is allowed to prescribe medications	Verify user rights and interventions are functioning correctly	1	3																																																
18	<u>Record Laboratory Order</u>	Risk of recording wrong laboratory order	Likely hood is miniman due to only a qualified user is allowed to prescribe medications	Verify user rights and interventions are functioning correctly	1	3																																																
19	<u>Change Laboratory Order</u>	Risk of changing to wrong laboratory order	Likely hood is miniman due to only a qualified user is allowed to prescribe medications	Verify user rights and interventions are functioning correctly	1	3																																																
20	<u>Record Radiology/imaging Order</u>	Risk of recording wrong Radiology/imaging Order	Likely hood is miniman due to only a qualified user is allowed to prescribe medications	Verify user rights and interventions are functioning correctly	1	3																																																
21	<u>Change Radiology/imaging Order</u>	Risk of changeing wrong Radiology/imaging Order	Likely hood is miniman due to only a qualified user is allowed to prescribe medications	Verify user rights and interventions are functioning correctly	1	3																																																
22	<u>Access Medication Order</u>	Risk of accessing wrong medication order	Likely hood is miniman due to only a qualified user is allowed to prescribe medications	Verify user rights and interventions are functioning correctly	1	1																																																
23	<u>Access Laboratory Order</u>	Risk of accessing wrong laboratory order	Likely hood is miniman due to only a qualified user is allowed to prescribe medications	Verify user rights and interventions are functioning correctly	1	1																																																
24	<u>Access Radiology/imaging Order</u>	Risk of accessing wrong radiology imaging order	Likely hood is miniman due to only a qualified user is allowed to prescribe medications	Verify user rights and interventions are functioning correctly	1	1																																																
Medication list																																																						
25	<u>Record Medication</u>	Risk of recording wrong Medication	Likely hood is miniman due to only a qualified user is allowed to prescribe medications	Verify user rights and interventions are functioning correctly	1	3																																																
26	<u>Change Medication</u>	Risk of changing wrong Medication	Likely hood is miniman due to only a qualified user is allowed to prescribe medications	Verify user rights and interventions are functioning correctly	1	3																																																
27	<u>Access Medication</u>	Risk of accessing wrong Medication	Likely hood is miniman due to only a qualified user is allowed to prescribe medications	Verify user rights and interventions are functioning correctly	1	1																																																
Clinical information reconciliation																																																						
28	<u>Reconcile patient's active medication list with another source</u>	Risk of reconciling the wrong medication	Likely hood is miniman due to only a qualified user is allowed to reconcile medications	Verify user rights and interventions are functioning correctly	1	3																																																
29	<u>Reconcile patient's active problem list with another source</u>	Risk of reconciling the wrong problem	Likely hood is miniman due to only a qualified user is allowed to reconcile problem list	Verify user rights and interventions are functioning correctly	1	3																																																
30	<u>Reconcile patient's active medication allergy list with another source</u>	Risk of reconciling the wrong medication allergy	Likely hood is miniman due to only a qualified user is allowed to ceconcile medication allergies	Verify user rights and interventions are functioning correctly	1	3																																																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 35%; text-align: center;">Key</th> <th style="width: 35%; text-align: center;">Likelihood</th> <th style="width: 15%;"></th> </tr> </thead> <tbody> <tr> <td></td> <td style="text-align: center;">1</td> <td style="text-align: center;">Possible</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">2</td> <td style="text-align: center;">Somewhat likely</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">3</td> <td style="text-align: center;">50/50 Chance</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">4</td> <td style="text-align: center;">Highly likely</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">5</td> <td style="text-align: center;">Nearly Certain</td> <td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">Severity</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">1</td> <td style="text-align: center;">Minor impact</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">2</td> <td style="text-align: center;">Moderate impact</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">3</td> <td style="text-align: center;">Significant impact</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">4</td> <td style="text-align: center;">Very significant</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">5</td> <td style="text-align: center;">Disastrous impact</td> <td></td> </tr> </tbody> </table>								Key	Likelihood			1	Possible			2	Somewhat likely			3	50/50 Chance			4	Highly likely			5	Nearly Certain				Severity			1	Minor impact			2	Moderate impact			3	Significant impact			4	Very significant			5	Disastrous impact	
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Attestation to Proctor

I attest that Evolve Exchange complies with the following requirements for safety enhanced design. According to 170.314.g.3 – Safety Enhanced Design, Evolve Exchange is to test each capability that certification is sought for with user center design processes in place.

The following capabilities were tested based on our User Centered Design Processes

- § 170.314(A)(1) COMPUTERIZED PROVIDER ORDER ENTRY
- § 170.314(A)(2) DRUG-DRUG, DRUG-ALLERGY INTERACTION CHECKS
- § 170.314(A)(6) MEDICATION LIST
- § 170.314(A)(7) MEDICATION ALLERGY LIST
- § 170.314(A)(8) CLINICAL DECISION SUPPORT
- § 170.314(B)(3) ELECTRONIC PRESCRIBING
- § 170.314(B)(4) CLINICAL INFORMATION RECONCILIATION

Evolve Exchange indicates that User Centered Design was used in the development, testing, and implementation of each EHR capability being certified.

Date: 1/9/2014

Name: Andrew Gill, V.P. Information Technology

Signature:



Evolve Exchange, Inc. – 1/6/2014

QMS Document

QMS Attestation to Proctor

According to MU2 criterion §170.314(g)(4) Quality management system, Evolve Exchange is to provide for each capability that an EHR technology includes and for which that capability's certification is sought, the use of a Quality Management System (QMS) in the development, testing, implementation, and maintenance of that capability must be identified.

The following 3 options are available to meet the requirement of this measure.

- If a single QMS was used for applicable capabilities, it would only need to be identified once.
- If different QMS were applied to specific capabilities, each QMS applied would need to be identified. This would include the application of a QMS to some capabilities and none to others.
- If no QMS was applied to all applicable capabilities such a response is acceptable to satisfy this certification criterion.

Evolve Exchange indicates that no QMS was used in the development, testing, implementation, and maintenance of each EHR capability being certified.

Date: 1/6/2014

Name: Andrew Gill, V.P. Information Technology

Signature:



Security Attestation to Proctor

The following document is required per Certification for measures 314.d.2 and 314.d.7.

§170.314(d)(2)

Auditable events and tamper-resistance.

(i) Record actions. EHR technology must be able to:

(A) Record actions related to electronic health information in accordance with the standard Specified in § 170.210(e)(1);

(B) Record the audit log status (enabled or disabled) in accordance with the standard specified in § 170.210(e)(2) unless it cannot be disabled by any user; and

(C) Record the encryption status (enabled or disabled) of electronic health information locally Stored on end-user devices by EHR technology in accordance with the standard specified in § 170.210(e)(3) unless the EHR technology prevents electronic health information from being locally Stored on end-user devices (see 170.314(d)(7) of this section).

(ii) Default setting. EHR technology must be set by default to perform the capabilities specified in paragraph (d)(2)(i)(A) of this section and, where applicable, paragraphs (d)(2)(i)(B) or (d)(2)(i)(C), or both paragraphs (d)(2)(i)(B) and (C).

(iii) When disabling the audit log is permitted. For each capability specified in paragraphs (d)(2)(i)(A), (B), and (C) of this section that EHR technology permits to be disabled, the ability to do so must be restricted to a limited set of identified users.

(iv) Audit log protection. Actions and statuses recorded in accordance with paragraph (d)(2)(i) must not be capable of being changed, overwritten, or deleted by the EHR technology.

(v) Detection. EHR technology must be able to detect whether the audit log has been altered.

The audit log is enabled by default.

Evolve Exchange's EHR technology neither allows for disabling nor altering of the audit log.

The auditing is based on triggers that are actually built into the SQL tables via SQL functions, so any altering of the audit log will result in the creation of newly entered items in the audit log describing the actions taken.

Additionally, any authorized or unauthorized access to any of our servers is being secondarily audited via Active Directory, as we have it configured to log successful and failing attempts to access any resources not excluding the servers themselves.

§170.314(d)(7)

End-user device encryption.

Paragraph (d)(7)(i) or (ii) of this section must be met to satisfy this certification criterion.

(i) EHR technology that is designed to locally store electronic health information on end-user devices must encrypt the electronic health information stored on such devices after use of EHR technology on those devices stops.

(A) Electronic health information that is stored must be encrypted in accordance with the standard specified in § 170.210(a)(1).

(B) Default setting. EHR technology must be set by default to perform this capability and, unless this configuration cannot be disabled by any user, the ability to change the configuration must be restricted to a limited set of identified users.

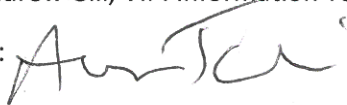
(ii) EHR technology is designed to prevent electronic health information from being locally stored on end-user devices after use of EHR technology on those devices stops.

Evolve Exchange's EHR technology does not make use of end user device storage, and therefore has no responsibility to utilize local encryption technology.

Date: 1/9/2014

Name: Andrew Gill, V.P. Information Technology

Signature:

A handwritten signature in black ink, appearing to read "Andrew Gill", written over the printed name.