REAL WORLD TESTING RESULTS REPORT

GENERAL INFORMATION

Plan Report ID Number: 20241025moy
Developer Name: Moyae, Inc
Product Name(s): Moyae
Version Number(s): 1
Certified Health IT Product List (CHPL) ID(s): 15.05.05.3141.MOYA.01.01.1.230816
Developer Real World Testing Plan and Results Report Page URL:
https://www.moyae.com/disclosures-and-costs
Related ICS Versions of Product (if not included in original plan): N/A

CHANGES TO ORIGINAL PLAN

Summary of Change	Reason	Impact
Testing timeline moved to November 20, 2025	Scheduling adjustments to accommodate clinic availability and participant coordination	All testing activities were successfully completed on November 20, 2025, with no impact on test methodology or outcomes

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ICS PRODUCT(S)

ICS Products	
Product Name(s):	MaxMD
Version Number(s):	3.0 SOAP
CHPL ID(s):	15.04.04.2132.MaxM.03.00.0.170209
Date(s) of ICS Certification:	February 9, 2017

WITHDRAWN PRODUCT(S)

No products were withdrawn within the past year that were previously included in the Real World Testing plan.

SUMMARY OF TESTING METHODS AND KEY FINDINGS

This section provides a summary of the Real World Testing methods deployed to demonstrate real-world interoperability, including any challenges or lessons learned from the chosen approach. The results demonstrate real-world interoperability as follows:
Real World Testing for Moyae EMR was conducted in outpatient ophthalmology practices using a structured test approach with a designated test patient (Mira Huntrix). The testing methodology involved five distinct test scenarios (Appendices A through E) that addressed each certification criterion:
Test Patient: Mira Huntrix
Test Encounter Date: November 20, 2025

Testing Methods Deployed:

Appendix A – §170.315(b)(1) Transitions of Care (C-CDA via Direct Messaging)

- Tested C-CDA transmission using Direct messaging protocol (implemented via MaxMD's Edge service, which is MaxMD's product name for their Direct messaging service)
- Sent C-CDA from doug@moyae.direct.eval.md to admin@moyae.direct.eval.md using Direct messaging addresses
- Captured Direct messaging transaction logs from MaxMD's Edge service interface
- Verified successful transmission and receipt

Appendix B – §170.315(b)(10) EHI Export

- Tested full patient data export functionality
- Initiated complete patient export for test patient
- Captured application logs confirming export completion
- Retained metadata showing all patient data was included

Appendix C – §170.315(g)(7) Application Access – Patient Selection

- Tested patient selection with role-based access controls
- Verified clinician can select patient and start encounter
- Verified technician role restrictions (cannot sign as doctor)
- Confirmed appropriate role-scoped access permissions

Appendix D – §170.315(g)(9) Application Access – All Data Request

- Tested patient data retrieval and modification via UI and API
- Modified patient address, condition, and insurance information via UI
- Verified persistence of UI edits
- Tested API requests using Postman to retrieve full patient dataset
- Verified API returns updated patient data
- Monitored API error rates (target: ≤ 5%)

Appendix E – §170.315(g)(10) Standardized API for Patient & Population Services

- Authenticated via Auth0 and obtained access token
- Tested FHIR R4 resource retrieval using Postman
- Retrieved and validated FHIR resources: Patient, Encounter, Condition (Glaucoma), Observation, VisionPrescription
- Verified each resource has valid FHIR_ID
- Validated FHIR R4 structure conformance

Key Findings

The testing approach successfully demonstrated real-world interoperability with 100% success rates across all test scenarios:

Transmission Success Rate: 100%

- C-CDA successfully sent and received via Direct messaging protocol (using MaxMD's Edge service, which is MaxMD's product name for their Direct messaging implementation)
- Delivery confirmation and Direct messaging transaction logs confirmed on MaxMD's Edge service interface
- All transmission events logged and verified

Patient Selection: 100% success rate

- All participants successfully selected test patient and initiated encounters
- Role-based access controls functioned as expected

Data Requests: 100% success rate

- All data request operations completed successfully
- One error occurred due to a participant misclicking on a configuration not set up during a test; this was not a real finding and did not represent a system failure

EHI Export (§170.315(b)(10)): 100% success rate

- Chart PDF export completed successfully
- Patient level export from AWS Healthlake completed successfully
- All logs confirmed export completion

FHIR Resources (Appendix E): 100% success rate

- All FHIR records and FHIR IDs for Mira Huntrix and her condition of glaucoma confirmed
- Complete validation of FHIR resource structure and identifiers

The testing approach successfully demonstrated real-world interoperability by:

- Verifying successful C-CDA transmission via Direct messaging protocol (implemented through MaxMD's Edge service) with 100% success rate
- Confirming complete patient data export functionality (chart PDF and AWS Healthlake export)
- Validating role-based access controls and patient selection with 100% success rate
- Demonstrating API functionality for data retrieval and updates with 100% success rate
- Confirming FHIR R4 resource storage and retrieval with complete validation of all records and IDs

Lessons Learned

Participants were generally very quick in completing the real-world testing scenarios. The structured test approach with clear appendices (A through E) enabled efficient execution of all test scenarios. Some participants identified that there are much more complicated real-world scenarios and asked for additional features and connections to ASC (Ambulatory Surgery Center) systems. These requests for enhanced functionality and interoperability connections represent opportunities for future product development and demonstrate participant engagement with the testing process.

No non-conformities were discovered during testing. One error occurred during data request testing due to a participant misclicking on a configuration not set up during a test; this was determined to be user error and not a system failure or non-conformity.

STANDARDS VERSION ADVANCEMENT PROCESS (SVAP) STANDARDS UPDATES

No voluntary SVAP standards were leveraged as part of the certification of the health IT product(s). No standards were updated during the testing period.

CARE SETTING(S)

The expectation is that a developer's Real World Testing is conducted within each type of clinical setting in which their certified health IT is marketed. Health IT developers are not required to test their certified health IT in every setting in which it is marketed for use.
List each care setting that was tested.
Care Setting: Outpatient ophthalmology practices
Test Participants:

- Certified clinician
- Technician
- Authorized user

Test Patient: Mira Huntrix
Test Date: November 20, 2025
Number of Participants: 10

Participant Demographics:

Part ID	Gender	Age	Education	Occupation / Role	Professional Exp (months)	Computer Exp (months)	Product Exp (months)	Assistive Tech Needs

1	M	30-39	Doctorate degree	Physician	72	120	36	No
2	F	30-39	Doctorate degree	Physician	84	120	36	No
3	F	40-49	Doctorate degree	Physician	144	120	36	No
4	F	20-29	Associate degree	Technician	60	120	36	No
5	F	30-39	Some college credit, no degree	Technician	36	120	36	No
6	F	30-39	Associate degree	Biller	36	120	36	No
7	F	20-29	Bachelor's degree	Technician	24	120	12	No
8	F	20-29	Bachelor's degree	Technician	6	120	6	No
9	F	20-29	High school graduate	Technician	24	120	12	No
10	M	30-39	Trade/technical/vocational training	Technician	24	120	12	No

METRICS AND OUTCOMES

The outcomes from testing successfully demonstrate that the certified health IT:

1. is compliant with the certification criteria, including the required technical standards and vocabulary codes sets;
2. is exchanging electronic health information (EHI) in the care and practice settings for which it is marketed for use; and/or,
3. EHI is received by and used in the certified health IT.

(from 85 FR 25766)

The specific data collected from Real World Testing measures demonstrate the results as detailed below. Context is provided for the measures and results, including the number of sites/users/transactions tested for the specified measures (i.e., the denominator for comparison to the reported results). Relied Upon Software used to meet criterion requirements is included in this section.

Error Rate Threshold: An error rate of greater than 5% was considered a failure of API implementation.

Measurement/Metric	Associated Criterion(a)	Relied Upon Software (if applicable)	Outcomes	Challenges Encountered (if applicable)
Transitions of Care - C-CDA via Direct Messaging	§170.315(b)(1) - Transitions of Care	MaxMD Edge Service	100% success rate. C-CDA successfully transmitted from doug@moyae.direct.eval.md to admin@moyae.direct.eval.md using Direct messaging protocol. MaxMD's Edge service (MaxMD's product name for their Direct messaging service) provided the interface and transaction logs. Delivery confirmation and Direct messaging transaction logs confirmed on MaxMD's Edge service interface. All transmission events logged and verified.	None
EHI Export - Full Patient Data	§170.315(b)(10) - Electronic Health Information Export	AWS Healthlake	100% success rate. Chart PDF export completed successfully. Patient level export from AWS Healthlake completed successfully. All logs confirmed export completion for test patient Mira Huntrix.	None
Patient Selection with Role-Based Access	§170.315(g)(7) - Application access — patient selection	None	100% success rate. All participants successfully selected patient and started encounter. Role-based access controls verified and functioned as expected.	None
All Data Request - UI and API	§170.315(g)(9) - Application access — all data request	Postman	100% success rate. UI edits (address, condition, insurance) persisted successfully. API requests returned updated patient data. One error occurred due to participant misclicking on a configuration not set up during a test; this was user error and not a system failure. API error rate: 0% (well below 5%	One participant error due to misclick on unconfigured setting (not a system failure)

			threshold). Response status codes and logs captured.	
Standardized API - FHIR R4 Resources	§170.315(g)(10) - Standardized API for patient and population services	Postman, Auth0	100% success rate. Successfully retrieved Patient, Encounter (11/20/2025), Condition (Glaucoma), Observation, and VisionPrescription resources. All FHIR records and FHIR IDs for Mira Huntrix and her condition of glaucoma confirmed. FHIR R4 structure validation: 100% pass rate.	None

Context and Denominators

Test Patient: Mira Huntrix
Test Encounter Date: November 20, 2025
Test Actors: 10 participants (3 Physicians, 6 Technicians, 1 Biller)
Test Scenarios Executed: 5 (Appendices A through E)
Additional Context:

- Number of participants: 10
- Participant roles: 3 Physicians, 6 Technicians, 1 Biller
- Time period for data collection: November 20, 2025
- All testing completed: November 20, 2025
- Success rates: 100% across all test scenarios
    - Transmission success rate: 100%
    - Patient selection: 100%
    - Data requests: 100% (one user error excluded as not a system finding)
    - EHI Export: 100%
    - FHIR resource validation: 100%

Relied Upon Software

MaxMD Edge Service - Used for Direct messaging protocol C-CDA transmission testing (§170.315(b)(1)). MaxMD's Edge service is MaxMD's product name for their Direct messaging service implementation. Direct messaging protocol transaction logs were captured from MaxMD's Edge service interface to verify successful transmission and receipt of C-CDA documents.

Postman - Used for API testing (§170.315(g)(9) and (g)(10)). Postman was used to:

- Issue API requests for patient's full dataset
- Query FHIR API for patient resources
- Retrieve and validate FHIR R4 resources
- Capture response status codes and logs

Auth0 - Used for authentication and access token generation (§170.315(g)(10)). Auth0 was used to authenticate and obtain valid access tokens for FHIR API access. Auth0 also serves as the relied upon software for authentication and role-based access controls, ensuring proper user authentication and authorization throughout the testing process.

Relied Upon Software Validation Details

MaxMD Edge Service - MaxMD's Edge service (MaxMD's product name for their Direct messaging service) provided a graphical user interface (GUI) that allowed confirmation of sent and received C-CDA documents transmitted via Direct messaging protocol. The GUI enabled real-time verification of transmission success, delivery confirmation, and Direct messaging transaction log capture. All C-CDA transmissions were successfully confirmed through the MaxMD Edge service interface, with delivery confirmation and Direct messaging transaction logs captured for verification.
Postman - Postman was used in the absence of a dedicated UI to validate endpoints around §170.315(g)(10) FHIR records. Postman was utilized to:

- Test FHIR R4 API endpoints for patient resources
- Validate FHIR resource retrieval and structure
- Verify API response codes and data integrity
- Confirm successful retrieval of all required FHIR resources (Patient, Encounter, Condition, Observation, VisionPrescription)
- All FHIR endpoint validations were successful, confirming proper API functionality

Auth0 - Auth0 served as the relied upon software for authentication and role-based access controls throughout the testing process. Auth0 was validated through:

- Successful authentication and access token generation for API access
- Proper role-based access control enforcement (verified through patient selection and data access testing)
- Secure token management and validation
- All authentication and authorization functions operated as expected, with proper role-based restrictions confirmed

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KEY MILESTONES

Key milestones met during the Real World Testing process:

Key Milestone	Care Setting	Date/Timeframe
Test patient setup (Mira Huntrix)	Outpatient - ophthalmology practices	November 19, 2025
Test encounter creation	Outpatient - ophthalmology practices	November 20, 2025
Appendix A - C-CDA Direct messaging transmission test	Outpatient - ophthalmology practices	November 20, 2025

Appendix B - EHI Export test	Outpatient - ophthalmology practices	November 20, 2025
Appendix C - Patient selection and role-based access test	Outpatient - ophthalmology practices	November 20, 2025
Appendix D - All data request (UI and API) test	Outpatient - ophthalmology practices	November 20, 2025
Appendix E - FHIR R4 API resources test	Outpatient - ophthalmology practices	November 20, 2025
Direct messaging transaction log capture from MaxMD Edge service	Outpatient - ophthalmology practices	November 20, 2025
API error rate assessment	Outpatient - ophthalmology practices	November 20, 2025
FHIR resource validation completion	Outpatient - ophthalmology practices	November 20, 2025
Final data collection and log analysis completion	Outpatient - ophthalmology practices	November 20, 2025

Real World Testing Period: All testing activities were conducted on November 20, 2025, in outpatient ophthalmology practice settings. All test scenarios (Appendices A through E) were executed on this single date with 10 participants, achieving 100% success rates across all certification criteria tested.

APPENDICES

The following appendices contain the detailed test scenarios and script walkthroughs that each participant completed during the Real World Testing:

Appendix A – §170.315(b)(1) Transitions of Care (C-CDA via Direct Messaging)

Objective:
Verify that Moyae can send and receive a C-CDA using Direct messaging protocol. The Direct messaging service is provided by MaxMD's Edge service, which is MaxMD's product name for their Direct messaging implementation.
Test Patient: Mira Huntrix
Actors: Certified clinician
Relied-Upon Software: MaxMD Edge Service (MaxMD's product name for their Direct messaging service)
Steps:

1. Log in to Moyae as a clinician using valid credentials.
2. Navigate to patient "Mira Huntrix."
3. Select "Export Data" / "Send Transition of Care."
4. Choose Direct messaging transport (implemented via MaxMD's Edge service).
5. Send a C-CDA from doug@moyae.direct.eval.md to admin@moyae.direct.eval.md using Direct messaging addresses.
6. Observe system confirmation of successful transmission.
7. Capture Direct messaging transaction logs from MaxMD's Edge service interface.
8. Verify receipt of the C-CDA at the destination address.

Expected Result:

- C-CDA is successfully transmitted and received via Direct messaging protocol.
- Direct messaging transaction logs from MaxMD's Edge service show a successful send event for the test patient.

Appendix B – §170.315(b)(10) EHI Export

Objective:
Verify that Moyae can export all selected patient medical information.
Test Patient: Mira Huntrix
Actors: Certified clinician
Steps:

1. Log in to Moyae as a clinician.
2. Navigate to patient "Mira Huntrix."
3. Select "Export Data."
4. Initiate a full patient export.
5. Observe system confirmation that export has begun.
6. Capture application logs confirming export completion.
7. Retain metadata or artifact showing that all patient data was included.

Expected Result:

- Export completes successfully.
- Logs confirm generation of a complete patient data package.

Appendix C – §170.315(g)(7) Application Access – Patient Selection

Objective:
Verify that users can select a patient with appropriate permissions and that access is role-scoped.
Test Patient: Mira Huntrix
Actors: Clinician, Technician
Steps:

1. Log in as a clinician.
2. Navigate to patient "Mira Huntrix."
3. Start a new encounter for the patient.

4. Confirm clinician can proceed with the visit.
5. Log out.
6. Log in as a technician.
7. Navigate to patient "Mira Huntrix."
8. Attempt to sign the visit.
9. Observe that technician role is prevented from signing as the doctor.

Expected Result:

- Clinician can select patient and start encounter.
- Technician can access the patient but cannot perform clinician-only actions.

Appendix D – §170.315(g)(9) Application Access – All Data Request

Objective:
Verify that all patient data can be retrieved and modified via UI and API.
Test Patient: Mira Huntrix
Actors: Authorized user
Relied-Upon Software: Postman
Steps:

1. Log in to Moyae UI as an authorized user.
2. Navigate to patient "Mira Huntrix."
3. Edit the patient's address.
4. Modify at least one condition.
5. Update insurance information.
6. Save changes and confirm persistence in UI.
7. Using Postman, issue API requests for the patient's full dataset.
8. Verify responses include updated fields.
9. Capture response status codes and logs.

Expected Result:

- UI edits persist.
- API returns updated patient data.
- API error rate remains ≤ 5%.

Appendix E – §170.315(g)(10) Standardized API for Patient & Population Services

Objective:
Verify that clinical data is stored and retrievable as FHIR R4 resources.
Test Patient: Mira Huntrix
Encounter Date: 11/20/2025
Resources: Patient, Encounter, Condition (Glaucoma), Observation, VisionPrescription
Relied-Upon Software: Postman, Auth0
Steps:

1. Authenticate via Auth0 and obtain a valid access token.

2. Using Postman, query the FHIR API for patient "Mira Huntrix."
3. Retrieve the Patient resource and confirm presence of id (FHIR_ID).
4. Retrieve Encounter for visit dated 11/20/2025 and confirm FHIR_ID.
5. Retrieve associated Condition (glaucoma) and confirm FHIR_ID.
6. Retrieve related Observations and confirm FHIR_IDs.
7. Retrieve VisionPrescription resource and confirm FHIR_ID.
8. Validate that each resource conforms to FHIR R4 structure.

Expected Result:

- All resources exist as FHIR objects.
- Each has a valid FHIR_ID.
- Resources are retrievable through the standardized API.