Real World Test Plan 2022

GENERAL INFORMATION

Developer Name	Nasmata
Product Name	ChARM EHR
Version Number	1.2
Certified Health IT Product List (CHPL) ID(s)	15.04.04.1948.ChAR.12.00.1.181115
Developer Real World Testing Page URL	https://www.charmhealth.com/resources/meaningful-use/real-world-test-plan-2022.pdf

REAL WORLD TESTING - MULTIPLE CRITERION

This is a Real World Testing plan for multiple certification criteria: *§170.315(b)(1) Transitions of care*; *§170.315(b)(2) Clinical information reconciliation and incorporation*; *§170.315(b)(3) Electronic prescribing*; *§170.315(b)(6) Data export*; *§170.315(c)(1) Clinical quality measures (CQMs) — record and export*; *§170.315(c)(2) Clinical quality measures (CQMs) — import and calculate*; *§170.315(c)(3) Clinical quality measures (CQMs) — report*; *§170.315(e)(1) View, download, and transmit to 3rd party*; *§170.315(f)(1) Transmission to immunization registries*; *§170.315(f)(2) Transmission to public health agencies — syndromic surveillance*; *§170.315(g)(7) Application access — patient selection*; *§170.315(g)(8) Application access — data category request*; *§170.315(g)(9) Application access — all data request* and *§170.315(h)(1) Direct Project*. To cover all the criteria, multiple use cases are required for this plan.

Use Case 1: Send Patient Health Records to External Providers and Patients

Facilitate authorized users to send patients' health records to external providers using Direct Message and with patients using Charm Patient Portal, along with the ability for patients to view, download and transmit to 3rd parties of their choice.

Use Case 2: Receive and Reconcile Patient's Clinical Information
Facilitate authorized users to receive transition of care/referral summaries from external providers using Direct Message, view and reconcile the received data into patient's health record in Charm.

Use Case 3: Export Patient Summaries

Facilitate authorized users to export patient summaries based on HL7 C-CDA standard in real time and at specified date time.

Use Case 4: Immunization Data Submission, History and Forecast

Facilitate authorized users to submit patients' immunization data to their state registry as and when it is administered to the patient, along with the ability to request, access and display of patient's immunization history and forecast from the registry.

Use Case 5: Surveillance Information for Electronic Transmission

Facilitate authorized users to create syndrome-based public health surveillance information for patient visits for electronic transmission to public health agencies.

Use Case 6: Clinical Quality Measures

Facilitate authorized users to export the data recorded for patients for transmission of clinical quality measurement measures.

Use Case 7: Electronic prescribing

Facilitate authorized users to perform prescription-related electronic transactions that includes create/change/cancel/refill prescriptions as well as receive RXFILL notification and view patients' medication history.

Use Case 8: Fetch patient medical records through API

Allow practices to use the Charm APIs to fetch patient medical records in real time from Charm, integrate and use the data with third party systems as per their requirements.

JUSTIFICATION FOR REAL WORLD TESTING APPROACH

Charm is certified for multiple criteria that are tested with use cases listed above in this test plan.

The mechanism involved to send patient health records to external providers and patient portal are tested together in Use Case 1, which covers *§170.315(b)(1) Transitions of care - Send, §170.315(e)(1) View, download, and transmit to 3rd party* and *§170.315(h)(1) Direct Project* criteria.

Receiving transition of care/referral summaries and reconciling the received data to patient's health record are captured in Use Case 2, which covers *§170.315(b)(1) Transitions of care - Receive, §170.315(b)(2) Clinical information reconciliation and incorporation* criterion.

Rest of the criteria (§170.315(b)(6), §170.315(f)(1), §170.315(f)(2), §170.315(c)(1)-(3), §170.315(b)(3), §170.315(g)(7)-(9)) are covered as separate Use Cases from 3-8.

In all the use cases, interoperability and third party interactions with external organizations are tested and verified in the Real World scenario.

Standards Updates (SVAP and USCDI)

Standard (and version)	Not Applicable
Updated certification criteria and associated product	Not Applicable
Method used for standard update	Not Applicable
Date of ONC ACB notification	Not Applicable
Date of customer notification (SVAP only)	Not Applicable
USCDI updated certification criteria (and USCDI version)	Not Applicable

Care Setting(s)

Our Certified Health IT Modules are marketed in Pediatric, Internal Medicine, Family Practice, Psychiatry, Urgent Care, Integrative Medicine and Wellness care settings. Real World Testing will be conducted in each of these care settings.

Overall Expected Outcome(s)

- Real World Testing will demonstrate sharing of patient health records to external providers and patient portal in conformance to the certification criteria : §170.315(b)(1) Transitions of care - Send;§170.315(e)(1) View, download, and transmit to 3rd party; and §170.315(h)(1) Direct Project.
- Real World Testing will demonstrate receiving and reconciling patient health information in accordance to the certification criterion: §170.315(b)(1) Transitions of care - Receive and §170.315(b)(2) Clinical information reconciliation and incorporation.
- Real World Testing will demonstrate exporting of patient summaries based on C-CDA standards in accordance to §170.315(b)(6) Data export criterion.
- Real World Testing will demonstrate that our certified Health IT Module is conformance to §170.315(f)(1) for the "Transmission to immunization registries" criterion.
- Real World Testing will demonstrate that our certified Health IT Module is conformance to §170.315(f)(2) "Transmission to public health agencies — syndromic surveillance" criterion.
- Real World Testing will demonstrate exporting CQM report in conformance to §170.315(c)(1) Clinical quality measures (CQMs) — record and export, §170.315(c)(2) Clinical quality measures (CQMs) — import and calculate, and §170.315(c)(3) Clinical quality measures (CQMs) — report certification criteria.
- Real World Testing will demonstrate the ability of our Health IT Module to perform prescription-related electronic transactions in conformance to §170.315(b)(3) Electronic prescribing certification criterion.
- Real World testing will demonstrate the ability of our certified Health IT Module to fetch patient data using APIs in accordance to §170.315(g)(7), §170.315(g)(8) and §170.315(g)(9) certification criterion.

Schedule of Key Milestones

Key Milestone	Date/Timeframe
Develop the Real World Testing plan and submit to ONC-ACB.	Nov 15, 2021
Begin collection of information as laid out in the plan.	Jan 1, 2022
Periodic review of collected data.	Quarterly, 2022
Follow-up with providers and authorized representatives to understand any issues arising with the data collection.	Quarterly, 2022
End of Real World Testing period/final collection of all data for analysis.	Jan 2023
Analysis and report creation.	Jan 2023
Submit Real World Testing report to ONC-ACB	Feb 2023

Measures Used

Use Case 1: Send Patient Health Records to External Providers and Patients: - As part of the Real World Testing requirements for §170.315(b)(1), §170.315(h)(1) and §170.315(e)(1) below metric is identified for the test plan.

Measure 1: Send EHI to External Providers and Patients - This measure will demonstrate the transport mechanism used to send patient health records to external providers and to patient portal with the ability for patients to view, download and transmit to 3rd party. Below are the associated criteria used in this measure.

Certification Criteria	Requirement
§170.315(b)(1) Transitions of care	(b)(1)(i)(A) - Send transition of care
§170.315(h)(1) Direct Project	(h)(1)(i) - Send
§170.315(e)(1) View, download, and transmit to 3rd party	(e)(1)(i)(B)(2) - Download CCD - Human Readable Version
	(e)(1)(i)(C)(1) Transmit to third party

Justification:

This measure will test the ability of Certified Health IT Module to share patient health information through transition of care to external providers via direct message and with patients having PHR portal with the ability to view, download and transmit to 3rd party. This metric will provide information on the types of transmissions used and the frequency of usage.

Test methodology:

Access logs are verified to check:
1. Transport mechanism used by Certified Health IT Module for sending transitions of care to external providers.
2. Patient health records shared to patient portal by authorized users.
3. Ability of patient (patient authorized representative) to view, download and transmit their health information to a 3rd party in accordance with the standard adopted in §170.204(a)(1) and may alternatively be demonstrated in accordance with the standard specified in §170.204(a)(2).
4. Frequency and usage of transition of care sent to external providers and patient portal during the testing period.
5. Frequency of view, download and transmit to 3rd party done by patient (patient authorized representative) during the testing period.

Expected outcome(s):

It is expected that providers are able to send patient health records to external providers using the transmission mechanisms provided as per the standards and patients are able to view, download and transmit their clinical data from patient portal. Errors are tracked and logged during the testing period.

Use Case 2: Receive and Reconcile Patient's Clinical Information: - As part of the Real World Testing requirements for §170.315(b)(1) and §170.315(b)(2) below metric is identified for the test plan:

Measure 1: Receive and Reconcile care/referral summaries - This measure will test the ability of Certified Health IT Module to receive, validate, display and reconcile transition of care/referral summaries for patients. Below are the associated criteria used for this measure.

Certification Criteria	Requirement
§170.315(b)(1) Transitions of care	(b)(1)(i)(B) - Receive
§170.315(b)(2) Clinical information reconciliation and incorporation	(b)(2)(ii) - Receive C-CDA document
	(b)(2)(iii)(A) - Display Medical data
	(b)(2)(iii)(B) - Create reconciled list
	(b)(2)(iii)(C) - Review and Validate reconciled list
	(b)(2)(iii)(D) - Accept and Update reconciled list for patient

Justification:
The measure will allow authorized users to receive transition of care/referral summaries. The received data is validated, displayed and reconciled to update the patient's medical history.

Test methodology:
Access logs are verified to check the transport mechanism used by Certified Health IT Module for receiving transitions of care via Direct Message. The received transition care/referral summaries are validated and associated to the correct patient. The data is viewed in a consolidated human readable format which contains patient Medications, Medication allergies and Problems. Medical data received is updated to patient medical history after reconciliation. Logs are further verified to check the frequency and usage of transition of care received from external providers and the number of times reconciliation of patients' medical data is performed. The test methodology will validate the proper operations of "§170.315(b)(1) Transitions of care - Receive" and "§170.315(b)(2) Clinical information reconciliation and incorporation" criteria.

Expected outcome(s):
It is expected that providers could receive transition of care summaries and reconcile it to patient's medical history. Errors will be tracked and logged during the testing period.

Use Case 3: Export Patients Summaries : - As part of the Real World Testing requirements for §170.315(b)(6), below metric is identified for the test plan:

Measure 1: Create Export Summaries - This measure will test the ability of Certified Health IT Module to export summaries for patients whose information is stored in the technology.

Certification Criteria	Requirement
§170.315(b)(6) Data export	(b)(6)(i) - Authorized users create export summaries with timeframe
	(b)(6)(ii) - Create All/Sub-Set of Patient Data Export
	(b)(6)(iii)(A) - Export summary created with a start and end date and time range.
	(b)(6)(iii)(B) - Export summary created based on a) real-time export b) relative date export and c) specific date export

Justification:
The measure will provide access to authorized users to create export summaries for patients. This will provide a metric on the use of § 170.205(a)(4) HL7 C-CDA implementation, § 170.207(a)(4) and § 170.207(i) ICD-10-CM standards. This measure also provides the authorized user to create export summaries for a specific time period, allowing the user to export them at their convenient time.

Test methodology:
Access logs are verified to check:
1. The export summaries for patients are generated by authorized users.
2. Frequency at which export summaries are generated.
3. Patient summaries exported in real-time and at a specific date and time
4. Date and time period within which patient data would be used to create patient summaries.

Expected outcome(s):

It is expected that export summaries are created by authorized users with accurate data and timeframe configuration in accordance to the specified standards. Errors will be tracked and logged during the testing period.

Use Case 4: Immunization Data Submission, History and Forecast: - As part of the Real World Testing requirements for §170.315(f)(1) below are the metrics identified for the test plan:

Measure 1: **Submission to Immunization Registry** - This measure will test the conformance of the Certified Health IT Module's capability to submit patients immunization data to state registries and process the acknowledgement using the Iron Bridge interface.

Certification Criteria	Requirement
§170.315(f)(1) Transmission to immunization registries	(f)(1)(i) - Create and Submit administered and historical Z22 immunization information message.
	(f)(1)(i) - Receive and process the Z23 acknowledgement message.

Justification:

The measure allows all authorized users to submit patient's immunization data (current and historical) to state registries and view the acknowledgement. This will provide a metric on the use of 'HL7 v2.5.1 §170.205(e)(4)', '§170.207(e)(3)' and '§170.207(e)(4)' standards. Immunization data added to the registry will be verified by processing the HL7 v2.5.1 Z23 acknowledgement received.

Test methodology:

This measure uses Iron Bridge API for submitting the vaccine data to the registries and fetch the acknowledgement. The response will contain HL7 v2.5.1 Z23 acknowledgement which will be stored and processed by Charm to display the submission status. Access logs for data submission and Iron Bride API responses will be reviewed to validate the proper operations of §170.315(f)(1) "Transmission to immunization registries".

Expected outcome(s):

- It is expected that the vaccines submitted by Health IT Module are added to the registry successfully. Errored submissions will be tracked and logged during the testing period.
- Submission status of the vaccine in ChARM is updated as Queued/Submitted / Warning / Failed along with HL7 v2.5.1 Z23 acknowledgement message received from the registry.
- It is expected that a few submissions will receive a 'Warning' status, which is not an error. It specifies that submitted immunization data is accepted by the registry.

Measure 2: Query Registry - This measure will test the conformance of the Certified Health IT Module's capability to request, access, and display a patient's evaluated immunization history and forecast from an immunization registry in accordance with §170.205(e)(4) standard.

Certification Criteria	Requirement
§170.315(f)(1) Transmission to immunization registries	(f)(1)(ii) - Query message is conformance to the HL7 v2.5.1 Z44 QBP Query for Evaluated History and Forecast message profile of the § 170.205(e)(4).

Justification:

The measure will provide access to all the authorized users to query patient's immunization history and forecast from the state registries. This will provide a metric on the use of HL7 v2.5.1 Z44 QBP Query for Evaluated History and Forecast message profile of the § 170.205(e)(4) standards. Patients immunization data fetched from the registry will be verified by the HL7 v2.5.1 Z44 response received.

The query response is based on the patient's first name, last name, record Id, gender, address, contact information etc.

Test methodology:

The HL7 v2.5.1 Z44 response received while querying the registry will be reviewed based on the params in the Query API, to ensure relevant patient's information is being fetched from the registry. Access logs and Iron Bride API responses will be reviewed to

validate the proper operations of §170.315(f)(1) "Transmission to immunization registries".

Expected outcome(s):
- It is expected that information that contains history and forecast information of the patient gets successfully queried from the registry.
- It is expected that evaluation of immunization history and forecast was done but no matching records were found for the patient in the query.
- It is expected that evaluation of immunization history and forecast was done but too many matches were found for the same patient.
- It is expected that the Query Registry functionality is not yet supported by all state registries right now. Hence this measure cannot be tested with those registries.
- Any errors taking place while querying will be tracked and logged during the testing period.

Use Case 5: Surveillance Information for Electronic Transmission: - As part of the Real World Testing requirements for §170.315(f)(2) below metric is identified for the test plan.

Measure 1:**Create Syndrome-based Data** - This measure will test the conformance of the Certified Health IT Module's capability to create syndrome-based public health surveillance information for electronic transmission to public health agencies according to the HL7 2.5.1 standard, the PHIN Messaging Guide.

Certification Criteria	Requirement
§170.315(f)(2) Transmission to public health agencies — syndromic surveillance	(f)(2) - Create HL7 v2.5.1 ADT message containing Syndromic Surveillance information according to the § 170.205(d)(4) PHIN Messaging Guide for Syndromic Surveillance, Release 2.0 and associated Erratum.

Justification:
The measure allows all authorized users to create syndrome-based data for patient visits. This will provide a metric on the use of § 170.205(d)(4) HL7 2.5.1 standard, the

PHIN Messaging Guide for Syndromic Surveillance Release 2.0, and the August 2015 Erratum to the PHIN Messaging Guide.

Test methodology:
Access logs are checked to verify the successful creation of syndromic surveillance message for patient visits as per § 170.205(d)(4) HL7 2.5.1 standard.

Expected outcome(s):
It is expected that Syndromic surveillance data can be created for patient visits. Errors will be tracked and logged during the testing period.

Use Case 6: Clinical Quality Measures : - As part of the Real World Testing requirements for §170.315(c)(1), §170.315(c)(2) and §170.315(c)(3), below is the metric identified for the test plan:

Measure 1: Export CQM Report - This measure will demonstrate the ability of health IT Module to export the data files in accordance to HL7 QRDA Category I and III standards.

Certification Criteria	Requirement
§170.315(c)(1) Clinical quality measures (CQMs) — record and export §170.315(c)(2) Clinical quality measures (CQMs) — import and calculate §170.315(c)(3) Clinical quality measures (CQMs) — report	(c)(1)(ii) - Export QRDA 1 Report in accordance with the standard specified at § 170.205(h)(2) (c)(3)(i) - Export QRDA Category III Report accordance with the standard specified at § 170.205(k)(1) and § 170.205(k)(2)

Justification:
The measure allows all the authorized users to export CQM data for patients as per HL7 QRDA Category I standard specified at §170.205(h)(2) and overall CQM report for submission as per HL7 QRDA Category III standards specified at §170.205(k)(1) and §170.205(k)(2).

Test methodology:

Access logs are verified to check the successful creation of HL7 QRDA Category 1 and III reports and e number of times these reports are generated during the testing period.

Expected outcome(s):

It is expected that HL7 QRDA Category I and III reports gets exported successfully. Error cases will be tracked and logged during the testing period.

Use Case 7: Electronic prescribing : - As part of the Real World Testing requirements for §170.315(b)(3) below metrics are identified for the test plan:

Measure 1: Create Prescription - This measure will test the ability of the Certified Health IT Module to create prescription for patients and transmit to pharmacy.

Certification Criteria	Requirement
§170.315(b)(3) Electronic prescribing	(b)(3)(i)(A) - Create Prescription

Justification:

The measure allows all the authorized users to create electronic prescription and transmit it to patients' preferred pharmacies in accordance with standard §170.205(b)(2), and at a minimum, the version of the standard specified at §170.207(d)(3).

Test methodology:

Access logs and pharmacy response are verified to confirm prescription is created and transmitted to pharmacy successfully. Logs are also checked to determine the frequency at which prescribers create e-prescriptions. This measure will be reviewed to validate the proper operations of "§170.315(b)(3)(i)(A) Electronic prescribing"

Expected outcome(s):

It is expected that prescriptions created gets transmitted to the pharmacy successfully. It is also expected that the issues are minimal and all the error cases are tracked and logged during the testing period.

Measure 2: Change Prescription - This measure will test the ability of the Certified Health IT Module to respond to RxChange request received from the pharmacy.

Certification Criteria	Requirement
§170.315(b)(3) Electronic prescribing	(b)(3)(i)(B) - Change Prescription

Justification:
The measure allows all the authorized users to change electronic prescription and transmit it to pharmacy in accordance with standard §170.205(b)(2), and at a minimum, the version of the standard specified at §170.207(d)(3).

Test methodology:
Access logs and pharmacy response are verified to confirm the prescription is changed and transmitted to the pharmacy successfully. Logs are also checked to determine the frequency at which prescribers receive RxChange from pharmacy and those processed by the providers. This measure will be reviewed to validate the proper operations of "§170.315(b)(3)(i)(B) Electronic prescribing"

Expected outcome(s):
It is expected that response to RxChange request is successfully sent to the pharmacy. It is expected that the issues are rare and all the error cases are tracked and logged during the testing period.

Measure 3: Cancel Prescription - This measure will test the ability of the Certified Health IT Module to cancel prescriptions that are sent to the pharmacy.

Certification Criteria	Requirement
§170.315(b)(3) Electronic prescribing	(b)(3)(i)(C) - Cancel Prescription

Justification:
The measure allows all authorized users to cancel prescriptions already sent to the pharmacy in accordance with standard §170.205(b)(2), and at a minimum, the version of the standard specified at §170.207(d)(3).

Test methodology:
Access logs and pharmacy response are verified to confirm the prescription is cancelled successfully. The user will initiate a cancel request and it will be confirmed (Cancel response) by the pharmacy. Logs are checked to determine the frequency at which prescribers cancel e-prescriptions. This measure will be reviewed to validate the proper operations of "§170.315(b)(3)(i)(C) Electronic prescribing"

Expected outcome(s):
It is expected that cancelling of e-prescriptions are done successfully. It is also expected that the issues are rare and all the error cases are tracked and logged during the testing period.

Measure 4: Refill Prescription - This measure will test the ability of the Certified Health IT Module to receive refill prescription request from the pharmacy.

Certification Criteria	Requirement
§170.315(b)(3) Electronic prescribing	(b)(3)(i)(D) - Refill Prescription

Justification:
The measure will provide access to all authorized users to receive refill prescription request for patient from the pharmacy in accordance with standard §170.205(b)(2), and at a minimum, the version of the standard specified at §170.207(d)(3).

Test methodology:
Access logs are verified to check refill request received from the pharmacy. Refill request is processed and displayed under ChARM to get acknowledged by the Prescribers. Logs are checked to confirm refill response sent by the Prescriber to the pharmacy and acknowledgement received from pharmacy is further processed and displayed in ChARM. This measure will be reviewed to validate the proper operations of "§170.315(b)(3)(i)(D) Electronic prescribing".

Expected outcome(s):
It is expected that workflow of refill prescriptions happens seamlessly. It is expected that the issues are rare and all the error cases are tracked and logged during the testing period.

Measure 5: Receive fill status notification - This measure will test the ability of the Certified Health IT Module to receive prescription fill notification from the pharmacy.

Certification Criteria	Requirement
§170.315(b)(3) Electronic prescribing	(b)(3)(i)(E) - Receive fill status notification

Justification:
The measure allows all the authorized users to receive rx filled notification from pharmacy in accordance with standard §170.205(b)(2), and at a minimum, the version of the standard specified at §170.207(d)(3).

Test methodology:
Access logs are verified to check notifications received from pharmacy on dispense of prescription to patients. Fill status notification received from pharmacy is processed and displayed under ChARM. This measure will be reviewed to validate the proper operations of "§170.315(b)(3)(i)(E) Electronic prescribing"

Expected outcome(s):
It is expected that prescribers receive filled status notifications successfully. It is expected that the issues are rare and all the error cases are tracked and logged during the testing period.

Measure 6: Receive patient medication history information - This measure will test the ability of the Certified Health IT Module to request and receive medication history for patients from either the Pharmacy Benefit Manager (PBM) or the Pharmacy.

Certification Criteria	Requirement
§170.315(b)(3) Electronic prescribing	(b)(3)(i)(F) - Medication History

Justification:
The measure will provide access to all authorized users to request and receive medication history in accordance with standard §170.205(b)(2), and at a minimum, the version of the standard specified at §170.207(d)(3).

Test methodology:

Access logs are checked to verify the request sent by Prescriber to receive medical history of patients and the response received. This measure will be reviewed to validate the proper operations of "§170.315(b)(3)(i)(F) Electronic prescribing"

Expected outcome(s):

It is expected that request and receive medication history for patient takes place successfully. It is expected that the issues are rare and all the error cases are tracked and logged during the testing period.

Use Case 8: Fetch patient medical records through API: - As part of the Real World Testing requirements for §170.315(g)(7), §170.315(g)(8) and §170.315(g)(9) below metric is identified for the test plan:

Measure 1: - This measure will test the ability to fetch patient medical records from our certified Health IT Module using the APIs provided. Below are the associated criteria used for this measure.

Certification Criteria	Requirement
§170.315(g)(7) Application access — patient selection	(g)(7)(i) - Identify unique patient and return an ID
§170.315(g)(8) Application access — data category request	(g)(8)(i)(A) - Request CCDS data categories
§170.315(g)(9) Application access — all data request	(g)(9)(i)(A) - Download all patient data as CCDA

Justification:

Practices get access to specific patient data through the APIs provided in Charm. This provides a metric on the use of APIs to access patient data as per §170.315(g)(7), §170.315(g)(8) and §170.315(g)(9) certification criteria. Only authorized users are allowed to access patient data and their credentials are verified through review of logs.

Test methodology:

Access logs are verified to check proper credentialing of authorized users and the

frequency of the usage of APIs. The response of API is analyzed to ensure the relevant patient's information is fetched for a specific date or for a date range.

Expected outcome(s):
- It is expected that practices can fetch patient data through APIs in accordance to §170.315(g)(7), §170.315(g)(8) and §170.315(g)(9) certification criteria. Error cases are tracked and logged during the testing period.
- It is expected that patient data can be requested for specific date or a date range through the APIs.