

MADiE User Group

August User Group

Hosted by ICF/SemanticBits

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MADiE is owned and operated under contract with CMS

Contracting Officer Representative (COR): Emmanuel Kalluri

Disclaimer

This meeting is being recorded to ensure notes and action items are captured accurately.

Attendees who have objections to the meeting being recorded are asked to let the facilitator know at this time

Agenda and Objectives

Agenda

1. MADiE Updates
2. Community Questions & Discussions
3. Review of Resources

Objectives

- Inform MADiE users of current and planned activities
- Create a forum to gather community feedback on future enhancements
- Foster collaboration through open community discussion

60 Day Account Deactivation

Keeping your MADiE Account Active:

- In accordance with CMS and HHS security requirements, MADiE has implemented an account deactivation policy for all users who have not logged in within the previous 60 days or more.
- Users will receive warning messages after 30 days of inactivity.
- After 60 days of inactivity, accounts will be deactivated.
- To access a deactivated MADiE account again, users will need to request the MADiE role in HARP.
 - **Do NOT respond to the deactivation email.**

*Keep your MADiE account active to continue to receive important email communications!

MADiE

MADiE 2.0.2

MADiE: Current State (1 of 3)

MADiE – 2.0.2 8/15/2024

- MADiE has been updated to allow users to shift test case dates either forwards or backwards, a user-specified number of years. This functionality will be available for a single test case or for all test cases on a measure.
- **QI-Core Measures:** The way MADiE passes values to the liquid template has been updated to utilize the display name instead of the code name for identifier value sets, so that the values will appear in sentence-style case and be easier to read. ([MADIE-1729](#))
- Measures transferred from MAT to MADiE without a Stratification Description now displays "None" in the Stratification Description in the human readable export. ([MADIE-1959](#))
- Users now have the ability to associate a CMS ID from a QDM measure to a QI-Core measure by copying the CMS ID from the QDM measure to the QI-Core measure, indicating they are the same measure. Users will also have the option to copy over the metadata from the QDM measure to the QI-Core measure. ([MADIE-1900](#))
- Users now have the ability to request CMS IDs be deleted from their draft measure when there are no prior versions of the measure. To request that a CMS ID be deleted from your measure, fill out the [MADiE CMS ID Deletion Request Form](#) and send it to semanticbits-madie-help@icf.com.
- When a user clicks the Generate CMS ID link on the Measure Details screen, a popup will display asking users to confirm they want to generate a CMS ID for the measure.
- **QDM Measures:** MADiE has been updated to allow users to include 128 SDEs and RAVs in a measure. ([MADIE-1921](#))
- Users now have the ability to move any popup screen around in order to see the contents of the screen behind it. ([MADIE-1965](#))
- Users now have the ability to select values for "Include in Report Type" for each SDE and RAV on their measures.

MADiE: Current State (2 of 3)

MADiE – 2.0.2 8/15/2024

Resolved Known Issues:

- When users are adding SDEs and RAVs users some of the available options listed in the drop down can't be viewed. ([MADIE-1969](#))
- When users search for measure names and include special characters in the search criteria, the user may receive a 403 error, or the search results will not be returned.
- **QDM Measures:** In some cases, large value sets were not being fully retrieved. As a result, test cases may fail unexpectedly as some codes may not be pulled in. ([MADIE-1950](#))
- **QDM Measures:** Edge test cases may fail unexpectedly due to the measurement period end date precision being used in MADiE. ([MADIE-1953](#))
- **QDM Measures:** Users may be unable to save changes to a test case element when attempting to delete the values entered in DateTime fields. ([MADIE-1973](#))

MADiE: Current State (3 of 3)

MADiE – 2.0.1 7/25/2024

- **QDM Measures:** MADiE now supports the ability for users to search, filter and apply codes and value sets into their CQL directly (without having to access VSAC outside of MADiE in order to look up the code or value set).
- **QDM Measures:** The Measure Type field has been updated to adhere to the latest THO (<https://terminology.hl7.org/ValueSet-v3-ObservationMeasureType.html>) in both the UI in MADiE as well as the measure exports. ([BONNIEMAT-1927](#), [BONNIEMAT-1928](#))
- **QDM Measures:** Measure exports are updated to display the following:
 - **Endorsed By** field: Display "None" when the user makes no selection.
 - **CBE Number** field: Display "Not Applicable" when the user makes no selection for the Endorsed By field. ([BONNIEMAT-1931](#))
- **QDM Measures:** The QRDA Summary file is now included in the QRDA Test Case Export. ([BONNIEMAT-1659](#))
- **QDM Measures:** The human readable export now supports displaying special characters. ([BONNIEMAT-1869](#))
- **QI-Core Measures:** MADiE has been updated to use FQM-Execution Engine 1.4.1. Release notes can be found [here](#).
- **QDM Measures:** MADiE has been updated to use CQM-Execution Engine 4.2.0. Release notes can be found [here](#).

MADiE – Known Issues (1 of 3)

The Known Issues List will be posted and maintained on the [MADiE tab](#) of the public web site and the Summary page of the MADiE ONC Jira Issue Tracker

here: <https://oncprojecttracking.healthit.gov/support/projects/MADIE/summary>

CQL-ELM Translator Known Issues as of 8/15/24:

There is an issue in how reasonCode is getting mapped to ELM for the CommunicationNotDone datatype in QI-Core 4.1.1. Refer to the following GitHub ticket for more information on this issue:

https://github.com/cqframework/clinical_quality_language/issues/1153 [BONNIEMAT-1420](#)

MADiE Known Issues as of 8/15/24:

- CQL Validation issues occur when a definition name is resolvable to a quoted identifier, but the definition name is not in quotations. Users may not receive CQL validation errors, however the Population Criteria section won't render, and a blank screen will display
 - **Work around:** Quotes should be added to all define statement names, even when resolvable to a quoted identifier.

MADiE – Known Issues (2 of 3)

MADiE Known Issues as of 8/15/24:

- Users will automatically be logged out of MADiE after 30 minutes of inactivity. If the user has more than one active session of MADiE in any combination (in different tabs in the same browser or in different browsers) and one of the sessions reaches 30 minutes of inactivity the session will expire, and the user will be logged out of all sessions. If the user is logged out prior to saving changes, any unsaved changes will not be retained when the user logs into MADiE again.
 - **Work around:** Users can keep all sessions active by clicking on the screen for each session periodically. Clicking on each active session prior to reaching 30 minutes of inactivity will prevent the sessions from expiring and prevent the user from being logged out of all sessions. [BONNIEMAT-1554](#) [BONNIEMAT-1623](#)
- **QDM Measures:** Status' date timing included in QDM test case JSON is not being saved after translation completes.
- **QI-Core Measures:** There is an issue in how some QI-Core profiles are being mapped to their related FHIR resource types for data requirements, resulting in missing data requirements in the measure export. [BONNIEMAT-1720](#)

MADiE – Known Issues (3 of 3)

MADiE Known Issues as of 8/15/24:

- Measures transferred from MAT to MADiE need to be reviewed in MADiE and the CQL updated (can just add a space to the CQL) after the transfer and prior to working with the measure (including working with test cases or exporting the measure). Until this step is complete you may see a CQL error notification on the Test Cases screen and/or during Measure Export.
- **QDM Measures:** When editing a MADiE test case that was imported from Bonnie QDM, if the test case description exceeds the allowable 250 characters, the 'Save' button is disabled and updates cannot be made to the test case.
 - **Work around:** Edit the MADiE test case description to less than 250 characters. [BONNIEMAT-1825](#)
- Users may experience toggling back and forth between their current tab and a new tab or flickering and, in some cases, discontinuation of their MADiE session.
 - **Work around:** Refresh the page or log out of all MADiE instances and begin a new MADiE session. [BONNIEMAT-1922](#)

MADiE Resources

MADiE

The [MADiE tab](#) on the public web site provides:

- Login button to MADiE
- User Access Guide – how to get your MADiE account
- User Guide – provides details regarding tool functionality
- MADiE In Depth Training Videos
- JSON Test Case Guide – steps for using the JSON test case editor
- Known Issues – updated regularly
- Release Notes – posted with each MADiE release
- MADiE Measure and Library Sharing Request Form v2.0 – to request measures (and the measure's test cases) or libraries to be shared – submitted by the owner via email
- MADiE Measure or Library Ownership Transfer Request Form v1.0 – to request transferring ownership of measures (and the measure's test cases) or libraries - form should be submitted by the owner via email
- MADiE CMS ID Deletion Request Form - to request the CMS ID associated with a draft measure with no prior versions be deleted
- MADiE Independent Testing Supplemental Guide_v1.0

MADiE Resources (continued)

MADiE QI-Core Profile Examples

- The MADiE team has created a measure in MADiE with an included test case JSON bundle which contains entries for many QI-Core (v4.1.1) profiles.
- The purpose of this test case JSON bundle is to provide users the framework for commonly used QI-Core v4.1.1 profiles that can be leveraged with their own test case development.
- The measure (**QI-Corev4.1.1 Test Case Template**) is a blank measure (no CQL and no Population Criteria) with one test case (**QI-Corev4.1.1 Example Bundle version 2**).
- The QI-Core profiles examples in the JSON bundle are for guidance and are not intended to fulfill any measure or testing requirement. Updates to reflect the specific details of your test case will be necessary.
- Measure developers may copy any of the profiles from the QI-Corev4.1.1 Example Bundle version 2 test case directly to your test case(s) or use a source code editor (e.g., Notepad++ and Visual Studio Code) and make any updates needed to meet your testing needs.
- The MADiE Test Case JSON Guide, available on the [MADiE tab](#) of the public website, has been updated with detailed information regarding the **QI-Corev4.1.1 Example Bundle version** test case in MADiE and provides additional guidance for using this resource to aid MADiE users in updating or creating test cases in MADiE.

CMS Web Application Firewall Errors

CMS Web Application Firewall (WAF) Issues

- CMS WAF errors are received when an attempted action (i.e. saving or exporting) is rejected by the CMS security policy, blocking further action by the user
- This can happen when working in a measure or test case that previously did not receive a CMS WAF error, or when making a change to the measure or test case

When an action is blocked, please include the following information in your ONC JIRA ticket.

- Measure Name/ID
- Test case Name (if applicable)
- Action that resulted in unexpected error messages or an inability to save changes (include specific verbiage/CQL/JSON that was unable to save)
- Providing the error message assists the team in confirming the cause of the issue
- When error messages include a 'Support ID' include that ID number in your ticket so that can be provided to CMS to unblock the attempted action

Examples of CMS WAF error messages:

- The Measure Authoring Tool was unable to process the request. Please try again. If the problem persists, please contact the Help Desk.
- System error. Unable to process information
- 403 Forbidden The requested URL was rejected by CMS security policy. If you believe this is in error, please contact the HIDS Security Operations Center QNET_soc@cms.hhs.gov and reference your Support ID: 2586968644408754759

Versioning Measures in MADiE

Versioning for QDM measures has been temporarily disabled.

QI-Core Measures: When versioning MADiE measures, please double check you have selected the appropriate version (Major, Minor or Patch). A pop up will appear where a user can select Major, Minor, or Patch version. The pop up will also display the current version number, the future version number after versioning is complete, and a text area for the user to confirm the new version number. Users will need to type in the version number, and it will need to match what the tool will be updating the version number to in order to proceed.

To better understand what part of the measure version is updated when versioning a measure, see the values below. X is the value that will be incremented. P is the value that remains the same after versioning. 0 is the value that will be cleared out and set to 0 after versioning.

Major X.0.000

Minor P.X.000

Patch P.P.XXX

If you version your measure using the wrong version type (Major, Minor, or Patch), the MADiE Help Desk Team can help; however, you may lose any updates you made after the previous version.

Create Version * Indicates required field

* Version Type Current Version #

Patch 0.0.000

New Version # * Confirm New Version # ?

0.0.001 Confirm New Version Number

Cancel Continue

Help Desk Ticket Submission Process

The [MAT Bonnie MADiE TicketSubmissionGuidance](#) document provides guidance to measure developers needing assistance with measures or test cases. This document includes the following:

- Steps to take prior to submitting a Help Desk ticket
 - Review available documentation
 - Consult with SMEs
- **A list of artifacts to include if a ticket is being created with either tracker for assistance with measure CQL or test case JSON**
 - Measure Export, Full measure CQL in a .txt file, test case export (if applicable) full test case JSON in a .txt file
 - **Do not** send screen prints of partial CQL and/or JSON
- The types of tickets to submit to the [CQL Issue Tracker](#)
 - Tickets submitted to the CQL Issue Tracker will be evaluated and the standards team may identify the ticket needs to be moved on to the MADiE Issue Tracker to evaluate MADiE functionality
- The types of tickets to submit to the [MADiE Issue Tracker](#)

Reminder when submitting tickets

MADiE Tickets

- All measure sharing requests, **measure or library ownership transfer requests, measure or library sharing requests**, or other inquiries with a HARP ID must be submitted via email at semanticbits-madie-help@icf.com
- Do not submit these requests until you have confirmed that all users involved in the request have active MADiE accounts
- Indicate the tool version and Measure Model: QDM vs. QI Core
- Attach the measure package and affected CQL and test case export and JSON, if appropriate, as text files and reference them in the ticket by name

Reference the [Bonnie, MAT, MADiE Help Desk Process Diagram](#)

QI-Core CQL Libraries

Global Shared Libraries in MADiE:

Commonly used QI-Core libraries have been entered into MADiE.

FHIR Name in MAT (Prior to Decommissioning)	Version in MAT	QI-Core Name in MADiE	Version in MADiE
MATGlobalCommonFunctionsFHIR4	V 7.0.000	CQMCommon	V 2.2.000
FHIRCommon	V 1.1.000	FHIRCommon	V 4.3.000
FHIRHelpers	V 4.1.000	FHIRHelpers	V 4.4.000
QICoreCommon	V 1.0.000	QICoreCommon	V 2.1.000
CumulativeMedicationDurationFHIR4	V 2.0.000	CumulativeMedicationDuration	V 4.1.000
SupplementalDataElementsFHIR4	V 3.1.000	SupplementalDataElements	V 3.5.000

QDM CQL Libraries

Global Shared Libraries in MADiE:

Commonly used QDM libraries have been entered into MADiE.

QDM Name in MAT (Prior to Decommissioning)	Version in MAT	QDM Name in MADiE	Version in MADiE
MATGlobalCommonFunctionsQDM	V 8.0.000	MATGlobalCommonFunctionsQDM	V 8.0.000
CumulativeMedicationDurationQDM	V 3.0.000	CumulativeMedicationDurationQDM	V 3.0.000

Human Centered Design - HCD

- User Experience Design (UXD)
 - Measure/Library Searching/Filtering
 - Adding UI Builder to Libraries
 - Up Version QI-Core Measures
 - Test Case Searching/Filtering
- User Experience Research (UXR)
 - Recent Research Session - Findings

UXD - Measure/Library Searching/Filtering

[MAT-6831]

My Measures

1. Search by/Filter by:

- Version
- Status
- Model Type
- Shared Status
- CMS ID

2. Search for a measure that contains a specific:

- Concept
- CQL Element
- Value set or direct reference code

3. See how many Test Cases are in a measure

4. Move 'status' to a column to allow for sorting

5. Indicate **IF** a measure is shared

6. Include a column grid for CMS ID

7. Display measure versions nested under the most recent version/draft

The screenshot displays the MADiE Measures interface. At the top, there is a navigation bar with 'Measures', 'Libraries', 'Manifests', and 'Help'. A user profile for Jonathan Jones is visible. Below the navigation bar, the 'Measures' section is active, showing 'Welcome, Jonathan' and a '+ New Measure' button. The main content area is titled 'My Measures (8)' and includes a search bar and a filter dropdown. A table of measures is displayed with columns for Measure, Version, Status, Model, Shared, and CMS ID. The table contains 8 rows of measure data. Annotations are present: '1-2' points to the filter and search area; '3' points to the 'Test Cases Passing' count; '4' points to the search bar; '5' points to the 'Shared' column; '6' points to the 'CMS ID' column; and '7' points to the 'Edit' button. The footer includes 'Get Help', 'User Guide', 'Freedom of Information Act', 'Accessibility Policy', 'Privacy Policy', 'Rules of Behavior', 'Terms of Use', and 'cms.gov'. The MADiE logo and 'Measure Authoring DEVELOPMENT INTEGRATED ENVIRONMENT' are at the bottom left, and 'Version 1.0.1' and a federal government website notice are at the bottom right.

Measure	Version	Status	Model	Shared	CMS ID
<input type="checkbox"/> A Change in Severity of the Level of Food Insecurity 10/30 Test Cases Passing Editable	0.1.002	Draft	QI-Core 4.1.1	<input checked="" type="checkbox"/>	1234
<input type="checkbox"/> Risk-Standardized Acute Admission Rates for Patients With Multiple Chronic Conditions 20/20 Test Cases Passing	0.1.010	Draft	QDM v5.6	<input checked="" type="checkbox"/>	4321
<input type="checkbox"/> Skilled Nursing Facility 30-Day All-Cause Readmission Measures (SNFRM) 120/300 Test Cases Passing	2.0.017		QI-Core 4.1.1	<input checked="" type="checkbox"/>	-
<input type="checkbox"/> Documentation of Clinical Response to Allergen Immunotherapy within One Year 4/5 Test Cases Passing In-Use	1.5.001	Draft	QI-Core 4.1.1		2134
<input type="checkbox"/> Ambulatory Sensitive Conditions Admissions: Heart Failure (HF) 67/76 Test Cases Passing	1.0.005		QI-Core 4.1.1	<input checked="" type="checkbox"/>	-
<input type="checkbox"/> Hospital Harm - Falls with Major InjuryFHIR...	0.0.024		QI-Core 4.1.1		5678
<input type="checkbox"/> ColorectalCancerMeasureFHIR4...	0.0.022		QI-Core 4.1.1	<input checked="" type="checkbox"/>	8765
<input type="checkbox"/> Addressing Social Needs (ASN) in the Outpatient Setting...	1.0.005		QDM v5.6	<input checked="" type="checkbox"/>	6758

UXD - Measure/Library Searching/Filtering

[MAT-6831]

Shared Measures

1. Display which measures are shared a user
 - o Additional Tab
2. Identify **who** owns a measure
 - o See who the measure is shared with (in the Measure Details view)

The screenshot shows the MADiE Measures Library interface. The top navigation bar includes 'Measures', 'Libraries', 'Manifests', 'Help', 'Connect to UMLS', and a user profile for Jonathan Jones. The main content area is titled 'Measures' and includes a 'Welcome, Jonathan' message and a '+ New Measure' button. Below this, there are three tabs: 'My Measures (8)', 'Shared Measures (6)', and 'All Measures (1112)'. The 'Shared Measures (6)' tab is highlighted with a green box and a '1' in a white box. Below the tabs, there is a 'Filter By' dropdown menu and a search bar. A table of measures is displayed below, with the 'Owner' column highlighted by a green box and a '2' in a white box. The table has columns for 'Measure', 'Version', 'Status', 'Model', 'Owner', and 'CMS ID'. The measures listed are:

Measure	Version	Status	Model	Owner	CMS ID
<input type="checkbox"/> Social Drivers of Health Screenings Not Performed 7/11 Test Cases Passing	2.0.005		QDM v5.6	William Bonney	9876
<input type="checkbox"/> Statin Therapy for the Prevention and Treatment of Cardiovascular DiseaseFHIR 2/4 Test Cases Passing	0.0.022		QI-Core 4.1.1	Doc Scurlock	-
<input type="checkbox"/> Core Clinical Data Elements for the Hybrid Hospital-Wide Readmission Measure with Claims and Elec... 7/7 Test Cases Passing	0.0.024		QI-Core 4.1.1	Richard Brewer	2035
<input type="checkbox"/> Child and Adolescent Major Depressive Disorder (MDD): Suicide Risk Assessment 16/17 Test Cases Passing	1.0.005		QDM v5.6	Steve Stephens	-
<input type="checkbox"/> NewQDMMeasure2Transfer142 4/5 Test Cases Passing In-Use	0.1.001		QDM v5.6	Chavez y Chavez	1928
<input type="checkbox"/> UpdatedQDMSmokeTestMeasure0710 29/30 Test Cases Passing In-Use	2.0.017	Draft	QI-Core 4.1.1	Charley Bowdre	-

At the bottom of the table, there is a pagination control showing 'Items per page 10' and '1 - 6 of 6'. The bottom of the page features a footer with 'Get Help | User Guide', 'Freedom of Information Act | Accessibility Policy | Privacy Policy | Rules of Behavior | Terms of Use | cms.gov', and the 'Measure Authoring DEVELOPMENT INTEGRATED ENVIRONMENT' logo. A version number 'Version 1.0.1' is also present. On the right side of the footer, there is a logo for the U.S. Centers for Medicare & Medicaid Services and the text: 'A federal government website managed and paid for by the U.S. Centers for Medicare & Medicaid Services. 7500 Security Boulevard, Baltimore, MD 21244'.

UXD - Measure/Library Searching/Filtering

[MAT-6831]

All Measures

1. Indicate **IF** a measure is shared
2. Identify **who** owns a measure
 - See who the measure is shared with (in the Measure Details view)

The screenshot displays the MADiE Measures library interface. The top navigation bar includes the MADiE logo, the text "Measure Authoring Development Integrated Environment", and navigation links for "Measures", "Libraries", "Manifests", and "Help". A "Connect to UMLS" button and a user profile for "Jonathan Jones" are also visible. The main header shows "Measures" and "Welcome, Jonathan" with a "+ New Measure" button. Below the header, there are tabs for "My Measures (8)", "Shared Measures (12)", and "All Measures (1112)". A "Filter By" dropdown and a "Search" input field are present. The main content is a table of measures with the following columns: Measure, Version, Status, Model, Shared, Owner, and CMS ID. The "Shared" and "Owner" columns are highlighted with green boxes. The "Shared" column contains checkmarks, and the "Owner" column contains names. The table includes various measures such as "Global Malnutrition Composite Score", "Measure Using Core Extension", "Addressing Social Needs (ASN) in the Outpatient Setting", "Equity of Emergency Care Capacity and Quality REHQRFHIR", "Hospital Harm - Postoperative Respiratory Failure", "A Change in Severity of the Level of Food Insecurity", "Hospital Harm - Severe Hyperglycemia", "Diabetic Retinopathy: Communication with the Physician Managing Ongoing Diabetes...", "Initiation and Engagement of Substance Use Disorder Treatment", and "Controlling High Blood Pressure". The interface also features a "Items per page" dropdown set to 10 and a pagination control showing "1 - 10 of 1112" with numbered buttons for pages 1 through 5 and a "Next" button.

Measure	Version	Status	Model	Shared	Owner	CMS ID
<input type="checkbox"/> Global Malnutrition Composite Score 2/4 Test Cases Passing	4.0.004		QDM v5.6	✓	Jack Burton	9012
<input type="checkbox"/> Measure Using Core Extension 67/76 Test Cases Passing	2.1.012		QI-Core 4.1.1	✓	Gracie Law	2093
<input type="checkbox"/> Addressing Social Needs (ASN) in the Outpatient Setting 7/11 Test Cases Passing	1.0.005	Draft	QDM v5.6	✓	Wang Chi	6574
<input type="checkbox"/> Equity of Emergency Care Capacity and Quality REHQRFHIR 4/5 Test Cases Passing In-Use	0.1.001		QI-Core 4.1.1	✓	David Lo Pan	2938
<input type="checkbox"/> Hospital Harm - Postoperative Respiratory Failure 7/9 Test Cases Passing	0.0.024		QDM v5.6		Eddie Lee	4756
<input type="checkbox"/> A Change in Severity of the Level of Food Insecurity 10/30 Test Cases Passing Editable	1.3.214	Draft	QDM v5.6	✓	Jonathan Jones	1234
<input type="checkbox"/> Hospital Harm - Severe Hyperglycemia 20/20 Test Cases Passing	0.1.010		QDM v5.6	✓	Miao Yin	-
<input type="checkbox"/> Diabetic Retinopathy: Communication with the Physician Managing Ongoing Diabetes... 120/147 Test Cases Passing	2.0.017	Draft	QI-Core 4.1.1	✓	Joe Lucky	1029
<input type="checkbox"/> Initiation and Engagement of Substance Use Disorder Treatment 14/15 Test Cases Passing	13.0.000	Draft	QI-Core 4.1.1		Wang Chi	-
<input type="checkbox"/> Controlling High Blood Pressure 1/3 Test Cases Passing	2.0.017		QDM v5.6	✓	Uncle Chu	3847

UXD - Measure/Library Searching/Filtering

The screenshot displays the MADiE Measures interface. At the top, the MADiE logo and 'Measure Authoring Development Integrated Environment' are visible. The main navigation includes 'Measures', 'Libraries', 'Manifests', and 'Help'. A user profile for 'Jonathan Jones' is shown in the top right. The page title is 'Measures' with a 'Welcome, Jonathan' message and a '+ New Measure' button.

Below the navigation, there are tabs for 'My Measures (8)', 'Shared Measures (6)', and 'All Measures (1112)'. A 'Filter By' dropdown menu is set to 'Select', and a search bar contains the text 'Search'. To the right of the search bar are several utility icons: trash, refresh, share, link, print, and download.

The main content area is a table of measures. Each row includes a checkbox, the measure name, test cases passing, status, model, shared status, CMS ID, and an 'Edit' button with a right arrow.

<input type="checkbox"/>	Measure	Version	Status	Model	Shared	CMS ID	
<input type="checkbox"/>	A Change in Severity of the Level of Food Insecurity 10/30 Test Cases Passing Editable	0.1.002	Draft	QI-Core 4.1.1	✓	1234	Edit >
<input type="checkbox"/>	Risk-Standardized Acute Admission Rates for Patients With Multiple Chronic Conditions 20/20 Test Cases Passing	0.1.010	Draft	QDM v5.6	✓	4321	Edit >
<input type="checkbox"/>	Skilled Nursing Facility 30-Day All-Cause Readmission Measures (SNFRM) 120/300 Test Cases Passing	2.0.017		QI-Core 4.1.1	✓	-	Edit >
<input type="checkbox"/>	Documentation of Clinical Response to Allergen Immunotherapy within One Year 4/5 Test Cases Passing In-Use	1.5.001	Draft	QI-Core 4.1.1		2134	Edit >
<input type="checkbox"/>	Ambulatory Sensitive Conditions Admissions: Heart Failure (HF) 67/76 Test Cases Passing	1.0.005		QI-Core 4.1.1	✓	-	Edit >
<input type="checkbox"/>	Hospital Harm - Falls with Major InjuryFHIR.. 7/7 Test Cases Passing	0.0.024		QI-Core 4.1.1		5678	Edit >
<input type="checkbox"/>	ColorectalCancerMeasureFHIR4.. 2/4 Test Cases Passing	0.0.022		QI-Core 4.1.1	✓	8765	Edit >
<input type="checkbox"/>	Addressing Social Needs (ASN) in the Outpatient Setting.. 7/11 Test Cases Passing	1.0.005		QDM v5.6	✓	6758	Edit >

At the bottom of the table, there is a 'Items per page' dropdown set to '10' and a pagination indicator '1 - 6 of 8'. A blue arrow icon is located at the bottom right of the table area.

The footer contains links for 'Get Help', 'User Guide', 'Freedom of Information Act', 'Accessibility Policy', 'Privacy Policy', 'Rules of Behavior', 'Terms of Use', and 'cms.gov'. The MADiE logo and 'Version 1.0.1' are on the left, and the U.S. Department of Health and Human Services logo and address are on the right.

UXD - UI For Libraries

[MAT-7500]

Library Details

1. Update Libraries architecture to generally match that of Measures:

- Details
- CQL Editor
- Population Criteria
- Test Cases
- Review Info

2. Details view will contain metadata for:

- Name, Version & ID
- Contributors
- Description
- Purpose
- Usage (Guidance)
- Use Context & Tags
- Copyright

The screenshot displays the MADiE (Measure Authoring Development Integrated Environment) interface. The top navigation bar includes 'Measures', 'Libraries' (active), 'Manifests', and 'Help'. A user profile for 'Jonathan' is visible in the top right. The breadcrumb trail shows 'Home > Library'. The main header identifies the library as 'MyTestMeasureCQLLibrary' with version '0.0.007', model 'QI-Core v4.1.1', and a status of 'In-Use'. Below the header, a tabbed interface shows 'Details' selected, with other tabs for 'CQL Editor', 'Population Criteria', 'Test Cases (5)', and 'Review Info'. The 'Details' view is divided into a left sidebar and a main content area. The sidebar lists sections: 'General Information', 'Name, Version & ID' (selected), 'Contributors', 'Library Overview', 'Description', 'Purpose', 'Usage (Guidance)', 'Use Context & Tags', 'Legal', and 'Copyright'. The main content area, titled 'Name, Version & ID', contains several required fields: 'Library Name' (empty), 'Library Version' (empty), 'Library Version ID' (pre-filled with '7dfc319a1-4abc-4b17-a0ee-1aa82cde4011'), and 'Library Title' (empty). The 'Library ID' field is currently empty. A note indicates that an asterisk (*) denotes a required field. At the bottom right of the form, there are 'Discard Changes' and 'Save' buttons. The footer of the application includes links for 'Get Help', 'User Guide', 'Freedom of Information Act', 'Accessibility Policy', 'Privacy Policy', 'Rules of Behavior', 'Terms of Use', and 'cms.gov'. The MADiE logo and 'Version 1.0.1' are also present in the footer.

UXD - UI For Libraries

[MAT-7500]

CQL Editor

1. Apply CQL Builder UI to QDM/QI-Core Libraries. Including:

- Includes
- Value Sets
- Codes
- Parameters
- Definitions
- Functions

The screenshot displays the MADiE CQL Editor interface. The top navigation bar includes 'Measures', 'Libraries', 'Manifests', and 'Help'. The user is logged in as 'Jonathan'. The main header shows the library name: 'Bone density evaluation for patients with prostate cancer and receiving androgen deprivation therapy'. Below the header, there are tabs for 'Details', 'CQL Editor', 'Population Criteria', 'Test Cases (5)', and 'Review Info'. The 'CQL Editor' tab is active, showing a code editor with the following CQL code:

```
1 library BoneDensityProstateCancerAndrogenDeprivationTherapy version '8.2.000'
2
3 using QDM version '5.6'
4
5 include MATGlobalCommonFunctionsQDM version '8.0.000' called Global
6
7 codesystem "SNOMEDCT": 'urn:oid:2.16.840.1.113883.6.96'
8
9 valueset "Androgen deprivation therapy for Urology Care": 'urn:oid:2.16.840.1.113762.1.4.115148'
10 valueset "DEXA Dual Energy Xray Absorptiometry, Bone Density for Urology Care":
11 'urn:oid:2.16.840.1.113762.1.4.115138'
12 valueset "Ethnicity": 'urn:oid:2.16.840.1.114222.4.11.837'
13 valueset "Office Visit": 'urn:oid:2.16.840.1.113883.3.464.1003.101.12.1001'
14 valueset "ONC Administrative Sex": 'urn:oid:2.16.840.1.113762.1.4.1
15 valueset "Patient Declined": 'urn:oid:2.16.840.1.113883.3.526.3.1582'
16 valueset "Payer Type": 'urn:oid:2.16.840.1.114222.4.11.3591'
17 valueset "Prostate Cancer": 'urn:oid:2.16.840.1.113883.3.526.3.319'
18 valueset "Race": 'urn:oid:2.16.840.1.114222.4.11.836'
19
20 code "Injection of leuprolide acetate for twelve month period (regime/therapy)": '456381000124102' from
21 "SNOMEDCT": display 'Injection of leuprolide acetate for twelve month period (regime/therapy)'
22
23 parameter "Measurement Period" Interval:DateTime>
24
25 context Patient
26
27 define "Denominator":
28 "Initial Population"
29
30 define "Denominator Exception":
31 exists ("No Bone Density Scan Ordered Due to Patient Refusal")
32 or exists ("No Bone Density Scan Performed Due to Patient Refusal")
33
34 define "Numerator":
35 "Has Baseline DEXA Scan Two Years Prior to the Start of or Less than Three Months After the Start of ADT"
```

The right sidebar contains a search bar and a 'Library Results' section. At the bottom right, there are 'Discard Changes' and 'Save' buttons.

UXD - CQL Builder UI For Libraries

The screenshot displays the MADiE CQL Builder UI for Libraries. The interface is divided into several sections:

- Header:** MADiE logo, "Measure Authoring Development Integrated Environment", navigation tabs (Measures, Libraries, Manifests, Help), "Connect to UMLS", and a user profile for Jonathan.
- Breadcrumbs:** Home > Library
- Title:** Bone density evaluation for patients with prostate cancer and receiving androgen deprivation therapy
- Metadata:** Version: 0.0.007, Model: QI-Core v4.1.1, MP: 1/1/2023 - 12/31/2023, In-Use
- Navigation:** Details, CQL Editor (active), Population Criteria, Test Cases (5), Review Info
- Editor:** A code editor showing CQL code for a library, including versioning, includes, value sets, and a code definition.
- Right Sidebar:** Includes tabs (Includes, Value Sets, Codes, Parameters, Definitions, Functions), a search bar for "Library" (Saved Libraries (0)), and a "Library Results" section.
- Footer:** "Discard Changes" and "Save" buttons.

UXD - Up Version Qi-Core Measures

[MAT-7517]

CQL Editor

1. Give users the ability to change their version from STU4 to STU6
 - Version on draft of a measure
 - Version From List View
 - Update Version on Details view
2. Notes
 - MADiE will support authoring and testing in multiple versions of the same model
 - Currently only two versions will be supported but in the future it could be many more
 - This will eventually be utilized for QDM as well
3. Questions
 - Will users ever want to go back to an older version?

The screenshot displays the MADiE Measures interface. A 'Create Draft' modal dialog is open, allowing a user to create a new draft of a measure. The modal includes a search bar, a 'Measure Name' field (containing 'Skilled Nursing Facility 30-Day All-Cause Readmission Measures (SNFRM)'), and an 'Update Version Model' dropdown menu (set to 'STU4'). The background shows a list of measures with columns for Measure, Version, and Model. The 'Skilled Nursing Facility 30-Day All-Cause Readmission Measures' row is highlighted with a blue checkmark and 'Draft' status.

Measure	Version	Model	Actions
A Change in Severity of the Level of Food Insec 10/30 Test Cases Passing	2.214	QDM v5.6	Edit >
A Change in Severity of the Level of Food Insec 20/20 Test Cases Passing	0.010	Draft QI-Core 4.1.1.1	Edit >
Skilled Nursing Facility 30-Day All-Cause Read 120/300 Test Cases Passing	0.017	QI-Core 4.1.1.1	Edit >
Documentation of Clinical Response to Allergen 4/5 Test Cases Passing In-Use	0.001	Draft QI-Core 4.1.1.1	Edit >
Ambulatory Sensitive Conditions Admissions: P 67/76 Test Cases Passing	1.0.005	QI-Core 4.1.1.1	Edit >

UXD - Up Version Qi-Core Measures

The screenshot displays the MADiE Measures interface. At the top, the MADiE logo and "Measure Authoring Development Integrated Environment" are visible. The navigation bar includes "Measures", "Libraries", "Manifests", "Help", "Connect to UMLS", and a user profile for "Jonathan". The main content area is titled "Measures" and includes a "Welcome, Jonathan" message and a "+ New Measure" button. Below this, there are tabs for "My Measures (12)" and "All Measures". A search bar is present, followed by a table of measures. The table has columns for "Measure", "Version", "Model", and "Actions". The measures listed are:

Measure	Version	Model	Actions
<input type="checkbox"/> A Change in Severity of the Level of Food Insecurity ODM 10/30 Test Cases Passing	1.3.214	ODM v5.6	Edit >
<input type="checkbox"/> A Change in Severity of the Level of Food Insecurity 20/20 Test Cases Passing	0.1.010	Draft QI-Core 4.1.1.1	Edit >
<input type="checkbox"/> Skilled Nursing Facility 30-Day All-Cause Readmission Measures (SNFRM) 120/300 Test Cases Passing	2.0.017	QI-Core 4.1.1.1	Edit >
<input type="checkbox"/> Documentation of Clinical Response to Allergen Immunotherapy within One Year 4/5 Test Cases Passing In-Use	1.5.001	Draft QI-Core 4.1.1.1	Edit >
<input type="checkbox"/> Ambulatory Sensitive Conditions Admissions: Heart Failure (HF) 67/76 Test Cases Passing	1.0.005	QI-Core 4.1.1.1	Edit >

At the bottom of the table, there is a pagination control showing "Items per page" set to 10, "1 - 10 of 12", and a "Next" button.

The footer contains links for "Get Help", "User Guide", "Freedom of Information Act", "Accessibility Policy", "Privacy Policy", "Rules of Behavior", "Terms of Use", and "cms.gov". The MADiE logo and "Measure Authoring DEVELOPMENT INTEGRATED ENVIRONMENT" are on the left, and the version "Version 1.0.1" is in the center. On the right, there is a logo for the U.S. Centers for Medicare & Medicaid Services and the text: "A federal government website managed and paid for by the U.S. Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Baltimore, MD 21244".

UXD - Test Case Search/Filter

[MAT-6832]

Test Cases

1. Search/Filter by existing values or free text
2. Test Case Identifier
 - Test Cases are ordered chronologically (based on date modified)
 - All columns now have sorting functionality

The screenshot displays the MADiE interface for managing test cases. The main header shows the measure title: "Bone density evaluation for patients with prostate cancer and receiving androgen deprivation therapy". Below this, there are tabs for "Details", "CQL Editor", "Population Criteria", "Test Cases (5)", and "Review Info". The "Test Cases (5)" tab is active, showing a summary of 40% passing (2/5) and 80% coverage. A search bar and a "Filter By" dropdown are highlighted with a green box. Below this is a table of test cases with columns for Case #, Status, Group, Title, Description, Last Saved, and Actions. The table contains five rows of data, with the first row highlighted. A green box highlights the "Case #" column. At the bottom, there is a pagination control showing "Items per page" set to 5, and "1 - 10 of 12" items.

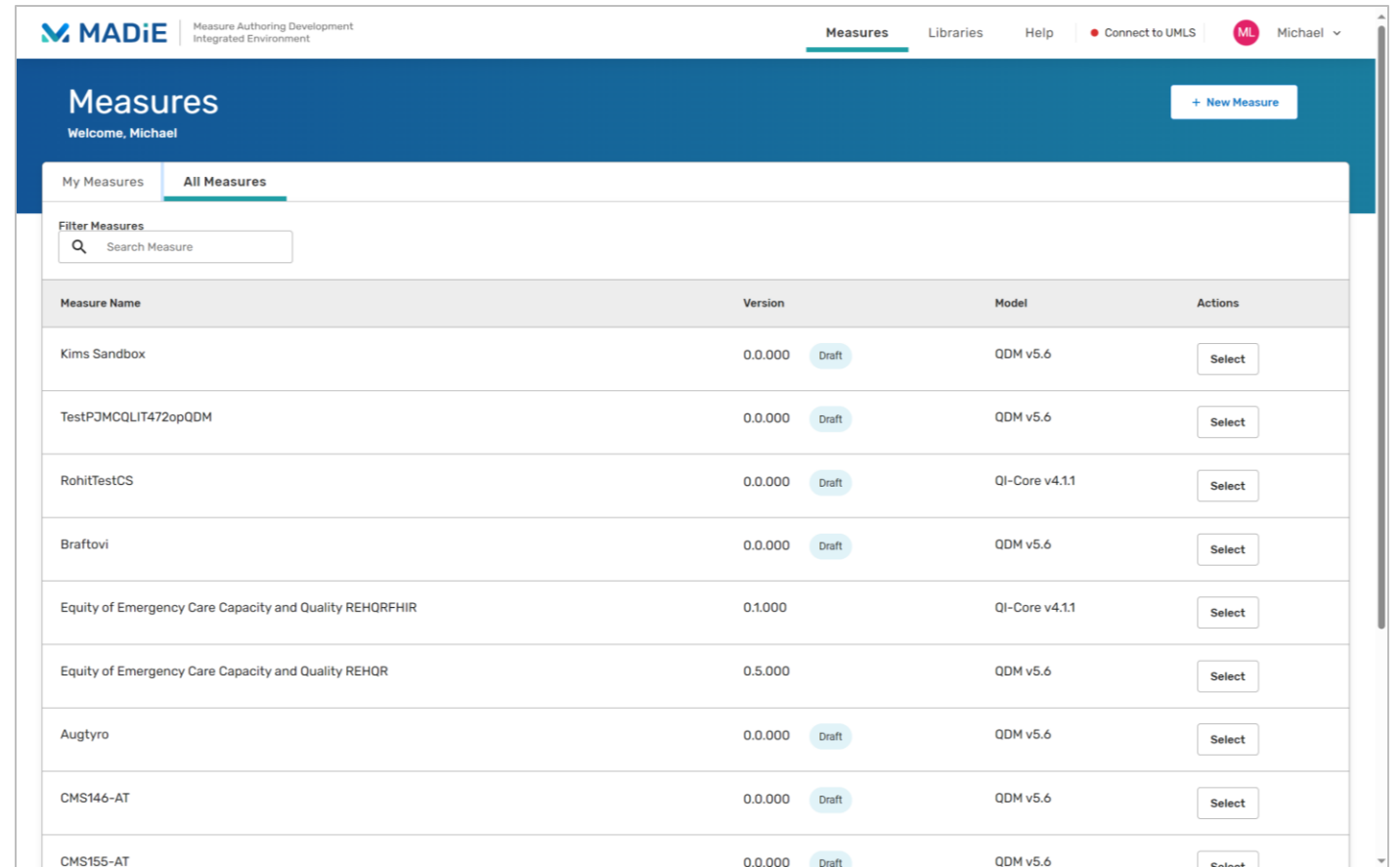
Case #	Status	Group	Title	Description	Last Saved	Actions
1	Pass	Series 001	Intensive Care Unit Venous Thromboembolism Prophylaxis	Patient did not receive anti-coagulant due to medical reason, but start date is after end of encounter.	08/09/2024	View
3	Fail	Series 005	Adult Major Depressive Disorder (MDD): Suicide Risk Assessment	Patient with Diagnosis during Encounter Performed: Psych Visit - Diagnostic Evaluation. Intervention Performed. Suicide risk Assessment before MP:	08/09/2024	View
4	Pass	Series 107	Global Malnutrition Composite Score	Meets IPP, DENOM - Current Age. Encounter PCSE0V During MP. Diagnosis of Hypertension takes place <=6mos. R2D2 MP. An adult outpatient visit value set overlaps the diagnosis. It's code is not allowed in the IP).	08/08/2024	View
7	Fail	DENEXCEPPass	DEXANotPerformedPtRefusedEdge	Systolic blood pressure labs not in encounter timing interval	08/07/2024	View
8	Fail	Series 201	Hospital Harm - Severe Hypoglycemia	Patient with Diagnosis during Encounter Performed: Psych Visit - Diagnostic Evaluation. Intervention Performed. Suicide risk Assessment before MP:	08/07/2024	View

Community Questions & Discussion

UXR – MADiE Usability Testing

Overview

- 8 participants
- 6 unique roles
- 1hr session
 - Stepping through existing application to identify areas of improvement



The screenshot displays the MADiE Measures interface. The header includes the MADiE logo, the text "Measure Authoring Development Integrated Environment", and navigation links for "Measures", "Libraries", "Help", "Connect to UMLS", and a user profile for "Michael". The main content area is titled "Measures" and includes a "Welcome, Michael" message and a "+ New Measure" button. Below this, there are tabs for "My Measures" and "All Measures". A search bar labeled "Filter Measures" with a magnifying glass icon and the text "Search Measure" is present. The main table lists various measures with columns for "Measure Name", "Version", "Model", and "Actions". Each row includes a "Draft" status indicator and a "Select" button.

Measure Name	Version	Model	Actions
Kims Sandbox	0.0.000 Draft	QDM v5.6	Select
TestPJMQLIT472opQDM	0.0.000 Draft	QDM v5.6	Select
RohitTestCS	0.0.000 Draft	QI-Core v4.1.1	Select
Braftovi	0.0.000 Draft	QDM v5.6	Select
Equity of Emergency Care Capacity and Quality REHQRFHIR	0.1.000	QI-Core v4.1.1	Select
Equity of Emergency Care Capacity and Quality REHQ	0.5.000	QDM v5.6	Select
Augtyro	0.0.000 Draft	QDM v5.6	Select
CMS146-AT	0.0.000 Draft	QDM v5.6	Select
CMS155-AT	0.0.000 Draft	QDM v5.6	Select

UXR - MADiE Usability Testing Findings

Findings (Homepage)

- Measure developers refer to, share, and search for measures by their CMS ID.
- Developers expressed that a particular measure's QDM and FHIR versions should appear together on the dashboard. They also expressed the need for the ability to filter by the QDM and FHIR measures.
- The developers expressed that they would like to be able to see the history of the measure at the dashboard level, similar to the previous MAT tool.

UXR - MADiE Usability Testing Findings

Findings (Measure Details)

- Developers have encountered edge case scenarios with date range, timestamp, and time zone variations. This issue also arises between QDM and QI-Core test cases, as the precision limit in QDM is to the minute, while in QI-Core it is to milliseconds. Having help text about precision will help developers be aware of it.
- Measure developers expressed frustration when the app doesn't function as it is supposed to. They encounter these glitches often.
- In MAT, developers had the ability to view the measure header without having to create a package, which is currently missing in MADiE. They would like to have this feature, as it would help them preview the spacing, formatting, etc.
- To change the year in the date range, users cannot simply change the number; they have to change the entire year. This is frustrating when they have to do it over 100 times in their measures.
- Some measure developers expressed that they did not know what the experimental checkbox meant. They preferred help text to explain what would happen if the experimental checkbox was checked.
- A suggestion was made to include help at the measure detail level, focusing on how to develop the measure. It should list what data elements can be selected in the measure, what value sets can be selected, etc.
- In the measure details under References, the CITATION option is in all caps, while in the dropdown options it is in sentence case.

UXR - MADiE Usability Testing Findings

Findings (CQL Editor)

- Developers mentioned that they cannot reference libraries directly from the CQL editor. They have to open the libraries separately to view them. Not being able to view the measure and libraries side by side makes the job tedious.
 - Developers would like to view the CQL of different measures side by side for easier comparison and editing.
- Developers reported performance issues when editing FHIR measures in the CQL editor.
 - Developers encounter aberrations in the expected behavior of the app, such as missing save buttons.
- The absence of a UI builder for MADiE makes it difficult for developers to locate the code that needs editing. Even after finding the code, they are not confident that their changes will not affect other parts of the code.
 - A UI makes debugging easier, as seen in MAT, where errors were shown in their own bubbles. Currently, error messages are difficult to spot and not always clear about the corrective action needed.
- The workspace real estate in the CQL editor is insufficient. The header and footer limit the screen space available to developers.
 - Developers mentioned that the lack of zoom capability is a pain point.
 - Navigating between two scroll bars in the CQL editor is confusing. The end line of the code is not visible until both scroll bars are scrolled all the way to the bottom.
- Error messages are difficult to spot and not always clear on what corrective action needs to be taken.
- Developers mentioned that knowing the return type upon hovering over the code would be very helpful.
- Auto formatting helps the code look cleaner and more organized.

UXR - MADiE Usability Testing Findings

Findings (Test Cases)

Performance:

- The test cases page takes a long time to load, especially when there are many test cases.
- Developers experience delays even with small logic changes, having to wait for these changes to reflect.
- These performance issues slow down the pace of making changes to test cases, as they can currently only edit one test case at a time.

Test Case Rearrangement:

- After a test case is edited, it moves to the top of the table. This is not useful as developers intend to edit test cases sequentially. Constant rearranging disorients them.

Viewing Multiple Test Cases:

- Developers expressed the need to view and compare multiple test cases simultaneously, especially to handle edge cases.

Advanced Filtering:

- Searching for test cases based on specific criteria is difficult. Developers need advanced filters to better group and rectify testing gaps.
- Advanced filters should also support free text filtering.

Library Test Cases:

- It is burdensome to maintain library test cases within measures. Developers would like the option to test libraries separately or comprehensively in one measure.
- An option to exclude the calculation of library content, similar to excluding supplemental data elements, would be beneficial.

UXR - MADiE Usability Testing Findings

Findings (Test Cases)

Abrupt App Behavior:

- An issue was reported where all test cases fail, but after deleting and reimporting, they pass. The cause of this behavior is unclear.

Element-Specific Views:

- When working on a particular element, developers prefer to see information related only to that element, not the entire list.
- A summary list of all elements used in a test case would serve as a quick reference for future work.
- Inline editing of elements is preferred over scrolling to the top to make changes.

Testing for Failures:

- When testing to fail, uncovering that a test case failed due to incomplete JSON is difficult. An alert for missing JSON would be helpful.

Concurrent Work:

- A different save path might allow multiple developers to work on the same test case simultaneously.

Mass Importing:

- There is no way to mass import test cases from MADiE into MADiE. This feature would help import test cases developed in a sandbox or from one measure to another.

UXR - MADiE Usability Testing Findings

Findings (Test Cases)

Manifest Dropdown:

- Developers prefer the manifest dropdown list to be ordered by the latest first.

Exporting Test Cases:

- Developers sometimes want to export test cases without running them, which is not currently possible in MADiE.

Test Case Description:

- The test case description should expand within the row instead of opening a dialogue box when clicking "view more."

Test Case Header Consistency:

- The test case header does not stay consistent when developers zoom in and out of the screen.

Import Screen Real Estate:

- When importing test cases, the screen space is very cramped, forcing developers to adjust the width of screens to work and view error messages.

User Group Discussion



- Topic suggestions and questions for the User Group can also be submitted through the MADiE Issue Tracker located here:
<https://oncprojecttracking.healthit.gov/support/projects/MADiE/summary>
- Additional questions or comments can be submitted by using the chat feature or unmuting your own line.

Resources

PII / PHI

- PHI and PII are prohibited in MADiE.
- Measure testing should only represent synthetic patient test data.
- Report any questions or concerns to the Help Desk.



Resources for Users

MADiE In Depth Training Videos

- Located on the [MADiE tab](#)
 - [Log In and Measures](#)
 - [QI-Core Test Cases](#)

JIRA Status and Resolution Use Cases

- Located on the [MADiE Issue Tracker](#) Summary page

MADiE Release Schedule

- Located on the public website [Training and Resources](#) tab

Resources for Users (continued)

MADiE 2.0.2

<https://madie.cms.gov>

MADiE Issue Tracker:

<https://oncprojecttracking.healthit.gov/support/projects/MADIE/summary>

eCQI Resource Center:

<https://ecqi.healthit.gov/>