MADiE User Group

August User Group

Hosted by ICF/SemanticBits

August 15th, 2024

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://oncprojectracking.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
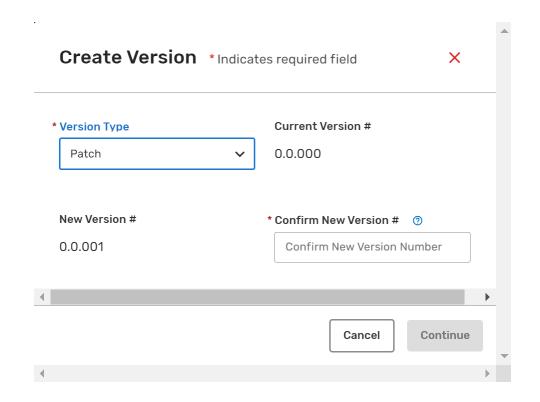
Versioning Measures in MADiE

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**

Patch ⌄

Current Version #

0.0.000

New Version #

0.0.001

* **Confirm New Version #** ⑨

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.

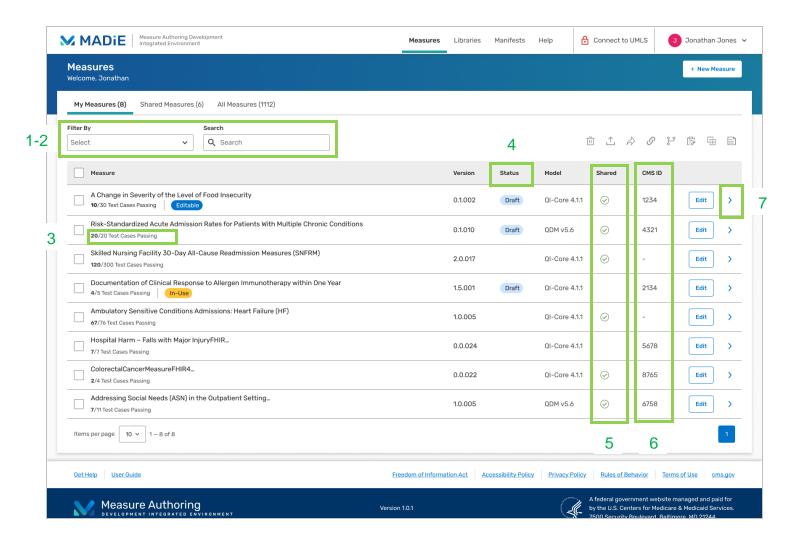| QDM Name in MAT (Prior to Decommissioning)	Version in MAT	QDM Name in MADiE	Version in MADiE
MATGlobalCommonFunctionsQDM	V 8.0.000	MATGlobalCommonFunctionsQDM	V 8.0.000
CumulativeMedicationDurationQDM	V 3.0.000	CumulativeMedicationDurationQDM	V 3.0.000

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)
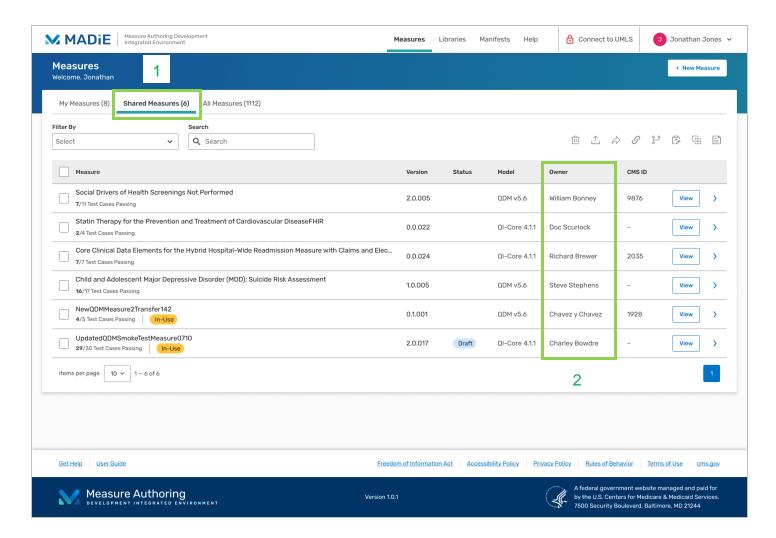 - Recent Research Session - Findings

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

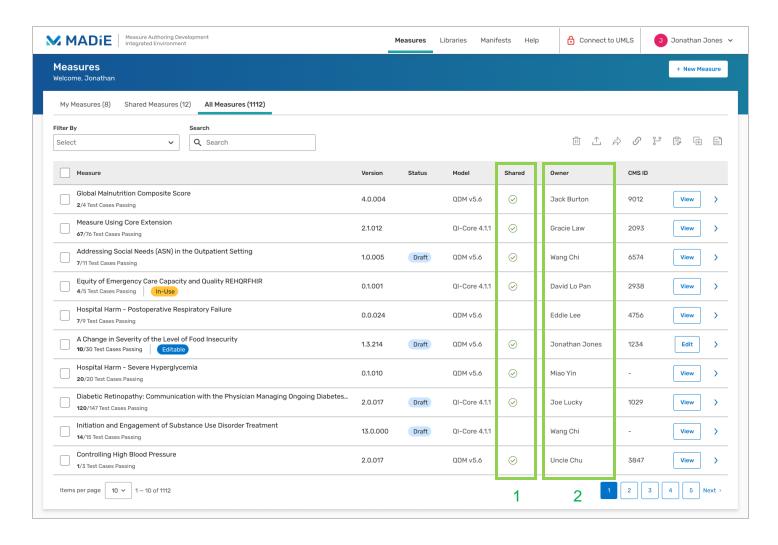# UXD - Measure/Library Searching/Filtering   [MAT-6831]

Shared Measures

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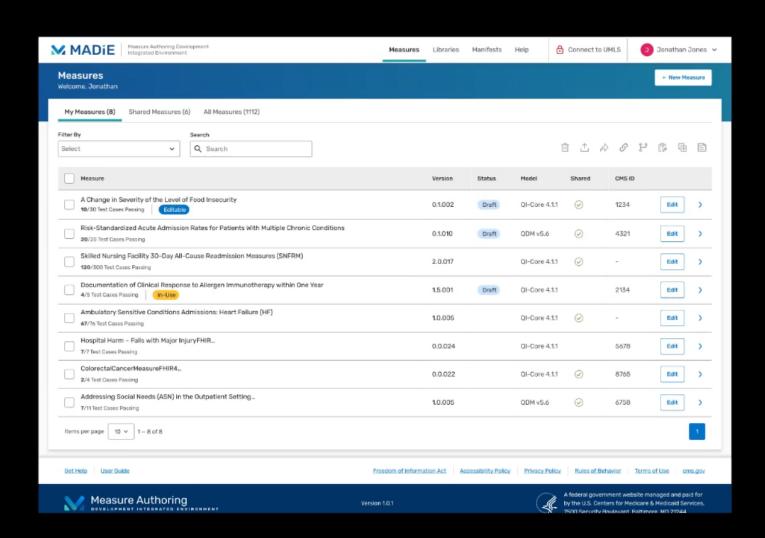   - See who the measure is shared with (in the Measure Details view)

UXD - Measure/Library Searching/Filtering [MAT-6831]

All Measures

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

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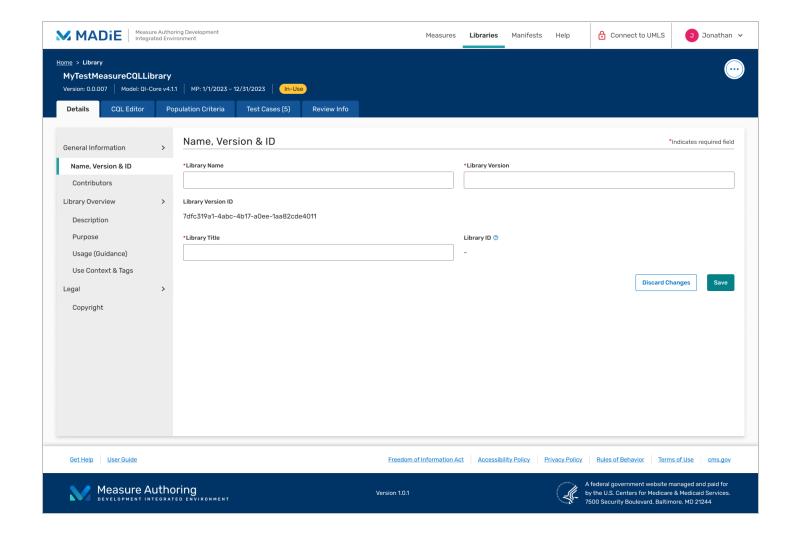   - See who the measure is shared with (in the Measure Details view)

UXD - Measure/Library Searching/Filtering

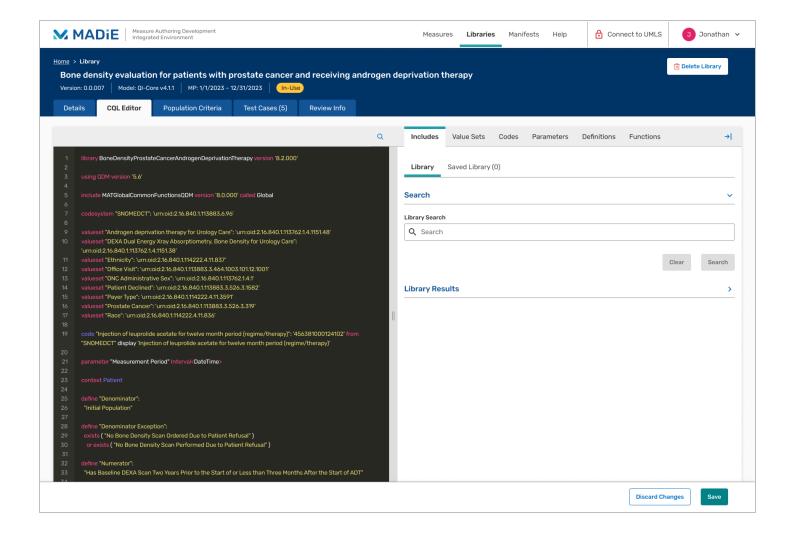# UXD - UI For Libraries   [MAT-7500]

Library Details

1. Update Libraries architecture to generally match that of Measures:
   o Details
   o CQL Editor
   o Population Criteria
   o Test Cases
   o Review Info

2. Details view will contain metadata for:
   o Name, Version & ID
   o Contributors
   o Description
   o Purpose
   o Usage (Guidance)
   o Use Context & Tags
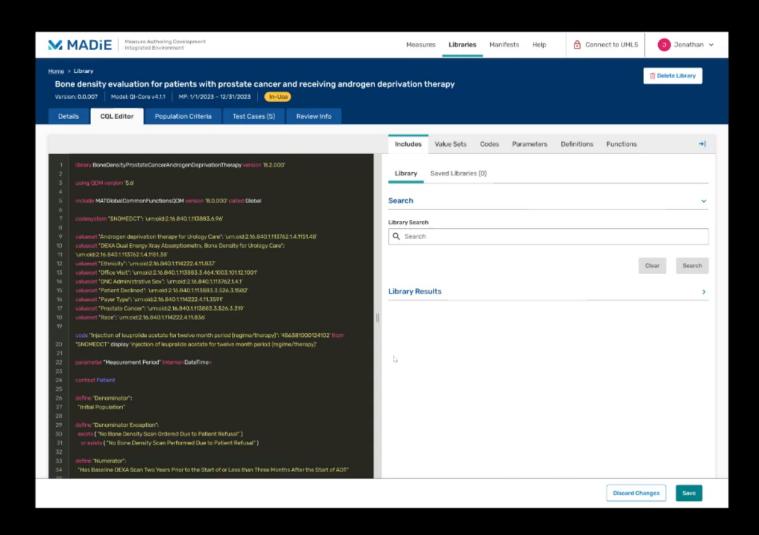   o Copyright

UXD - UI For Libraries

CQL Editor

1. Apply CQL Builder UI to QDM/QI-Core Libraries. Including:
   - o Includes
   - o Value Sets
   - o Codes
   - o Parameters
   - o Definitions
   - o Functions

UXD - CQL Builder UI For Libraries

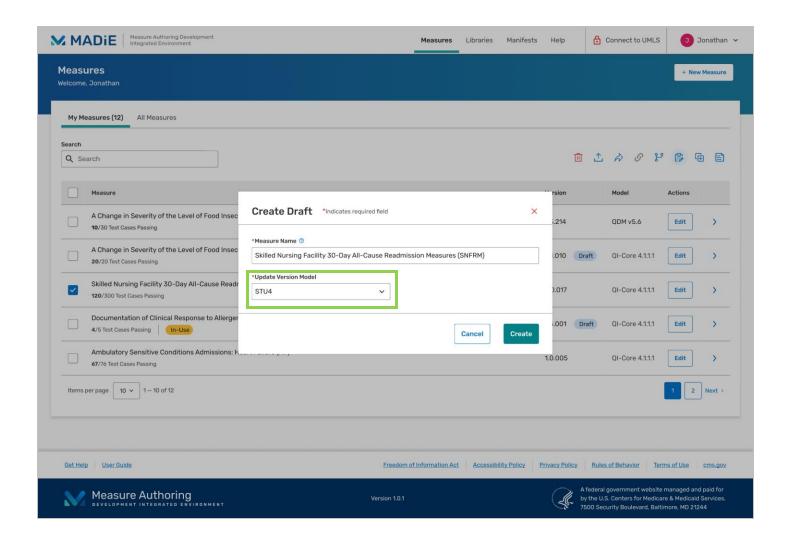# UXD - Up Version Qi-Core Measures

[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
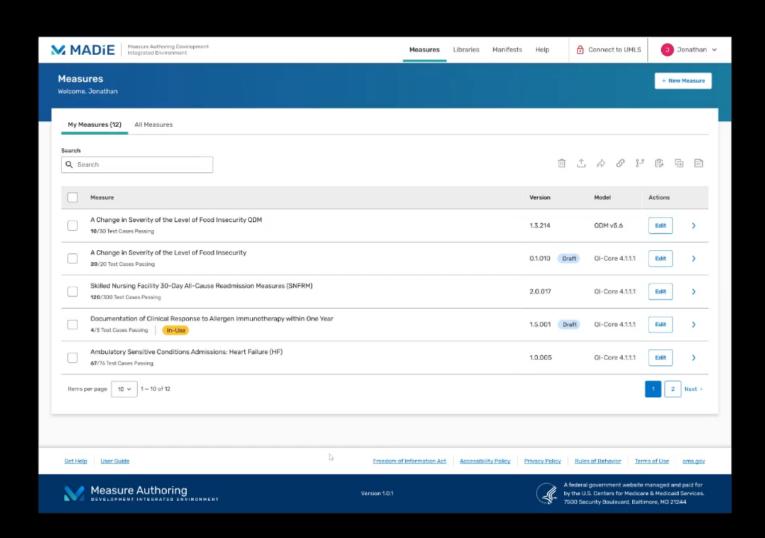   - Update Version on Details view
2. Notes
   - MADiE will support authoring and testing in multiple versions of the same model
   - Currently only two versions will be supported but in the future it could be many more
   - This will eventually be utilized for QDM as well
3. Questions
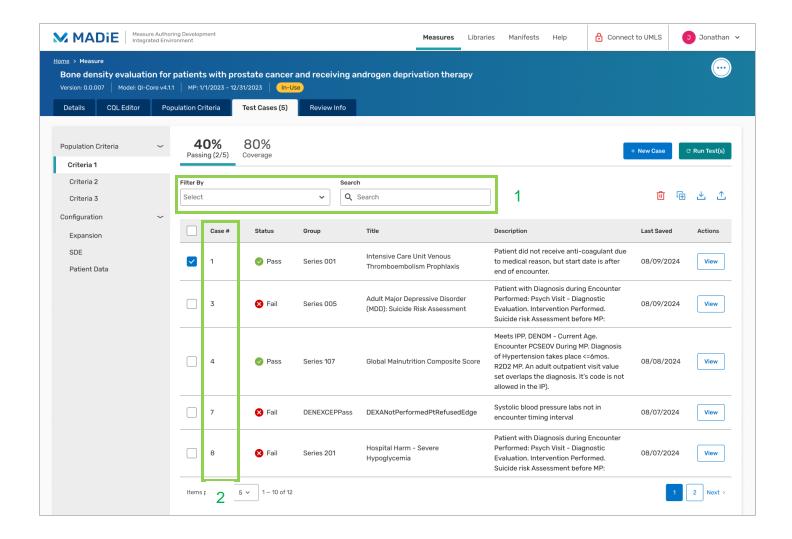   - Will users ever want to go back to an older version?

UXD - Up Version Qi-Core Measures

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)
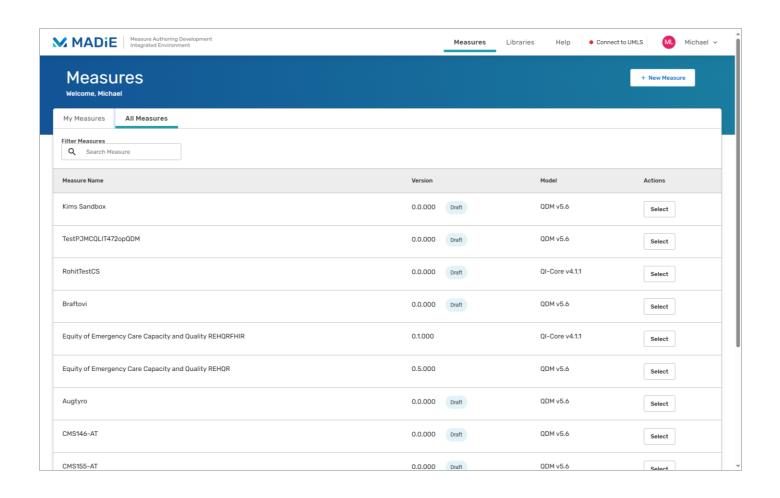- All columns now have sorting functionality

Community Questions & Discussion

UXR – MADiE Usability Testing

Overview

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

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://oncprojectracking.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://oncprojectracking.healthit.gov/support/projects/MADIE/summary

eCQI Resource Center:

https://ecqi.healthit.gov/