Bonnie, MAT and MADiE User Group

November User Group

Hosted by:
ICF/SemanticBits
November 16, 2023

Disclaimer

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

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

Agenda and Objectives

Agenda

1. MAT Updates
2. Bonnie Updates
3. MADiE Updates
4. Community Questions & Discussion
5. Review of Resources

Objectives

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

Measure Authoring Tool

MAT 6.11 QDM & FHIR

Measure Authoring Tool: Current State

MAT 6.11

- Maintenance Release occurred on 10/11/23
  - Removed the NQF OID from the HQMF export
- Maintenance Release occurred on 10/2/23
  - Replaced the authentication method used by MAT when querying VSAC. The TGT/ST workflow is replaced with Basic Authentication header containing the user's VSAC API Key.
- QDM Release Notes are available on the MAT web site under Training and Resources
- QDM measures use version 1.5.12 of the CQL-ELM translator.
- FHIR measures use version 1.5.4 of the CQL-ELM translator.

Measure Authoring Tool – Known Issues

Known Issues:

1. For FHIR measures, when the same CQL definition is used in Supplemental Data Elements (SDE) and as a Risk Adjustment Variable (RAV), the measure is not able to be packaged. Users will receive an error for 'duplicate id value'. The workaround is to create different definition(s) when they are needed in both SDE and RAV. (BonnieMAT-1212)

2. For FHIR measures, if the CQL Editor is used to enter value sets, the value sets are validated each time the CQL is saved. If the value set name and OID are not a match to the VSAC a CQL error will display and users may update the value set directly in the editor. When using the CQL Editor the 'Update from VSAC' button should not be used as this will display an 'Unable to Process' error message. This message does not prevent users from completing or saving work. They should continue to save their CQL to validate value sets in VSAC. (BonnieMAT-1235).

Bonnie

Bonnie 4.3.1 QDM (Prior)

Bonnie 5.1.4 QDM

Bonnie 6.2.5 FHIR

Bonnie Prior: Current State

Bonnie 4.3.1 Prior

- Bonnie 4.3.1 Prior maintenance release on 10/2/23
  - Replaced the authentication method used by Bonnie when querying VSAC. The TGT/ST workflow is replaced with Basic Authentication header containing the user's VSAC API Key.
- Supports QDM 5.5
- Users will receive a warning after 10 minute of inactivity and logged out after 15 minutes

Bonnie QDM: Current State

Bonnie 5.1.4 QDM

- Bonnie 5.1.4 QDM maintenance release on 10/2/23
  - Replaced the authentication method used by Bonnie when querying VSAC. The TGT/ST workflow is replaced with Basic Authentication header containing the user's VSAC API Key.
- Supports QDM 5.6
- Supports QDM/CQL and CQL 1.5
- Patient conversion functionality will remain disabled

Bonnie FHIR: Current State

Bonnie 6.2.5 FHIR

- Bonnie 6.2.5 FHIR maintenance release on 10/2/23
  - Replaced the authentication method used by Bonnie when querying VSAC. The TGT/ST workflow is replaced with Basic Authentication header containing the user's VSAC API Key.

Bonnie FHIR Attributes

- Attributes supported by Bonnie FHIR are linked on the Bonnie and MAT issue tracker on the summary page
- https://oncprojectracking.healthit.gov/support/projects/BONNIEMAT/summary

Bonnie

Known Issues:

- The QRDA export is not correctly reflecting relevant date time. There is no workaround. We don't have plans to address this in Bonnie at this time.
- For Bonnie FHIR, measures that include stratification are not displaying properly for users to test. There is no workaround at this time. We don't have plans to address this in Bonnie at this time.
- For Bonnie Prior, test cases that include certain QDM attributes are preventing test case conversion from QDM to FHIR. The QDM attributes are PatientEntity, CarePartner, Practitioner and Organization. A workaround of removing these QDM attributes will allow the conversion to process. (BONNIEMAT-1177)
- For Bonnie FHIR, the defaulted element/code combination for Malignant Intracranial Neoplasm (SNOMEDCT Code 109911004) prevents the user from saving the test case. If the code is updated to another SNOMEDCT code for this element, the test case can be saved and can, if desired, revert back to the defaulted SNOMEDCT Code 109911004 and not be prevented from saving the Test Case. (BONNIEMAT-1485)

60 Day Account Deactivation

Keeping your MADiE, MAT and Bonnie Accounts Active:

- In accordance with CMS and HHS security requirements, these tools have implemented an account deactivation policy for all users who have not logged in within the previous 60 days or more.
  - Activity in at least one of the three Bonnie environments (every 60 days) is needed to keep accounts active.
- Users will receive warning messages after 30 days of inactivity.
- After 60 days of inactivity, accounts will be deactivated.
- To access deactivated MAT accounts again, users will need to request reactivation of their account by contacting the Help Desk.
  - Do **NOT** respond to the deactivation email. Send a new email to semanticbits-mat-help@icf.com to request reactivation of your MAT account.
- To access deactivated Bonnie accounts again, users will need to request reactivation of their account by contacting the Help Desk.
  - Do **NOT** respond to the deactivation email. Send a new email to semanticbits-bonnie-help@icf.com to request reactivation of your Bonnie account.
  - ****Do not request a new account - to retain access to your measures and test cases you will need to request reactivation of your existing account.**
- 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 Bonnie, MAT and MADiE accounts active to continue to receive important email communications!

Bonnie and MAT: Future State

Bonnie and MAT Support:

- No further enhancements are planned at this time.
- Bonnie and MAT will continue to be available.
- While it is the intention to sunset these tools in the future, no date has been set at this time.

All future MAT and Bonnie enhancements or updates will be evaluated for:

- Priority – Is it needed to support CMS contracted measure development work? Does it correct an issue?
- Level of Effort – Does this impact the delivery of future releases of MADiE?
- Benefit – Can users complete their work with or without the enhancement?
- Future MAT or Bonnie releases will be communicated to users during User Group, community and stakeholder meetings and via email communication.

MADiE

Version 1.2.0

MADiE Release Timelines

✅ **MADiE – 1.2.0 11/15/2023 Release**
- Direct Reference Code (DRC) mapping has been updated in measure exports.
- MADiE has been updated to allow users to create and execute QDM test cases. (**Note:** Test cases may be created for a measure containing population criteria which includes stratification or observation; however, those test cases can't be executed at this time.)
- MADiE has been updated to display test case result details for QI-Core measures.
- MADiE has been updated to use CQL-ELM Translator 3.3.2, LiquidBase Templates 0.3.0, and FQM Execution Engine 1.3.2.

✅ **MADiE – 1.1.15 10/25/2023 Release**
- Removed duplicate parameters, expressions, and data requirements from human readable file.
- MADiE has been updated to allow users to select the bundle type used for test case(s) export.
- MADiE has been updated to use CQL-ELM Translator 3.2.0, and LiquidBase Templates 0.2.0.

MADiE Release Schedule:
- MADiE releases will occur approximately every two weeks.
- Goal: Provide users with frequent delivery of high-quality features and correction of defects.
- Users will be notified via email and Release Notes will be made available on the MADiE MVP tab of the MAT public web site.

MADiE QDM UAT testing period began today.

- As this testing is being performed in the Production environment, all MADiE users may participate as no additional access is required.

- A recorded demo of the QDM functionality targeted for this testing is available [here](#).

- The timeline for UAT will be November 16, 2023, through December 7, 2023. We ask that you complete all of your testing during this three-week testing cycle. All feedback should be submitted by COB on December 7, 2023.

- Once your testing is complete, please consolidate any identified issues or questions and enter one [ONC Jira](#) ticket per person with your feedback (in the Description field or added as an attachment) and select the following options:
    1. Issue Type = UAT
    2. Tool = MADiE
    3. Tool Version = MADiE 2023 UAT QDM Testing

Functionality available and targeted for testing in MADiE are:
- Create a QDM measure (including population criteria)
- Create a QDM library
- Transfer a QDM measure from MAT to MADiE
- Version/draft a QDM measure
- Create a QDM test case (including passing percentage, but not including coverage or pass/fail highlighting)
  - Excluding running QDM test cases when the associated population criteria contain stratifications or measure observations

Functionality NOT yet available for QDM Measures:
- Running QDM test cases when the associated population criteria contain stratifications or measure observations
- Import QDM Test Cases from Bonnie QDM to MADiE
- QDM Test case coverage calculation/highlighting and pass/fail highlighting and show results
- QDM Measure Export
- QDM Test Case Export
- QDM Measure References and Definitions
- Default SDE functions for new QDM measures
- QDM Test Case Export and Re-Import
- ELM Translator Versions Phase 2
- CQL Builder UI

Known Issues as of 11/15/23:

Known Issues List will be posted and maintained on the MADiE MVP tab of the MAT public web site and the Summary page of the Bonnie MAT MADiE ONC Jira Issue Tracker here: https://oncprojectracking.healthit.gov/support/projects/BONNIEMAT/summary

CQL-ELM Translator Known Issues

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: CQLIT-371

MADiE Known Issues as of 11/15/23:

- 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.
- 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.
  - Work around: Only include alpha numeric characters when searching for a measure.
- Users may receive VSAC timeout errors, even when active in UMLS.
  - Work around: As this issue is intermittent, if a user receives an error indicating a 401 or VSAC timeout error when saving, users should follow these steps if this occurs. Copy the updates you were saving, navigate away from the tab, navigate back to the tab to paste the updates, and save again. BONNIEMAT-1330
- If a value is not entered into all Expected values for a test case, users receive an error message when attempting to export test cases.
  - Work around: Ensure test cases have values in all Expected value fields. BONNIEMAT-1606

MADiE Known Issues as of 11/15/23:

- Users will automatically be logged out of MADiE, MAT and Bonnie after 30 minutes of inactivity. If the user has more than one active session of MADiE, MAT or Bonnie 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, MAT or Bonnie 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

MADiE Known Issues as of 11/15/23:

- **QDM Measures:** When the 'Related To' attribute is selected on the Attributes tab for a QDM test case, it will display a null value rather than the attribute added. The 'Related To' attribute is added to the test case despite the null value displaying.
  Note: The 'Related To' attribute will display as expected in the Elements table.

- **QDM Measures:** Status' date timing included in QDM test case JSON is not being saved after translation completes.

- **QDM Measures:** When a complex attribute is added to a QDM test case, the ID will initially be retained when adding subsequent attributes. This will not prevent users from adding subsequent attributes.

MADiE Resources

MADiE

- The [MADiE MVP tab](#) on the MAT public web site provides:
  - Login button to MADiE
  - User Access Guide – how to get your MADiE account
  - User Guide – provides details regarding tool functionality
  - 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 Sharing Request Form v1.1 – to request measures and test cases be shared – submitted by the owner via email
  - MADiE Measure or Library Ownership Transfer Request Form is now available. This form should be submitted by the owner via email

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 MVP tab](#) of the MAT 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 (WAF) Issues

- MADiE is experiencing a higher volume of tickets reporting unexpected error messages or an inability to save changes since 11/13/2023.
- 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

CMS Web Application Firewall (WAF) Issues

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 soc@hcqis.org and reference your Support ID: 2586968644408754759

Note: Submit an [ONC JIRA ticket](#), do not email the security operations center as indicated in the final error message example

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 Bonnie MAT MADiE Issue Tracker to evaluate MADiE, MAT and Bonnie functionality
  - The types of tickets to submit to the Bonnie MAT MADiE Issue Tracker

Reminder when submitting tickets...

MAT Tickets
- – <mark>Indicate the tool version and Measure Model: QDM vs. FHIR R4</mark>
- – Attach the measure package if appropriate
- – Provide Screenshots of error messages

Bonnie Tickets
- – <mark>Indicate tool version Prior, QDM, FHIR</mark>
- – Attach the affected test cases and reference them in the ticket by name if possible
- – Attach the measure package used with the test cases
- – Provide which account was used to test the measure(s)

MADiE Tickets
- – All measure sharing requests, **measure or library ownership transfer requests** or inquiries with a HARP ID must be submitted via email at semanticbits-madie-help@icf.com
- – <mark>Indicate the tool version and Measure Model: QDM vs. QI Core</mark>
- – 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

CQL Libraries

Global Shared Libraries in MADiE:

Commonly used libraries were entered into MADiE following the release.

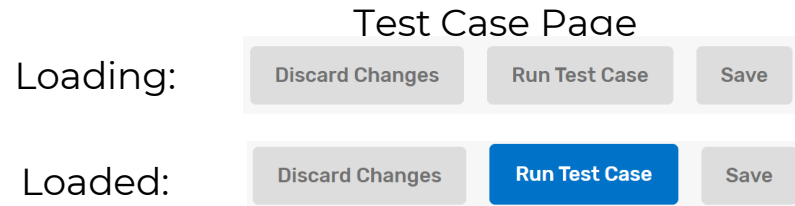| FHIR Name in MAT	Version in MAT	QI-Core Name in MADiE	Version in MADiE
MATGlobalCommonFunctionsFHIR4	V 7.0.000	CQMCommon	V 2.0.000
FHIRCommon	V 1.1.000	FHIRCommon	V 4.3.000
FHIRHelpers	V 4.1.000	FHIRHelpers	V 4.3.000
QICoreCommon	V 1.0.000	QICoreCommon	V 2.0.000
CumulativeMedicationDurationFHIR4	V 2.0.000	CumulativeMedicationDuration	V 4.0.000
SupplementalDataElementsFHIR4	V 3.1.000	SupplementalDataElements	V 3.4.000

CQL Libraries (continued)

CQL Libraries owned by MAT users:

- Standalone CQL libraries for both FHIR and QDM will not transfer like measures.
- Library owners will need to create the shell library in MADiE with the correct model and then copy and paste the contents of the library from MAT into the library in MADiE.
- To ensure your library version number matches what was in MAT and used by your measure, users will need to major/minor version their library until the desired version number is reached.
- Reminder, versioned libraries cannot be deleted so version carefully.

Loading Value Sets in MADiE

- MADiE utilizes a connection to VSAC when a user accesses the Test Case tab.
- For measures that contain a large number of value sets or value sets with large amounts of data, users may experience a delay in the Test Case table or a test case selected to view/edit fully loading.

Test Case Table

Loading: [+ New Test Case] [⟳ Run Test(s)]

Loaded: [+ New Test Case] [⟳ Run Test(s)]

Test Case Page

Loading: [Discard Changes] [Run Test Case] [Save]

Loaded: [Discard Changes] [Run Test Case] [Save]

- If a user interacts with the Test Case tab before it fully loads, they may receive the following error, "An error exists with the measure CQL, please review the CQL Editor tab".
- If there are no errors on the CQL, this error message can display when the value sets have not had time to load on the Test Case tab.
- Users should wait until all content is loaded and all buttons on the page are enabled.

Community Questions & Discussion

Current Issues w/ Prevailing Design

- MADiE Team is currently exploring a new approach for the Test Case Builder UI supporting QI-Core.

- Current design approach utilized in Bonnie QDM, Bonnie FHIR, and MADiE QDM is insufficient in facilitating the expanded capabilities and complexity of QI-Core/FHIR-based models.

Independent "Patient" resource/profile

- "Patient" resource/profile is implied by the UI and not treated independently, creating challenges for the UI as "Patient" is updated.
    - That can conflict with the descriptive relationships being made by various profiles utilizing "reference" type elements.

- Right now we're testing an approach makes the "Patient" resource/profile independent.

Supporting Display and Navigation of Complex Elements

- Looking to support all elements in the model, however previous design approach utilized in Bonnie QDM, Bonnie FHIR, and MADiE QDM is not designed to handle the numerous complex elements in QiCore profiles.

- For more complex elements, Bonnie displays an overwhelming amount of information (E.g. "Timing", "Dosage" data types)

- Currently exploring an approach that streamlines what is displayed, leveraging progressive disclosure and cardinality.

User Group Discussion

- Topic suggestions and questions for the User Group can also be submitted through the Bonnie MAT Issue Tracker located here: https://oncprojectracking.healthit.gov/support/projects/BONNIEMAT/summary

- Additional questions or comments can be submitted by using the chat feature or unmuting your own line.

Resources

PHI/ PII

- PHI and PII are prohibited in MAT, Bonnie or MADiE.

- Measure testing should only represent synthetic patient test data.

- Report any questions or concerns to the Help Desk.

Resources for Users

JIRA Status and Resolution Use Cases
- Located on the [Bonnie MAT Issue Tracker](#) Summary page

Bonnie and MAT Troubleshooting Guides
- Located on the ONC Jira Bonnie MAT Issue Tracker Summary page
  - [Bonnie Troubleshooting Guide](#)
  - [MAT Troubleshooting Guide](#)

Bonnie, MAT and MADiE Release Schedule
- Located on the MAT public website [Training and Resources](#) tab

Negation Rationale in Bonnie FHIR
- Located on the MAT public website under Training and Resources/Bonnie Helpful Links
  - [Bonnie FHIR: How to use Negation Rationale](#)

Resources

MAT Public Website:
https://www.emeasuretool.cms.gov/

MAT 6.11:
https://www.emeasuretool.cms.gov/MeasureAuthoringTool/Login.html

Bonnie 4.3.1 QDM (Prior) (QDM version 5.5):
https://bonnie-prior.healthit.gov/

Bonnie 5.1.4 QDM (QDM version 5.6):
https://bonnie.healthit.gov/

Bonnie 6.2.5 FHIR:
https://bonnie-fhir.healthit.gov/

MADiE – 1.2.0
https://madie.cms.gov

Bonnie MAT MADiE Issue Tracker:
https://oncprojectracking.healthit.gov/support/projects/BONNIEMAT/summary

eCQI Resource Center:
https://ecqi.healthit.gov/