

## Publicly Accessible Release Schedule

You can find MAT and Bonnie Release Notes here: <https://www.emeasuretool.cms.gov/training-resources>

You can find MADiE Release Notes here: <https://www.emeasuretool.cms.gov/madie-mvp>

### 2023 MADiE

Date	Version	CQL to ELM Translator	Features
11/15/23	1.2.0	3.3.0	<ul style="list-style-type: none"> <li>• <b>QI-Core Measures:</b> Direct Reference Code (DRC) mapping has been updated to reflect the following:               <ul style="list-style-type: none"> <li>○ Map all DRCs in the measure to direct reference code extension entries in its Library resource</li> <li>○ Map all DRCs in included Libraries to direct reference code extension entries in their respective Library resources</li> </ul> </li> <li>• <b>QDM Measures:</b> MADiE has been updated to allow users to create and execute QDM test cases. <b>Note:</b> 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.</li> <li>• <b>QI-Core Measures:</b> MADiE has been updated to display more test case result details. This additional information will allow users to better understand the test case results and identify the updates that would be needed to receive the expected results for the test case.</li> <li>• MADiE has been updated to use CQL-ELM Translator 3.3.2. More information can be found <a href="#">here</a>.</li> <li>• <b>QI-Core Measures:</b> MADiE has been updated to use LiquidBase Templates 0.3.0 based on QMIG profiles. More information can be found <a href="#">here</a>.</li> <li>• <b>QI-Core Measures:</b> MADiE has been updated to use FQM Execution Engine 1.3.2. More information can be found <a href="#">here</a>.</li> </ul>
10/25/23	1.115	3.2.0	<ul style="list-style-type: none"> <li>• <b>QI-Core Measures:</b> Removed duplicate parameters, expressions, and data requirements from human readable file. (<a href="#">BONNIEMAT-1587</a>)</li> <li>• <b>QI-Core Measures:</b> MADiE has been updated to allow users to select the bundle type used for test case(s) export. (<a href="#">BONNIEMAT-1607</a>)</li> <li>• MADiE has been updated to use CQL-ELM Translator 3.2.0. More information can be found <a href="#">here</a>. (<a href="#">BONNIEMAT-1619</a>)</li> <li>• <b>QI-Core Measures:</b> MADiE has been updated to use the latest LiquidBase Templates based on QMIG profiles. More information can be found <a href="#">here</a>. (<a href="#">BONNIEMAT-1621</a>, <a href="#">BONNIEMAT-1622</a>)</li> </ul>
10/11/23	1.1.14	2.11.0	<ul style="list-style-type: none"> <li>• Replaced the authentication method used when querying VSAC. The TGT/ST workflow will be replaced with Basic Authentication header containing the user's VSAC API Key.</li> <li>• Enhanced CQL Editor error messaging so that warnings can be distinguished from errors and warnings do not block test case execution. (<a href="#">BONNIEMAT-1353</a>)</li> <li>• Updates have been applied to Measure exports so that they are formatted correctly. The updates include the following:               <ul style="list-style-type: none"> <li>○ The fullURL for all library type resources to have a root of "https://madie.cms.gov" instead of "http://ecqi.healthit.gov"</li> </ul> </li> </ul>

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			<ul style="list-style-type: none"> <li>○ Set the measure type resource URL element to the same value as the fullURL value (Measure.url = Measure.fullURL)</li> <li>○ Changed the PUT requests on all resources to POST requests (change "method": "POST" to "method": "PUT")</li> <li>○ In the Library resources (primary and all included libraries) updated the relatedArtifact array: <ul style="list-style-type: none"> <li>▪ Replace "url" with "resource"</li> <li>▪ Include the version of the resource when applicable at the end of the resource value (pipe-delimited) for measure model and libraries, NOT for value sets or code systems</li> </ul> </li> <li>• <b>QI Core Measures:</b> Warning message has been updated so that when a test case that does not have a unique test case name (the family and given name combination across the measure) is imported, the message will indicate exactly what the application considers non-unique. (<a href="#">BONNIEMAT-1602</a>)</li> <li>• <b>QI Core Measures:</b> MADiE has been updated to add a 'request' field when the test case is Transaction bundle type. When a user sets the test case bundle type as "Transaction", the export will now include the following: <pre data-bbox="621 947 1421 1052">"request": {   "method": "POST",   "url": "MeasureReport/&lt;measure report ID&gt;" }</pre> (<a href="#">BONNIEMAT-1607</a>) </li> <li>• <b>QI Core Measures:</b> MADiE has been updated so that the reference field(s), for patient references, will automatically be set to the format of "Patient/&lt;PatientID&gt;", when a user saves a test case. For example, reference fields that were in the format "Patient/&lt;anything&gt;" will be saved in the format of "Patient/&lt;PatientID&gt;" (<a href="#">BONNIEMAT-1608</a>)</li> </ul>
9/27/23	1.1.13	2.11.0	<ul style="list-style-type: none"> <li>• MADiE has been updated to allow users to delete draft libraries when the user is the library owner.</li> <li>• <b>QI Core Measures:</b> The following measure export updates have been made to resolve formatting issue: <ul style="list-style-type: none"> <li>○ The measure resource id field is now set to the primary library name <a href="#">BONNIEMAT-1576</a></li> <li>○ All library resource id fields are now set to that library's name</li> <li>○ All measure and library resources now have a fullURL field as well as a request block</li> <li>○ Direct reference codes (DRCs) are no longer included in the relatedArtifact array <a href="#">BONNIEMAT-1586</a></li> </ul> </li> <li>• <b>QI Core Measures:</b> The values in the Human Readable Parameters field have been updated to display in an order consistent with other locations. <a href="#">BONNIEMAT-1574</a></li> <li>• <b>QI Core Measures:</b> MADiE has updated the 'Run Test Cases' button to 'Run Test(s).' After clicking 'Run Test(s)' a spinner will display to indicate when MADiE is loading value sets.</li> <li>• <b>QI Core Measures:</b> MADiE has been updated to use FQM Execution Engine 1.3.1. More information can be found <a href="#">here</a>.</li> </ul>

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			<ul style="list-style-type: none"> <li>○ <a href="#">BONNIEMAT-1479</a></li> <li>○ <a href="#">BONNIEMAT-1567</a></li> <li>○ <a href="#">BONNIEMAT-1597</a></li> <li>○ <a href="#">BONNIEMAT-1613</a></li> <li>● <b>QI Core Measures:</b> The formatting of the fullURL for the measure report in test case exports has been updated.</li> </ul>
9/6/23	1.1.12	2.11.0	<ul style="list-style-type: none"> <li>● <b>QI-Core Measures:</b> MADiE has been updated to provide the ability to delete all the test cases associated with the measure on the test case list screen by pressing the Delete All button. The user will be asked to confirm this action before removing all the test cases from the measure.</li> <li>● <b>QI-Core Measures:</b> MADiE has been updated to enforce a unique test case group and title combination across the measure when importing test cases. Test cases without a unique group and title combination will not be imported.</li> <li>● <b>QI-Core Measures:</b> MADiE has been updated to remove leading and trailing spaces and spaces within test case title and group values when the test case filename is created during test case export.</li> <li>● <b>QI-Core Measures:</b> Several improvements have been made to the MADiE User Interface on the edit test case screen <ul style="list-style-type: none"> <li>○ The Highlighting tab and the CQL code now have the same height and allow independent scrolling which lets the user compare any part of the CQL to any part of the Highlighting content in a side-by-side manner.</li> <li>○ The Validation Errors panel has been expanded to have the same height as the other panels for a more consistent user experience.</li> <li>○ Breadcrumbs have been added to the top of the edit test case screen to improve navigation. The breadcrumbs will have a link back to the test case list page and it will also display the group and title of the test case in which you are currently working.</li> </ul> </li> <li>● The "Program Use Context" field has been removed from the Details tab for both measures and libraries.</li> <li>● MADiE has been updated to reduce the character limit to 64 characters instead of 255 characters. The Library Name field on the Create/Edit Measure screens and Create/Edit Library screens have been updated.</li> <li>● <b>QI-Core Measures:</b> MADiE has been updated to use the latest LiquidBase Templates based on QMIG profiles. More information can be <a href="#">found here</a>.</li> </ul>
8/25/23	1.1.11	2.11.0	<ul style="list-style-type: none"> <li>● MADiE has been updated to enforce a unique test case group and title combination for all test cases within a measure.</li> <li>● <b>QI-Core Measures:</b> A new vertical slider has been added on the edit test case screen which allows users to resize their work area on that screen.</li> <li>● <b>QI-Core Measures:</b> MADiE has been updated to support more robust importing of test cases after they have been exported from MADiE. <ul style="list-style-type: none"> <li>○ Test cases imported with a PatientID that does not match an existing test case in the measure will be added as a new test case for that measure, including the expected values from the measure report.</li> </ul> </li> </ul>

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			<ul style="list-style-type: none"> <li>○ Test cases with a population criteria that does not align with the population criteria in the measure will be imported, but expected values will not be imported for these test cases.</li> <li>● Previously, if a user searches for a draft measure and then attempts to version the measure, the “Version” action would not display in the drop down. This issue has been fixed and now a user is able to version a draft measure for which they have searched.</li> </ul>
8/17/23	1.1.10	2.11.0	<ul style="list-style-type: none"> <li>● <b>QI-Core Measures:</b> MADiE has updated existing test cases for QI-Core measures to include an absolute URL for all resource fullUrl values. An example of the difference between the relative URL and the absolute URL for a patient encounter is shown below, with the difference between the two highlighted. <ul style="list-style-type: none"> <li>○ relative URL: "fullUrl": "Encounter/8bc8af29-4a36-4834-bdf3-03d2c89ba196"</li> <li>○ absolute URL: "fullUrl": <a href="https://madie.cms.gov/Encounter/8bc8af29-4a36-4834-bdf3-03d2c89ba196">https://madie.cms.gov/Encounter/8bc8af29-4a36-4834-bdf3-03d2c89ba196</a>"</li> </ul> </li> </ul> <p>After this release, MADiE will automatically update any fullUrl in QI-Core measure test cases to the absolute URL when the test case is saved.</p>
8/11/23	1.1.10	2.11.0	<ul style="list-style-type: none"> <li>● <b>QI-Core Measures:</b> The following Test Case Export updates have been made: <ul style="list-style-type: none"> <li>○ The fullUrl value has been added to the measureReport section.</li> <li>○ The evaluatedResource now contains properly constructed fullUrl (without a leading slash ("/")).</li> </ul> </li> <li>● <b>QI-Core Measures:</b> Replaced existing PatientID references in Test Case JSON in MADiE and the export JSON file with the UUID value.</li> <li>● <b>QI-Core Measures:</b> MADiE has been updated to support importing test cases after they have been exported from MADiE. <ul style="list-style-type: none"> <li>○ Test cases imported with a PatientID that matches an existing test case in the measure will be overwritten by the imported JSON. The expected and actual values on the test case will not change.</li> <li>○ Test cases imported with a PatientID that does not match an existing test case in the measure will not be imported at this time.</li> </ul> </li> <li>● <b>QDM Measures:</b> MADiE has updated QDM Measure Observation validations for Continuous Variable and Ratio measures. <ul style="list-style-type: none"> <li>○ Patient-based measure will not specify input parameters</li> <li>○ For measures that are not Patient-based, the input parameter type must match the type of element being returned in the list for the associated population. <ul style="list-style-type: none"> <li>▪ For example: if Measure Population in CV measure returns List&lt;“Encounter, Performed”&gt;, then the associated Measure Observation’s input parameter must be “Encounter, Performed”</li> </ul> </li> </ul> </li> <li>● <b>QDM Measures:</b> MADiE has been updated to support versioning and drafting QDM measures.</li> <li>● <b>QDM Measures:</b> MADiE has updated the list of Measure Type options to be conformant with HL7 standards.</li> <li>● <b>QDM Measures:</b> MADiE has been updated to use CQM Execution Engine 4.1.3. More information can be found <a href="#">here</a>.</li> <li>● <b>QI Core Measures:</b> MADiE has been updated to use FQM Execution Engine 1.2.2. More information can be found <a href="#">here</a>.</li> </ul>

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			<ul style="list-style-type: none"> <li>MADiE has been updated to use CQL-ELM Translator 2.11.0. More information can be found <a href="#">here</a>.</li> </ul>
7/31/23	1.1.9	2.10.0	<ul style="list-style-type: none"> <li><b>QI-Core measures:</b> MADiE has been updated to support export of QI-Core test cases in a downloadable .zip file. The .zip file will include the JSON file(s) as well as a ReadMe file that maps the PatientID (UUID) to the Test Case Title and Test Case Group. Users may either export the test case JSON for a single test case or for all test cases from the test case list page. <ul style="list-style-type: none"> <li><b>Exporting a single test case:</b> An ‘Export’ option has been added to the ‘Actions’ drop down in the test case table.</li> <li><b>Exporting all test cases:</b> Select the ‘Export Test Cases’ on the test case list page.</li> </ul> </li> <li>MADiE has been updated so that Denominator Exception is the last population listed in the Human Readable, reflecting the order of measure calculations. The populations are now listed in the following order: <ul style="list-style-type: none"> <li>Initial Population</li> <li>Denominator</li> <li>Denominator Exclusion</li> <li>Numerator</li> <li>Numerator Exclusion</li> <li>Denominator Exception</li> </ul> </li> <li><b>QI-Core Measures:</b> MADiE has been updated to allow the Improvement Notation criteria / values to be de-selected</li> <li>MADiE has been updated to validate CQL ‘Using’ statements. <ul style="list-style-type: none"> <li><b>CQL that includes ‘Using’ statements:</b> When the model and version in the ‘Using’ statement does not match the model and version selected during measure creation the "Using" statement will now automatically correct when the CQL is saved. A message will be provided to notify the user of this update.</li> <li><b>CQL that do not include ‘Using’ statements:</b> When the CQL does not include a ‘Using’ statement, the user will be provided with a message indicating the CQL is missing a ‘Using’ statement and asking the user the model and version to the CQL.</li> </ul> </li> <li><b>QI-Core Measures:</b> MADiE has been updated to allow a measure to be versioned when one or more test cases are Invalid. A Test Case is considered Invalid if the JSON contains errors.</li> </ul>
7/12/23	1.1.8	2.10.0	<ul style="list-style-type: none"> <li>MADiE has been updated to support transferring library ownership. Measure developers may submit a request to transfer library ownership (with the library owner’s approval) by contacting MADiE Support at <a href="mailto:semanticbits-madiehelp@icf.com">semanticbits-madiehelp@icf.com</a>.</li> <li><b>QI-Core Measures:</b> MADiE has been updated so that Denominator Exception is the last population listed, reflecting the order of measure calculations. The populations are now listed in the following order: <ul style="list-style-type: none"> <li>Initial Population</li> <li>Denominator</li> <li>Denominator Exclusion</li> <li>Numerator</li> <li>Numerator Exclusion</li> <li>Denominator Exception</li> </ul> This update impacts the following: <ul style="list-style-type: none"> <li>Population Criteria tab, Populations sub-tab</li> <li>Test cases tab, Expected/Actual sub-tab</li> </ul> </li> </ul>

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			<ul style="list-style-type: none"> <li>• <b>QDM Measures:</b> MADiE has been updated so that Denominator Exception is the last population listed on the Population Criteria tab/Populations sub-tab, reflecting the order of measure calculations. The populations are now listed in the following order: <ul style="list-style-type: none"> <li>○ Initial Population</li> <li>○ Denominator</li> <li>○ Denominator Exclusion</li> <li>○ Numerator</li> <li>○ Numerator Exclusion</li> <li>○ Denominator Exception</li> </ul> </li> <li>• <b>QI Core Measures:</b> MADiE has been updated to use FQM Execution Engine 1.2.1. More information can be found <a href="#">here</a>.</li> </ul>
6/29/23	1.1.7	2.10.0	<ul style="list-style-type: none"> <li>• MADiE has been updated to support transferring measure ownership. Measure developers may submit a request to transfer measure ownership (with the measure owner's approval) by contacting MADiE Support at <a href="mailto:semanticbits-madie-help@icf.com">semanticbits-madie-help@icf.com</a>.</li> <li>• <b>QDM Measures:</b> MADiE now supports transferring measures from MAT to MADiE.</li> <li>• <b>QDM Measures:</b> MADiE has been updated to use CQL-ELM Translator 2.10.0. More information can be found <a href="#">here</a>. <a href="#">BONNIEMAT-1400</a> <ul style="list-style-type: none"> <li>○ Mapping issue in the CQL-ELM Translator with the element DiagnosisPresentOnAdmission.</li> </ul> </li> </ul>
6/14/23	1.1.6	2.7.0	<ul style="list-style-type: none"> <li>• All long text fields have been converted to expand dynamically to accommodate large amounts of text.</li> <li>• <b>QDM Measures:</b> The Supplemental Data and Risk Adjustment tabs have been updated to include one description field. All definitions selected for the Supplemental Data or Risk Adjustment will use this description field.</li> <li>• <b>QDM Measures:</b> The Population Criteria tab has been updated for consistency.</li> <li>• MADiE has been updated to use the latest LiquidBase Templates. More information can be found <a href="#">here</a>.</li> <li>• MADiE has been updated to use FQM-Execution 1.1.0. Release notes can be found <a href="#">here</a>.</li> </ul>
6/1/23	1.1.5	2.7.0	<ul style="list-style-type: none"> <li>• MADiE has been updated to support QDM Measure and Population Criteria creation. Users can now: <ul style="list-style-type: none"> <li>○ Create a QDM measure <ul style="list-style-type: none"> <li>▪ Create group(s)</li> <li>▪ Add Stratifications to a group</li> </ul> </li> <li>○ Create a standalone QDM Library</li> </ul> </li> <li>• QI-Core test case validation errors have been updated to allow users to easily differentiate between error messages, Meta.profile warning messages and all other warning messages:: <ul style="list-style-type: none"> <li>○ Meta.profile warning messages appear with a blue background in order to differentiate them from other warning messages (yellow background) or error messages (red background)</li> <li>○ Error messages are now preceded with "Error:"</li> <li>○ Warning messages are now preceded with "Warning:"</li> <li>○ Meta.profile warning messages are now preceded with "Meta.Profile:"</li> </ul> </li> </ul>

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5/17/23	1.1.4	2.7.0	<ul style="list-style-type: none"> <li>MADiE has been updated to improve error handling on the Test Case list page and the Edit Test Case page.</li> </ul>
5/3/23	1.1.3	2.7.0	<ul style="list-style-type: none"> <li>The Human Readable file has been updated to include a Direct Reference Codes section.</li> <li>MADiE has been updated to allow valid measures to be exported by any user, including users that do not own the measure or who the measure has not been shared with.</li> <li>MADiE has been updated to add support for Supplemental Data Elements and Risk Adjustment Variables.</li> <li>Tabs throughout MADiE have been updated for consistency.</li> </ul>
4/20/23	1.1.2	2.7.0	<ul style="list-style-type: none"> <li>Waiting spinner has been added to the 'Create Version' modal when versioning a measure to indicate the request is being processed.</li> <li>Draft button removed for those measures that cannot be drafted on Measure List page.</li> <li>Updated QICore version in CQL when measures are transferred from MAT from QI-Core version 4.1.0 to QI-Core version 4.1.1.</li> <li>Updated the Human Readable file to correctly reflect the measure's Experimental status.</li> <li>Updated text that appears in exported file(s) so that "text/cql-identifier" will appear, instead of "text/cql.identifier".</li> <li>Disable Run Test Cases button when there are only invalid Test Cases.</li> <li>MADiE has updated validation error messaging on the Test Case list page, when a population criteria set is removed from a measure.</li> <li>MADiE has been updated to use updated LiquidBase Templates. More information can be found <a href="#">here</a>.</li> </ul>
4/11/23	1.1.1	2.7.0	<ul style="list-style-type: none"> <li>Validations have been added for fields that are now required to Export a Measure. The required fields are: <ul style="list-style-type: none"> <li>Measure Details tab <ol style="list-style-type: none"> <li>Steward</li> <li>Developers</li> <li>Description</li> </ol> </li> <li>Population Criteria tab <ol style="list-style-type: none"> <li>Type</li> </ol> </li> </ul> </li> <li>When a user saves a test case with any resource that does not contain Meta.profile a warning message will display listing the ResourceId(s) that do not contain Meta.profile.</li> <li>MADiE has been updated to enable all users to run test cases on the test cases list page and on the edit test case page. This includes measures that are not owned or shared with the user.</li> <li>MADiE has been updated to use FQM Execution 1.0.8. Release notes can be found <a href="#">here</a>.</li> <li>MADiE has been updated to use CQL Translator 2.7.0. Release notes can be found <a href="#">here</a>.</li> </ul>

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3/28/23	1.1.0	2.6.0	<ul style="list-style-type: none"> <li>MADiE has been updated to enable QI-Core v4.1.1 measure export using the ‘Export’ action on the Measure List page.</li> <li>The Measure Details and CQL Library Details have been updated to add ‘Program Use Context’ that defaults to blank and allows users to select the program or project of work the measure is applicable to. The drop down contains the following options: <table border="1" data-bbox="630 501 1396 953"> <thead> <tr> <th>Code</th> <th>Display</th> <th>Definition</th> </tr> </thead> <tbody> <tr> <td><a href="#">mips</a></td> <td>MIPS</td> <td>Merit-Based Incentive Payment System (MIPS)</td> </tr> <tr> <td><a href="#">ep-ec</a></td> <td>EP/EC</td> <td>CMS Promoting Interoperability Eligible Professionals/Eligible Clinicians.</td> </tr> <tr> <td><a href="#">eh-cah</a></td> <td>EH/CAH</td> <td>CMS Promoting Interoperability Eligible Hospitals or Critical Access Hospitals.</td> </tr> <tr> <td><a href="#">qpp</a></td> <td>QPP</td> <td>Quality Payment Program.</td> </tr> <tr> <td><a href="#">aapm</a></td> <td>AAPM</td> <td>Advanced Alternative Payment Models.</td> </tr> <tr> <td><a href="#">cpcp</a></td> <td>CPC+</td> <td>Comprehensive Primary Care Plus (CPC+)</td> </tr> </tbody> </table> </li> </ul> <ul style="list-style-type: none"> <li>The Details tab has been updated to add Endorser fields to the Name, Version &amp; ID subarea: <ul style="list-style-type: none"> <li>Endorsing Organization drop down.</li> <li>Endorsement Number text field. If an Endorsing Organization is selected the Endorsement Number is required. If no organization is selected the Endorsement Number must be blank</li> </ul> </li> <li>MADiE was updated to add a ‘Review’ tab with Review Date fields to support the measure review process: <ul style="list-style-type: none"> <li>Approval Date</li> <li>Last Review Date</li> </ul>                     These fields will be blank for draft measures; once versioned the dates will be set to the date the measure was versioned. <ul style="list-style-type: none"> <li>The Measure Header has been updated. The measure name will be truncated if needed to fit the available space followed by ellipses. A tooltip will provide the full measure name if the user mouses over the ellipses.</li> </ul> </li> </ul>	Code	Display	Definition	<a href="#">mips</a>	MIPS	Merit-Based Incentive Payment System (MIPS)	<a href="#">ep-ec</a>	EP/EC	CMS Promoting Interoperability Eligible Professionals/Eligible Clinicians.	<a href="#">eh-cah</a>	EH/CAH	CMS Promoting Interoperability Eligible Hospitals or Critical Access Hospitals.	<a href="#">qpp</a>	QPP	Quality Payment Program.	<a href="#">aapm</a>	AAPM	Advanced Alternative Payment Models.	<a href="#">cpcp</a>	CPC+	Comprehensive Primary Care Plus (CPC+)
Code	Display	Definition																						
<a href="#">mips</a>	MIPS	Merit-Based Incentive Payment System (MIPS)																						
<a href="#">ep-ec</a>	EP/EC	CMS Promoting Interoperability Eligible Professionals/Eligible Clinicians.																						
<a href="#">eh-cah</a>	EH/CAH	CMS Promoting Interoperability Eligible Hospitals or Critical Access Hospitals.																						
<a href="#">qpp</a>	QPP	Quality Payment Program.																						
<a href="#">aapm</a>	AAPM	Advanced Alternative Payment Models.																						
<a href="#">cpcp</a>	CPC+	Comprehensive Primary Care Plus (CPC+)																						
3/8/23	1.0.7	2.6.0	<ul style="list-style-type: none"> <li>When a Bonnie FHIR test case JSON is successfully imported into MADiE, relevant defaults are added into the JSON prior to the test case being visible to the user, in the JSON editor. In addition to the defaults added for MADiE 1.0.6 the following defaults will be added where relevant: <ul style="list-style-type: none"> <li>MedicationRequest.requester</li> <li>Condition.category</li> </ul> </li> <li>MADiE has been updated to enable measure versioning and drafting</li> <li>Updates were made to test case status to ensure 508 compliance.</li> <li>MADiE has been updated to use version 1.0.6 of the FQM-Execution Engine. FQM-Execution Engine release notes can be found here.</li> </ul>																					



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			<ul style="list-style-type: none"> <li>MADiE has been updated to improve error handling on the CQL editor.</li> <li>MADiE has been updated to support test cases for ratio measure observations with two initial populations.</li> <li>On the Details tab for a measure, Risk Adjustment has been removed.</li> <li>MADiE has been updated to use version 2.6.0 of the CQL-to-ELM Translator. CQL-to-ELM Translator release notes can be found <a href="#">here</a>.</li> <li>The fields on the Population Criteria Tab have been reorganized to allow descriptions to be added where necessary.</li> </ul>																																																															
2/23/23	1.0.6	2.4.0	<ul style="list-style-type: none"> <li>Users may now upload individual Bonnie FHIR Test Cases on the Test Case edit page.</li> <li>When a Bonnie FHIR test case JSON is successfully imported into MADiE, relevant defaults are added into the JSON prior to the test case being visible to the user, in the JSON editor. The following defaults will be added where relevant:</li> </ul> <table border="1" data-bbox="703 890 1404 1812"> <thead> <tr> <th>Resource</th> <th>Attribute</th> <th>Default Value</th> </tr> </thead> <tbody> <tr> <td>QICoreCondition</td> <td>Condition.subject</td> <td>Reference to current test case</td> </tr> <tr> <td>QICoreCoverage</td> <td>Coverage.beneficiary</td> <td>Reference to current test case</td> </tr> <tr> <td>QICoreCoverage</td> <td>Coverage.payor</td> <td>Reference to Default Organization</td> </tr> <tr> <td>QICoreCoverage</td> <td>Coverage.status</td> <td>active</td> </tr> <tr> <td>QICoreDevice</td> <td>Device.patient</td> <td>Reference to current test case</td> </tr> <tr> <td>QICoreEncounter</td> <td>Encounter.status</td> <td>finished</td> </tr> <tr> <td>QICoreEncounter</td> <td>Encounter.subject</td> <td>Reference to current test case</td> </tr> <tr> <td>QICoreMedicationAdministration</td> <td>MedicationAdministration.subject</td> <td>Reference to current test case</td> </tr> <tr> <td>QICoreMedicationRequest</td> <td>MedicationRequest.intent</td> <td>order</td> </tr> <tr> <td>QICoreMedicationRequest</td> <td>MedicationRequest.status</td> <td>active</td> </tr> <tr> <td>QICoreMedicationRequest</td> <td>MedicationRequest.subject</td> <td>Reference to current test case</td> </tr> <tr> <td>QICoreObservation</td> <td>Observation.subject</td> <td>Reference to current test case</td> </tr> <tr> <td>QICorePractitioner</td> <td>Practitioner.identifier</td> <td>123456</td> </tr> <tr> <td>QICorePractitioner</td> <td>Practitioner.name.family</td> <td>Evil</td> </tr> <tr> <td>QICorePractitioner</td> <td>Practitioner.name.prefix</td> <td>Dr</td> </tr> <tr> <td>QICoreProcedure</td> <td>Procedure.status</td> <td>completed</td> </tr> <tr> <td>QICoreProcedure</td> <td>Procedure.subject</td> <td>Reference to current test case</td> </tr> <tr> <td>QICoreServiceRequest</td> <td>ServiceRequest.intent</td> <td>order</td> </tr> <tr> <td>QICoreServiceRequest</td> <td>ServiceRequest.status</td> <td>active</td> </tr> <tr> <td>QICoreServiceRequest</td> <td>ServiceRequest.subject</td> <td>Reference to current test case</td> </tr> </tbody> </table>	Resource	Attribute	Default Value	QICoreCondition	Condition.subject	Reference to current test case	QICoreCoverage	Coverage.beneficiary	Reference to current test case	QICoreCoverage	Coverage.payor	Reference to Default Organization	QICoreCoverage	Coverage.status	active	QICoreDevice	Device.patient	Reference to current test case	QICoreEncounter	Encounter.status	finished	QICoreEncounter	Encounter.subject	Reference to current test case	QICoreMedicationAdministration	MedicationAdministration.subject	Reference to current test case	QICoreMedicationRequest	MedicationRequest.intent	order	QICoreMedicationRequest	MedicationRequest.status	active	QICoreMedicationRequest	MedicationRequest.subject	Reference to current test case	QICoreObservation	Observation.subject	Reference to current test case	QICorePractitioner	Practitioner.identifier	123456	QICorePractitioner	Practitioner.name.family	Evil	QICorePractitioner	Practitioner.name.prefix	Dr	QICoreProcedure	Procedure.status	completed	QICoreProcedure	Procedure.subject	Reference to current test case	QICoreServiceRequest	ServiceRequest.intent	order	QICoreServiceRequest	ServiceRequest.status	active	QICoreServiceRequest	ServiceRequest.subject	Reference to current test case
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Date	Version	CQL to ELM Translator	Features
			<p><b>Note:</b> Condition.coverage and MedicationRequest.requester will be added as default values with the next MADiE release.</p> <ul style="list-style-type: none"> <li>MADiE has been updated to use version 1.0.5 of the FQM-Execution Engine. FQM-Execution Engine release notes can be found <a href="#">here</a></li> </ul> <p>MADiE has updated to use the Execution Engines trustMetaProfile. This will allow for Profile Informed Execution. Due to this update users will now need to add in meta.profile for each resource present in the test cases. An example of a meta.profile for a resource instance compliant with the QI-Core Procedure profile can be found in the JSON Test Case Guide in Figure 3.</p>
2/7/23	1.0.5	2.4.0	<ul style="list-style-type: none"> <li>Enhancements have been made to the user interface to align with the MADiE design</li> <li>Users can now view the version of the measure they are editing on the header of the Measure page. Draft measures will also display the version number for which that draft is based.</li> <li>Updates have been made to the MADiE to ensure 508 compliance.</li> </ul>
1/25/23	1.0.4	2.4.0	<ul style="list-style-type: none"> <li>Updates were made throughout MADiE to update display and navigation for 508 compliance.</li> <li>When transferring measures between MAT and MADiE, the version numbers will retain a consistent format: major + minor + revision_number Example: 1.1.000.</li> <li>Error messages have been updated for consistency throughout MADiE.</li> <li>The Expected Results labels have been updated when executing test cases with more than one population.</li> </ul>
1/11/23	1.0.3	2.4.0	<ul style="list-style-type: none"> <li>Updates were made throughout MADiE to update display and navigation for 508 compliance.</li> <li>The Details tab now includes a field for 'Experimental'. This field will be defaulted to 'No'. Experimental indicates whether a measure is being created for testing purposes only.</li> <li>MADiE has been updated to use version 2.4.0 of the CQL-to-ELM Translator</li> <li>When transferring measures between MAT and MADiE, the match on HARP ID will no longer be case sensitive to ensure successful transfer of measures</li> <li>Error messages have been updated for consistency throughout</li> <li>Users will now see the MADiE tool version number in the footer of the tool.</li> <li>For measures with Measure Observations, the parameters of any functions used will be validated</li> <li>against the population basis selected. This will ensure the population basis selected is valid for the measure.</li> <li>MADiE has been updated to use version 1.0.2 of the FQM Execution Engine.</li> <li>Ratio measures with two Initial Populations are now supported through test case execution.</li> <li>When executing test cases, MADiE has been updated to use population IDs or criteria reference IDs to associate populations with each other, instead of population names.</li> <li>For measures with multiple Population Groups, users will now be able to view code coverage for the different population groups on the Test Case list page.</li> </ul>

Date	Version	CQL to ELM Translator	Features
			<ul style="list-style-type: none"><li>• Previously, when executing a test case for a measure with Measure Observations for both the numerator and denominator, the numerator actual value was displayed under the denominator. This has been corrected.</li><li>• Users retrieving value sets from VSAC with large value set expansions will no longer receive the error, 'valueSetCache is not iterable', when executing test cases.</li></ul>

## 2023 MAT

Date	Version	CQL to ELM Translator	Features
10/11/23	6.11	QDM 1.5.12 FHIR 1.5.4	<ul style="list-style-type: none"> <li>The MAT has been updated to remove the NQF OID from the HQMF export.</li> </ul>
10/2/23	6.11	QDM 1.5.12 FHIR 1.5.4	<ul style="list-style-type: none"> <li>Replaced the authentication method used by <b>MAT</b> when querying VSAC. The TGT/ST workflow will be replaced with Basic Authentication header containing the user's VSAC API Key.</li> </ul>
7/12/23	6.11	QDM 1.5.12 FHIR 1.5.4	<ul style="list-style-type: none"> <li><b>QDM Measures:</b> The 'Payer' value set has been updated to the 'Payer Type' value set for all QDM measures that meet the following criteria: <ol style="list-style-type: none"> <li>The QDM measure was updated on or after January 1, 2023</li> <li><b>AND</b></li> <li>The QDM measure was in a draft state at the time of the release on 7/13/2023</li> </ol> <b>Note:</b> All QDM measures created after the release will use the 'Payer Type' value set. </li> <li>The MAT has reverted the CQL-ELM translator from 2.10.0 to 1.5.12 to address an issue with measure exports.</li> </ul>
6/29/23	6.11	QDM 2.10.0 FHIR 1.5.4	<ul style="list-style-type: none"> <li>Renamed the default "Payer" value set to "Payer Type" in MAT CQL defaults for new QDM Measures <b>Note:</b> This update will be reflected in measures created or versioned after this release, it will not be reflected in measures that are in draft state at the time of this release.</li> <li>Replaced NQF field with CBE (Consensus Based Entity) <ul style="list-style-type: none"> <li>Changed the label on the Measure Details tab from "Endorsed By NQF" to "Endorsed by CMS Consensus Based Entity"</li> <li>Changed the label on the Measure Details tab from "NQF Number" to "CBE Number"</li> <li>Changed the label on the human-readable export from "NQF Number" to "CBE Number"</li> <li>Changed the value of the Endorsed By field from "NQF" to "CMS Consensus Based Entity"</li> <li>"NQF Number" is replaced with "CBE Number" on the error messages</li> </ul> </li> <li><b>QDM Measures:</b> MAT has been updated to use CQL-ELM Translator 2.10.0. More information can be found <a href="#">here</a>.</li> </ul>

## 2023 Bonnie Prior

Date	Version	CQL to ELM Translator	Features
10/2/23	4.3.1		<ul style="list-style-type: none"> <li>Replaced the authentication method used by Bonnie Prior when querying VSAC. The TGT/ST workflow will be replaced with Basic Authentication header containing the user's VSAC API Key.</li> </ul>

## 2023 Bonnie QDM

Date	Version	CQL to ELM Translator	Features
10/2/23	5.1.4		<ul style="list-style-type: none"> <li>Replaced the authentication method used by Bonnie QDM when querying VSAC. The TGT/ST workflow will be replaced with Basic Authentication header containing the user's VSAC API Key.</li> </ul>
7/31/23	5.1.4		<ul style="list-style-type: none"> <li>Bonnie QDM has been updated to differentiate between Measure Observations on the test case info and edit pages.</li> <li>Updated Excel export functionality to use DENOM_OBSERV and NUMER_OBSERV for Ratio Measure Patients</li> </ul>
7/12/23	5.1.3		<ul style="list-style-type: none"> <li>CQM-models are updated to support the "is" operator for QDM entities.</li> <li>Bonnie QDM has been updated to use CQM Execution Engine 4.1.3. More information can be found <a href="#">here</a>.</li> </ul>

## 2023 Bonnie FHIR

Date	Version	CQL to ELM Translator	Features
10/2/23	6.2.5		<ul style="list-style-type: none"> <li>Replaced the authentication method used by Bonnie FHIR when querying VSAC. The TGT/ST workflow will be replaced with Basic Authentication header containing the user's VSAC API Key.</li> </ul>

## 2022 MADiE

Date	Version	CQL to ELM Translator	Features
12/14/22	1.0.2	2.2.0	<ul style="list-style-type: none"> <li>Updates were made throughout MADiE to update display and navigation for 508 compliance.</li> <li>Users can now search for a CQL Library on the Libraries tab. Users can now search by Library name.</li> <li>On the Details tab for a measure, when the user clicks Discard Changes, the page will not refresh and will not save the changes.</li> <li>On the Details tab for a measure, the user will not be prompted to Save or Discard changes unless they navigate to a new tab in MADiE.</li> <li>Population and Scoring fields now display default values in the dropdown.</li> </ul>
12/14/22	1.0.2	2.2.0	<ul style="list-style-type: none"> <li>MADiE only accepts measure types that are present in the HL7 measure type list. These types include Outcome, Patient Reported Outcome, Process and Structure. Measures that are transferred from MAT to MADiE that are not one of the above types will automatically</li> </ul>

Date	Version	CQL to ELM Translator	Features
			<p>be mapped to an accepted measure type. Users can update the measure type after it has been transferred to MADiE.</p> <ul style="list-style-type: none"> <li>● When a measure is transferred from MAT to MADiE it now retains the version number for the primary CQL Library. For measures that have previously been transferred, users can make any change to the CQL and then save the CQL to update the primary CQL library version to the correct version number.</li> <li>● When a measure is transferred from MAT to MADiE the correct measure version number now displays on the Measure List page.</li> <li>● Error messages have been updated for consistency throughout MADiE.</li> <li>● When a user changes the population basis on the Population Criteria page, a warning will display notifying the user that test cases will also need to be updated accordingly to match the population basis selection.</li> <li>● The Scoring Unit field on the Population Criteria section now allows users to type in the field to filter the units displayed for selection.</li> <li>● The Population Criteria tab will display when measure CQL contains functions returning intervals. Previously, the page may not have fully loaded.</li> <li>● The Details tab under Test Cases has updated field labels. Test Case Title now displays as Title, Test Case Description now displays as Description, and Test Case Series now displays as Group.</li> <li>● When new populations are added or the scoring or population basis has changed, the expected results for all test cases will be executed and receive pass/fail results for all populations.</li> <li>● On the Test Case list page, users will now be able to review coverage percentage after selecting the Execute Test Cases button. Previously, users may have received a non-numeric coverage percentage.</li> <li>● When multiple Population Criteria are created, users will now be able to view the pass/fail results for each population criteria on the Test Case list page.</li> </ul>
12/7/22	1.0.1	2.2.0	<ul style="list-style-type: none"> <li>● Updates were made throughout MADiE to update display and navigation for 508 compliance.</li> <li>● The View/Edit dropdown has been updated for users who do not own the CQL Library to prevent them from clicking on the Draft and Version actions.</li> <li>● Validation messages are now displaying correctly when a user is editing a CQL Library, and they make updates to any field other than the CQL Editor.</li> <li>● Validation messages are now displaying correctly when a user fails to enter required information when creating a new CQL Library.</li> <li>● Users will now receive an error upon measure creation if the Measurement Period start and end dates are the same.</li> <li>● The validation message alerting users they must enter a Measure CQL Library name upon measure creation has been updated.</li> <li>● The Population Criteria section has been updated for users who do not have edit access from clicking on any editable fields.</li> <li>● When users edit the Measure Library Name, and if no CQL errors are present upon saving, the updated Measure Library Name will now be reflected in the Measure CQL.</li> <li>● The Details tab for Measures now alerts users to save or discard changes when navigating away without saving. It now includes an option to Discard Changes.</li> <li>● Users can now enter information about Risk Adjustment for their measures on the Details tab.</li> </ul>

Date	Version	CQL to ELM Translator	Features
			<ul style="list-style-type: none"> <li>● Users can now navigate from the Edit measure page to the Measure List page by clicking on the Back button.</li> <li>● When searching for a measure, the search results are retained when a user selects the Next button.</li> <li>● When searching for a measure, the search results are retained when navigating to additional pages of results.</li> <li>● Styling for buttons throughout MADiE have been updated for consistency.</li> <li>● Validation messages throughout MADiE have been updated for consistency.</li> <li>● The design of the Test Cases tab has been updated to remain consistent with other tabs within MADiE.</li> <li>● Styling for links throughout MADiE have been updated for consistency.</li> <li>● Dropdown fields throughout MADiE have been updated to use type ahead functionality.</li> <li>● The Details tab for Measures has been updated to remain consistent with other tabs within MADiE.</li> </ul>
12/5/22	1.0.1	2.2.0	<ul style="list-style-type: none"> <li>● The Test Case JSON editor has been updated to enable the Save button when the page has loaded .</li> <li>● Users can now use the Discard Changes button to clear the data from the JSON Test Case Editor.</li> <li>● Users are now able to delete test cases.</li> <li>● When the measure group is updated, test cases can now be executed to view updated tests results.</li> <li>● In some instances, users received a non-numeric Coverage percentage. This has been updated.</li> <li>● Users can now view the pass and fail results for all population criteria on the Test Case List page.</li> <li>● When entering a value for Measure Observation, users can now include decimals.</li> <li>● Users can now execute test cases that only contain warnings. JSON that contains errors will continue to prevent users from executing test cases until the errors are resolved.</li> <li>● Users can now execute test cases against Stratifications and Measure Observations.</li> <li>● The Population Basis and Scoring Type now display on the Test Case screen to improve usability when creating test cases.</li> <li>● Errors generated upon test case execution are now cleared, when the errors are resolved, and the test case is executed.</li> </ul>
11/16/22	1.0.0	2.2.0	<ul style="list-style-type: none"> <li>● Initial release of the Measure Authoring and Development Integrated Environment (MADiE) Minimally Viable Product (MVP)</li> </ul>

**2022 MAT**

Date	Version	CQL to ELM Translator	Features
11/16/22	6.10	QDM 1.5.3 FHIR 1.5.4	<ul style="list-style-type: none"> <li>Measure owners have the ability to transfer FHIR measures from MAT to MADiE.</li> <li>Newly created FHIR measures and libraries now reference the updated versions of the following libraries: <ul style="list-style-type: none"> <li>FHIR Helpers, called FHIRHelpers, version 4.1.000</li> <li>Supplemental Data Elements, called SupplementalDataElementsFHIR4, version 3.0.000</li> <li>MAT Global, version 7.0.000</li> </ul> </li> <li>Any existing FHIR measure or library will need to be updated by a user with edit access, to incorporate these newer versions of the FHIR Helpers, Supplemental Data Elements and MAT Global libraries.</li> <li>When incorporating these updated versions of libraries, users may need to update existing measure logic to resolve error messages.</li> </ul>
7/18/22	6.10	QDM 1.5.3 FHIR 1.5.4	<ul style="list-style-type: none"> <li>QDM measures converted to FHIR measures after the release will reference the updated version of the libraries.</li> <li>For QDM/CQL measure packages, file names for the primary measure CQL, XML, JSON and HQMF files have been updated to include the revision number of '.xxx' at the end of the file name. This update corrects a known issue of the file names in the package not including the revision number by aligning with the naming convention used in the HQMF file.</li> </ul>
4/27/22	6.10	QDM 1.5.3 FHIR 1.5.4	<ul style="list-style-type: none"> <li>Corrects an issue with users accessing the Value Set Authority Center (VSAC) through authentication with the Unified Medical Language System (UMLS) using their UMLS API Key.</li> </ul>
1/25/22	6.10	QDM 1.5.3 FHIR 1.5.4	<ul style="list-style-type: none"> <li>Security update, removal of log4j.</li> </ul>

**2022 Bonnie****Bonnie Prior**

Date	Version	CQL to ELM Translator	Features
7/19/22	4.3.1		<ul style="list-style-type: none"> <li>Updated Bonnie Privacy Policy link</li> </ul>

**Bonnie QDM**

Date	Version	CQL to ELM Translator	Features
7/19/22	5.1.2		<ul style="list-style-type: none"> <li>Updated Bonnie Privacy Policy link</li> </ul>



**Bonnie FHIR**

Date	Version	CQL to ELM Translator	Features
12/13/22	6.2.5		<ul style="list-style-type: none"> <li>● JSON export files for test cases exported after this release have been updated. <ul style="list-style-type: none"> <li>○ The MeasureReport resource has been removed from JSON export files exported after the release.</li> <li>○ The QI-Core Patient Profile URL has been added to all patients. This will prevent users from having to add the URL to test cases exported after the Bonnie FHIR 6.2.5 release.</li> <li>○ The Medical Record Identifier has been added to all patients. This will prevent users from having to add the identifier to test cases exported after the Bonnie FHIR 6.2.5 release.</li> </ul> </li> <li>● To generate test cases with these updates, Bonnie FHIR users can choose to reexport the .zip file and save it to their desired location</li> </ul>
10/17/22	6.2.4		<ul style="list-style-type: none"> <li>● When the gear icon on the measure page is selected it now displays an Export button. The Export button will only display for measures that have test cases and allows users to export test cases from Bonnie FHIR.</li> <li>● The export file is a .zip file that contains <ul style="list-style-type: none"> <li>○ A single JSON file with all test cases for the measure in one file</li> <li>○ Individual JSON files for each test case for the measure</li> </ul> </li> <li>● Bonnie FHIR users will be able to export the .zip file and save it to their desired location</li> <li>● Following the release of MADiE MVP, slated for November, users will be able to copy and paste the contents of the JSON files into the MADiE test case editor for MADiE</li> </ul>
7/19/22	6.2.3		<ul style="list-style-type: none"> <li>● Updated Bonnie Privacy Policy link</li> </ul>

**2021 MAT**

Date	Version	CQL to ELM Translator	Features
11/23/21	6.10	QDM 1.5.3 FHIR 1.5.4	<ul style="list-style-type: none"> <li>Corrects a production issue for QDM/CQL measures. The HQMF file will be updated to reflect the correct file name formats when referencing CQL, JSON and XML files included in the Measure Export zip file.</li> </ul>
11/10/21	6.10	QDM 1.5.3 FHIR 1.5.4	<ul style="list-style-type: none"> <li>Corrects a production issue, causing Human Readable to include the Measure Observation metadata field in proportion and cohort measures.</li> <li>Corrects a production issue, causing nested CQL Libraries to be excluded from the Measure Export's FHIR Bundle.</li> </ul>
09/29/21	6.10	QDM 1.5.3 FHIR 1.5.4	<ul style="list-style-type: none"> <li>The Timeout in the MAT has increased from 15 to 30 minutes <ul style="list-style-type: none"> <li>The Inactivity Warning has increased from 10 to 25 minutes</li> </ul> </li> <li>For FHIR Measures and Libraries, the CQL to ELM Translator has been upgraded to version 1.5.4 <ul style="list-style-type: none"> <li>QDM Measures and Libraries still use version 1.5.3</li> </ul> </li> <li>To address potential security vulnerabilities: <ul style="list-style-type: none"> <li>MAT was upgraded to Tomcat 10</li> <li>MAT microservices were upgraded to Java 15</li> </ul> </li> </ul>
09/07/21	6.10	QDM 1.5.3 FHIR 1.5.2	<ul style="list-style-type: none"> <li>FHIRHelpers includes being removed by unused filtering but is required by Translator</li> <li>FHIR - The 1st Error returned from the CQL-to-ELM Translator is not displayed in the MAT</li> <li>Repair CQL Libraries with null Finalized Date</li> <li>Update URI for CDCREC</li> <li>CQL Workspace, General Information data is not displayed with syntax error in the CQL</li> </ul>
08/09/21	6.10	QDM 1.5.3 FHIR 1.5.2	<ul style="list-style-type: none"> <li>Implement Bonnie QDM 5.6 Prod Login from MAT (or Hide it)</li> <li>FHIR: Add Referenced Libraries to HR Export</li> <li>MAT Deployment support</li> <li>MAT logout requires multiple attempts</li> <li>Update MAT Public Facing Site with Release Notes for Q3 Rel1 Release</li> </ul>
07/22/21	6.10	QDM 1.5.3 FHIR 1.5.2	<ul style="list-style-type: none"> <li>Validate Codes containing "/". Display a clearer error message when VSAC cannot retrieve a code</li> <li>Correction for CQL Errors Failing to Display on QDM Measure Load in CQL Editor</li> <li>Now able to add CQL Library in includes section (helper UI) when search is not specific to Library name</li> <li>FHIR Measures: Do not require that all functions have a parameter</li> <li>Allow user to create new measure when the CQL library name provided already exists, after they've corrected the library name</li> <li>Timezone Display on History UI should be UTC</li> <li>FHIR - Function/Define Return Type no longer disappears on Save for one measure</li> <li>FHIR - Includes UI: Adding FHIRHelpers no longer adds nonexistent version</li> <li>Harp support page should display for a revoked user</li> <li>With FHIR toggle Off, New CQL Libraries create FHIR model</li> </ul>

Date	Version	CQL to ELM Translator	Features
06/23/21	6.10	QDM 1.5.3 FHIR 1.5.2	<ul style="list-style-type: none"> <li>● Support for QDM 5.6</li> <li>● Move to QDM CQL update</li> <li>● QDM Ratio Measure Enhancements</li> <li>● QDM CV Measure Enhancements</li> </ul>
04/01/21	6.04	QDM 1.4.8 FHIR 1.5.2	<ul style="list-style-type: none"> <li>● Clarifications were added to some warnings and messages</li> <li>● Addressed a FHIR issue of unprintable and other Unicode characters included in FHIR Measures that were preventing packaging.</li> <li>● Changed MySQL8 DB Configuration to allow a larger Unicode character set</li> <li>● MAT uses UTF-8 encoding</li> <li>● FHIR CQL to ELM translator updated to 1.5.2</li> <li>● QDM CQL to ELM translator updated to 1.4.8</li> <li>● QDM CQL to ELM translator updated to 1.4.8</li> <li>● Still CQL 1.4; No QDM changes; No export artifact changes.</li> <li>● All retrieves are now included in the data requirements when FHIR Measures contain multiple Direct Reference Codes using the same Resource.</li> <li>● Correction to URL used for measure type in JSON and XML FHIR export files</li> <li>● Logging and Configuration changes to improve MAT performance</li> <li>● eCQM ID Generation enhancement</li> </ul>
3/25/21	6.04	QDM 1.4.8 FHIR snapshot	<p>Emergency MAT 6.04 Performance Release</p> <p>No release notes were needed. An email was sent to all users.</p> <p>Dear Measure Authoring Tool (MAT) Users,</p> <p>Over the last week, there have been several reports of performance issues or slowness when accessing measures in the MAT. To improve performance, a maintenance release of the Measure Authoring Tool will occur at 8AM ET, Friday, March 26<sup>th</sup>, 2021.</p> <p>The MAT will continue to be available to users during this time. However, we encourage you to save your recent work. The version of the MAT will not change as this is a maintenance release.</p> <p>The MAT can be accessed from the MAT public web site <a href="#">here</a>. The MAT support team will be available to answer questions and to provide user support following the release. Please continue to contact MAT Support through the Bonnie and MAT Issue Tracker <a href="https://oncprojecttracking.healthit.gov/support/projects/BONNIEMAT/su">here: https://oncprojecttracking.healthit.gov/support/projects/BONNIEMAT/su</a> <a href="#">mmary</a>.</p> <p>Thank you,</p> <p>The MAT Support Team</p>

Date	Version	CQL to ELM Translator	Features
2/29/21	6.04	QDM 1.4.8 FHIR snapshot	<ul style="list-style-type: none"> <li>● FHIR Naming Standards</li> <li>● FHIR Export Artifacts Naming Standards</li> <li>● Included Retrieves in FHIR Human Readable export data requirements</li> <li>● Removed a tooltip from the CQL Editor that obscured error message displays</li> </ul>

## 2021 Bonnie

### Bonnie Prior

Date	Version	CQL to ELM Translator	Features
7/19/21	v4.2.1		<ul style="list-style-type: none"> <li>● Updating Bonnie Prior to be QDM 5.5</li> </ul>
8/11/21	v4.3.0		<ul style="list-style-type: none"> <li>● Authenticate with HARP Account</li> <li>● Private Accounts <ul style="list-style-type: none"> <li>○ Can only be accessed by one individual</li> </ul> </li> <li>● Group Accounts <ul style="list-style-type: none"> <li>○ Can be accessed by many individuals</li> </ul> </li> <li>● Switching between group accounts and private account</li> <li>● Uploading measures to group accounts and private account</li> <li>● Add/edit patients to groups account and private account</li> <li>● Adding session management to Bonnie <ul style="list-style-type: none"> <li>○ Bonnie will time out after 15 min of inactivity</li> <li>○ A warning message will appear after 10 min of inactivity</li> </ul> </li> </ul>
8/13/21	v4.3.0		<ul style="list-style-type: none"> <li>● Transitioned Bonnie Prior to be Hosted on HCQIS environment</li> </ul>
9/8/21	v4.3.0		<ul style="list-style-type: none"> <li>● Fixes for Patient conversion</li> <li>● Updates to Precision for converted patients</li> <li>● Carrying over Patient description on conversion</li> </ul>

### Bonnie QDM

Date	Version	CQL to ELM Translator	Features
1/28/21	v4.2.1		<ul style="list-style-type: none"> <li>● Ability to export patients in FHIR patient format</li> <li>● Resolves how attributes of type Ratio display in the user interface</li> <li>● Allows import of measures using the data element 'physical exam, recommended'</li> <li>● Resolves an issue preventing uploading of measures that use HQMF subtemplates</li> </ul>
4/1/21	v4.2.1		<ul style="list-style-type: none"> <li>● Updates to character encoding so that it matches UTF8</li> <li>● Connecting to virus scanning service</li> </ul>

Date	Version	CQL to ELM Translator	Features
7/19/21	v5.0		<ul style="list-style-type: none"> <li>● Authenticate with HARP Account</li> <li>● Private Accounts: Can only be accessed by one individual</li> <li>● Group Accounts: Can be accessed by many individuals</li> <li>● Switching between group accounts and private account</li> <li>● Uploading measures to group accounts and private account</li> <li>● Add/edit patients to groups account and private account</li> <li>● Adding session management to Bonnie <ul style="list-style-type: none"> <li>○ Bonnie will time out after 15 min of inactivity</li> <li>○ A warning message will appear after 10 min of inactivity</li> </ul> </li> <li>● Updated to QDM 5.6</li> <li>● Updated to CQL 1.5</li> <li>● Deleting of Deprecated QDM 5.5 elements and attributes</li> </ul>
8/13/21	v5.0		<ul style="list-style-type: none"> <li>● Transitioned to be hosted on HCQIS Environment</li> </ul>
10/27/21	v5.1.0		<ul style="list-style-type: none"> <li>● Extend the application timeout from 15 to 30 minutes.</li> <li>● Ability to export all test patients from a measure into a zip file.</li> <li>● Ability to import the zip file of test patients into another Bonnie measure.</li> <li>● Ability to delete all test patients for a measure.</li> </ul>
12/3/21	v5.1.1		<ul style="list-style-type: none"> <li>● Update the CQL-Execution Engine to 2.3.3</li> <li>● Support for the “is” operator</li> <li>● Updated Bonnie to properly handle and parse ELM files that contain comments</li> </ul>

### Bonnie FHIR

Date	Version	CQL to ELM Translator	Features
1/12/21	v6.0.1		<ul style="list-style-type: none"> <li>● Added support for more reference attributes</li> <li>● Added support for modifierExtension attribute</li> <li>● Updated UI design for Extension attribute</li> <li>● Ability to share specific/all test patients across measures</li> </ul>
1/28/21	v6.1.0		<ul style="list-style-type: none"> <li>● Ability to import FHIR Patient zip exported from Bonnie QDM</li> </ul>
2/11/21	v6.1.1		<ul style="list-style-type: none"> <li>● Add support for updated FHIR naming standards</li> <li>● Perform calculations to use the end of day when 12/31 is utilized</li> <li>● Alphabetically order dropdown menus</li> </ul>
4/1/21	v6.1.2		<ul style="list-style-type: none"> <li>● Add support for parsing and calculating Supplemental Data Elements <ul style="list-style-type: none"> <li>○ Note, you must select ‘Include Supplemental Data Element Calculation’ on measure upload</li> </ul> </li> <li>● Additional QI-Core Attribute support</li> <li>● Expanded Character set support</li> <li>● Security updates</li> </ul>
8/11/21	v6.2.0		<ul style="list-style-type: none"> <li>● Authenticate with HARP Account</li> <li>● Private Accounts <ul style="list-style-type: none"> <li>○ Can only be accessed by one individual</li> </ul> </li> <li>● Group Accounts <ul style="list-style-type: none"> <li>○ Can be accessed by many individuals</li> </ul> </li> <li>● Switching between group accounts and private account</li> <li>● Uploading measures to group accounts and private account</li> <li>● Add/edit patients to groups account and private account</li> </ul>

Date	Version	CQL to ELM Translator	Features
8/11/21	v6.2.0		<ul style="list-style-type: none"> <li>Adding session management to Bonnie <ul style="list-style-type: none"> <li>Bonnie will time out after 15 min of inactivity A warning message will appear after 10 min of inactivity</li> <li>Update to FHIR patient upload to allow users experiencing the "File must be a zip file." Error to upload FHIR patients. (example ticket BonnieMAT-809)</li> </ul> </li> <li>Add support for additional QI Core attributes</li> </ul>
8/13/21	v6.2.0		<ul style="list-style-type: none"> <li>Transitioned to be hosted on HCQIS Environment</li> </ul>
9/27/21	v6.2.1		<ul style="list-style-type: none"> <li>Link Reference without spawning a card</li> <li>Allow Encounter.Diagnosis to be a cardinality of 0..*</li> <li>Allow Observation.component to be a cardinality of 0..*</li> <li>Allow Encounter.location to be a cardinality of 0..*</li> <li>Support CodeableConcept in Extension</li> <li>Support Negation Rationale for communication, MedicationRequested, and ServiceRequested</li> <li>Added support for additional QI Core attributes</li> </ul>
12/21/21	v6.2.2		<ul style="list-style-type: none"> <li>Update the CQL-Execution Engine to 2.3.3</li> <li>Support for the is operator</li> <li>Updated Bonnie to properly handle and parse ELM files that contain comments</li> <li>Extend the application timeout from 15 to 30 minutes.</li> </ul>

### Prior 2020 MAT Releases

Date	Version	Notes
3/20/20	v5.8.2	
5/6/20	v5.9.0	
6/16/20	v5.9.1	
9/24/20	v6.0 (QDM)	<ul style="list-style-type: none"> <li>Various changes to MAT UI. Please refer to the release notes.</li> <li>MAT 5.9.1 goes away</li> </ul>
10/07/20	6.0 FHIR (Beta)	<ul style="list-style-type: none"> <li>FHIR (Beta) Only certain users will have access to these features.</li> </ul>
10/20/20	v6.01	<ul style="list-style-type: none"> <li>HARP URL Updates</li> <li>VSAC Authentication API Updates</li> <li>QDM Defect Corrections</li> </ul>
10/26/20	v6.02	<ul style="list-style-type: none"> <li>HARP URL Updates</li> </ul>
12/15/20	V6.03	<ul style="list-style-type: none"> <li>503 Updates</li> </ul>

### Prior 2020 Bonnie Releases

Date	Version	CQL to ELM Translator	Features
8/4/20	Bonnie	v4.1	
9/15/20	Bonnie	4.1.1	<ul style="list-style-type: none"> <li>Security fixes</li> <li>Rails upgrade</li> <li>Misc bug fixes</li> </ul>
Mid-October 2020	Bonnie Prod and Bonnie Prior	4.1.2	<ul style="list-style-type: none"> <li>VSAC Authentication API Updates</li> </ul>
Mid-October 2020	Bonnie FHIR	UAT	<ul style="list-style-type: none"> <li>Create Patients</li> <li>Execution (subject to MITRE conversation 7/8)</li> </ul>

<b>Date</b>	<b>Version</b>	<b>CQL to ELM Translator</b>	<b>Features</b>
Early November, 2020	Bonnie FHIR	5.0	<ul style="list-style-type: none"><li>● Upload/Update measure</li><li>● Create Patients</li><li>● Execution</li></ul>
Q4	Bonnie Patient Conversation	5.1	<ul style="list-style-type: none"><li>● Ability to convert patient from QDM to FHIR</li></ul>
12/21/20	Bonnie FHIR	v6.0	