

# EMR Cardiology 1.0

## Requirements

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## 1. INTRODUCTION

The purpose of this document is to describe a set of functional and non-functional requirements that are fundamental and unique to an Electronic Medical Record (EMR) offering used by cardiologists. The requirements were developed based on the guidance and advice of the Ontario Association of Cardiologists.

The requirements described in this document are complimentary to requirements found in other Ontario EMR specifications. For more information about the complimentary requirements, please visit <https://www.ontariomd.ca/emr-certification/specifications-and-validation/specifications/current> or email [emr@ontariomd.com](mailto:emr@ontariomd.com).

### 1.1 Scope of the EMR Cardiology Requirements

It is assumed that EMR offerings used by cardiologists support the requirements found in other Ontario EMR specifications. As such, the requirements described in this document represent a minimum set of additional requirements that EMR offerings used by cardiologists when deployed in cardiology settings. These requirements support the following categories:

- Imaging
- EMR Training
- Scheduling
- Billing Management
- Forms, Reports, Letters and Templates
- Device Integration
- Workflow Management

## 2. EMR CARDIOLOGY REQUIREMENTS

The following terms and abbreviations are defined and shall be applied to all tables in this section:

**OMD #:**

Unique identifier that identifies each requirement within OntarioMD's EMR Requirements Repository

### CONFORMANCE LANGUAGE

The following definitions of the conformance verbs are used in this document:

- SHALL/MUST: Required/Mandatory
- SHOULD: Best Practice/Recommendation
- MAY: Acceptable/Permitted

The tables that follow contain column headings named: 1) "Requirements", which generally contain a high-level requirement statement; and 2) "Guidelines", which contain additional instructions or detail about the high-level requirement. The text in both columns are considered requirement statements.

## 2.1 Imaging

Cardiologists need to be able to view and manipulate diagnostic quality images in order to provide enhanced care to their patients. EMR offerings used by cardiologists can support this need through the provision of image viewing and manipulation functions built into the EMR offering or by integrating with an external image management system with similar capabilities. Both methods are acceptable so long as the following requirements are met.

OMD #	REQUIREMENT	GUIDELINES
IMG01.01	The EMR offering MUST have a DICOM viewer capable of rendering diagnostic quality images acquired from an external source.	<p>The EMR offering MUST be able to open and save images to the patient record, which includes still images and motion video, for a range of modalities using the Digital Imaging and Communications in Medicine (DICOM) format.</p> <p>The EMR offering MUST be able to display the DICOM attributes of the selected image.</p> <p>The EMR offering MUST be able to render colour and grayscale images for the image types it supports.</p> <p>The EMR offering MUST provide visual navigation of the available series of images through the use of thumbnails for the image types it supports.</p> <p>An acceptable alternative is if the EMR offering integrates with an external image management system with similar capabilities described above (e.g., the EMR user does not have to re-enter patient demographic data).</p>
IMG01.02	EMR users MUST be able to manipulate diagnostic quality images acquired from an external source.	<p>The EMR offering MUST have the following image manipulation capabilities:</p> <ul style="list-style-type: none"> <li>• Windowing and greyscale inversion control and presets</li> <li>• Scrolling, rotation, panning and zooming control</li> </ul>

OMD #	REQUIREMENT	GUIDELINES
		<ul style="list-style-type: none"> <li>• Side-by-side comparison of at least two sets of images (with synchronized scroll, pan and zoom for cross-sectional modalities) including gating and heart rate adjusted for simultaneous viewing</li> <li>• Annotation, localizer and crosshair display control</li> <li>• Measure linear distance and angle, area, volume, ejection fraction, velocity time interval, Doppler parameters, and pressure half time</li> <li>• Cine capability for images that involve cardiac motion including side-by-side display of playing cine images including gating and heart rate adjusted for simultaneous viewing of stress and rest images and quad view for dobutamine stress images</li> <li>• Annotation of laterality, orientation, and spatial localization</li> <li>• Change the brightness and contrast of images, which includes providing sharp filters and colour filters to enhance endocardial definition</li> <li>• Measure and annotate parts of the image and save the measurements and annotations with the image to be visible the next time the viewer is invoked</li> <li>• New measurements should be transferred into the report without having to re-enter them</li> </ul> <p>An acceptable alternative is if the EMR offering integrates with an external image management system with similar capabilities described above (e.g., the EMR user does not have to re-enter patient demographic data).</p>

## 2.2 EMR Training

OMD #	REQUIREMENT	GUIDELINES
EDU01.01	The EMR vendor MUST offer ongoing education and training on features and functions of the EMR offering that are of interest to cardiologists.	

### 2.3 Scheduling

OMD #	REQUIREMENT	GUIDELINES
SCH01.01	The EMR offering MUST be able to create and maintain resources for scheduling purposes.	<p>At a minimum, the EMR offering MUST allow the EMR user to create and maintain the following types of resources:</p> <ul style="list-style-type: none"> <li>• Rooms</li> <li>• Diagnostic machines:               <ul style="list-style-type: none"> <li>○ Fixed. The diagnostic machine is permanently located (e.g., treadmill)</li> <li>○ Movable. The diagnostic machine can be relocated between rooms (e.g., ECG Cart)</li> <li>○ Portable. The diagnostic machine can be used in the clinic and/or taken offsite by the patient (e.g., portable heart rate monitor)</li> </ul> </li> <li>• Health practitioners:               <ul style="list-style-type: none"> <li>○ Physicians</li> <li>○ Technician</li> <li>○ Nurse</li> <li>○ Physician assistant</li> </ul> </li> </ul> <p>The EMR offering MUST allow the EMR user to define resource attributes required to assist with scheduling such as:</p> <ul style="list-style-type: none"> <li>• Room name, room location (e.g., the room location can be within in the clinic or at another clinic), and the names of fixed diagnostic machines in the room</li> <li>• Diagnostic machine name, and name(s) of the tests the machine can perform</li> <li>• Health practitioner name, identifier, billing number, and health services the practitioner can perform</li> </ul>

OMD #	REQUIREMENT	GUIDELINES
SCH01.02	The EMR offering MUST maintain a scheduling calendar for each resource defined by the EMR user.	<p>Resources MUST be able to be scheduled as part of a health service.</p> <p>The scheduling function MUST alert EMR users to resource scheduling conflicts.</p> <p>The EMR offering MUST provide the ability to view the schedule of resources:</p> <ul style="list-style-type: none"> <li>• Display a single resource schedule</li> <li>• Display two or more resources' schedules per screen to compare availability (e.g., the resources' availability for dates and times are synchronized on screen when scrolling)</li> </ul> <p>The EMR offering MUST display the schedule of resources in real time.</p>
SCH01.03	The EMR offering MUST be able to create and maintain health services for scheduling purposes.	<p>The EMR offering MUST have the ability for the EMR user to define health services that can be scheduled (e.g., echocardiogram, treadmill stress test, consultation, etc.)</p> <p>The EMR offering MUST have the ability for the EMR user to define a standard set of health service types with default durations, billing codes, and types of resources.</p>
SCH01.04	The EMR offering MUST provide a scheduling calendar for patient visits.	<p>The EMR offering MUST allow the EMR user to:</p> <ul style="list-style-type: none"> <li>• schedule one or more health services during each patient visit (e.g., a single patient visit may include multiple diagnostic procedures followed by a consultation)</li> <li>• allow the health services to occur at different times and use different resources. (e.g., a patient is booked from 9-10 AM on a treadmill stress test machine with technician A in room)</li> </ul>

OMD #	REQUIREMENT	GUIDELINES
		<p>1 followed by a stress echo test from 10-11 AM with physician B in room 2)</p> <p>The EMR offering MUST be able to display the following information for each scheduled health service associated with a patient visit.</p> <ul style="list-style-type: none"> <li>• Patient information</li> <li>• Reason for the health service to be performed</li> <li>• One or more billing codes associated with the health service</li> <li>• Name of the physician who ordered the health service. Note that a single patient visit can have multiple health services ordered by more than one physician (e.g., a family doctor requested an echocardiogram and consultation, and the cardiologist added a Holter).</li> <li>• Name of the resources required for the health service, such as: <ul style="list-style-type: none"> <li>○ Name and ID of the healthcare practitioner scheduled to perform the health service</li> <li>○ Name of the diagnostic device(s) scheduled for the health service</li> <li>○ Name of the room where the health service is scheduled to be performed</li> </ul> </li> <li>• Status of the health service (e.g., Confirmed, In Progress, No Show, Completed, Cancelled, etc.)</li> </ul> <p>The EMR offering MUST update the resource scheduling calendar every time the resource is booked as part of a scheduled health service.</p>

OMD #	REQUIREMENT	GUIDELINES
SCH01.05	EMR users MUST be able to manually and automatically schedule health services for a patient visit.	<p>The EMR offering MUST have pre-defined business rules for the scheduling of health services for a patient visit, such as:</p> <ul style="list-style-type: none"> <li>relationships between health services (e.g., review of test results with the patient MUST follow the tests being performed), duration of the health service and resource availability, etc.</li> <li>adherence to Ontario Health Insurance Plan (OHIP) billing rules (e.g., OHIP has rules about the frequencies and durations between health services for a patient that a physician can bill for, and thus the EMR scheduling function should take those into account when health services are being scheduled for a patient)</li> </ul> <p>The EMR offering MUST allow the EMR user to define additional business rules for the scheduling of health services for a patient visit.</p> <p>The EMR offering MUST be able to automatically schedule health services for the patient visit based on the business rules. For example, if patient visit requires an echo, a GXT and a consult, then the echo is automatically booked for 9:00 AM, the GXT is automatically booked for 9:45 AM, and the consultation is automatically booked for 10:15 AM. The resource time slots are appropriately occupied.</p> <p>The EMR user MUST be able to manually schedule health services for a patient visit, including making edits to automatically scheduled health services.</p>
SCH01.06	The EMR offering MUST be able to display patient progress throughout the visit.	EMR users MUST be able to view the patient visit status (e.g., Checked in, In Waiting room, etc.), and the associated health

OMD #	REQUIREMENT	GUIDELINES
		<p>services status that are scheduled and if the services have been completed.</p> <p>The EMR user MUST be able to display the progress for multiple patients' visits concurrently.</p>
SCH01.07	<p>The EMR offering MUST be able to create and maintain multiple, customizable lists of prerequisite conditions for a patient visit.</p>	<p>The EMR user MUST be able to create and maintain their own list of prerequisite lists containing one or more conditions that MUST be met prior to the patient visit, such as:</p> <ul style="list-style-type: none"> <li>• Patient preparations (e.g., Fasting, bring medical history)</li> <li>• Ensuring the referral was received prior to visit</li> <li>• Patient MUST complete consent form</li> <li>• Prerequisite lab work</li> <li>• Previous orders on the patient chart</li> </ul>
SCH01.08	<p>EMR user MUST be able to associate one or more lists of preconditions that MUST be met prior to a patient visit.</p>	<p>EMR users MUST be able to select and associate one or more lists of preconditions (e.g., referral letter has been received, patient has fasted, etc.) to any patient visit or appointment type.</p> <p>EMR user MUST be able to open each list of preconditions to view and/or update the status of each individual precondition for a patient visit.</p> <p>EMR users MUST have a visual indicator to show if all the prerequisites have been met or if there are outstanding prerequisites that still need to be met.</p> <p>The EMR offering MUST have the function to notify EMR users if a patient visit precondition is not met and allow EMR users to determine how to resolve the issue.</p>

OMD #	REQUIREMENT	GUIDELINES
SCH01.09	The EMR offering MUST maintain an inventory of wearable devices available for patients to assist with scheduling.	<p>At a minimum, the inventory MUST capture and display the following information for each device:</p> <ul style="list-style-type: none"> <li>• Name of the patient</li> <li>• Date the device was hooked up to the patient</li> <li>• Date when the device is supposed to be returned by the patient</li> <li>• Date when the device was placed back into the inventory</li> </ul> <p>The EMR offering MUST be able to show the projected number of each kind of device available on a specific date by calculating when devices were taken out of the inventory and when they are scheduled to be returned.</p>
SCH01.10	The EMR user MUST be able to triage consult requests.	<p>The EMR offering MUST have a triage function where cardiologist can review and prioritize consult requests.</p> <p>The EMR user MUST be able to add tests to the consult request from the triage board that must be completed prior to, or during the patient visit, and indicate the urgency for completing the tests.</p>

## 2.4 Billing

OMD #	REQUIREMENT	GUIDELINES
BIL01.01	The EMR offering MUST have the ability to view and search billing code information.	<p>EMR users MUST be able to search the service code for words in the service description.</p> <p>The EMR offering MUST return search results in a manner that allows the EMR user to narrow down and select from a subset of codes.</p> <p>EMR users MUST be able to view at a minimum the service code, service code description and fee that accompany any individual billing code.</p> <p>Example:            Service Code: A600            Description: Comprehensive cardiology consultation.            Fee: \$300.70</p>
BIL01.02	The EMR offering MUST ensure specific information to substantiate the billing code payment rules is viewable when entering or modifying an invoice.	<p>EMR users MUST be made aware of the mandatory data that MUST be provided to substantiate any given billing code so that the submission is not rejected.</p> <p>When EMR users are creating or modifying an invoice they SHOULD be able to easily identify fee schedule code relationships for the entered billing code to ensure that the appropriate information was collected.</p> <p>E.g., A675: Requires Referring/ Requisitioning Health Care Provider Number            E.g., C122: Requires Master (Facility) Number AND Patient Admission Date</p>

OMD #	REQUIREMENT	GUIDELINES
BIL01.03	The EMR offering MUST ensure that Payment Rule information is viewable to substantiate the billing code from the Schedule of Benefits.	<p>EMR users MUST be made aware of the general and specific payment rules associated with any specific billing code.</p> <p>When EMR users are creating or modifying an invoice they MUST be able to easily view the Payment Rules for the entered billing code to ensure that the appropriate information has been collected.</p> <p>The following links provide additional information on the schedule of benefits and OHIP bulletins:</p> <p>Schedule of benefits:  <a href="http://www.health.gov.on.ca/en/pro/programs/ohip/sob/">http://www.health.gov.on.ca/en/pro/programs/ohip/sob/</a></p> <p>Link to OHIP Bulletins:  <a href="http://www.health.gov.on.ca/en/pro/programs/ohip/bulletins/">http://www.health.gov.on.ca/en/pro/programs/ohip/bulletins/</a></p>
BIL01.04	EMR users MUST have the ability to create and maintain a preferred list of billing codes.	<p>EMR users MUST have the ability to add and remove billing codes from an individually maintained list of frequently used list of billing codes (i.e., a quick pick list). The rationale for this is because specialists often use the same set of billing codes on a regular basis.</p> <p>EMR users MUST have the ability to pick from the list of frequently used billing codes in addition to the complete list of billing codes.</p> <p>For example, EMR users MUST be able to pick from the frequently used list of billing codes when preparing an invoice, while still allowing for further modification of billing codes used in the invoice.</p>

OMD #	REQUIREMENT	GUIDELINES
BIL01.05	EMR users MUST have the ability to assign billing codes into groups.	<p>The EMR offering MUST have the ability to assign billing codes into groups.</p> <p>The EMR user MUST be able to create invoices that automatically include the entire group of billing codes.</p>
BIL01.06	EMR users MUST have the ability to create and maintain grouped list(s) of billing codes.	EMR users MUST be able to add the grouped billing codes to a patient visit, health service or invoice, while still allowing for further modification of the billing codes used. For example, Stress Test Consult may require A095 + G315 + G319 and the EMR user is able to associate this group of billing codes to the invoice.
BIL01.07	EMR users MUST have the ability to create and maintain validation rules to be used when creating an invoice.	<p>Validation rules can be used to ensure that the necessary billing information has been included when creating an invoice to minimize billing submission rejections.</p> <p>Validation rules MUST be associated to one or more practitioners.</p> <p>The following items at a minimum, individually or as a combination, MUST be used to create the validation rules, which can be applied to services delivered in the cardiology clinic and in the hospital:</p> <ul style="list-style-type: none"> <li>• Patient Gender (e.g., G365 code can only be applied to Female patients)</li> <li>• Patient Age (e.g., G365 test can only be applied to patients aged 18-60)</li> <li>• Number of times a code can be used over a certain period per physician (e.g., Physician can only bill G365 code 10 times a month)</li> </ul>

OMD #	REQUIREMENT	GUIDELINES
		<ul style="list-style-type: none"> <li>Number of times a code can be used over a certain period per patient (e.g., Patient can only be billed for a G365 code 1 time(s) every 36 months)</li> </ul>
BIL01.08	The EMR offering MUST notify the EMR user of validation failures prior to submission and provide the ability to override the validation warnings.	<p>The EMR offering MUST incorporate billing validation rules directly into the application and warn the EMR user when a rule is broken while creating the invoice. The warning MUST include the OHIP rules on billing specific codes such as one consult/patient/year or two general assessments/year etc.</p> <p>The EMR user MUST be allowed to override validation rule warnings. The override MUST be tracked in the audit log.</p> <p>The EMR user MUST have the ability to execute validation rules against a claims batch at the time of creation. The invoice(s) failing validation MUST be clearly identified as well as the rule(s) that was broken.</p>
BIL01.09	EMR user MUST have the ability to define the frequency of billing submissions.	<p>Cut-off dates for medical billing submissions sent to the OHIP vary each month. The EMR offering MUST display OHIP submission cut-off dates.</p> <p>EMR users MUST have the ability to submit invoices in the following ways:</p> <ul style="list-style-type: none"> <li>On demand</li> <li>Scheduled (e.g., daily, weekly, monthly)</li> <li>Automatically prior to cut-off date defined by the user</li> <li>Automatically after the invoice is created</li> </ul>

OMD #	REQUIREMENT	GUIDELINES
BIL01.10	EMR users MUST have the ability to view patient billing history.	EMR users granted permission to view patient and provider billing information MUST be able to view in the same list the complete patient billing history including paid, outstanding and rejected claims for services delivered in the cardiology clinic and in the hospital.
BIL01.11	EMR users MUST have the option to automatically create an invoice and hold for authorization before submission.	When any healthcare service is completed from the schedule, the EMR offering MUST be able to automatically create an invoice.
BIL01.12	The EMR offering MUST have the ability to assign every billing code to any internal and external group number and individual billing number.	<p>Health services must be able to be billed against various combinations of physician billing numbers and group numbers, including non-OHIP billing.</p> <p>For example, invoice the echo fees to a group number and invoice consult fees to an individual OHIP number, or invoice professional codes to a private number and technical codes to a group number, etc.</p>
BIL01.13	The EMR offering MUST be able to reconcile every billing to the respective billing number under which it was billed.	<p>The EMR offering MUST be able to create OHIP reconciliation reports and export OHIP reconciliation data in .csv files.</p> <p>The EMR offering MUST be able to generate the professional and technical income report based on customizable billing rules for each doctor.</p>
BIL01.14	The EMR offering MUST be able to launch the billing function from different screens or modules that support clinical workflow.	Physicians enter billing information using different workflows. For example, one physician may choose to enter billing information from the schedule view, another may choose to enter it from the patient record.

OMD #	REQUIREMENT	GUIDELINES
BIL01.15	The EMR offering MUST have the ability to bill for services provided for hospital in-patients.	<p>The EMR offering MUST have the ability to maintain a list of patients admitted to a hospital. At a minimum, the list must capture and display:</p> <ul style="list-style-type: none"> <li>• The patient’s name</li> <li>• The patient’s admission date</li> <li>• The patient’s discharge date</li> </ul> <p>The EMR offering MUST have the ability to bill for the whole admission at once or select a code and bill it for a selected number of days.</p>
BIL01.16	Once invoices are submitted to OHIP using Medical Claims Electronic Data Transfer (MCEDT) system, the EMR offering MUST automatically reconcile MCEDT responses with the billing information in the EMR offering.	The EMR offering MUST have the ability to configure alerts related to MCEDT errors for specific EMR user roles. For example, a practice may wish to configure a billing clerk role to receive notifications if an OHIP submission was rejected.

## 2.5 Forms, Reports, Letters, and Template

OMD #	REQUIREMENT	GUIDELINES
TEM01.01	The EMR offering MUST maintain heart failure care element data sets.	<p>At a minimum, the mandatory data elements defined in “Heart Failure Care Elements” in the most current version of the EMR Chronic Disease Management (CDM) Specification MUST be supported.</p> <p>Please refer to the most current version of the EMR CDM Specification for additional guidelines.</p>
TEM01.02	EMR users MUST be able to add new data elements, including calculated elements.	<p>EMR users MUST have the ability to create and maintain custom data elements.</p> <p>EMR users MUST be able to use the custom and/or mandatory data elements defined in “Heart Failure Care Elements” in the most current version of the EMR CDM Specification to create a customized calculated element (e.g., CHADS 65 score).</p> <p>EMR user MUST be able to construct an equation (risk score) based on existing and newly defined elements available as discrete data in the EMR offering (e.g., CHADS 65 score).</p>
TEM01.03	EMR users MUST have the ability to create templates using care elements for data capture.	<p>EMR users MUST have the ability to create forms or encounter templates using specialty care elements defined in “Heart Failure Care Elements” in the most current version of the EMR CDM Specification as well as user-defined care elements.</p> <p>EMR users MUST have the ability to include templates within other templates.</p>

OMD #	REQUIREMENT	GUIDELINES
TEM01.04	The EMR offering MUST have the ability to create letter templates, specific to specialty.	<p>The letter templates will have the ability to:</p> <ul style="list-style-type: none"> <li>• Present the Care Elements collected in forms or encounters.</li> <li>• Integrate patient demographics (e.g., name, age, date of birth, sex, health card number, etc.) from the EMR.</li> <li>• Be editable to provide letter specific content.</li> <li>• Include provider’s letterhead, referring provider’s name and address.</li> <li>• Integrate clinical data from the patient record e.g., lab results, progress notes (encounter notes), consultation notes (received) and the addition of diagnostic reports and/or images as selected by the referring provider.</li> </ul> <p>Any letter generated from the template MUST be saved in its original form (e.g., viewing a letter will display the date the letter was generated, rather than displaying the current date). Updates made to the patient medical data after letter generation MUST NOT affect and update the saved letter.</p> <p>The EMR offering MUST maintain an audit log of all changes to letters.</p>
TEM01.05	The EMR offering MUST have report creation functionality for cardiology tests performed in the clinic.	<p>The EMR offering must provide a worksheet and report template for reporting each test.</p> <p>The EMR user MUST have the option to save the report regardless of its status to the patient record.</p>

## 2.6 Device Integration

Cardiologists need to be able to acquire images and other data from various devices. EMR offerings used by cardiologists can support this need by directly integrating with devices or by integrating with an external image management system with similar capabilities. Both methods are acceptable so long as the following requirements are met.

OMD #	REQUIREMENT	GUIDELINES
DEV01.01	The EMR offering MUST be able to integrate with commonly used cardiac medical devices.	<p>The EMR offering MUST be able to interface with at least two of the commonly used devices that use the DICOM standard:</p> <ul style="list-style-type: none"> <li>• ECG – electrocardiogram test</li> <li>• BP Monitor – Blood pressure and heart rate recorder</li> <li>• 24-hour Ambulatory blood pressure monitor</li> <li>• Holter Monitor – Heart rhythm recorder</li> <li>• Stress Test - cardiac stress test</li> <li>• Echo Machine – echocardiogram test</li> </ul> <p>Any manufacturer can be selected for each device type, (e.g., Welch Allyn, Philips, etc.) using any form of interface (e.g., DICOM Modality Worklist or other electronic data interchange (EDI) methodologies may be utilized).</p>
DEV01.02	The EMR offering MUST support the exchange of patient demographic and test request data with integrated medical devices.	<p>EMR users MUST be able to select the medical device on which to perform a test for a patient. Test(s) can be scheduled by selecting the resource in the schedule module or as an as-hoc request.</p> <p>The EMR offering MUST be able to exchange data about the scheduled test and the associated patient demographics with the supported devices using some form of interface (e.g., generate a DICOM Modality Work List (MWL) service that seamlessly transfers patient information to the integrated medical device).</p>
DEV01.03	The EMR offering MUST be able to receive test result data from integrated medical devices.	The EMR offering MUST be able to receive and store completed test result data from the supported medical devices.

OMD #	REQUIREMENT	GUIDELINES
		<p>The test result data <b>MUST</b> be matched back to the patient chart and displayed in the work queue for the physician to report.</p> <p>The EMR offering <b>MUST</b> reconcile the test result with the test request and update the status of the test request as complete.</p> <p>The EMR offering <b>MUST</b> be able to receive and store meta data (e.g. DICOM procedure codes, device calibration details, etc.) about the test performed by the integrated medical device to assist with test result interpretation and comparisons.</p> <p>An acceptable alternative is if the EMR offering integrates with an external image management system with similar capabilities described above (e.g., the EMR user does not have to re-enter patient demographic data).</p>
DEV01.04	The EMR offering <b>MUST</b> be able to display the test results from the integrated medical devices.	<p>EMR users <b>MUST</b> be able to view the test result data returned from the supported devices from within the EMR offering’s patient chart and provider inbox.</p> <p>The EMR offering <b>MUST</b> be able to display information about the test results and allow EMR users to select the information to be included in the report, such as:</p> <ul style="list-style-type: none"> <li>• Normal ranges for gender, age and size</li> <li>• For tests involving prosthetic valves, display the expected Doppler values for specific types of valves and sizes</li> <li>• Z scores for pediatric studies</li> <li>• Indices and normal ranges for indexed measurements that adhere to the American Society of Echocardiology guidelines</li> </ul>

OMD #	REQUIREMENT	GUIDELINES
		<p>The EMR offering <b>MUST</b> be able to graphically present test results and reference ranges over time (e.g., present a graph that displays the test name, measurement result values and reference ranges, and test performed dates, etc.)</p> <p>The EMR offering must provide a worksheet and report template for reporting each test supported by the devices.</p> <p>The EMR user <b>MUST</b> have the option to save the test result data and the completed report template regardless of their state to the patient record.</p> <p>An acceptable alternative is if the EMR offering integrates with an external image management system with similar capabilities described above (e.g., the EMR user does not have to re-enter patient demographic data).</p>

## 2.8 Workflow Management

OMD #	REQUIREMENT	GUIDELINES
WRK01.01	The EMR offering automatically generates tasks for reports and consult letters that need to be completed.	<p>At a minimum, the EMR offering MUST be able to automatically generate:</p> <ul style="list-style-type: none"> <li>• Tasks to complete tests that have not been reported on</li> <li>• Tasks to complete consult letters that have not been finished</li> </ul> <p>The EMR offering MUST have the ability to turn off this functionality for each type of task.</p>
WRK01.02	The EMR offering MUST have the ability for the EMR user to create and maintain orders for health services.	<p>The EMR offering MUST have an order function that allows the EMR user to associate a date by which the order is expected to be fulfilled.</p> <p>The EMR offering MUST provide an alert if the order is not fulfilled by the expected fulfillment date.</p>