

<b>Critical Results Reporting in Pediatric Echocardiography</b>		
<p><b>Measure Description:</b> Median time between study completion and referring provider notification for all pediatric exams with critical results AND Proportion of critical results reported within recommended timeframes.</p> <p><b>Note:</b> This metric includes <u>three</u> parts including (1) median time reporting critical test results (2) proportion of results communicated with 60 mins and (3) proportion of results communicated within 120 mins. The denominator should be the same number for ALL three parts.</p>		
<b>Part I</b>	<b>Median</b>	Median time <sup>1</sup> between study completion <sup>2</sup> and referring provider (or member of care team) notification for all pediatric exams with critical test <sup>4</sup> results during the measurement period.
	<b>Denominator</b>	Total number of pediatric echocardiograms for which critical results <sup>4</sup> were reported and communicated <sup>3</sup> during the measurement period.
<b>Part II</b>	<b>Numerator</b>	Number of pediatric echocardiograms for which critical results were reported and communicated in less than <u>60 mins</u>
	<b>Denominator</b>	Total number of pediatric echocardiograms for which critical results were reported and communicated during the measurement period.
<b>Part III</b>	<b>Numerator</b>	Number of pediatric echocardiograms for which critical results were reported and communicated in less than <u>120 mins</u>
	<b>Denominator</b>	Total number of pediatric echocardiograms for which critical results were reported and communicated during the measurement period.
<b>Denominator Exclusions</b>		Patients for whom the critical test result is not a new finding (i.e. Patients with previous documentation of the same critical result, previously communicated within the past 30 days of the most recent test result in the measurement period).
<b>Denominator Exceptions</b>		None
<b>Definitions / Notes</b>		<ol style="list-style-type: none"> <li>1. <b>Median time (in minutes)</b> can be calculated by arranging all the observations from lowest value to highest value and picking the middle value. If there is an even number of observations (and no single middle value), the median is average of the two middle values.</li> <li>2. <b>Study completion</b> is defined as the time the last image was obtained (typically time-stamped on the digital image).</li> <li>3. <b>Documentation of completion</b> should include the time and method of communication, and specifically name the person to whom the information was communicated.</li> <li>4. <b>Critical Results</b> include any of the following:             <ul style="list-style-type: none"> <li>○ New critical congenital heart disease (CHD), including duct-dependent lesions (such as critical aortic or pulmonary stenosis, critical aortic coarctation, functional single ventricle</li> </ul> </li> </ol>

	<p>with severe pulmonary stenosis or pulmonary atresia, hypoplastic left heart syndrome) and total anomalous pulmonary venous return (infradiaphragmatic or other type with obstruction)</p> <ul style="list-style-type: none"> <li>○ New moderate or severe-ventricular systolic dysfunction (as defined by lab-specific criteria)</li> <li>○ New severe valvular regurgitation or stenosis</li> <li>○ New moderate or large pericardial effusion</li> <li>○ New intracardiac vegetation or mass</li> <li>○ New pulmonary hypertension with pulmonary arterial pressure greater than two-thirds systemic pressure</li> </ul>
<b>Measurement Period</b>	Quarterly
<b>Sources of Data</b>	Prospective worksheet (see attached <a href="#">Worksheet Template</a> ), retrospective medical record review, electronic medical record, echo reports, echo database
<b>Attribution</b>	<p>Communication and documentation of critical results should be performed by the interpreting physician.</p> <p>Information communicated should include: patient name, medical record number, test completed, and result(s).</p> <p>When verbally communicated, the receiver of the information should confirm their own understanding of key findings from the individual who gave them the critical test result information by writing down, reading back, and seeking confirmation of patient name, medical record number, and critical results.</p> <p>Communication of critical results should be documented in the echocardiography report, and should include:</p> <ul style="list-style-type: none"> <li>• Critical result</li> <li>• Date, time, and method of communication</li> <li>• Name of person to whom the communication was delivered</li> </ul> <p>When unable to reach the ordering provider (or their designee), the process should be escalated by contacting the provider on call for the ordering provider's practice, or by using alternative institutional electronic communication methods. If electronic communication is used, a receipt request should be used to ensure confirmation of communication.</p>
<b>Care Setting</b>	Outpatient
<b>Rationale</b>	
<p>Health care organizations should ensure critical diagnostic findings are communicated in a timely and appropriate manner. Failure to communicate abnormal diagnostic test results can lead to errors, adverse events, and liability claims.</p> <p>This quality metric will evaluate timely communication of critical pediatric echocardiography results to referring providers who are not the interpreting echocardiographer. The metric will be calculated as the mean time between study completion and referring provider (or any member of the care team) notification for all pediatric exams with critical results.</p>	

### Clinical Recommendation(s)

#### American College of Radiology Guidelines

Non-routine communications: Routine reporting of imaging findings is communicated through channels established by the hospital or diagnostic imaging facility. However, in emergent or other non-routine clinical situations, the interpreting physician should expedite the delivery of a diagnostic imaging report (preliminary or final in a manner that reasonably ensures timely receipt of the findings).

#### Situations that may require non-routine communication

- Findings that suggest a need for immediate or urgent intervention. Generally, these cases may occur in the emergency and surgical departments or critical care units and may include pneumothorax, pneumoperitoneum, or a significantly misplaced line or tube.
- Findings that are discrepant with a preceding interpretation of the same examination and where failure to act may adversely affect patient health. These cases may occur when the final interpretation is discrepant with a preliminary report or when significant discrepancies are encountered upon subsequent review of a study after a final report has been submitted.
- Findings that the interpreting physician reasonably believes may be seriously adverse to the patient's health and are unexpected by the treating or referring physician. These cases may not require immediate attention but, if not acted on, may worsen over time and possibly result in an adverse patient outcome.

#### Documentation of non-routine communications

- Interpreting physicians should document all non-routine communications and include the time and method of communication and specifically name the person to whom the communication was delivered. Documentation is best placed in the radiology report or the patient's medical record but may be entered in a department log and/or personal journal. Documentation preserves a history for the purpose of substantiating certain findings or events. Documentation may also serve as evidence of such communication, if later contested.

#### Methods of communication

- Communication methods are dynamic and varied. It is important, however, that non-routine communications be handled in a manner most likely to reach the attention of the treating or referring physician in time to provide the most benefit to the patient. Communication by telephone or in person to the treating or referring physician or his/her representative is appropriate and assures receipt of the findings. This may be accomplished directly by the interpreting physician or, when judged appropriate, by the interpreting physician's designee. There are other forms of communication that provide documentation of receipt which may also suffice to demonstrate that the communication has been delivered and acknowledged.
- While other methods of communication may be considered, including text pager, facsimile, voice messaging and other nontraditional approaches, these methods may not assure receipt of the communication. Therefore, in these instances, the interpreting physician may consider initiating a system that explicitly requests confirmation of receipt of the report by the clinician. If confirmation or other response is not received within a time appropriate to the diagnosis after the initial communication, a staff person should notify the clinician to document follow-up. Regardless of the method selected, it must be in compliance with state and federal law.

*(ACR PRACTICE GUIDELINE FOR COMMUNICATION OF DIAGNOSTIC IMAGING FINDINGS, 2010)*

Other guidelines:

- Critical results of tests and diagnostic procedures fall significantly outside the normal range and may indicate a life-threatening situation. The objective is to provide the responsible licensed caregiver these results within an established time frame so that the patient can be promptly treated. (*Joint Commission National Patient Safety Goal NPSG.02.03.01*)
- Critical Values. Each laboratory should have a policy for reporting critical values and a method to communicate these findings to the referring physician. Possible critical values might include aortic dissection, a new large pericardial effusion, findings consistent with cardiac tamponade, a new cardiac mass or thrombus, new severe LV or RV dysfunction, new valvular vegetations, new severe valvular regurgitation or stenosis, and high-risk stress echocardiographic findings. Documentation of physician-to-physician communication of the critical values must be present in the report, an addendum, or the patient’s medical record. The laboratory should have a procedure for tracking compliance of this reporting policy. (*American Society of Echocardiography Recommendations for Quality Echocardiography Laboratory Operations. (2011). Picard, et al. Journal of the American Society of Echocardiography, 24(1), 1-10.*)
- Intersocietal Accreditation Commission – Echocardiography: The IAC Standards and Guidelines for Pediatric Echocardiography Accreditation (last revision August 2012).
  - Section 3.2A – Provisions must exist for the timely reporting of examination data.
  - Section 3.2.1A – There must be a policy in place for communicating critical results.

Automated Detection of Critical Results in Radiology Reports (a study presented at the Society for Imaging Informatics in Medicine 2011 Annual Meeting):

[http://www.siim2011.org/abstracts/communication\\_ss\\_lakhani.html](http://www.siim2011.org/abstracts/communication_ss_lakhani.html)

**Challenges to Implementation**

Lab-specific definitions for critical results such as “new moderately or severely depressed right or left ventricular systolic function” or “significant change in existing ventricular or valvular function in comparison to previous studies” will be necessary to ensure uniform reporting of critical results. Staff and referring providers will require education and training in the critical results process. Data collection and auditing require dedicated time.

There may be issues with operational feasibility and workflow, especially in small centers where studies are not immediately reviewed. In this situation, it will be critical for the individuals performing the exams to immediately notify the interpreting physician.

Alternative methods for notification of the referring provider may vary depending on the clinical setting (hospital vs outpatient clinic), and will require complete contact information for referring providers. Determining the actual number of studies with critical results (including those that are not coded correctly as “critical”) may be more difficult for labs without a central report database.

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