The Clock is Ticking: Median Time to Electrocardiogram in the Emergency Department. How Do You Compare?

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Today’s Objectives

Review the Emergency Department (ED) Time to ECG National Guidelines.

Discuss best practices and strategies used to reduce the Median Time to ECG in the ED.

Identify methods used by hospitals to communicate with the staff and committees on quality measures.

ECG = electrocardiogram
Chest Pain in the United States

• Chest pain accounts for approximately six million visits to the ED in the U.S. annually.
• Chest Pain is the second most common ED complaint.
• There are many causes and related signs and symptoms of chest pain.
• Chest pain could be due to various causes such as heart, respiratory, gastrointestinal, and mediastinal diseases, pleuritic pain, etc.

Why the Focus?

- Timely ECGs assist in identifying ST-segment elevation myocardial infarction (STEMI) patients and impact the choice of reperfusion strategy (Peacock, 2007).

- The Time to ECG measure identifies the median time to ECG for acute myocardial infarction (AMI) or chest pain patients and potential opportunities for improvement to decrease the median time.
Common AMI Symptoms

• Pain or discomfort in the chest
• Lightheadedness, nausea, or vomiting
• Jaw, neck, or back pain
• Discomfort or pain in the arm or shoulder
• Shortness of breath
Atypical Cardiac Symptoms

- Epigastric pain
- Indigestion
- Burning, stabbing, or pleuritic pain
- Increasing dyspnea in the absence of chest pain
- Psychiatric disorders (i.e., anxiety attack)
Guidelines recommend patients presenting with chest pain or symptoms suggestive of STEMI have a 12-lead ECG performed within 10 minutes of ED arrival (Krumholz et al., 2008).
OP-5: Median Time To ECG

• Median time from ED arrival to ECG (performed in the ED prior to transfer) for AMI or chest pain patients (with Probable Chest Pain).

• Includes patients that were transferred from the ED to inpatient status (in-house or elsewhere) or discharged directly from the ED.

OP = Outpatient
## OP-5 Measure Population

<table>
<thead>
<tr>
<th>INCLUSION CRITERIA</th>
<th>Appendix A, OP Table 1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation and Management (E/M) Code for ED Encounter</td>
<td></td>
</tr>
<tr>
<td>Discharge Code for Acute Care Facility</td>
<td>4a: Inpatient, 4d: DOD or VA Hospital</td>
</tr>
<tr>
<td>ICD-10 CM Principal Diagnosis Code (AMI) or ICD-10 CM Other Diagnosis Codes</td>
<td>Appendix A, OP Table 1.1 or Appendix A, OP Table 1.1a</td>
</tr>
<tr>
<td>Patient received 12-Lead ECG</td>
<td>Date, Time, Arrival Time</td>
</tr>
<tr>
<td>Patient Age</td>
<td>≥18 years of age</td>
</tr>
</tbody>
</table>

DOD = Department of Defense  
VA = Veteran’s Administration  

Polling Question: Median Time to ECG

• What is your hospital’s median time to ECG?
  – Zero to 3 minutes
  – Four to five minutes
  – Six to seven minutes
  – Eight to ten minutes
  – Greater than 10 minutes
Polling Question: Completing ECG Responsibility

• Who is responsible for completing the ECG in your hospital?
  – Nurse or licensed practical nurse (LPN)
  – Respiratory therapist
  – Nursing technical assistant, certified nursing assistant, or other personnel in the ED trained to do the 12-lead ECG
State Comparison

OP-5 Median Time in Minutes to ECG
State Compared to National Median Minutes per Quarter (3Q2016 - 4Q2017)

Source: QualityNet Data Warehouse
OP-5 Measure Barriers/Challenges

• No established protocol/policy
• Limited number of staff trained to do ECG
• No triage nurse
• Lack of ED team engagement
• Lack of education on protocols/policies
Polling Question: Major Barrier

• What is/was the major barrier in your facility to getting the ECG time to the national median time?
  – No established protocol/policy
  – Lack of education on protocol/policy
  – Limited number of staff members
  – No triage nurse
  – Lack of ED staff member engagement
Teaming Up and Cleaning Up.... For Accurate Data Reporting
Let’s Measure Up for Quality!

Documentation Essentials

**OP-5 Time to ECG**

Collected for patients ≥ 18 years old with AMI or Chest Pain

**Patient received a 12-lead ECG within the 60 minutes prior to Emergency Department (ED) arrival. (EMS)**

**Document:** A “12-lead ECG” was performed by EMS AND an accurate date and time when the ECG was performed.

**Includes:** Verification that ECG performed outside of ED was a “12-lead” AND date and time it was performed.

**Rationale:** When the pre-arrival ECG is a 12-lead, patient **Time to ECG = zero minutes.**

**Patient received one or more 12-lead ECG(s) while in ED.**

**Document:** Accurate date and time when each ECG was performed.

**Rationale:** If multiple ECGs are performed, the ECG performed closest to patient’s arrival time will be used.

**Additional Information**

Verification of electronic date and time stamp on every ECG performed in the ED against actual date and time is essential for accurate measurement.

**Before or within 10 minutes of ED arrival**

This protocol was adopted in Multi-services Advisory Group, Multi-Region Quality Improvement Organization for States, California, Nevada, Ohio, and the US. Mary Hendricks, chair of the ACS, at the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The content presented not necessarily reflect CMS policy. Publication No: BH-1106-01-0822007-05

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**HSAG HEALTH SERVICES ADVISORY GROUP**

**Let’s Measure Up for Quality!**

4Q17 HQOR National Medians and Averages

| OP-1 | Median Time to EKG<br>National Median: 60 Minutes<br>National Rate: 36.6% |
| OP-2 | fibrinolytic Therapy Within 90 Minutes<br>National Median: 62 Minutes<br>National Rate: 95.5% |
| OP-3 | Time to Transfer<br>National Median: 62 Minutes<br>National Rate: 95.5% |
| OP-4 | time at arrival<br>National Rate: 95.5% |
| OP-5 | Median Time to ECG<br>National Median: 46 Minutes<br>National Rate: 95.5% |
| OP-6 | ED Arrival to ED Discharge<br>National Median: 134 Minutes<br>National Rate: 95.5% |
| OP-7 | Close to Discharge<br>National Median: 32 Minutes<br>National Rate: 95.5% |
| OP-8 | ED Time to Pain Management<br>National Median: 49 Minutes<br>National Rate: 95.5% |
| OP-9 | EKG to IAT<br>National Median: 75.5% |
Let’s Measure Up for Quality! (cont.)

National Median Time: 8 minutes for 4Q2017 (Lower median time is better.)

If more than 8 minutes, ask:
- Was a 12-lead ECG performed ≤60 minutes prior to ED arrival?
- If there was more than one ECG performed in the ED, is this the earliest?
- Is the ECG strip time valid—is ECG machine time always verified?
Best Practices and Strategies: The Clock Is Ticking
Strategies, Pt. 1

• Educate the ED first point of contact to alert ED staff when patients present with chest pain or other complaints associated with acute coronary syndrome in order to facilitate ECG.

• Staff member immediately delivers the ECG to an emergency physician for interpretation.

• Cross-train staff members to perform ECG.
Strategies, Pt.2

• Create chest pain protocols/standing orders based on national clinical guidelines.
• Reeducate staff.
• Perform annual competency training.
• Share quality measure data results with staff members to drive quality improvement.
Strategies, Pt. 3

• Verification of 12-Lead ECG done by EMS handoff to ED practitioner upon arrival to ED.
• Promptly identify patients requiring ECG through nurse interview prior to registration or provide necessary training to registration personnel.
• Use overhead paging to alert staff members that a patient with chest pain is on the way.
Q. How can staff be informed as to how well they compare to the national benchmark for ECG timing?

A. *Communicate, Communicate, Communicate!*
Communication Best Practices for Quality Improvement

• Create an ongoing and consistent practice of case reviews when ED quality measures are missed.
• Provide timely feedback to staff members.
• Educate staff members on a regular basis.
• Refer to a dashboard display of the quality measures at the unit level.
• Share a Patient Safety and Quality internal newsletter.
Communication of Best Practices for Quality Improvement

Review quality measures in various meetings:

- Hospital Board of Directors
- Medical Executive Committee
- Hospital Quality Committee
- Departmental
- Nursing and frontline staff member
This measure shows the average number of minutes it took before outpatients with chest pain or possible heart attack had an ECG. Standard of Care is within 10 minutes.

Lower is better.
Summary

Success in meeting measures:

• Educate team on goals and measures.
• Ensure the abstractor stays updated on program.
• Develop ideas to improve the process by brainstorming with frontline staff members.
• Remain patient-focused.
Benefits of Working with HSAG

Quality improvement on individual quality measures by providing:

• Technical assistance
• Education
• Tools and resources
• Support
Thank You!
For more information, contact:

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