

Supplementary Appendix

This appendix has been provided by the authors to give readers additional information about their work.

Supplement to: Bradley EH, Herrin J, Wang Y, et al. Strategies for reducing the door-to-balloon time in acute myocardial infarction. *N Engl J Med* 2006;355. DOI: [10.1056/oa063117](https://doi.org/10.1056/oa063117).

AMI TIME-TO-REPERFUSION SURVEY

A STUDY BY YALE UNIVERSITY SCHOOL OF MEDICINE, IN COLLABORATION WITH CMS AND JCAHO
FUNDED BY A GRANT FROM THE NATIONAL INSTITUTES OF HEALTH

Directions: This document allows you to preview this on-line survey, in case you want to consult with others to determine the answers that best describe your hospital's experience. If you have questions or prefer to complete your survey by telephone, please contact Barbara Barton, R.N. at 203-688-8309 or email Barbara.Barton@yale.edu. You may also choose to return your survey via fax (203-688-5571).

Thank you for participating in this study. We appreciate your time and interest.

Part I: Performing the 12-lead Electrocardiogram in the Emergency Department

1. Does your Emergency Department (ED) triage staff have written criteria to determine which patients should have an immediate electrocardiogram (ECG)?
 Yes
 No
2. Does your ED have dedicated space in the ED triage area for obtaining an immediate ECG?
 Yes
 No
3. Does your ED have its own ECG technicians to obtain ECGs immediately when needed?
 Yes, always
 Yes, but only on some shifts
 No
4. Does your ED provide formal training for triage nurses and technicians regarding their role in assessing patients for acute coronary syndrome (ACS) symptoms, including when to obtain an *immediate* 12-lead ECG?
 Yes
 No

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Part II: Decision to Activate the Cardiac Cath Lab

5. During *dayshift hours*, who is *responsible for making* the decision to “activate” the cath lab for patients with ST-segment elevation myocardial infarction (STEMI)?
- Emergency medicine physician in consultation with a cardiologist (either the patient’s private cardiologist, cardiology fellow, or cardiologist on-call)
 - Cardiologist alone
 - Emergency medicine physician alone
 - Other - please specify: _____
6. During *night and weekend shift hours*, who is *responsible for making* the decision to “activate” the cath lab for patients with STEMI?
- Emergency medicine physician in consultation with a cardiologist (either the patient’s private cardiologist, cardiology fellow, or cardiologist on-call)
 - Cardiologist alone
 - Emergency medicine physician alone
 - Other - please specify: _____
7. After the emergency medicine physician(s) evaluates the patient and suspects a STEMI, who is the next physician notified?
- Cardiologist (may be non-interventional or interventional)
 - Always an interventional cardiologist
 - Internist
 - Patient’s primary care physician
 - It depends - please specify: _____
 - Other - please specify: _____

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8. Is there an attending cardiologist on site at your hospital at all times, on all shifts?

Yes

No

9. Does the clinician making the diagnosis of STEMI *typically* wait for laboratory or chest x-ray results before deciding whether or not to activate the cath lab?

Yes, it is typically our practice to wait

No, typically we don't wait. We activate the cath lab based on ECG and clinical presentation

There is no typical approach.

Part III: Activating the Cardiac Cath Lab

10. Which one of the following statements best describes how the cath lab team (interventional cardiologist, nurses, and technicians) is activated once a decision has been made to perform primary percutaneous coronary intervention (PCI)?

The interventional cardiologist activates the cath lab after communicating with ED, either by calling the cath lab staff (nurses and technicians) directly or by calling a central page operator who then pages the cath lab staff

The ED activates the cath lab by making two calls: one to the interventional cardiologist and another to a central paging system or operator who then pages the cath lab staff (nurses and technicians)

The ED activates the cath lab by making a single call to a central paging system or operator who then pages both the interventional cardiologist and the cath lab team

There is no standard way this happens

Other approach is used - please describe this approach: _____

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11. Does the process of activating the cath lab nurses and/or technicians involve page operators?

Yes, *always*

No ⇒ **GO TO QUESTION 14**

It depends - please explain: _____

12. Does your paging process require the on-call staff (nurses & technicians) to confirm receipt of the page to the page operator?

Yes

No

13. If the page operator does not receive confirmation that the cath lab nurses and/or technicians received the page within a specified period of time, does the operator automatically page the next person on the on-call list?

Yes

No

No, we do not generally use an on-call list - please explain: _____

Part IV: Transporting from ED to Cardiac Cath Lab

14. Is someone *always* available to transport patients from the ED to the cath lab for primary PCI, as soon as the patients are ready?

Yes

No

15. Which of the following *best describes* how patients are transported from the ED to cath lab?

Cath lab calls the ED for report and notifies the ED that the cath lab is ready for patient transport

Transport is initiated within a predetermined time frame and does not require telephone report or permission from the cath lab for ED to initiate transport

There is no set strategy or process for how this happens

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Other - please describe: _____

16. Assuming the interventional cardiologist *has not* yet arrived at the cath lab, what is the minimum number of cath lab nurses or technicians who must be present before the patient can be transported from the ED?

Indicate the number of cath lab nurses/technicians that must be present:

We do not transport until the interventional cardiologist has arrived

There is no set policy on the number of nurses or technicians that must be present prior to patient transfer

17. Assuming the interventional cardiologist *has* arrived at the cath lab, what is the minimum number of cath lab nurses or technicians who must be present in the cath lab before the patient can be transported from the ED?

Indicate the number of cath lab nurses/technicians that must be present:

There is no set policy regarding the number of nurses or technicians that must be present

18. Where is the cath lab located, relative to the ED?

The cath lab and ED are adjacent and on same floor

The cath lab and ED are on the same floor, but not adjacent

An elevator is required to get to the cath lab from the ED

Part V: Emergency Medical Services Interaction with ED

19. Consider the patients with ACS symptoms who arrive in the ED transported by Emergency Medical Services (EMS). Please estimate the percentage of these patients who arrive with a 12-lead ECG already performed by EMS in the field.

Indicate the approximate percentage with 12-lead ECG already performed by EMS: %

Don't know

None ⇒ **GO TO QUESTION 22**

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20. For patients with suspected STEMI, does the EMS technician/paramedic *routinely* call in ECG results or transmit the ECG to the ED prior to arrival?

Yes

No ⇒ **GO TO QUESTION 22**

21. If the ED is notified by EMS that a patient with suspected STEMI is being transported to the ED, which *best describes* the ED protocol:

The ED activates the cath lab immediately (while the patient is still en route to the hospital), including calling the interventional cardiologist and cath lab team

The ED waits until the patient arrives to determine if the cath lab should be activated

The ED contacts the cardiologist on-call while the patient is still en route to collaboratively determine if the cath lab should be activated before the patient arrives in the ED

There is no set protocol for how this is handled; the way it is handled varies

Other - please describe: _____

22. Does your ED *routinely* give feedback to EMS about door-to-balloon times?

No

Sometimes, but not routinely

Yes

23. *In general*, how often is the cath lab activated for primary PCI, but then *not* needed? Please estimate how often this happens:

Number of times this occurred during past 6 months:

Don't know

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Part VI: Cardiac Cath Lab Process

24. Are elective cath cases re-scheduled (bumped) if an emergency PCI case needs to use the cath lab room and staff at the same time?

Yes

No

It depends - please explain: _____

25. What is the expected time in minutes for *cath lab staff* (nurses and technicians) to be *in the lab* after being paged?

Minutes

There is no expected time established.

26. What is the expected time in minutes for the *interventional cardiologist* to be *in the lab* after being paged?

Minutes

There is no expected time established

27. Once the interventional cardiologist has arrived at the cath lab, what is the minimum number of cath lab staff (nurses and technicians) who must be present *before the PCI can begin*?

Indicate the number of cath lab nurses/technicians that must be present:

No standard policy

28. Does your hospital have cardiology fellows who participate in performing PCI?

Yes

No

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29. At the end of a case, is the cath lab left in such a manner that the next PCI can begin promptly with little or no set-up required?

- Yes
- No
- There is no standard policy

30. Are staff members in any of your critical care areas (CCU, ICU, or other areas) *routinely* cross-trained to cover in the cath lab?

- Yes
- No

Part VII: Conclusion

31. Does your hospital give real-time data feedback (within a week or less) to the ED and/or cath lab staff about door to balloon times?

- Yes
- No

32. Does your hospital use root cause analysis or some similar approach to investigate delays in door-to-balloon times when they occur?

- Yes
- No

33. What do you think are the main reasons for delays in door-to-balloon time at your hospital and what initiatives have been most successful at reducing door-to-balloon time?

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34. Does your hospital perform coronary artery bypass surgery (CABG)?

Yes

No

35. Is your hospital part of a multi-hospital system?

Yes

No

Don't know

Decline to respond

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