



CENTRAL OHIO TRAUMA SYSTEM (COTS)

WHITE PAPER RECOMMENDATIONS FOR CONTINUOUS QUALITY IMPROVEMENT IN THE CARE OF ACUTE STROKE VICTIMS AMONG CENTRAL OHIO EMS AGENCIES AND EMERGENCY DEPARTMENTS

INTRODUCTION

Both hospitals and emergency medical services (EMS) in Central Ohio conduct quality or process improvement (QI/PI) campaigns to improve the emergency care of patients experiencing acute stroke. However for true QI/PI to occur, hospitals must participate in a continuous quality improvement (CQI) process with EMS.

PURPOSE

This document is intended to advance CQI related to acute stroke care in Central Ohio.

OVERVIEW

The COTS Stroke Care Task Force was established by the COTS Board of Trustees in November 2007. The Task Force sought to address key issues including acute stroke care CQI. The ultimate goal is to provide a consistently high-standard of care and to improve emergency response for acute stroke patients in Central Ohio.

This document highlights CQI recommendations for EMS and Hospitals from the American Stroke Association (ASA) Policy Statement, *Implementation Strategies for EMS within Stroke Systems of Care*¹. The ASA recommends that CQI strategies include the “ongoing assessments of the functions performed by *all* participants in the stroke system that affect the health outcomes of stroke patients (italics added).” They also recommend that performance measures and CQI strategies *should address the activation and response of EMS, and involve the exchange of information among EMS systems and hospitals* (Ibid, page 3098).

SUGGESTED CQI ACTIVITIES for EMS

The following CQI activities are identified by the ASA¹ as “recommended measurement parameters” for EMS.

- 1) All EMS dispatch communicators should *receive written and in-person education on recognizing stroke signs and symptoms as reported by callers* (page 3100).

¹ *Implementation Strategies for EMS within Stroke Systems of Care: A Policy Statement from the American Heart Association/American Stroke Association Expert Panel on Emergency Medical Services Systems and the Stroke Council. Stroke* 2007; 38: 3097-3115. Originally published online Sept 27, 2007.

- 2) EMS systems should ensure that 9-1-1 call centers use dispatch guidelines that prioritize patients experiencing stroke as requiring a high-priority EMS response at the highest care level available (page 3101).
- 3) EMS systems should ensure that the time period between the receipt of the call and the dispatch of the EMS response team is less than 90 seconds for 90% of the calls involving stroke (page 3101).
- 4) EMS systems should ensure that EMS dispatchers correctly identify a maximum percentage of callers experiencing stroke and dispatch EMS responders at the highest priority for these calls (page 3101).
- 5) EMS systems should ensure that EMS responders use validated prehospital stroke screening tools to identify stroke patients (page 3102).
- 6) EMS systems should establish a goal of an over-triage rate of 30% in stroke patient screening (page 3102).
- 7) EMS systems should ensure that EMS responders' stroke screening assessments are compared against final patient diagnoses to identify instances where the initial prehospital screening failed to identify patient who were experiencing a stroke (under-triage). This data should be used to develop and adjust EMS responder training and protocols for the use of stroke screening forms. Additional education should be provided to EMS personnel who routinely under-triage patients (page 3102).
- 8) EMS systems should ensure that EMS response time is less than nine minutes at least 90% of the time for suspected acute stroke patients (pages 3103 & 3106).
- 9) EMS systems should ensure that dispatch time is less than one minute; turnout time is less than one minute; and travel time is equivalent to trauma or acute myocardial infarction calls (page 3103).
- 10) EMS systems should ensure that on-scene time is less than 15 minutes unless there are extenuating circumstances or extrication difficulties (pages 3103, 3106, 3107). EMS should constantly strive to decrease on-scene times with stroke patients (page 3106).
- 11) EMS systems should collect and trend stroke response times; all clocks capturing times should be synchronized. All times should be reported using the fractile method, e.g. 90th percentile (page 3103).
- 12) EMS systems should assure that pre-arrival notification of hospitals is provided for all suspected stroke patients (page 3104, page 3107).
- 13) EMS systems should incorporate a minimum of two hours of stroke assessment and care as part of their required continuing medical education for certification and relicensure (page 3105).
- 14) EMS systems should measure the "contact time" for all stroke patients (page 3106). "Contact time" for EMS is defined as from the time of the receipt of the 9-1-1 call to the time of arrival at a stroke center.
- 15) EMS systems should develop policies and procedures to streamline paperwork and equipment issues related to acute stroke care (page 3106).
- 16) EMS systems should include 100% of stroke patients in CQI activities (page 3107). EMS systems should monitor the following as part of the CQI process (page 3107):
 - a. Stroke history
 - b. Stroke assessment performed using validated screening tool
 - c. Completion of stroke checklist that documents eligibility for acute therapies
 - d. Appropriate on-scene time (no delay in transport)
 - e. Appropriate hospital transport destination decision (patient taken to most appropriate hospital)

- 17) EMS systems should develop benchmarks for standard measures (item #16 above) of successful completion for each benchmark at least 90% of the time (page 3107).
- 18) EMS systems should implement processes to report CQI activities to EMS providers to heighten awareness and measure changes in performance (page 3107).
- 19) EMS systems should ensure that stroke history checklists are completed for at least 90% of all suspected stroke patients (page 3107). Stroke history checklists (aka clinical history) should be completed by EMS in less than 10 minutes (page 3107).
- 20) EMS systems should participate in a coalition of emergency medicine, political and prehospital representatives (page 3110). EMS systems should work with the coalition to establish model policies and regulations for patient transportation protocols for adoption at the regional and local level (page 3110).

SUGGESTED CQI ACTIVITIES for HOSPITALS

The following CQI activities are identified by the ASA² as “recommended measurement parameters” for Hospitals.

- 1) Hospitals and EMS systems should ensure that EMS responders’ stroke screening assessments are compared against final patient diagnoses to identify instances where the initial prehospital screening failed to identify patient who were experiencing a stroke (under-triage). This data should be used to develop and adjust EMS responder training and protocols for the use of stroke screening forms. Additional education should be provided to EMS personnel who routinely under-triage patients (page 3102).
- 2) Hospitals should measure the “contact time” for all stroke patients (page 3106). “Contact time” for hospitals is defined as from the time of the receipt of the EMS 9-1-1 call or presentation to a non-stroke center, to the time of arrival at a stroke center.
- 3) Non-stroke center hospitals should ensure that the amount of time spent with the acute stroke patient before the start of interfacility transport to a stroke center is less than 15 minutes (page 3106).
- 4) Hospitals should develop policies and procedures to streamline paperwork and equipment issues related to acute stroke care (page 3106).
- 5) Hospitals should include 100% of stroke patients in CQI activities (page 3107).
- 6) Hospitals should include 100% of stroke patients in CQI activities (page 3107). Hospitals should monitor the following as part of the CQI process (page 3107):
 - a. Stroke history
 - b. Stroke assessment performed using validated screening tool
 - c. Completion of stroke checklist that documents eligibility for acute therapies
 - d. Appropriate on-scene time (no delay in transport)
 - e. Appropriate hospital transport destination decision (patient taken to most appropriate hospital)
- 7) Hospitals should develop benchmarks for standard measures (item #6 above) of successful completion for each benchmark at least 90% of the time (page 3107).

² *Implementation Strategies for EMS within Stroke Systems of Care: A Policy Statement from the American Heart Association/American Stroke Association Expert Panel on Emergency Medical Services Systems and the Stroke Council. Stroke* 2007; 38: 3097-3115. Originally published online Sept 27, 2007.

- 8) Hospitals should implement processes to report CQI activities to EMS and hospital providers to heighten awareness and measure changes in performance (page 3107).
- 9) Hospitals should participate in a coalition of emergency medicine, political and prehospital representatives (page 3110). Hospitals should work with the coalition to establish model policies and regulations for patient transportation protocols for adoption at the regional and local level (page 3110).

SUMMARY

The COTS Stroke Committee determined that to meet key goals related to improving acute stroke care, a four-component initiative is needed in Central Ohio. This initiative includes:

- (1) The establishment of a regional acute stroke screening tool for EMS Providers;
- (2) An assessment and documentation of participating hospitals' stroke capabilities;
- (3) A plan for education of EMS personnel around acute stroke assessment and care; and
- (4) Instituting a regional PI process to address regional issues in acute stroke care.

This White Paper is intended to identify the components of PI processes for EMS and hospitals so that acute stroke care response, recognition and treatment can be similarly measured and reported among the region's healthcare stakeholders. Ideally, a stroke care registry can someday be established in Central Ohio to collect, trend and report stroke care data from all emergency healthcare partners. Local data used by local partners will drive local system improvements, to improve acute stroke care for patients.

For more information about this document, the other Stroke Committee initiatives, and/or the Central Ohio Trauma System, please contact Nancie Bechtel at (614)240-7419 or nbechtel@goodhealthcolumbus.org.

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