

Stroke Triage and Destination Guidance

Purpose: To provide guidance to EMS providers on the triage and destination selection for suspected ischemic stroke patients who may benefit from treatment at a stroke center.

Background: Pennsylvania statewide BLS protocol 706 emphasizes that patients with suspected stroke encountered by EMS should be transported to the closest primary stroke center if the patient can be delivered within 3 hours of symptom onset. It does not provide specific guidance on destination selection for patients outside of this window where thrombolytics may be administered, or identify which patients should be transported to centers capable of performing interventional procedures. Since January 2015, four randomized controlled trials (MR CLEAN, EXTEND-IA, ESCAPE, and SWIFT trials)¹⁻⁴ have demonstrated a substantial benefit of interventional stroke procedures (e.g. thrombectomy and retrievable stents) to select patients with large vessel occlusions (LVO), including improvement of functional outcome at 90 days with a number needed to treat of 3 to 7 patients. Keys to prehospital triage and maximizing the benefits of currently available stroke interventions for all patients are to maximize use of thrombolytics and identify patients with potential LVOs who may benefit from interventional procedures.

Recommendations for patients with suspected ischemic stroke:

1. If the patient can arrive at a primary stroke center within 3 hours of symptom onset, transport to the closest primary stroke center.^A
2. If the patient cannot be transported to a primary stroke center within 3 hours of symptom onset, EMS should contact medical command to discuss the most appropriate destination. Medical command should direct the patient to an interventional stroke center if:
 - a) Patient can arrive at the interventional stroke center within 12 hours of symptom onset, and
 - b) Patient has a suspected large vessel occlusion (LVO).^B

Notes:

- A. Transport should be to the closest primary stroke center except as determined by the patient choice exception outlined in Pennsylvania statewide BLS protocol 170.
- B. Patient should be suspected of having a large vessel occlusion if symptoms are consistent with:
 - 1) NIH Stroke Scale is ≥ 8 .
 - 2) RACE Score is ≥ 5 .⁵
- C. Interventional Stroke Centers in the Pittsburgh Region are:
 - 1) Allegheny General Hospital
 - 2) UPMC Mercy Hospital
 - 3) UPMC Presbyterian Hospital

References:

1. Berkhemer OA, Beumer D, van den Berg LA, et al. A randomized trial of intraarterial treatment for acute ischemic stroke. *NEJM* 2015;372:11-20.
2. Campbell BCV, Mitchell PJ, Kleinig TJ, et al. Endovascular therapy for ischemic stroke with perfusion-imaging selection. *NEJM* 2015;372:1009-18.
3. Goyal M, Demchuk AM, Menon BK, et al. Randomized assessment of rapid endovascular treatment of ischemic stroke. *NEJM* 2015;372:1019-30.
4. Saver JL, Goyal M, Bonafe A, et al. Solitaire with the Intention for Thrombectomy as Primary Endovascular Treatment for Acute Ischemic Stroke (SWIFT PRIME) trial: protocol for a randomized, controlled, multicenter study comparing the Solitaire revascularization device with IV tPA with IV tPA alone in acute ischemic stroke. *Int J Stroke* 2015;10:439-48. [results manuscript is under review for publication]
5. Perez de la Ossa N, Carrera D, Gorchs M, et al. Design and validation of a prehospital stroke scale to predict large arterial occlusion: the rapid arterial occlusion evaluation scale. *Stroke* 2014;45:87-91.