

Stroke Tank: Pitch It to the Judges!™ Proposal Summaries

This year's NECC Mini-Grant recipients received funding for projects designed to impact care surrounding the triage and treatment of patients with large vessel occlusions. Each research team has been invited back to pitch their proposed research to a panel of expert judges. The winning proposal will receive additional funding from The NECC.

Enhanced Medical Control in the Prehospital Triage of Patients with a Suspected Severe Stroke

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Evidence suggests that a simple change of the face-arm-speech score (FAST) by adding the determination of a gaze preference, may help in stratifying patients with a suspected large vessel occlusion (LVO) – the most severe type of stroke -- for triage to a center with advanced stroke treatment capabilities. We hypothesize that including gaze preference with the existing FAST score will be a useful addition to pre-arrival notification reports by Emergency Medical Services (EMS) to physicians based in the destination Emergency Room, with the goal of optimizing triage of patients with a potential LVO to a center with advanced stroke treatment capabilities.

Tele-Stroke Prehospital Assessment and Routing

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We plan to demonstrate the feasibility of Emergency Medical Technicians (EMTs) transmitting recorded or live exams to remote EMS physicians to allow for determination of the likelihood of the presence of a severe stroke, routing the patient to an appropriate center with advanced stroke treatment capabilities. EMTs will examine suspected stroke patients on camera and transmit videos via a secure CarePoint system. The primary outcome is feasibility of the tele-stroke process in making a hospital destination decision. Secondary outcomes include provider satisfaction and inter-rater reliability between the physician, EMT and neurologist.

Diversion of Suspected Stroke Victims Through EMS Intervention (DRIVE)

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In 2015, the Rhode Island Stroke Task Force approved a proposal to have all patients with large vessel occlusion (LVO) diverted to a center that can deliver advanced treatment procedures for the most severe types of stroke if the drive time was within 30 minutes. Rhode Island stroke data, available from the Department of Health from January 1, 2015 to June 30, 2018 will be used. The same data, during the same timeline, from central Massachusetts, which does not have a diversion protocol, will also be collected from a central repository. The primary outcome measure will be discharge destination dichotomized as good (home, home with services, acute rehabilitation) or poor (skilled nursing facility, death, home with hospice, hospice), adjusted for age, sex/gender, race, and initial National Institute of Health Stroke Scale. Comparison of regional outcomes in Rhode Island (after change to diversion) will be compared with central Massachusetts (no diversion in place).

Pre-Hospital Triage Decisions for Patients with Suspected Stroke Due to Severe Large Vessel Occlusion Stroke: A Decision Analytic Modeling Cost-Effectiveness Study

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Currently, we lack evidence to guide the optimal pre-hospital triage of patients with suspected large vessel occlusion (LVO) to primary versus comprehensive stroke centers depending on transport times, local resources, and timeliness of care. Our primary aim is to develop, analyze, and verify a decision model that includes repeated triage simulations of a patient with suspected stroke due to LVO to determine the effectiveness and cost effectiveness of various pre-hospital triage approaches (such as presentation to closest PSC versus bypassing a PSC for transport to a CSC). The model will take into account variation in transport times, in treatment times for tPA, in endovascular eligibility, and in times to endovascular intervention. The results of the decision model will inform ideal transport destinations for patients with suspected stroke due to LVO based on presentation characteristics, transport times, and variation in hospital door-to-needle times.

Predicting Cerebral Large Vessel Occlusion Through Non-Invasive Oximetry

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We are looking to improve Emergency Medical Services (EMS) recognition of Large Vessel Occlusion (LVO) by using non-invasive cerebral oximetry (NCO). Rapid Arterial Occlusion Evaluation (RACE) score has been recently developed to identify patients with LVO, however the accuracy of these assessment scales is less than desirable. We are trying to establish if cerebral perfusion assessed through non-invasive cerebral oximetry along with clinical scales can improve the accuracy in predicting LVO. This observational study will involve using non-invasive cerebral oximetry on patients suspected by EMS to have LVO based on RACE > 4. These patients will then be followed up to reveal presence or absence of LVO. The values for cerebral oximetry will then be evaluated to have the best predictability (sensitivity and specificity) for LVO.