

Protocolizing the stroke transfer process

E-QUAL Stroke Webinar
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Presenter



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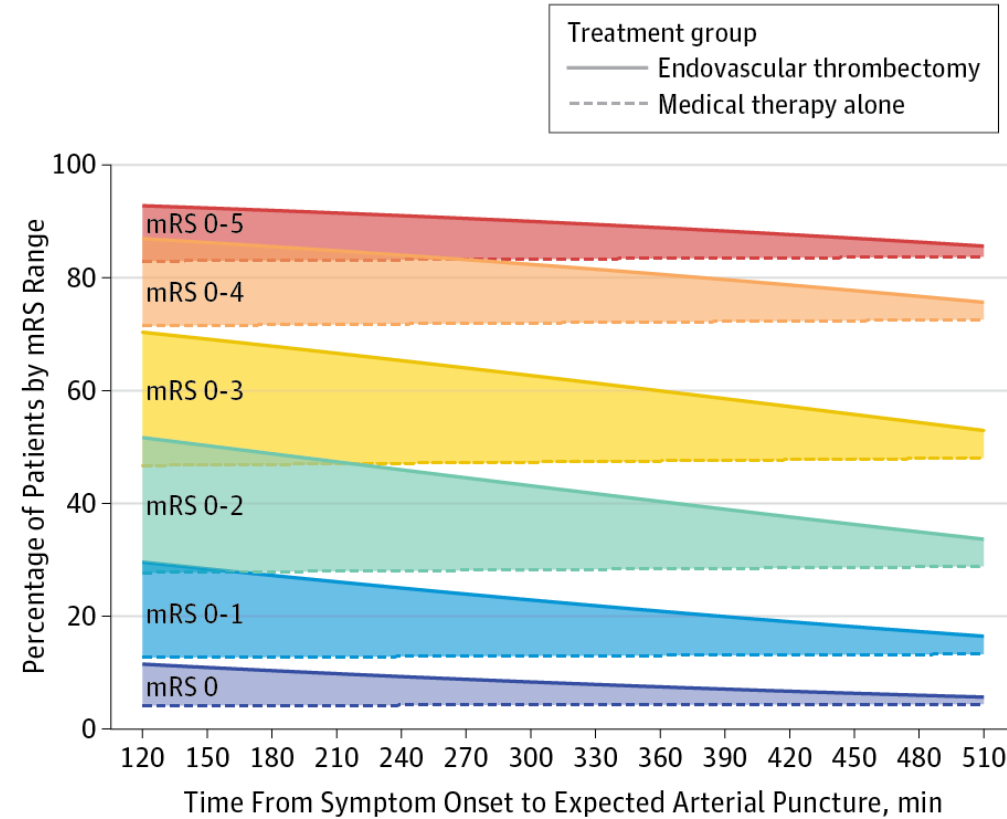
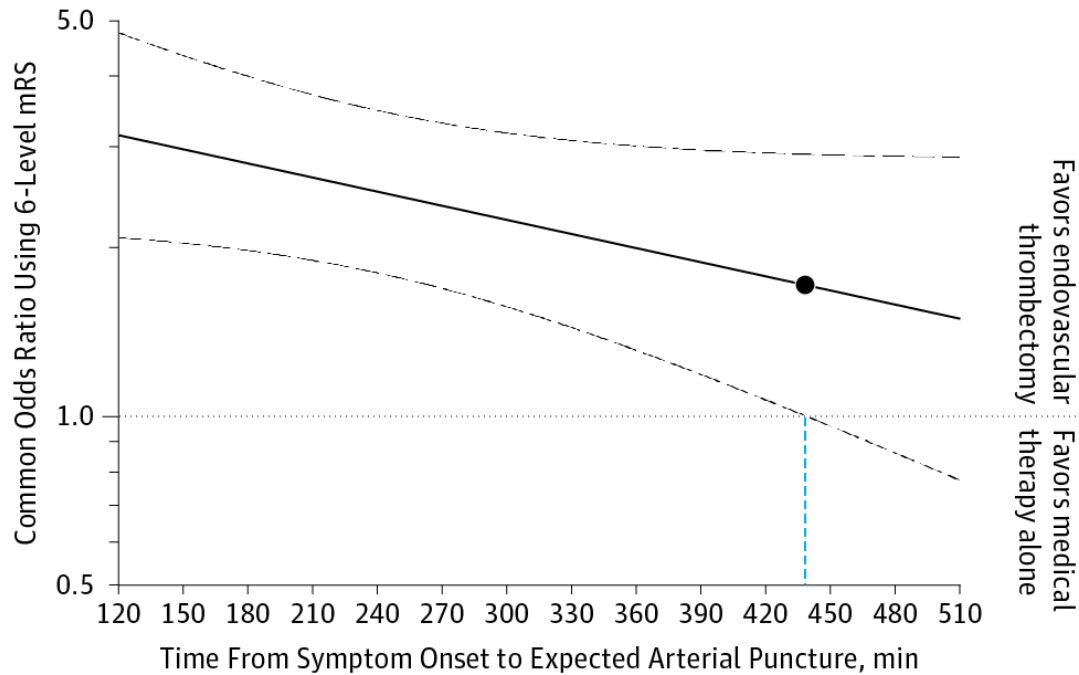
- I have received research funding from NIH, AHRQ, University of Michigan
- I do not have any disclosures

Objectives

- Review biological rationale for rapid transfer
- Organization of stroke care
- Consider methods for reducing door in door out time
- Describe current research

A Odds ratio for less disability at 3 mo in endovascular thrombectomy vs medical therapy alone groups by time to treatment

B Difference in adjusted 3-mo disability rates between endovascular thrombectomy and medical therapy alone groups by time to treatment



Association of Time From Symptom Onset to Expected Time of Endovascular Thrombectomy Procedure Start (Arterial Puncture) With Disability Levels at 3 Months in Endovascular (n = 633) vs Medical Therapy (n = 645) Groups mRS indicates modified Rankin Scale. Time was analyzed as a continuous variable. Data were adjusted for age, sex, baseline stroke severity (National Institutes of Health Stroke Scale), target occlusion location, and concomitant intravenous tissue plasminogen activator. A, The 6-level mRS combined ranks 5 and 6 into a single worst outcome rank. The solid curve indicates the best linear fit between the common odds ratio for improved outcome over the 6-level mRS. The dashed curves indicate 95% CIs. The P value for interaction was .07. The lower bound of the 95% CI crosses 1.0 at 438 minutes (vertical blue dashed line). When the 7-level mRS was analyzed, with rank 5 considered a better outcome than rank 6, the lower bound of the 95% CI crossed 1.0 at 418 minutes. B, Upper solid line of each colored band indicates outcome rate in the endovascular thrombectomy group; lower dashed line of each band indicates outcome rate in the medical care only group. The widths of the colored bands indicate the absolute differences between the endovascular thrombectomy and medical therapy groups for that mRS cut point at each time point. Categories are cumulative, so that mRS 0-3 includes all patients with outcomes of mRS 0-3. For example, at the symptom onset to expected arterial puncture time of 300 minutes, the x intercepts indicate outcome rates (mRS 0: 8.3% for the endovascular thrombectomy group vs 4.3% for the medical therapy group; mRS 0-1: 22.9% for the endovascular thrombectomy group vs 12.9% for the medical therapy group; mRS 0-2: 43.1% for the endovascular thrombectomy group vs 28.2% for the medical therapy group; mRS 0-3: 62.7% for the endovascular thrombectomy group vs 47.3% for the medical therapy group; mRS 0-4: 82.4% for the endovascular thrombectomy group vs 72.0% for the medical therapy group; mRS 0-5: 90.0% for the endovascular thrombectomy group vs 83.3% for the medical therapy group).

Choice of thrombolytic

- EXTEND IA – TNK – is TNK 0.25 mg/kg better than standard alteplase?
- EXTEND IA – TNK part 2 is TNK 0.4 mg/kg better than TNK 0.25 mg/kg?
- Large vessel stroke, with intent to go to thrombectomy
- Results
 - ▶ TNK 0.25 mg better (median mRS 2 versus 3) in about 200 patients
 - ▶ TNK 0.4 mg NOT better than 0.25 mg

- TNK is simpler to infuse (single bolus dose)
- TNK has better outcomes (clinical and recanalization)



QUESTION Does a tenecteplase dose of 0.40 mg/kg vs 0.25 mg/kg improve cerebral reperfusion prior to endovascular thrombectomy in patients with large vessel occlusion ischemic stroke?

CONCLUSION This randomized trial found that the 0.40-mg/kg dose of tenecteplase does not confer an advantage over the 0.25-mg/kg dose in patients with large vessel occlusion ischemic stroke.

POPULATION

159 Males
141 Females



Adults with occlusion of the intracranial internal carotid, basilar, or middle cerebral artery and <4.5 hours after symptom onset

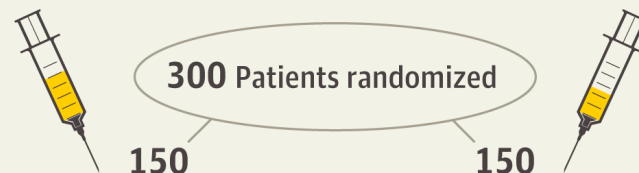
Mean age: 73 years

LOCATIONS

28 Hospitals
in Australia
and New Zealand



INTERVENTION



**0.40 mg/kg
Tenecteplase**

Intravenous tenecteplase at 0.40 mg/kg (maximum, 40 mg) as bolus before thrombectomy

**0.25 mg/kg
Tenecteplase**

Intravenous tenecteplase at 0.25 mg/kg (maximum, 25 mg) as bolus before thrombectomy

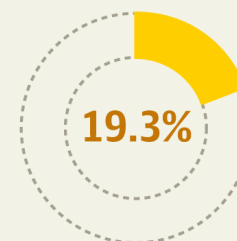
PRIMARY OUTCOME

Reperfusion of >50% of involved ischemic territory prior to thrombectomy determined by angiography review

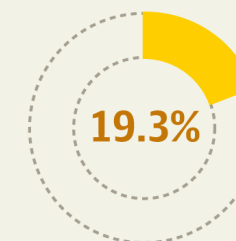
FINDINGS

Reperfusion of >50%

**0.40 mg/kg
Tenecteplase**
29 of 150 patients



**0.25 mg/kg
Tenecteplase**
29 of 150 patients

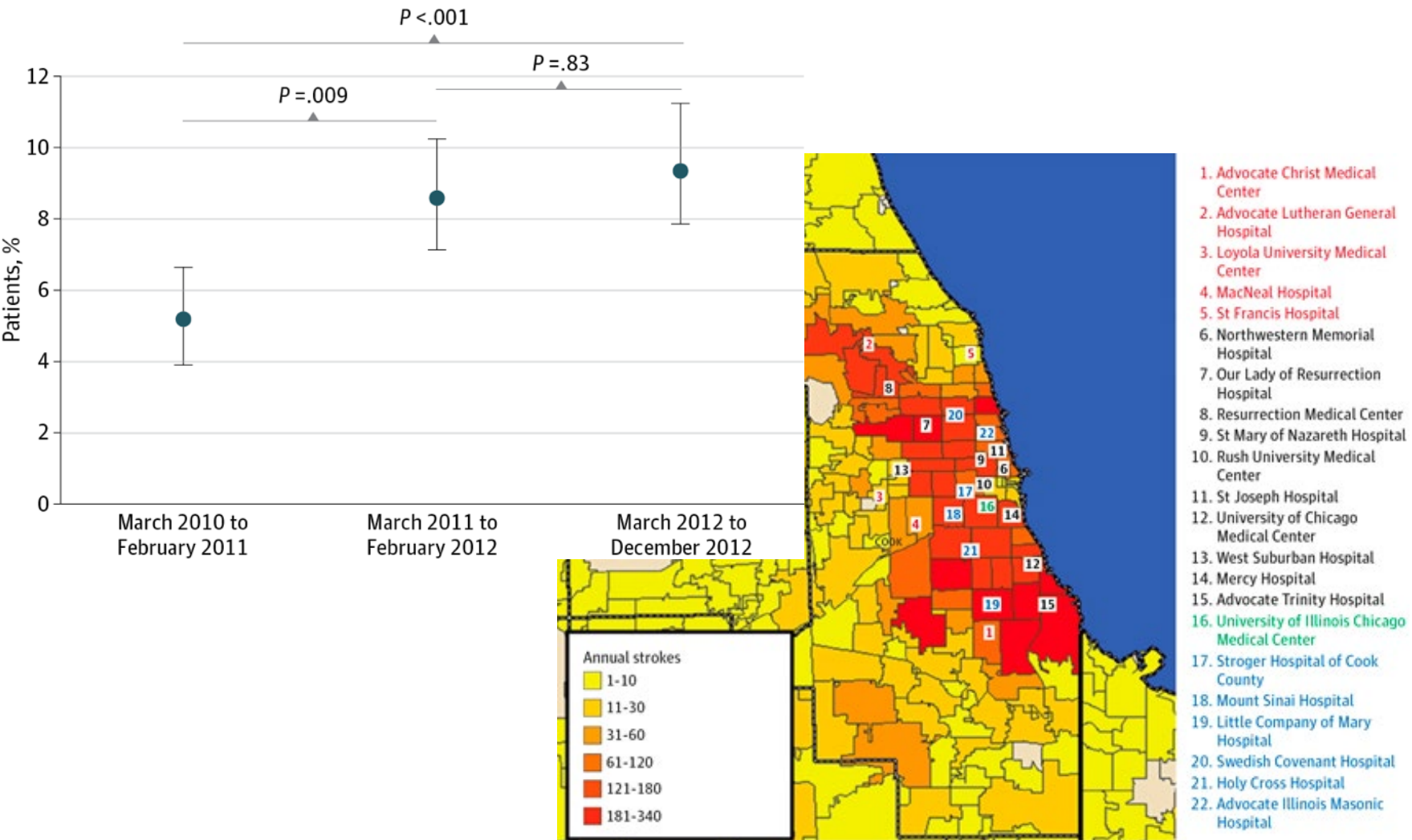


No significant difference between the doses:
unadjusted difference,
0% (95% CI, -8.9% to 8.9%)

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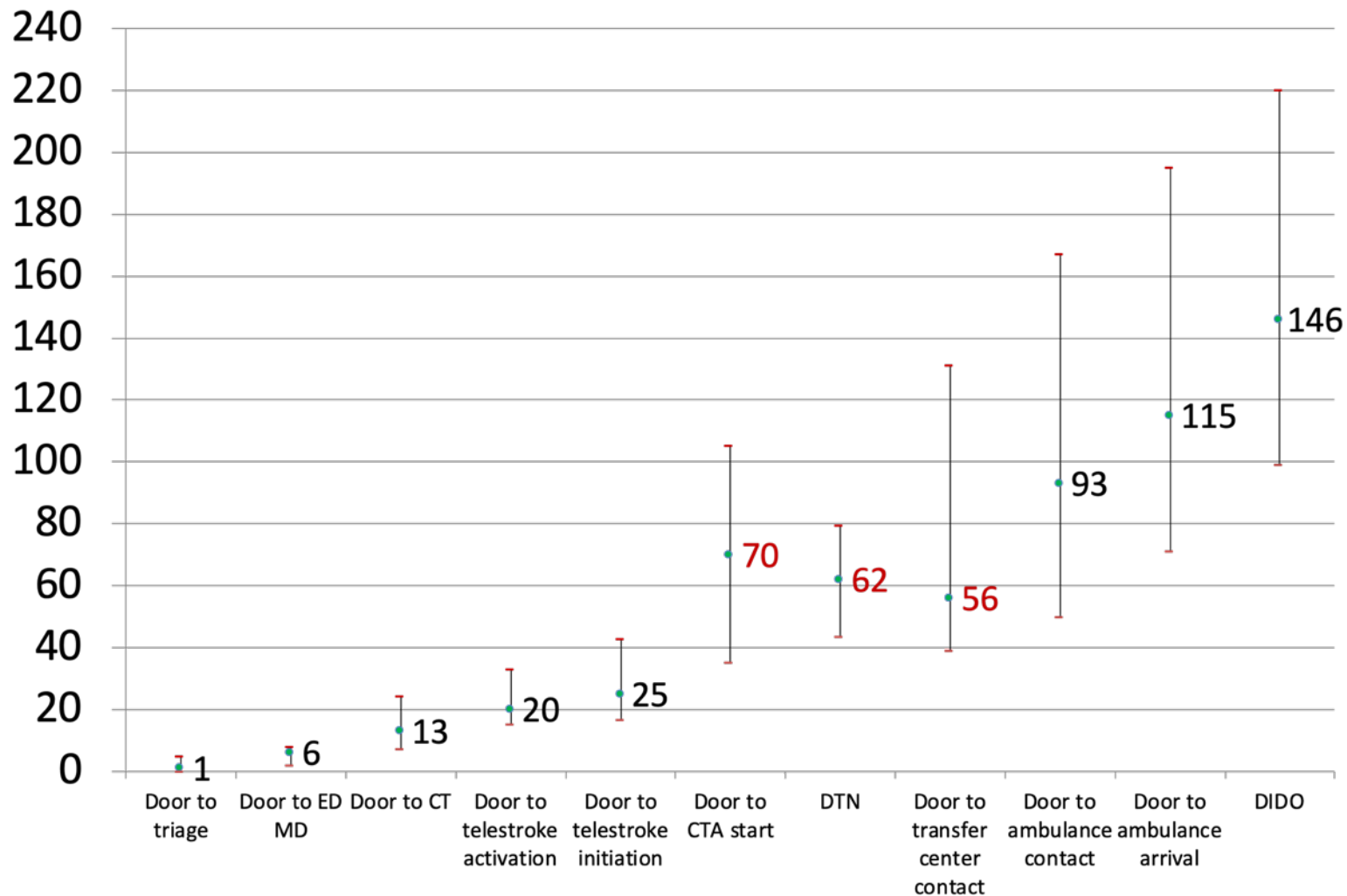
Stroke Systems of Care

- Balance patients across hospitals
 - Prehospital triage
 - Differing capabilities
 - Population density (rural versus suburban versus urban)
- 37% of stroke centers are endovascular capable
 - About 20% of the US population is within 15 minutes of an endovascular capable stroke center
 - *Stroke*, 51(4), 1207-1217.



- A policy change in Chicago led to EMS triage of stroke to primary stroke centers
- Intravenous thrombolysis increased substantially
- JAMA Neurol. 2013;70(9):1126-1132

Median Process Times in ED (min)



- Preliminary data from E-SPEED project (PI: S. Prabhakaran) presented at International Stroke Conference in 2020
- Identifies major opportunities (up front CTA)
- Future – severity thresholds?

Questions?

Thank You