

Ontario CT/mCTA Protocol

5 series of images, in the following order:

1. Non-contrast CT Head (axial)
2. CTA neck and head 1.25 – 2 mm (axial)
3. 5 mm MIP Axial CTA head (2nd phase of multiphase)
4. 5 mm MIP Axial CTA head (3rd phase of multiphase)
5. 5 mm MIP Coronal CTA neck and head

Total: Approx. 520 images

Protocol Testing

Protocol testing through ENITS

Initial transfer times, before protocol, of 16 mins

Most recent tests with current protocol: 3 mins

Imaging – Next Steps

1. Continued verification of rapid upload times from a wider variety of centres.
2. Education for District Stroke Centres and other sites potentially transferring for EVT
3. Regional approaches to roll-out may be favoured



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Endovascular Treatment for Acute Ischemic Stroke

Where Are We Now and Where Do We Want To Go

by

Dr Grant Stotts

Neurologist, Ottawa Hospital

Medical Director, Champlain Regional Stroke Network

July 5, 2016

To Address these Challenges & Plan Implementation

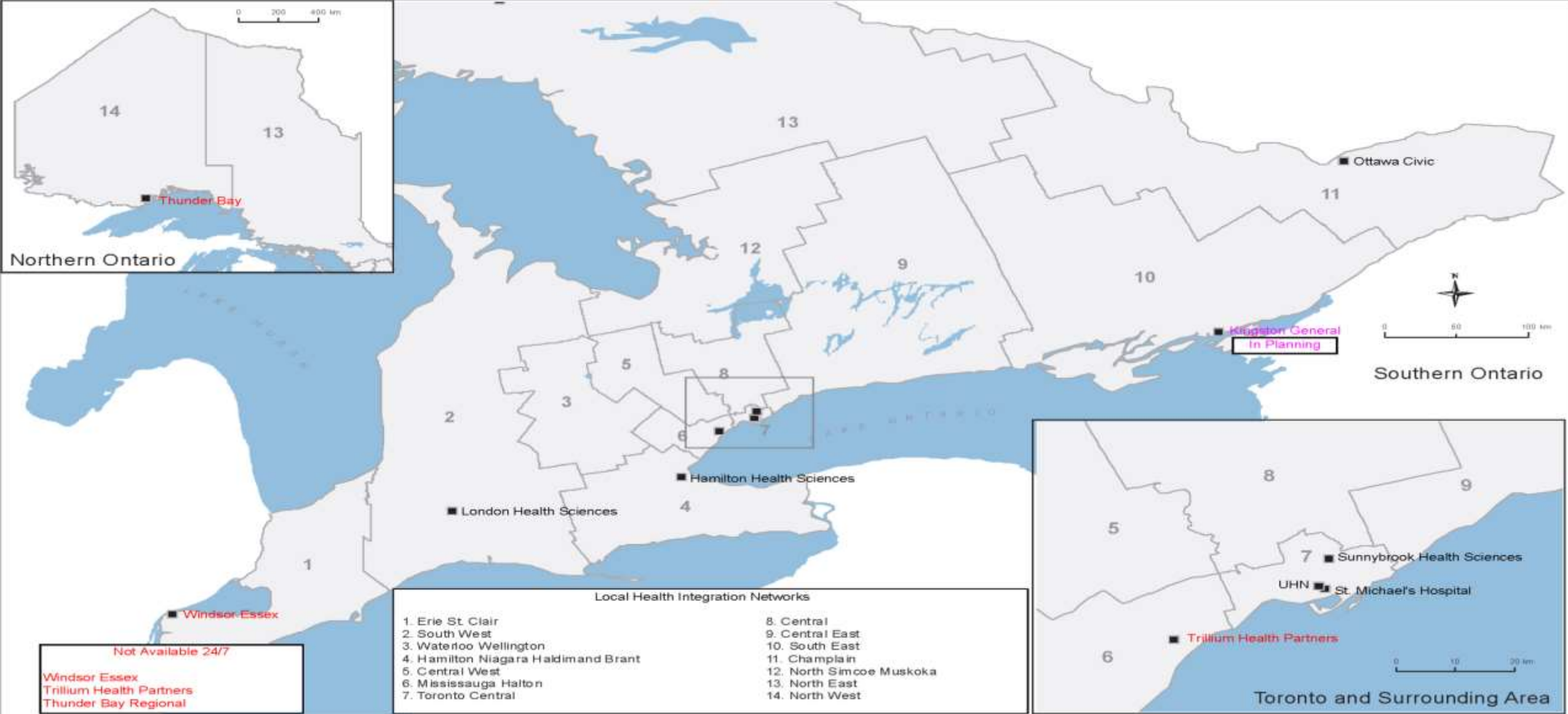
- OSN Endovascular Thrombectomy (EVT) Working Group has been established
 - Co-Chairs: Dr. Grant Stotts and Dr. Timo Krings
- Members include stroke Neurology and Neurointerventional teams, Regional/District Stroke Centre and referring hospital representatives, EMS, MOH EHS, Telestroke, and CritiCall Ontario
- Collaboration with Canadian Stroke Consortium and National HSF Stroke Best Practice Recommendations

| Name | Organization | Role |
|--------------------------|--|---|
| Dr Timo Krings | University Health Network-Toronto Western Hospital | Interventional Neuroradiologist, Co-Chair |
| Dr Grant Stotts | The Ottawa Hospital | Stroke Neurologist,Co-Chair |
| Dr Cheemun Lum | The Ottawa Hospital | Interventional Neuroradiologist |
| Dr Sachin Pandey | London Health Sciences- | Interventional Neuroradiologist |
| Dr Victor Yang | Sunnybrook Health Sciences | Neurosurgery |
| Dr Vitor Pereira- | University Health Network | Neurosurgery |
| Dr Walter Montanera | St Michael's Hospital | Interventional Neuroradiologist |
| Dr Laurie Morrison | St Michaels Hospital | Emergency Medicine |
| Dr Leanne Casaubon | University Health Network | Stroke Neurologist,OSN Best Practice Champion |
| Dr Yael Perez | Trillium Health Partners | Stroke Neurologist |
| Dr Rick Swartz | Sunnybrook Health Sciences | Stroke Neurologist |
| Dr Frank Silver | University Health Sciences | Stroke Neurologist (Telestroke) |
| Dr Jennifer Mandzia | London Health Sciences | Stroke Neurologist |
| Dr Al Jin | Kingston General Hospital- | Stroke Neurologist |
| Dr Jason Prpic | Chair EHS MAC | Base Hospital Medical Director, Emergency MD, |
| Beth Linkewich | North and East Toronto Stroke Network | Regional Program Director |
| Jacqueline Willem | South East Toronto | Regional Program Director |
| Rhonda McNicoll-Whiteman | Hamilton Health Sciences | Clinical Nurse Specialist- Stroke Best Practice Coordinator |
| Caterina Kmill | North West Ontario Stroke Network | Regional Program Director |
| Denise St. Louis | Windsor Regional Hospital | District Stroke Coordinator |
| Gina Tomaszewski | Acute Care Best Practice Coordinator | SWO Stroke Network |
| Linda Kelloway | Best Practice Leader | Ontario Stroke Network |

To develop an implementation strategy to:

- Estimate patient volumes at provincial, LHIN, stroke centre and facility levels to inform planning/impact
- Identify facility capacity (focus on physicians and staff expertise and imaging resources)
- Determine role of Provincial Telestroke Program
- Determine impacts to Emergency Medical Services and current Provincial Paramedic Acute Stroke Protocol
- Develop protocols for treatment and transfer
- Identify strategies for knowledge translation
- Evaluate processes/outcomes (with minimum data set)

EVT Centres in Ontario July, 2016



Current EVT Centres

WITH 24/7 COVERAGE

1. London Health Sciences
2. Ottawa Hospital
3. St Michael's Hospital
4. Sunnybrook Health Centre
5. Toronto Western Hospital
6. Hamilton Health Sciences

WITHOUT 24/7 COVERAGE

1. Thunder Bay Regional Health Centre
2. Trillium Health Partners
3. Windsor Regional Hospital
4. Kingston General – in planning



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Transfer Process for EVT

Subgroup:

Drs. Mandzia, Silver, Stotts, Prpic

Linda Kelloway

Desmond Bohn (Critical)



Endovascular thrombectomy after large-vessel ischaemic stroke: a meta-analysis of individual patient data from five randomised trials



Mayank Goyal, Bijoy K Menon, Wim H van Zwam, Diederik W J Dippel, Peter J Mitchell, Andrew M Demchuk, Antoni Dávalos, Charles B L M Majoie, Aad van der Lugt, Maria A de Miquel, Geoffrey A Donnan, Yvo B W E M Roos, Alain Bonafe, Reza Jahan, Hans-Christoph Diener, Lucie A van den Berg, Elad I Levy, Olvert A Berkhemer, Vitor M Pereira, Jeremy Rempel, Mònica Millán, Stephen M Davis, Daniel Roy, John Thornton, Luis San Román, Marc Ribó, Debbie Beumer, Bruce Stouch, Scott Brown, Bruce C V Campbell, Robert J van Oostenbrugge, Jeffrey L Saver, Michael D Hill, Tudor G Jovin, for the HERMES collaborators

Summary

Background In 2015, five randomised trials showed efficacy of endovascular thrombectomy over standard medical care in patients with acute ischaemic stroke caused by occlusion of arteries of the proximal anterior circulation. In this meta-analysis we, the trial investigators, aimed to pool individual patient data from these trials to address remaining questions about whether the therapy is efficacious across the diverse populations included.

Published Online
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[http://dx.doi.org/10.1016/S0140-6736\(16\)00163-X](http://dx.doi.org/10.1016/S0140-6736(16)00163-X)
See Online/Comment/

HERMES Collaborators

Highly Effective Reperfusion evaluated in Multiple Endovascular Stroke trials (HERMES)

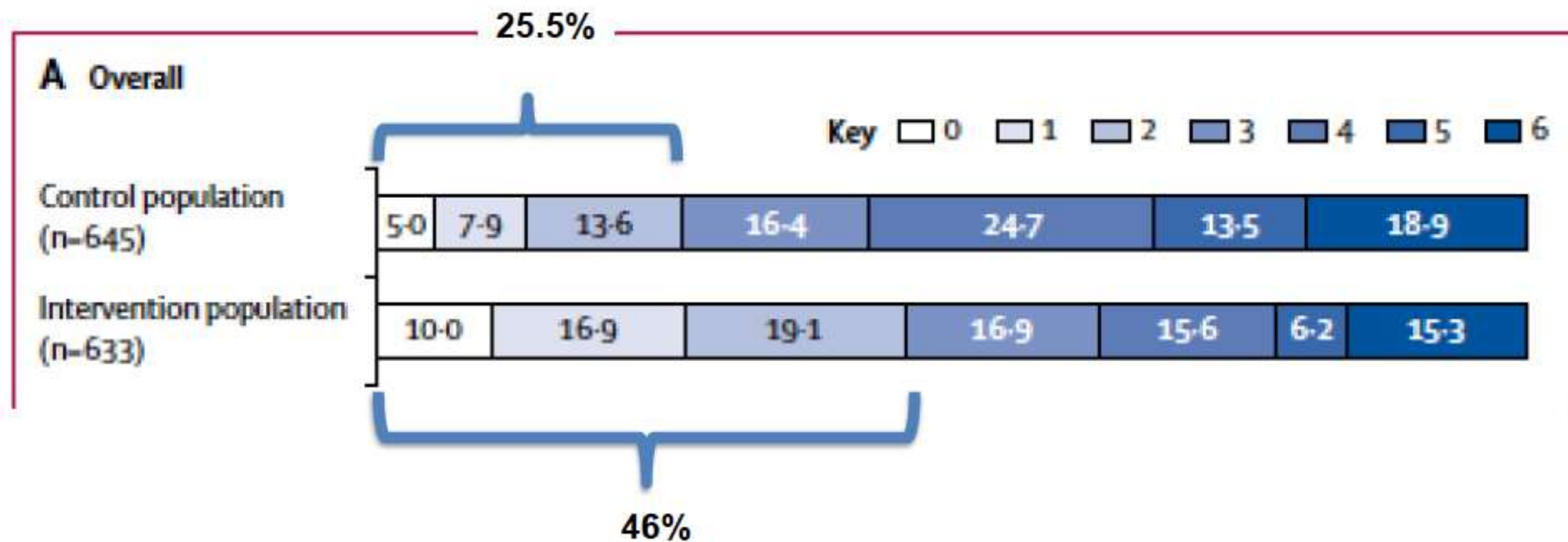


EXTEND - IA [SWIFT PRIME]



Overall Treatment Effect

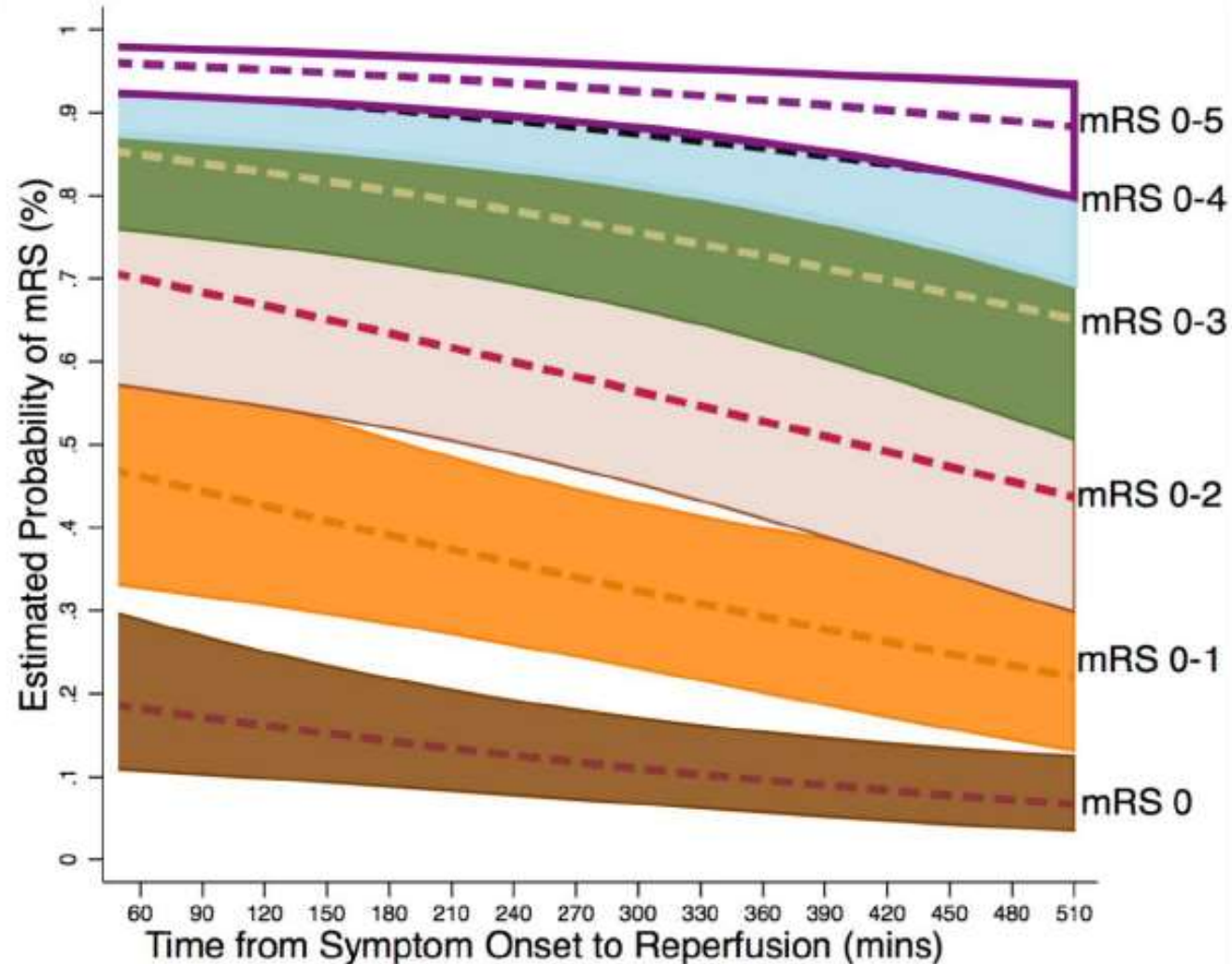
NNT = 2.6





MRS outcome by onset to reperfusion

TIME MATTERS



Patient Transfer Time Verification

OSN currently partnering with Criticall, Ornge and EMS to identify sites within 2 hour transfer window to EVT centres

Clinical emphasis should still involve rapid thrombolytic treatment

Regional analyses will guide decisions to bypass or treat with tPA first at non-EVT sites

Communication is key in the decision process to transfer

Multiple factors: imaging (infarct, collateral flow), road conditions, patient wishes

Stroke Code Process at Sites Not Bypassed

Stroke treatment effectiveness is time-dependent

Rapid times to thrombolysis remain important

How would an ideal transfer look?

Door In/Door Out Time

Can we aim for 45 min?

5 mins for initial assessment/lab draw

20 mins to scan – avoid need to return for CTA

20 mins to review with telestroke/EVT site



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Transfer Process Details

A standardized Drip and Ship Protocol is being investigated

Complication rates are low but require need to address anaphylaxis, hypertension and deterioration in level of consciousness



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Regional Approaches

In addition to provincial strategies

Need for regional approaches

Multiple factors mandate that regional systems will need to be developed:

- EMS coverage
- Distance and number of referring sites.
- Stroke team compositions.

Regional EVT Working Groups

Coordination of:

- EMS systems (urban and rural)
- Radiology
- ED communications
- Repatriation agreements

Regional EVT Working Groups

Ontario strategies can be used as a template
CT/CTA protocol can be used by all sites.
EMS prompt card can be adapted locally.

OSN webinars will be archived.

OSN personnel can be contacted for assistance.