REDUCING STROKE BURDEN ON VANCOUVER ISLAND
Building a Team to Deliver Endovascular Thrombectomy

PQI PHYSICIAN QUALITY IMPROVEMENT
An SSC Initiative

PROJECT TEAM

Project Participants:

- Dr. Kristen Attwell-Pope, Medical Director, Brain Health
- Dr. Shane Greek, Interventional Radiology
- Dr. Brian Farrell, Emergency Medicine
- Dr. Andrew Penn, Director, Stroke Rapid Assessment Unit
- Melanie Penn, Stroke Nurse
- John Leroy, Manager, Stroke Program, South Island
- Max Bibok IT, Data Analyst

AIM

Quality control process, in parallel to the introduction of a new intervention, EVT, to Vancouver Island, to determine if this intervention could be delivered with reasonable safety and good outcomes.

RESULTS (I)

93 patients were included up to Jan 2, 2019 as intent-to-treat. Some re-perfused spontaneously and some died before EVT could be performed and therefore do not have EVT metrics. Various metrics are compared to the major Canadian clinical trial (ESCAPE).

	ESCAPE	VGH
N	316	93
Age	71	75.5
NIHSS (clinical severity - higher worse)	16	15
ASPECT (CT severity - lower worse)	9	8.6
Onset to tPA	1 hr 50 min	2 hr 27 min
Door to CT		25 min
CT to EVT start (groin puncture)	51 min	2 hr 4 min
Onset to Reperfusion	4 hrs 1 min	5 hrs 46 min

BACKGROUND

1.9 million brain cells die every minute after stroke.
IV thrombolysis, the only prior acute treatment, is only appropriate for a limited proportion of ischemic stroke patients.

Five landmark trials released in 2015 provided strong evidence for the efficacy of endovascular mechanical clot retrieval in hyperacute stroke care.

DATA

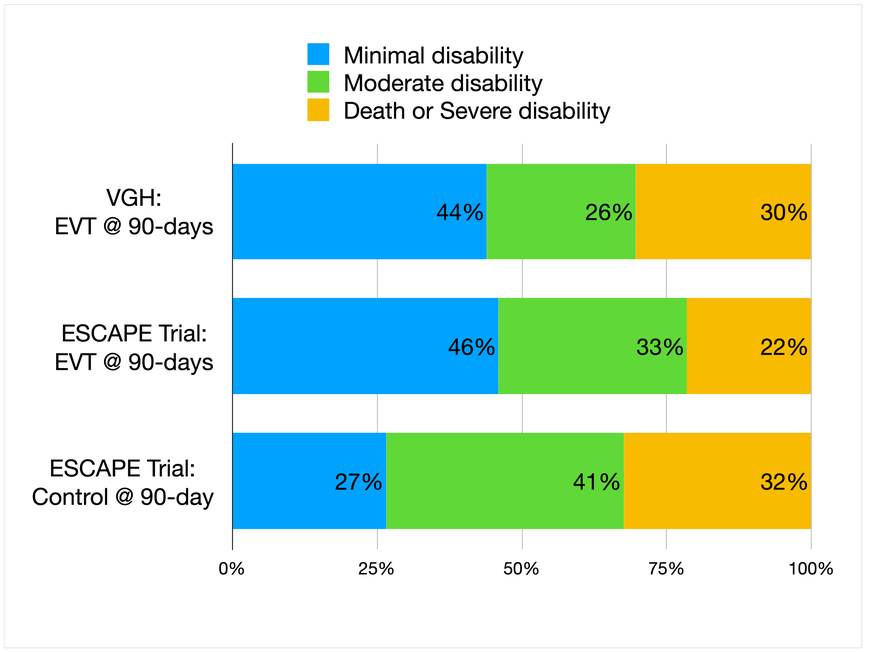
All patients receiving EVT from May 10, 2016 until Jan 2, 2019 are included, with 90-day outcomes available for cases with interventions up to Sept 2018.

Data collected prospectively by VGH stroke nurses.

RESULTS (II)

90-day outcomes for all patients taken to the angio suite for EVT up to Sept 2018 at VGH again compared to the ESCAPE clinical trial performance figures showing EVT and Control arms.

Outcome as per Modified Rankin Scale:
0-2 = Minimal, 3-4 = Moderate, 5-6 = Poor

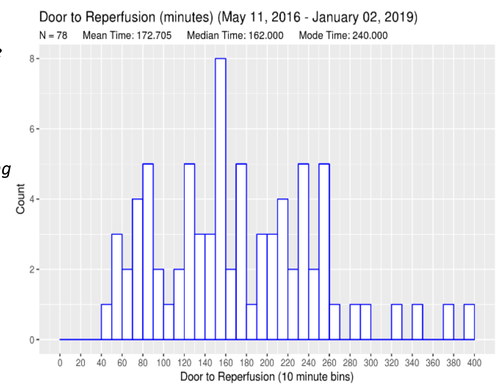


PROBLEM

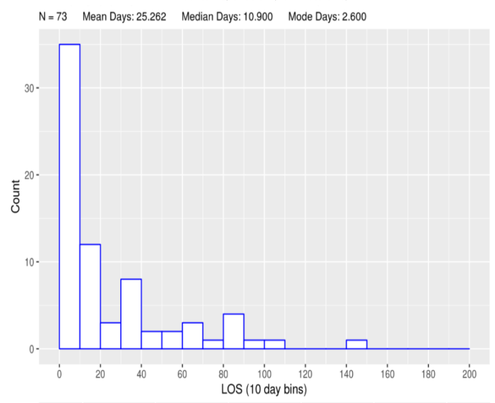
Success of Endovascular Thrombectomy (EVT) requires ultra fast access to specialized neuro imaging, neurological assessment and an angio suite with interventional radiologists able to perform EVT. Prior access was via air transport to Vancouver and outcomes were poor, with an inordinately high rate of severe disability or death. This appeared primarily due to long delays.

RESULTS (III)

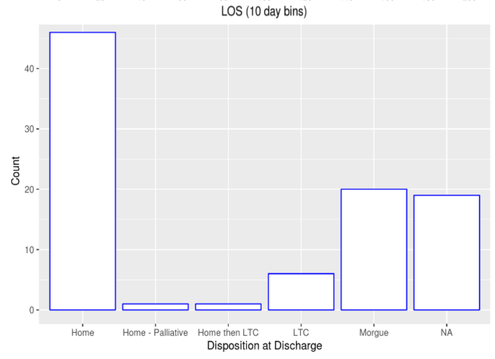
1: *Histogram of the time from arrival to the ED until the cerebral blood vessel has been cleared of clot for those receiving successful EVT treatment.*



2: *Histogram of length of stay for patients treated before Sept 2018.*



3: *Patients' disposition at time of discharge treated before Sept 2018.*



CONCLUSION

Introduction of EVT was possible on Vancouver Island and over 2 years 7 months, 93 patients were sent for treatment. The proportion of patients having a good outcome was comparable to that of the major clinical trial involving Canadian academic centres. The proportion sustaining a poor outcome was comparable to the control group in that trial population (who still received tPA treatment where possible). This was despite a median age 4.5 years greater than in that trial. This required coordination of multiple services including EMS, emergency medicine, neurology, radiology, anaesthesiology, intensive care, and neurosciences nursing. Only 7 patients required long term care. VGH performance in terms of speed to treatment was slower than in the published trials. This is a factor in determining outcome and is therefore an important quality improvement target moving forward.

SSC SPECIALIST SERVICES COMMITTEE

island health