

orHealth ntario

cing cardiac, stroke scular care

Endovascular Stroke Treatment Centre Service Delivery Requirements 2021

February

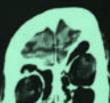


Table of Contents

3

About CorHealth Ontario Endovascular Treatment for Stroke

4

Instructions

5

Section 1: Criteria Applicable to Stroke Endovascular Treatment Centres

14

Appendix A: Ontario Endovascular Treatment Centre Criteria

16

Appendix B: Compliance Statement

About CorHealth Ontario

CORHEALTH ONTARIO

As of June 22, 2017, CorHealth Ontario, was formed by the merger of the Cardiac Care Network of Ontario and the Ontario Stroke Network, with an expanded mandate spanning cardiac, stroke and vascular services across the care continuum. CorHealth provides a strategic understanding of care needs of both patients and providers, as the basis for clinical quality improvement, provincial planning, resource allocation and measurement performance of quality and outcomes. CorHealth is committed to ensuring the highest quality of care, based on evidence, standards and guidelines, working with key stakeholders including the 11 regional stroke networks, and supporting the Ontario Health regions and the Local Health Integration Networks to plan, coordinate, implement and evaluate stroke, cardiac and vascular care.

ENDOVASCULAR TREATMENT FOR STROKE

Six major randomized controlled trials have demonstrated significant efficacy of Endovascular Thrombectomy (EVT) with reduced mortality and major functional benefits for select patients with acute ischemic stroke caused by large vessel occlusions.^{1,2,3,4, 5, 6} The ESCAPE² trial revealed that EVT, compared to standard care, increased positive functional outcomes by 25% and reduced death rate by 50% for appropriately selected individuals. EVT involves the mechanical removal of a clot (embolectomy) by specialists with neuro-interventionalist expertise (e.g. neuroradiologist, neurosurgeons, neurologists).

Time-is-brain and EVT selection requires rapid triage, assessment, and neurovascular (brain and vascular) imaging. Eligible patients who present with potentially disabling, large vessel occlusions within 6 hours of symptom onset should receive EVT. Additionally, as demonstrated by recent trials, individuals presenting within 24 hours of stroke symptom onset and those patients with stroke on awakening should be considered for EVT when they meet clinical and imaging criteria^{7,8}.

A provincial process has been established to support regional access to EVT. Regional access builds on existing systems for accessing thrombolysis (tPA) and considers time, distance, clinical presentation, and imaging. This process involves local assessment, collaborative identification of EVT candidates, and use of CritiCall Ontario to facilitate referral and transfer. In addition, regional networks are expanding EVT access through local processes with non-designated stroke hospitals for

¹ O. Berkhemer, P. Fransen, et. al, A Randomized Trial of Intraarterial Treatment for Acute Ischemic Stroke. <u>N</u> Engl J Med 2015; 372:11-20. (Mr. CLEAN)

² M. Goyal, A. Demchuk, et. al. Randomized Assessment of Rapid Endovascular treatment of Ischemic Stroke. <u>N Engl J Med 2015</u>; 372:1019-30 (ESCAPE)

³ B.C.V Campbell, P.J Mitchell et. al. Endovascular Therapy for Ischemic Stroke with Perfusion-Imaging Selection. <u>N Engl J Med 2015; 372:1009-18</u> (EXTEND-IA).

⁴ J. Saver, M. Goyal et. al Stent-Retriever Thrombectomy After Intravenous t-PA vs. t-PA Alone in Stroke. <u>N Engl</u> <u>J Med 2015</u>; 372:2285-2295 (SWIFT PRIME)

⁵ T. Jovin, A. Chamorro, et. al. Thrombectomy within 8 hours after Symptom Onset in Ischemic Stroke. <u>N Engl J</u> <u>Med 2015; 372:2296-2306</u> (REVASCAT)

⁶ S. Bracard, X Ducrocq, et. al Mechanical thrombectomy after intravenous alteplase versus alteplase alone after stroke (THRACE): a randomized controlled trial <u>Lancet Neurology 2016; vol 15 (11); 1138-1147.</u>

⁷ R.G. Nogueira, A.P. Jadhav et. al Thrombectomy 6 to 24 Hours after Stroke with a Mismatch between Deficit and Infarct. <u>N Engl J Med 2018; 378:11-21</u> (DAWN)

⁸ G.W. Albers, M.P. Marks et. al. Thrombectomy for Stroke at 6 to 16 Hours with Selection by Perfusion Imaging. N Engl | Med 2018;378:708-18. (DEFUSE 3)

patients that present up to 24 hours of stroke symptom onset.

Endovascular Thrombectomy is a highly specialized procedure and is performed at a limited number (11) of sites in Ontario. In alignment with the Canadian Stroke Best Practice Recommendations, the Ontario Hyperacute Stroke Care Steering Committee, developed and endorsed the Ontario Stroke EVT Centre criteria contained in this document. An Ontario hospital must meet established criteria (Appendix A) to be designated as a Stroke Endovascular Treatment Centre. The 11 designated Stroke EVT Centres in Ontario currently receive procedure volumebased funding from the Ministry of Health.

There are two components of the Ontario EVT Centre criteria which include *required* and *additional considerations*.

Required criteria outline elements that must be in place to be a designated Stroke Endovascular Treatment Centre. **Additional considerations** outline criteria that are strongly recommended to support stroke endovascular treatment planning and implementation.

As per the Amendment to the Ministry-LHIN Accountability Agreement 2017-18 Health System Funding Reform and other Hospital Funding Allocation letters, hospitals that receive EVT funding will be required to comply with service delivery requirements set out by CorHealth Ontario. As such, CorHealth Ontario, in collaboration with the MOH, communicates these requirements and facilitates reviews of the funded EVT Centres to determine compliance with the requirements.

Instructions:

SECTION 1 OUTLINES THE FOLLOWING:

- A description of the criteria used to evaluate stroke endovascular treatment centres
- A description of supporting information

Please indicate compliance by checking the corresponding statement in the **Supporting Information** section. If your hospital is non-compliant with any of the service delivery requirements, please indicate a plan and timeline for achieving compliance by providing additional information in the Response/Comments section.

Upon completion of Section 1, please ensure completion of **Appendix B** Hospital Chief Executive Officer (CEO)/Delegate Stroke Endovascular Treatment Centre Review Confirmation and Attestation Letter

Submit all sections electronically by March 19 2021 to:

SHELLEY SHARP

Senior Strategist, Stroke Program CorHealth Ontario shelley.sharp@corhealthontario.ca

Submit any questions and/or inquiries to: service@corhealthontario.ca

Section 1: Criteria Applicable to Stroke Endovascular Treatment Centres:

Please review and indicate compliance under the **Supporting Information Section**. Upon completion of Section 1, please complete Appendix B

VOLUME CRITERIA	
1. EVT Centre volume requirements	
Criteria Description	Supporting Information
• A minimum of twenty cases/year/centre ⁹	 Check if applicable: Annual EVT volumes are a minimum of twenty cases/year/centre
esponse/Comments:	

INFRASTRUCTURE CRITERIA	
2. Stroke Imaging	
Criteria Description	Supporting Information
• All Stroke EVT Centres must have imaging on-site with 24-hour on site access, seven days a week, including computed tomography (CT) scanner (i.e. 3rd generation or higher helical scanner) with programming for CT angiography (CTA) (multiphase or dynamic CTA); CT perfusion imaging can also be used if available on-site ¹⁰	 Check all that apply: Attestation to the presence of CT with programming for CT angiography (CTA) (multiphase or dynamic CTA) on-site and access 24 hours a day, seven days a week Attestation that CT perfusion imaging is available on-site CT perfusion imaging is available 24 hours a day, seven days a week

⁹ Recommendation from the EVT working group in alignment with Interventional training guidelines ¹⁰ JM Boulanger, MP Lindsay, G. Gubitz, et al. Canadian Stroke Best Practice Recommendations for Acute Stroke Management: Prehospital, Emergency Department and Acute Inpatient Stroke Care 6th Edition Update 2018. <u>International Journal of Stroke 2018, Vol 13(9) 949-984</u>

Response/Comments:

3. Neuro Critical Care Unit (NICU) Facilities	
Criteria Description	Supporting Information
 Neurosurgery support and neurocritical care services (Neuro ICU/Stepdown Unit) onsite For post procedure care: Able to admit to a designated critical care/Step down and/ or Stroke Unit with monitoring capabilities and protocols in place that follow current evidence based-stroke best practice recommendations¹¹ Response/Comments: 	 Check all that apply: Attestation that Neuro ICU/Stepdown unit facilities available on-site Attestation that standardized care processes available to Neuro ICU/Stepdown/Stroke unit staff, such as pre-printed order sets patient care pathways, and standard care algorithms

¹¹ JM Boulanger, MP Lindsay, G. Gubitz, et al. Canadian Stroke Best Practice Recommendations for Acute Stroke Management: Prehospital, Emergency Department and Acute Inpatient Stroke Care 6th Edition Update 2018. <u>International Journal of Stroke 2018, Vol 13(9) 949-984</u>

4. Linkages with Regional and/or District Stroke Program	
Criteria Description	Supporting Information
 Established linkage with Regional and/or District Stroke Coordinator/Program Collaborative protocols and processes to enable access to EVT with regional and district stakeholders 	 Please provide name and contact information of Regional and/or District Stroke Coordinator Attestation of regional access protocols and processes to expand access to EVT including the 24h treatment window
Response/Comments:	

5. Acute Stroke Care Facilities	
Criteria Description	Supporting Information
 Able to admit to a stroke unit that meets the Ontario definition¹² of: A geographical unit with identifiable co-located beds Occupied by stroke patients 75% of the time Dedicated¹³ interprofessional team with expertise in stroke care including, at a minimum, nursing, physiotherapy, occupational therapy and speech- language pathology. Protocols in place that follow current evidence based-stroke best practice recommendations for acute stroke management and access to early rehabilitation 	 Check all that apply: Attestation to the availability of a stroke unit that meets the Ontario definition. Attestation that standardized care processes for stroke EVT patients are available to stroke unit staff, such as pre- printed order sets, patient care pathways, and standard care algorithms.

¹² A stroke unit is a geographical unit with identifiable co-located beds (e.g. 5A-7, 5A-8, 5A-0, 5A-10) that are occupied by stroke patients 75% of the time and have a dedicated interprofessional team with expertise in stroke care including, at a minimum, nursing, physiotherapy, occupational therapy and speech-language pathology.

¹³ The core team spends most of their time (i.e. at least 75%) treating stroke patients (Stroke Bundled Care Advisory Committee 2019).

Response/Comments:

CLINICAL SERVICES CRITERIA 6. Intravenous thrombolysis	
 Capability and experience in administration of intravenous tissue Plasminogen Activator (tPA)¹⁴ Centres should target door to needle times of less than 60 min in 90% of treated patients and a median Door to needle time of 30 min. 	 Check all that apply: Attestation that standardized care processes for treatment of stroke patients eligible for tPA are available to ED staff, such as pre-printed order sets, patient care pathways, and standard care algorithms Attestation to achieving target door to needle times of intravenous thrombolysis of <60 min in 90% of treated patients and a median DTN time of 30 min (include data as applicable) Attestation that Executed Memorandums of Understanding

(MOUs) are in place if access to thrombolysis is provided in cooperation with other hospitals

¹⁴JM Boulanger, MP Lindsay, G. Gubitz, et al. Canadian Stroke Best Practice Recommendations for Acute Stroke Management: Prehospital, Emergency Department and Acute Inpatient Stroke Care 6th Edition Update 2018. <u>International Journal of Stroke 2018</u>, Vol 13(9) 949-984

Response/Comments:

7. Stroke Endovascular Team	
Criteria Description	Supporting Information
 A designated Stroke Endovascular Team available 24 hours a day, seven days a week The team must include a stroke physician and specialists with neuro-intervention expertise (e.g. neuroradiologists, neurosurgeons and neurologists) A minimum of 3 neuro-interventionalists is recommended¹⁵ 	 Hospitals shall provide: A description of the health human resources that are mobilized to support 24/7 call services If not available 24/7, include a description and timelines of planning to support moving to 24/7
Response/Comments:	

¹⁵ CorHealth Ontario EVT Program Expansion Clinical and Business Template (2019)

8. Endovascular Thrombectomy	
Criteria Description	Supporting Information
 Capability and experience in administering EVT up to 24 hours of stroke symptom onset including those with stroke symptoms on awakening¹⁶ 	 Check if applicable: Attestation of selecting and administering EVT up to 24 hours of stroke symptom onset including those with symptoms on awakening. If not currently selecting patients within the 24-hour treatment window include a description and timelines of planning to support moving toward this practice
Response/Comments:	

¹⁶ JM Boulanger, MP Lindsay, G. Gubitz, et al. Canadian Stroke Best Practice Recommendations for Acute Stroke Management: Prehospital, Emergency Department and Acute Inpatient Stroke Care 6th Edition Update 2018. <u>International Journal of Stroke 2018, Vol 13(9) 949-984</u>

9. Neuro-interventionalist Training and Experience	
Criteria Description	Supporting Information
 Baseline training and qualifications¹⁷: a. Residency training (in radiology, neurology or neurosurgery) including documented training under the supervision of a board certified neuroradiologist, neurologist or neurosurgeon in the diagnosis and management of acute stroke, interpretation of cerebral arteriography and neuroimaging with subsequent board eligibility or certification or b. Those physicians who did not receive training during residency noted in the bullet above require an additional period (at least one year) of training in clinical neurosciences and neuroimaging, focusing on the diagnosis and management of acute stroke, interpretation of cerebral arteriography and neuroimaging prior to their fellowship in neuro-endovascular interventions Post residency training minimum one-year dedicated training¹⁸ in Interventional Neurology (also termed Endovascular Neurosurgery or Interventional Neurology) under the supervision of a full-time Neuro-interventionalist (with neuroradiology, neurology, or neurosurgical training background) Ability for physician(s) to maintain qualifications as follows: 	 Hospitals shall provide: Attestation to baseline training and qualifications and post-residency training for neuro-interventionalists at the Stroke EVT Centre Attestation to processes to support maintenance of qualifications

 ¹⁷ Consensus Statement (2016) Training Guidelines for Endovascular Ischemic Stroke Intervention: An International Multi-Society Consensus Document. <u>American Journal of Neuroradiology Feb 18 2016</u>.
 ¹⁸ Specific training for intra-arterial therapy for acute ischemic stroke should be performed including obtaining appropriate access even in challenging anatomy, microcatheter navigation in the cerebral circulation, knowledge, and training of the use of stroke specific devices and complication avoidance and management.

 a. A minimum of 16 hours of stroke specific education every 2 years b. Participation in ongoing quality assurance and improvement program c. A minimum of twenty cases/year/ centre¹⁹ A minimum of twenty supra-aortic catheterizations/year/physician 	
Response/Comments:	

Criteria Description	Supporting Information
 Will participate in established process for collection and analysis of process and outcome data (locally and provincially) Establish plans for quality improvement 	 Attestation to commitment to organizational participation in local and provincial data collection and analysis processes
in compliance with CorHealth's Quality improvement processes based on performance.	 Attestation to implementation of Quality Improvement where performance warrants. (include example as appropriate).
Response/Comments:	

¹⁹ Recommendation from EVT Working Group in alignment with Training Guidelines

ADDITIONAL CONSIDERATIONS

10. Device Selection

Criteria Description	Supporting Information
 Retrievable stents with or without additional distal aspiration, or direct aspiration alone with either a distal access catheter or a balloon guided catheter are possible treatment options. Their use should be based on operator preference and expertise. 	 Hospitals to provide: A description of the in-house stock of stents, catheters, guidewires, and thrombo-aspiration devices
Response/Comments:	

11. Angiography Suite		
Criteria Description	Supporting Information	
 Access to a biplane angiography suite²⁰ (preferred) Access to single plane can be provided in instances where biplane is unavailable. 	Hospitals to provide: Attestation to availability of biplane angiography suite 	
Response/Comments:		

 $^{\rm 20}$ Recommendation from the EVT working group

Appendix A: Ontario Endovascular Treatment Centre Criteria

BACKGROUND

An Ontario hospital must meet the following criteria to be designated as a Stroke Endovascular Treating Centre. There are two components of criteria: required and additional considerations. Required criteria outline elements that must be in place to be designated a Stroke Endovascular Treating Centre. Additional considerations criteria outline elements that are strongly recommended to be considered for stroke endovascular treatment planning and implementation.

REQUIRED

- 1. EVT Centre Volume requirement: A minimum of twenty cases/year/centre²¹
- 2 Stroke imaging on-site with 24-hour on site access, seven days a week, including computed tomography (CT) scanner (i.e. 3rd generation or higher helical scanner) with programming for CT angiography (CTA) (multiphase or dynamic CTA); CT perfusion imaging can also be used if available on-site²²
- 3. Neurosurgery support and neurocritical care services (Neuro ICU/Stepdown Unit) on-site
- 4. Established linkage with Regional and/or District Stroke Coordinator/Program with regional protocols and processes to expand access to EVT.
- 5. For post procedure care: Able to admit to a designated critical care/Step down and/or Stroke Unit with monitoring capabilities and protocols in place that follow current evidence based- stroke best practice recommendations²³
 - a. For ongoing acute care admission: Able to admit to a stroke unit that meets the Ontario definition:
 - i. A geographical unit with identifiable co-located beds
 - ii. Occupied by stroke patients 75% of the time
 - iii. Dedicated interprofessional team²⁴
 - iv. Protocols in place that follow current evidence based-stroke best practice recommendations for hyperacute treatment, acute stroke management and access to early rehabilitation²⁵

²¹ Recommendation from the EVT Working Group in alignment with the Training Guidelines

 ²² JM Boulanger, MP Lindsay, G. Gubitz, et al. Canadian Stroke Best Practice Recommendations for Acute Stroke Management: Prehospital, Emergency Department and Acute Inpatient Stroke Care 6th Edition Update 2018. <u>International Journal of Stroke 2018, Vol 13(9) 949-984</u>
 ²³ ibid

²⁴ Interprofessional team with expertise in stroke care including, at minimum, nursing, physiotherapy, occupational therapy and speech-language pathology. The core team spends most of their time (i.e. at least 75%) treating stroke patients (Stroke Bundled Care Advisory Committee 2019)

²⁵ JM Boulanger, MP Lindsay, G. Gubitz, et al. Canadian Stroke Best Practice Recommendations for Acute Stroke Management: Prehospital, Emergency Department and Acute Inpatient Stroke Care 6th Edition Update 2018. <u>International Journal of Stroke 2018, Vol 13(9) 949-984</u>

- 6. Capability and experience in administration of intravenous tissue Plasminogen Activator (tPA)²⁶
- **7.** Capability and experience to select patients for EVT when presenting up to 24 hours of stroke symptom onset or when awakening with stroke symptoms²⁷
- 8. A designated Stroke Endovascular Team available 24 hours a day, seven days a week. The team must include a stroke physician and specialists with neuro-interventionalist expertise (see below for training requirements)
- 9. Neuro-interventionalist training and experience must include the following baseline training qualifications²⁸:
 - a. Residency training (in radiology, neurology, or neurosurgery) including documented training under the supervision of a board certified neuroradiologist, neurologist or neurosurgeon in the diagnosis and management of acute stroke, the interpretation of cerebral arteriography and neuroimaging with subsequent board eligibility or certification; or
 - b. Those physicians who did not receive the training during residency noted in the bullet above require an additional period (at least one year) of training in clinical neurosciences and neuroimaging, focusing on the diagnosis and management of acute stroke, the interpretation of cerebral arteriography and neuroimaging prior to their fellowship in neuro-endovascular interventions;
 - c. Post residency training minimum one-year dedicated training19 in Interventional Neuroradiology (also termed Endovascular Neurosurgery or Interventional Neurology) under the supervision of a full-time Neuro-interventionalist (with neuroradiology, neurology or neurosurgical training background);
 - **d.** Ability for physician(s) to maintain qualifications as follows:
 - o A minimum of 16 hours of stroke specific education every 2 years
 - o Participation in ongoing quality assurance and improvement program
 - o A minimum of twenty cases/year/centre²⁹
 - o A minimum of twenty supra-aortic catheterizations/year/physician
- **10.** Commitment to organizational participation in local and provincial data collection and analysis processes

ADDITIONAL CONSIDERATIONS

- **11.** Device selection may include retrievable stents with or without additional distal aspiration, or direct aspiration alone with either a distal access catheter or a balloon guided catheter.
- **12** Access to a biplane angiography suite³⁰

²⁶ Ibid

²⁷ Ibid

²⁸ Consensus Statement (2016) Training Guidelines for Endovascular Ischemic Stroke Intervention: An International Multi-Society Consensus Document. <u>American Journal of Neuroradiology Feb 18 2016</u>.

²⁹ Recommendations from the EVT working group in alignment with training guidelines.

³⁰ Recommendations from the EVT working group

Appendix B: Compliance Statement

STROKE ENDOVASCULAR TREATMENT CENTRE REVIEW OF COMPLIANCE WITH SERVICE DELIVERY REQUIREMENTS

Hospital Chief Executive Officer (CEO)/Delegate Confirmation and Attestation Letter

Instructions: For the purpose of CorHealth Ontario's review to confirm Stroke Endovascular Centre compliance with service delivery requirements as per the Amendment to the Ministry-LHIN Accountability Agreement 2017-18 Health System Funding Reform and other Hospital Funding Allocation letters, it is the undersigned Hospital CEO's/Delegate's responsibility to complete this Attestation.

You may keep a copy of this Confirmation and Attestation for your files and future reference, with the original to be provided to CorHealth Ontario.

Name of Hospital	
Address	

I, the undersigned, hereby attest that the information contained within this Stroke Endovascular Treatment Centre review of compliance with service delivery requirements submission is accurate to the best of my knowledge.

Signature of Hospital CEO/Delegate:

Printed Name of Hospital CEO/Delegate:

Date: