

Provincial Integrated Work Plan – Secondary Stroke Prevention Quality Indicators

Background

Transient ischemic attack (TIA) or minor non-disabling stroke is associated with a high early risk of stroke, other vascular events, or death. Ontario's Stroke Prevention and Urgent Transient Ischemic Attack - TIA Clinics (Stroke Prevention Clinics) were established in Ontario to rapidly assess and reduce risk of stroke.

Stroke Prevention Clinics have been found to be an effective care model. Urgent assessment and treatment of patients with TIA or minor non-disabling stroke who were referred to a specialist outpatient clinic is associated with reduced subsequent hospital bed-days, acute care costs and six-month disability¹. Referrals to Ontario Stroke Prevention Clinics (SPCs) are associated with a 25% reduction in mortality². The ability to measure and monitor performance, process, as well as patient and system outcomes in stroke care is critical to facilitate continuous improvement.

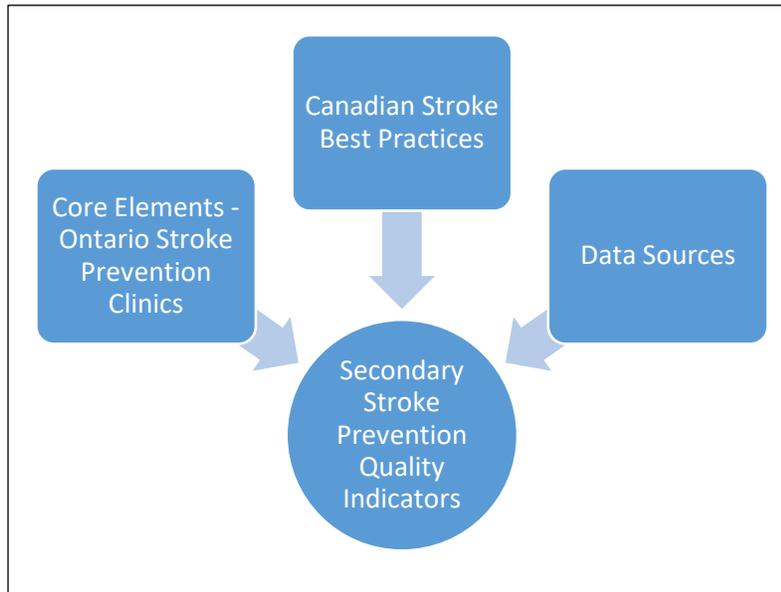
Scope of Secondary Stroke Prevention Quality Indicators

At present, there is no standardized provincial system available for data collection and reporting for SPCs. Reports have identified that “It is critical to find alternatives [to manual retrospective chart audits] for data capture and reporting, ideally through administrative databases such as the National Ambulatory Care Reporting System [NACRS], to support ongoing improvement in SPC care and further inform the need for additional sites across the province”³. Further these reports specify “Common standards for data collection and analysis on stroke should be established, keeping in mind the need to integrate with existing information systems...”⁴. While no provincial system is yet available, it remains a priority to monitor the performance of SPCs and enable quality improvement.

The Secondary Prevention Provincial Integrated Work Plan - Evaluation Working Group has developed these quality indicators in an effort to assure that there is a common set of specific measures that support the Canadian Stroke Best Practice Recommendations (2017) and the Ontario Stroke Prevention Clinic Core Elements (2017). By creating this set of measures, local, regional and provincial projects for data collection and reporting can use common definitions which act to reduce implementation efforts, disparate data

standards and take advantage of any data components that may be available in administrative data sets.

The goal of these indicators is not to create a new effort of data collection or reporting, rather create a common reference for all SPCs and organizations working to support evaluation and measurement of secondary stroke prevention care in Ontario.



References

- ¹ Luengo-Fernandez R, Gray AM, Rothwell PM. Effect of urgent treatment for transient ischemic attack and minor stroke on disability and hospital costs (EXPRESS Study): a prospective population-based sequential comparison. *Lancet Neurol* 2009; 8(3):235–43.
- ² Webster F, Saposnik G, Kapral MK, Fang J, O'Callaghan C, Hachinski V. Organized outpatient care: stroke prevention clinic referrals are associated with reduced mortality after transient ischemic attack and ischemic stroke. *Stroke* 2011; 42(11):3176–82.
- ³ Ontario Stroke Evaluation Report (2013); Spotlight on Secondary Stroke Prevention and Care
- ⁴ Report of the Joint Stroke Strategy Working Group (2000)

Secondary Stroke Prevention Quality Indicators (July 20, 2018)

†At this time there is no standardized (e.g. provincial) system to collect and report this data and clinics may choose how to accommodate these. A project to utilize CIHI's NACRS Clinic Lite for standardized provincial data collection for Stroke Prevention Clinics (SPC) has been contemplated, and this set of indicators capitalizes on and aligns to the data anticipated from this project. Additional information can be found in pages 16 to 19 (About the NACRS Clinic Lite Project, Appendix A - CIHI's NACRS Clinic Lite Project: Minimum Data Set, Appendix B - CIHI's NACRS Clinic Lite Project: Draft SPC Reporting Indicators)

Column Title Legend:

- Core Element: Structure for SPC services
- Indicator: Data metric that can define/objectify how core element is achieved
- Definition/Calculation: what data is required to complete the calculation
- Data Source: where data can be mined (gathered), specific to each clinical setting. See Glossary for full references on these acronyms
- Clinical Setting: indicates the types of clinics/settings that this indicator applies to for their patient populations. SPC = Stroke Prevention Clinic, ED = Emergency Department, PC = Primary Care
- Indicator Alignment: this is "why" we are collecting the data, the guideline or source recommending the indicator
- Considerations, References: additional ways to break out information that could be valuable, other references that can help support achieving the metric

*** Priority Quality Indicators aligning to the CIHI NACRS Lite Project (see p. 33 - Appendix B) are identified in the following Table in red**

Core Element	Indicator	Definition/Calculation	Data Source	Clinical Setting			Indicator Alignment	Considerations, References
				S P C	E D	P C		
1. Access to Stroke Prevention Clinics	*Volume of SPC Visits	Number of total SPC Visits <ul style="list-style-type: none"> • Calculate by n 	†	√				
	Proportion of SPC visits that had an initial visit within the recommended Time Frame for each Triage Level	<p><u>Numerator</u>: Number of patients with TIA/stroke seen in SPC within recommended time frame from referral date -</p> <p>High Risk: Within 24 hours Moderate (Increased) Risk: Within 2 weeks Lower Risk: Within 1 month</p> <p><u>Denominator</u>: Total number of patients with confirmed TIA/stroke seen in SPC</p> <ul style="list-style-type: none"> • Calculate by n, % 	†	√		<ul style="list-style-type: none"> • OSER (2013) • CSBPR QoS (2016) • CSBPR (PR) (2017) 	CSBPR Recurrent Stroke Risk Levels & Initial Management	

Core Element	Indicator	Definition/Calculation	Data Source	Clinical Setting			Indicator Alignment	Considerations, References
				S P C	E D	P C		
	Proportion of patients at Very High Risk of recurrent stroke who are seen in ED	<p><u>Numerator</u>: Number of patients with TIA/stroke at very high risk of recurrent stroke seen in ED</p> <p><u>Denominator</u>: Total number of patients with confirmed TIA/stroke seen in ED</p> <ul style="list-style-type: none"> Calculate by n, % 	CIHI NACRS	√	√		<ul style="list-style-type: none"> OSER (2013) CSBPR QoSC (2016) CSBPR (PM) (2017) <p><u>Consideration</u>: Calculate proportion of SPC visits that were very high risk of recurrent stroke and were seen in ED</p>	<p>CSBPR Recurrent Stroke Risk Levels & Initial Management</p>
	*Average wait time from referral to SPC initial visit by risk level	<p><u>Numerator</u>: SUM [number of days for all new stroke/TIA patients to be seen in SPC from referral received until time patient seen in SPC <u>within</u> recommended triage time frames] –</p> <p>High Risk: Within 24 hours Moderate (Increased) Risk: Within 2 weeks Lower Risk: Within 1 month</p> <p><u>Denominator</u>: Total number of TIA/stroke patients seen in SPC</p> <ul style="list-style-type: none"> Calculate in days, hours 	†	√		<ul style="list-style-type: none"> OSER (2013) CSBPR (PM) (2017) <p><u>Consideration</u>: Calculate by referral location (e.g., ED)</p>	<p>CSBPR Recurrent Stroke Risk Levels & Initial Management</p>	
	*Proportion of patients with initial SPC appointment delayed, by reason	<p><u>Numerator</u>: Number of patients with initial SPC appointment delayed by reason categories:</p> <ol style="list-style-type: none"> Patient preference Unable to reach/contact patient Clinic/physician cancelled/re-scheduled Physician not available Patient admitted Other <p><u>Denominator</u>: Total number of patients seen in SPC</p> <ul style="list-style-type: none"> Calculate by n, % 	†	√				
	Average wait time from referral to SPC visit depending on location	<p><u>Numerator</u>: SUM [number of days for all new TIA/stroke patients to be seen in SPC from referral received until time patient seen in SPC for locations]:</p> <ol style="list-style-type: none"> ED Primary Care Inpatient 	†	√		<ul style="list-style-type: none"> CSBPR (PM) (2017) 		

Core Element	Indicator	Definition/Calculation	Data Source	Clinical Setting			Indicator Alignment	Considerations, References
				S P C	E D	P C		
		4) Other <u>Denominator:</u> Total number of stroke/TIA patients seen in SPC						
2. Established System for Referral to SPCs	Volume of initial patient visits with TIA/stroke seen in SPC	Number of total <u>new</u> TIA/stroke episodes seen in SPC (unique patient and onset) • Calculate by n	†	√				
	Proportion of patients with TIA/stroke discharged from ED who received a referral to SPC	<u>Numerator:</u> Number of patients with TIA/stroke discharged from ED with referral to SPC <u>Denominator:</u> Total number of patients with TIA/stroke discharged from ED alive • Calculate by n, % Exclusion Criteria Denominator: • Patients admitted to hospital	CIHI NACRS Project 340		√		<ul style="list-style-type: none"> • CSBPR QoSC (2016) • CSBPR (PM) (2017) • QBP (2016) • OSRC (2017) 	
	*Proportion of patients seen in SPC by referral location	<u>Numerator:</u> Number of patients seen in SPC as per following referral locations: 1) ED 2) Primary Care 3) Inpatient 4) Other <u>Denominator:</u> Total number of patients seen in SPC • Calculate by n, %	†	√			<ul style="list-style-type: none"> • OSER (2013) 	
	*Proportion of patients seen in SPC by reason for referral	<u>Numerator:</u> Number of patients seen in SPC as per following reason for referral 1) TIA/Query TIA 2) Stroke/Query Stroke 3) Asymptomatic carotid disease 4) Other chronic cerebrovascular disease 5) Post-hospital discharge stroke patient follow-up 6) Primary Prevention 7) Other <u>Denominator:</u> Total number of patients seen in SPC • Calculate by n, %	†	√			<ul style="list-style-type: none"> • OSER (2013) 	

Core Element	Indicator	Definition/Calculation	Data Source	Clinical Setting			Indicator Alignment	Considerations, References
				S P C	E D	P C		
3. Access to Stroke Specialists	Stroke Team Complement	Inventory of Team Complement (e.g. RN, NP, MD, etc.)	Survey	√			<ul style="list-style-type: none"> • HSF SPRI (2015-16) See CSBPR (PR) Core Elements • QBP (2016) 	
4. Access to Telemedicine (if applicable)	Proportion of patients seen in SPC via telemedicine	<u>Numerator:</u> Number of patients seen in SPC via telemedicine <u>Denominator:</u> Total number of patients seen in SPC <ul style="list-style-type: none"> • Calculate by n, % 	†	√			<ul style="list-style-type: none"> • CSBPR (TS) (2017) 	Consideration: Calculate by referral location (e.g., ED)
5. Access to Diagnostic Interventions: Brain Imaging, Vascular Imaging, Cardiac Diagnostics, Labs	Proportion of patients with TIA/ stroke who received brain CT or MRI in ED within 24 hours	<u>Numerator:</u> Number of patients with TIA/stroke who received CT or MRI within 24 hours of arrival at an ED <u>Denominator:</u> Total number of patients with TIA/stroke discharged from ED <ul style="list-style-type: none"> • Calculate by n, % 	CIHI NACRS Project 340		√		<ul style="list-style-type: none"> • QBP (2016) • CSBPR (PM) (2017) 	<u>Comment:</u> CIHI 340: <i>CT/MRI scan documented that patient received CT or MRI within 24 hours of arrival OR previous facility if patient transferred from another acute care facility</i> <u>Consideration:</u> Calculate median time from ED arrival to brain CT/MRI
	*Proportion of patients receiving neuroimaging (prior to SPC, at SPC)	<u>Numerator:</u> Number of patients seen in SPC who had brain CT or MRI completed either prior to and/or at the SPC <u>Denominator:</u> Total number of patients seen in SPC <ul style="list-style-type: none"> • Calculate by n, % 	†	√			<ul style="list-style-type: none"> • OSER (2013) 	<u>Considerations:</u> Calculate by TIA/stroke diagnosis. Calculate median time from first medical care encounter to brain CT or MRI (CSBPR (PM) 2017) Calculate repeat brain CT or MRI

Core Element	Indicator	Definition/Calculation	Data Source	Clinical Setting			Indicator Alignment	Considerations, References
				S P C	E D	P C		
	*Proportion of patients receiving vascular imaging (prior to SPC, at SPC)	<p><u>Numerator:</u> Number of patients seen in SPC who had brain/neck CTA or MRA or neck Carotid Doppler or Ultrasound completed, either prior to or at the SPC</p> <p><u>Denominator:</u> Number of total patients seen in SPC</p> <ul style="list-style-type: none"> Calculate by n, % 	†	√			<ul style="list-style-type: none"> QBP (2016) 	<p><u>Considerations:</u></p> <p>Calculate by TIA/ischemic stroke diagnosis (OSER 2013). Calculate median time from first medical care encounter to vascular imaging (CSBPR (PM) 2017). Calculate repeat vascular imaging. Calculate by Risk Level</p>
	*Proportion of patients seen in SPC without atrial fibrillation receiving prolonged ECG monitoring (prior to SPC, at SPC)	<p><u>Numerator:</u> Number of patients with TIA/ischemic stroke seen in SPC without diagnosed atrial fibrillation who were prescribed or had completed prolonged cardiac monitoring (holter, loop recorder, event recorder) either prior to or at SPC</p> <p><u>Denominator:</u> Number of total patients with TIA/ischemic stroke without atrial fibrillation seen in SPC</p> <ul style="list-style-type: none"> Calculate by n, % 	†	√			<ul style="list-style-type: none"> CSBPR (PR) 2017 	
	Proportion of patients with TIA/ stroke who had recommended labs completed at OR prior to initial SPC visit	<p><u>Numerator:</u> Number of patients with TIA/stroke seen in SPC who had the following blood work completed in entirety at OR prior to the initial SPC visit:</p> <ul style="list-style-type: none"> Hematology Electrolytes Coagulation Renal function Random glucose HbA1c Lipid Levels <p><u>Denominator:</u> Total number of patients with TIA/stroke seen in SPC</p> <ul style="list-style-type: none"> Calculate by n, % 	CIHI NACRS CIHI DAD (prior to SPC) Audit	√			<ul style="list-style-type: none"> QBP (2016) CSBPR (PR) (2017) 	
6. Diagnosis and Determination	*Post SPC Visit Diagnosis	Number of total patients seen in SPC with discharge diagnosis by stroke subtype:	†	√			<ul style="list-style-type: none"> OSER (2013) 	<p><u>Consideration:</u></p>

Core Element	Indicator	Definition/Calculation	Data Source	Clinical Setting			Indicator Alignment	Considerations, References
				S P C	E D	P C		
of Stroke Etiology		<ul style="list-style-type: none"> ○ TIA ○ Ischemic Stroke ○ Hemorrhagic Stroke ● Calculate by n 					Calculate # of non-TIA/stroke patients seen in SPC	
7. Vascular Risk Factor Assessment & Screening	Proportion of patients with blood pressure documented	<u>Numerator:</u> Number of patients with blood pressure documented as being done <u>Denominator:</u> Number of total patients seen <ul style="list-style-type: none"> ● Calculate by n, % 	Audit EMR*	√		√	<ul style="list-style-type: none"> ● CSBPR (PM) (2017) ● QBP (2016) 	<u>Consideration:</u> Calculate by TIA/stroke diagnosis
	Proportion of patients with TIA/ stroke seen with vascular disease risk factors	<u>Numerator:</u> Number of patients with TIA/stroke seen in clinic that have confirmed vascular risk factor(s): <ul style="list-style-type: none"> ❖ Previous TIA/stroke ❖ Hypertension ❖ Atrial Fibrillation ❖ Dyslipidemia ❖ Diabetes ❖ Alcohol consumption ❖ Smoking ● Diet ● Sodium ● Weight ● Exercise ● Recreational Drug Use ● Birth Control/Hormone Replacement Therapy <u>Denominator:</u> Total number of patients with TIA/stroke seen in Clinic <ul style="list-style-type: none"> ● Calculate n, % 	† EMR*	√		√	<ul style="list-style-type: none"> ● OSER (2013) ● CSBPR (PM) (2017) ● CSBPR QoS (2016) ● QBP (2016) 	<ul style="list-style-type: none"> ❖ Items supported through NACRS Clinic Lite ● Items that would require EMR* review
	Proportion of of SPC patients with TIA/stroke with documented smoking status recorded on patient record	<u>Numerator:</u> Number of patients with TIA/stroke seen in SPC with documented smoking status recorded on patient record <u>Denominator:</u> Total number patients with TIA /stroke seen in SPC <ul style="list-style-type: none"> ● Calculate n, % 	† EMR*	√		√	<ul style="list-style-type: none"> ● CSBPR (PM) (2017) 	
7. Vascular Risk Factor Management	*Proportion of patients deemed 'current tobacco	<u>Numerator:</u> Number of current tobacco users seen in SPC who received tobacco use cessation counselling	† EMR*	√		√	<ul style="list-style-type: none"> ● OSER (2013) ● QBP (2016) 	<u>Consideration:</u>

Core Element	Indicator	Definition/Calculation	Data Source	Clinical Setting			Indicator Alignment	Considerations, References
				S P C	E D	P C		
	users' provided/referred to cessation counselling	or were referred to a tobacco use cessation counselling service <u>Denominator:</u> Total number of current tobacco users seen in SPC • Calculate n, %					Calculate by TIA/stroke diagnosis (CSBPR (PM) 2017)	
	*Proportion of patients with medication reconciliation done	<u>Numerator:</u> Number of patients with medication reconciliation done <u>Denominator:</u> Total number of patients seen in SPC • Calculate by n, %	†	√		• QBP (2016)		
	Proportion of current tobacco users with TIA/stroke prescribed tobacco use cessation medications	<u>Numerator:</u> Number of patients with TIA/stroke who were taking or prescribed tobacco use cessation medication(s) at Clinic <u>Denominator:</u> Total number of current tobacco users with TIA/stroke seen in Clinic • Calculate n, %	Audit EMR*	√		√ • OSER (2013) • QBP (2016)		
	*Proportion of patients with TIA/ ischemic stroke prescribed antithrombotic therapy	<u>Numerator:</u> Number of patients with TIA/ ischemic stroke who were taking or prescribed antiplatelet therapy or anticoagulant therapy <u>Denominator:</u> Total number of patients with TIA/ischemic stroke seen in SPC or ED • Calculate n, %	† CIHI NACRS Project 340	√	√	• OSER (2013) • CSBPR (PM) (2017)		
	*Proportion of patients with TIA/ischemic stroke with atrial fibrillation prescribed anticoagulant therapy	<u>Numerator:</u> Number of patients with TIA/ischemic stroke with atrial fibrillation who were taking or prescribed anticoagulant therapy <u>Denominator:</u> Total number of TIA/ischemic stroke patients with atrial fibrillation seen in SPC or ED • Calculate n, %	† CIHI NACRS Project 340	√	√	• OSER (2013) • CSBPR (PM) (2017)		
	*Proportion of patients with TIA/ischemic stroke prescribed lipid-lowering medications	<u>Numerator:</u> Number of patients with TIA/ischemic stroke seen in SPC who were taking or prescribed lipid lowering medications <u>Denominator:</u> Total number of patients with TIA/ischemic stroke seen in SPC • Calculate n, %	†	√		• OSER (2013) • CSBPR (PM) (2017) • QBP (2016)		
	*Proportion of patients with TIA/stroke prescribed	<u>Numerator:</u> Number of patients with TIA/stroke who were taking or prescribed antihypertensive medications	†	√		• OSER (2013) • CSBPR (PM) (2017)		

Core Element	Indicator	Definition/Calculation	Data Source	Clinical Setting			Indicator Alignment	Considerations, References
				S P C	E D	P C		
	antihypertensive medications	<u>Denominator:</u> Total number of patients with TIA/stroke <ul style="list-style-type: none"> Calculate n, % 				<ul style="list-style-type: none"> QBP (2016) 		
	Proportion of patients with TIA/stroke who received or were referred for behavior modification counselling	<u>Numerator:</u> Number of patients with TIA/stroke who received or were referred for behaviour modification counselling <u>Denominator:</u> Total number of patients with TIA/stroke seen in Clinic <ul style="list-style-type: none"> Calculate n, % 	† EMR*	√	√	<ul style="list-style-type: none"> QBP (2016) 		
8. Carotid Stenosis Management	Proportion of patients with TIA/ischemic stroke who received carotid revascularization intervention within 2 weeks	<u>Numerator:</u> Number of patients with moderate to severe (50-99%) symptomatic carotid artery stenosis who received carotid revascularization intervention within 2 weeks of their TIA or stroke event <u>Denominator:</u> Total number of patients with TIA/ischemic stroke with moderate to severe (50-99%) carotid artery stenosis <ul style="list-style-type: none"> Calculate n, % 	CIHI DAD EMR Audit	√	√	<ul style="list-style-type: none"> OSER (2013) CSBPR QoS (2016) CSBPR (PM) (2017) QBP (2016) 	<u>Consideration:</u> Calculate separated by procedure type (CEA vs CAS)	
	*Median time (days) from TIA/stroke event to CEA/CAS	<u>Numerator:</u> Median number of days from time of TIA/stroke symptom onset until carotid revascularization intervention (CEA/CAS) completed <u>Denominator:</u> Total number of patients with TIA/stroke who received carotid revascularization procedure (CEA/CAS) <ul style="list-style-type: none"> Calculate in days Exclusion Criteria <ul style="list-style-type: none"> Hemorrhagic Stroke 	† CIHI DAD	√	√	<ul style="list-style-type: none"> OSER (2013) CSBPR QoS (2016) CSBPR (PM) (2017) QBP (2016) 		
9. Patient, Family/ Caregiver Education (if applicable)	*Proportion of patients with TIA/stroke seen in SPC who received stroke prevention education	<u>Numerator:</u> Number of patients with TIA/stroke seen in SPC who had documentation in their record of patient/caregiver education delivery <u>Denominator:</u> Total number of patients with TIA/stroke seen in SPC <ul style="list-style-type: none"> Calculate n, % 	†	√		<ul style="list-style-type: none"> QBP (2016) 		
10. SPC Stroke Team Education	A formal education program is in place for	Yes/No	Self-Assessment	√		<ul style="list-style-type: none"> QBP (2016) 	Core Competency Framework- https://www.corhealth	

Core Element	Indicator	Definition/Calculation	Data Source	Clinical Setting			Indicator Alignment	Considerations, References
				S P C	E D	P C		
	<p>new hires, existing staff and physicians</p> <p>There is evidence of processes that support the communication of education opportunities on stroke best practices</p> <p>The Education program is reviewed at least annually to ensure alignment with the CSBPR</p>	<p>Yes/No</p> <p>Yes/No</p>					ontario.ca/resources-for-healthcare-planners-&-providers/core-competencies	
11. Rehabilitation and Community Re-Integration	Proportion of patients with TIA/stroke referred to allied health	<p><u>Numerator</u>: Number of patients with TIA/stroke seen in Clinic who were referred to allied health:</p> <ul style="list-style-type: none"> • Dietitian • OT • PT • SW • SLP • Pharmacist <p><u>Denominator</u>: Total number of patients with TIA/stroke seen in Clinic</p> <ul style="list-style-type: none"> • Calculate n, % 	† EMR*	√		√	<ul style="list-style-type: none"> • CSBPR (PR) (2017) 	
	Proportion of patients with TIA/stroke referred to community rehabilitation service	<p><u>Numerator</u>: Number of patients with TIA/stroke seen in SPC who were referred to community rehabilitation service</p> <p><u>Denominator</u>: Total number of patients with TIA/stroke seen in SPC</p> <ul style="list-style-type: none"> • Calculate n, % 	†	√			<ul style="list-style-type: none"> • CSBPR (PR) (2017) 	<p><u>Consideration</u>: Calculate proportion of patients with TIA referred to outpatient cardiac rehabilitation program (Audit)</p>
	Proportion of patients with TIA/stroke screened for fitness to drive	<p><u>Numerator</u>: Number of patients with TIA/stroke seen in SPC who were screened for fitness to drive</p> <p><u>Denominator</u>: Total number of patients with TIA/stroke seen in SPC</p> <ul style="list-style-type: none"> • Calculate n, % 	†	√			<ul style="list-style-type: none"> • QBP (2016) 	

Core Element	Indicator	Definition/Calculation	Data Source	Clinical Setting			Indicator Alignment	Considerations, References
				S P C	E D	P C		
12. Cognition, Depression, and Post-Stroke Fatigue Assessment, Screening & Management	Proportion of patients with TIA/stroke where a cognitive functioning screen was completed at a Clinic visit	<u>Numerator:</u> Number of new patients with TIA/stroke with documentation to indicate screening for cognitive impairment using validated tool was completed <u>Denominator:</u> Total number of patients with TIA/stroke seen in Clinic <ul style="list-style-type: none"> Calculate n, % 	† EMR*	√		√	<ul style="list-style-type: none"> OSER (2013) QBP (2016) 	See CSBPR recommended vascular cognitive impairment screening tools
	Proportion of patients with TIA/ stroke where a depression screen was completed at a Clinic visit	<u>Numerator:</u> Number of new patients with TIA/stroke with documentation to indicate screening for depression using validated tool was completed <u>Denominator:</u> Total number of patients with TIA/stroke seen in Clinic <ul style="list-style-type: none"> Calculate n, % 	† EMR*	√		√	<ul style="list-style-type: none"> QBP (2016) 	See CSBPR recommended depression screening tools
	Is there a process in place to screen for post-stroke fatigue as appropriate?	<ul style="list-style-type: none"> Calculate by Yes/No 		√			<ul style="list-style-type: none"> CSBPR (MCF) 	See CSBPR Post Stroke Checklist
13. Quality Assurance	QI plan(s) (QIP) in development or implemented related to secondary stroke prevention care	Annual secondary stroke prevention care QIPs in development or implemented related to improving stroke/TIA patient and system outcomes <ul style="list-style-type: none"> Calculate by Yes/No 	Audit (SPC) Survey (PC)	√		√		
	Patient/Caregiver experience of secondary stroke prevention care experience	Clinic has mechanism(s) in place to obtain patient and family feedback on secondary stroke prevention processes. Examples could include patient and family experience surveys, focus group interviews, patient and family advisory committee <ul style="list-style-type: none"> Calculate by Yes/No 	Audit (SPC) Survey (PC)	√		√	<ul style="list-style-type: none"> HQO (2016) 	
	TIA/stroke best practice protocols & pathways in use	<ul style="list-style-type: none"> Calculate by Yes/No 	Audit	√			<ul style="list-style-type: none"> QBP (2016) 	
14. Communication with External Providers	Proportion of patients with TIA/stroke referred to primary care provider following SPC discharge	<u>Numerator:</u> Number of patients with TIA/stroke referred to primary care provider for follow up after SPC discharge <u>Denominator:</u> Total number of patients with TIA/stroke seen in SPC <ul style="list-style-type: none"> Calculate by n, % 	†	√			<ul style="list-style-type: none"> QBP (2016) 	

Core Element	Indicator	Definition/Calculation	Data Source	Clinical Setting			Indicator Alignment	Considerations, References
				S P C	E D	P C		
	Volume of patients with TIA/stroke seen in primary care	Number of total patients with TIA/stroke seen in primary care <ul style="list-style-type: none"> Calculate by n 	EMR*			√	<ul style="list-style-type: none"> QBP (2016) 	
15. Follow-Up Care	Volume of patients with TIA/stroke who receive a follow-up visit in SPC	Number of patients with TIA/stroke seen for follow up in SPC <ul style="list-style-type: none"> Calculate by n 	†	√				

For Consideration

Data Element	Indicators	Definition/Calculation	Data Source	SPC	ED	Indicator Alignment	Considerations/References
Volumes	Volume of patients with TIA/ stroke discharged from ED	Number of total patients with TIA/stroke discharged alive from ED to the community <ul style="list-style-type: none"> Calculate by n 	CIHI NACRS	✓	✓		<u>Consideration:</u> Calculate by stroke type (e.g. TIA)
	Volume of patients with TIA admitted to hospital	Number of patients with TIA admitted to hospital <ul style="list-style-type: none"> Calculate by n 	CIHI DAD	✓	✓	<ul style="list-style-type: none"> QBP (2016) 	
Readmission or Revisit Rates	Proportion of patients with TIA/stroke discharged from ED and revisited ED or admitted to hospital due to any cause within 30 and 90 days	<u>Numerator:</u> Total number of readmissions to ED (unplanned Visit to ED) or Inpatient Care due to any cause within 30 &/or 90 days of discharge <u>Denominator:</u> Total number of patients with TIA/stroke discharged alive from ED <ul style="list-style-type: none"> Calculate n, % Exclusion Criteria Denominator: <ul style="list-style-type: none"> Elective admissions or transfers 	CIHI NACRS CIHI DAD	✓	✓	<ul style="list-style-type: none"> OSER (2013) QBP (2016) OSRC (2017) 	<u>Considerations:</u> Calculate reason for readmission due to recurrent TIA/stroke. Calculate age and sex-adjusted readmission rates
	Proportion of patients with TIA/stroke discharged from ED and revisited ED or admitted to hospital for any cause within 7 days	<u>Numerator:</u> Total number of readmissions to ED (unplanned Visit to ED) or Inpatient Care due to any cause within 7days of discharge <u>Denominator:</u> Total number of patients with TIA/stroke discharged alive from ED <ul style="list-style-type: none"> Calculate n, % Exclusion Criteria Denominator: <ul style="list-style-type: none"> Elective admissions or transfers 	CIHI NACRS CIHI DAD		✓	<ul style="list-style-type: none"> CSBPR QoSC (2016) CSBPR (PM) (2017) 	<u>Considerations:</u> Calculate reason for readmission due to recurrent TIA/stroke. Calculate age and sex-adjusted readmission rates
	Proportion of patients with TIA/stroke revisiting ED or admitted to hospital within 30 & 90 days of receiving referral to SPC	<u>Numerator:</u> Total number of readmissions to ED (unplanned Visit to ED) or Inpatient Care due to TIA/stroke within 30 &/or 90 days of discharge <u>Denominator:</u> Total number of patients with TIA/stroke discharged alive from ED <ul style="list-style-type: none"> Calculate n, % Exclusion Criteria Denominator: <ul style="list-style-type: none"> Elective admissions or transfers 	CIHI NACRS CIHI DAD	✓		<ul style="list-style-type: none"> OSER (2013) 	

Glossary

Audit: refers to the lack of standardized data source that supports this metric. Manual or electronic auditing would be needed to provide this information

CAS: Carotid Artery Stenting

CCN: Cardiovascular Care Network

CEA: Carotid Endarterectomy

CIHI: Canadian Institute for Health Information

DAD: CIHI Discharge Abstract Database

ED: Emergency Department

EMR*: refers to the primary care patient record, this could be in an Electronic Medical Record or other patient level record source

MDS: Minimum data set

NACRS: CIHI National Ambulatory Care Reporting System

NACRS Clinic Lite: CIHI National Ambulatory Care Reporting System, Clinic Lite version (less native fields than NACRS, provides for custom fields to be created)

PC: Primary Care

OSN: Ontario Stroke Network

OT: Occupational Therapist

PT: Physiotherapist

SLP: Speech Language Pathologist

Stroke Prevention Clinic: SPC

SW: Social Worker

QI: Quality Improvement

SPC: Stroke Prevention Clinic

TIA: Transient Ischemic Attack

Indicator Alignment

CSBPR: Canadian Stroke Best Practice Recommendations, where the section is denoted by **PM**= Performance Measures, **PR**= Prevention, **MCF**= Mood, Cognition and Fatigue, **TS**= Telestroke

CSBPR QoS (2016): [CSBPR Quality of Stroke Care in Canada Stroke: Stroke Key Quality Indicators and Stroke Case Definitions Update 2016](#)

HQO (2016): [Heath Quality Ontario \(2016\): Ontario Patient Experience Measurement Strategy](#)

HSF SPRI (2015-16): Heart and Stroke Foundation Stroke Prevention Services Resource Inventory 2015-16

OSER (2013): [Ontario Stroke Evaluation Report 2013: Spotlight on Secondary Stroke Prevention and Care](#)

OSRC (2017): [Ontario Stroke Report Card –Ontario and LHIN 2015/16 Stroke Report Card and Progress Reports](#)

QBP (2016): [Quality-Based Procedures: Clinical Handbook for Stroke \(Acute and Postacute\)](#), Health Quality Ontario and Ministry of Health and Long-Term Care

About the CIHI NACRS Clinic Lite Project: Data Collection and Reporting for Ontario Stroke Prevention Clinics

In June 2015, the Ontario Stroke Network (OSN) began exploring CIHI's NACRS Clinic Lite system as a possible solution to collect standardized data from Stroke Prevention Clinics (SPC) to support QBP implementation.

A task group comprised of expert stroke and SPC representatives was formed to oversee and guide the project with a focus to generate a minimum data set (MDS) to support data collection using the NACRS Clinic Lite platform (See Appendix A). The stroke QBP acute and post-acute [Clinical Handbook](#), [Canadian Stroke Best Practice Recommendations](#), the OSN Ambulatory Care Triage Algorithm and the 2011/12 OSN-SPC Audit were used to inform the MDS. In December 2015, the draft MDS was reviewed and endorsed by the OSN Best Practice Secondary Prevention and Acute Care Sub-committee and the OSN Regional and District Advisory Committee.

The MDS forms the basis for data collection, while the project also anticipated routine feedback in the way of reports back to SPCs on a regular basis through CIHI (e.g. Monthly) and broader annual provincial reporting on system indicators through ICES. Anticipated indicators are available in Appendix B (e.g. monthly reporting back to SPCs).

April 1, 2016 OSN and CCN merged, now called CorHealth Ontario, resulting in the opportunity to consider a CorHealth Ontario based solution. An options analysis was recommended to compare four data collection solutions; CIHI NACRS Clinic Lite, two CorHealth Ontario-based data collection solutions and a retrospective chart audit.

At the conclusion of the options analysis, the CIHI NACRS Clinic Lite system remained the recommended system for enabling an equitable standardized data collection and reporting platform for SPCs.

The status of this project by CorHealth Ontario is currently on hold, pending the outcome of the Information & Digital Strategy project underway in this newly merged organization. For information on the Information & Digital Strategy project, please contact service@CorHealthOntario.ca.

Appendix A – CIHI’s NACRS Clinic Lite Project: Minimum Data Set

	Data element name	#	Data element name
1.	Reporting Facility's Province/Territory	24.	Visit Disposition
2.	Reporting Facility's Ambulatory Care #	25.	Visit MIS Functional Centre Account Code
3.	Submission Fiscal Year	26.	Date Referral Received
4.	Submission Period	27.	Initial SPC Appointment Delayed? †
5.	Abstract Identification Number	28.	Reason for Referral / Contact †
6.	Chart Number	29.	Presenting Symptoms †
7.	Submission Level Code	30.	Date of stroke symptom onset
8.	Health Care Number	31.	Time of stroke symptom onset
9.	Province/Territory Issuing Health Care #	32.	Smoking Status †
10.	Postal Code	33.	ETOH use (Ethyl Alcohol use) †
11.	Gender	34.	Ethnicity †
12.	Birth Date	35.	Medications prescribed at end of visit †
13.	Birth Date Is Estimated	36.	Medication reconciliation done? †
14.	Mode of Visit/Contact	37.	Cognitive Screen Completed at SPC using a validated tool? †
15.	Date of Registration/Visit	38.	Depression Screen Completed at SPC? †
16.	Referral Source Prior to Ambulatory Care Visit	39.	Sleep Apnea Screen Completed at SPC using a validated tool?
17.	Main Problem ☒	40.	Documentation of completion of swallowing screen at SPC?
18.	Other Problem(s) ☒	41.	Referral to allied health ††
19.	Main Intervention ☒	42.	Behavior modification counselling provided/referred
20.	Other Intervention(s) ☒	43.	Documentation of stroke prevention education
21.	Referral Date	44.	Patient screened for fitness to drive?
22.	Main Intervention Start Date		
23.	Other Intervention Start Date		

MDS Legend

	Mandatory (must be completed for each patient visit to create record)
	Optional, fields that are part of the NACRS Clinic Lite system and selected for use in this project (instructions will show if field is entered for each patient visit, or only the initial visit)
	Custom, uniquely designed for this project
❖	Uses CCI/ICD codes mapped to clinician terms
◇	Elements that may be phased in
†	Has associated pick list

Appendix B: CIHI's NACRS Clinic Lite Project: Draft SPC Reporting Indicators

The following indicators were intended to be reported through CIHI on a routine basis (e.g. Monthly) back to SPCs. These indicators were established through a broad consensus process that included SPCs, the Ontario Stroke Network (OSN) Stroke Evaluation & Quality Committee (SEQC) and the OSN Regional & District Advisory Committee. NOTE: Clinics looking to implement priority indicators may find it valuable to implement data fields/sources which align with the NACRS Clinic Lite MDS to eliminate re-work should this project go forward.

Alignment to Core Elements	NACRS Clinic Lite Draft SPC Report Indicators		
Core Element	Quality Domain	Indicator	Data source (from the MDS)
Established Referral System to SPC	1. Access - Utilization	Number of SPC visits	Date of Registration/Visit
Access to Stroke Prevention Clinics / Established Referral System to SPC	2. Access -Referral Process	Volume & Proportion of SPC patients referred from each source (e.g. ED, Primary Care), for each referral reason	Health Care Number, Main/Other Problem, Referral Source prior to Ambulatory Visit, Reason for Referral
Access to SPC	3. Efficient/Timely Access	Average time from Referral to initial visit by risk level	Date Referral Received, Date of Registration/Visit, Date of stroke symptom onset, Presenting Symptoms, Health Care Number
	4. Timely Access	Proportion of patients whose initial SPC Appointment was delayed, by reason	Initial SPC Appointment Delayed?, Date of Registration/Visit, Health Care Number
Access to Diagnostic Investigations	5. Effective - Investigations	Proportion of patients receiving neuroimaging (prior to SPC, at SPC)	Date of Registration/Visit, Main/Other Intervention, Main/Other Intervention date, Reason for Referral
	6. Effective - Investigations	Proportion of patients receiving vascular imaging (prior to SPC, at SPC)	Date of Registration/Visit, Main/Other Intervention, Main/Other Intervention date, Reason for Referral
	7. Effective - Investigations	Proportion of patients without A-fib receiving prolonged ECG monitoring (prior to SPC, at SPC)	Date of Registration/Visit, Main/Other Intervention, Main/Other Intervention date, Main/Other Problems
Carotid Stenosis Management	8. Timely Access - Intervention	Median time (days) from stroke/TIA event to CEA/CAS	Main/Other Problems, Main/Other Intervention, Main/Other Intervention date, date of stroke symptom onset

Alignment to Core Elements	NACRS Clinic Lite Draft SPC Report Indicators		
Core Element	Quality Domain	Indicator	Data source (from the MDS)
Diagnosis Determined	9. Effective - Outcomes	Post SPC Visit diagnosis	Main/Other Problems
Vascular Risk Factor Management	10. Effective - Behaviour Modification	Proportion of patients deemed 'current tobacco users' provided/referred to cessation counselling	Smoking Status
	11. Effective - Medications	Proportion of patients with appropriate medications at end of visit, and medication reconciliation done	Medications prescribed at end of visit, Medication Reconciliation done?
Patient & Family Education	12. Effective - Behaviour Modification	Proportion of TIA/Stroke patients who received stroke prevention education	Documentation of stroke prevention education, Main/Other Problems

