Ontario and LHIN 2014/15

Stroke Report Cards and Progress Reports

Active knowledge exchange to drive system integration and stroke best practices

June 2016

ontario stroke network
Advancing the Ontario Stroke System

ICES

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Authors

Ontario Stroke Network's Stroke Evaluation Quality Committee - Knowledge Translation and Implementation Subcommittee

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About the Organizations Involved in this Report

Ontario Stroke Network

With its vision of *Fewer Strokes, Better Outcomes*, the mission of the **Ontario Stroke Network** (OSN) is to provide provincial leadership and planning for the 11 Ontario Regional Stroke Networks supporting the 14 Local Health Integration Networks through: measuring and reporting on performance; partnering to achieve best practices; leading and/or supporting provincial initiatives; and supporting innovations for stroke prevention, care, recovery and reintegration. The OSN delivers on its mission by establishing province-wide goals and initiatives to implement best practices across the stroke continuum, evaluating and reporting on the progress of the 11 Ontario Regional Stroke Networks, and translating and exchanging knowledge. Currently the OSN is collaborating with Health Quality Ontario and the Ontario Ministry of Health and Long-Term Care to advise on stroke Quality-Based Procedure (QBP) best practices, implementation, monitoring and reporting on system performance.

As of April 1, 2016, the Ontario Stroke Network (OSN) and the Cardiac Care Network of Ontario (CCN) have come together as a single entity to ensure a comprehensive and integrated approach to cardiac, vascular and stroke care in Ontario. The OSN and CCN are funded by the Ontario Ministry of Health and Long-Term Care.

Institute for Clinical Evaluative Sciences

The **Institute for Clinical Evaluative Sciences** (ICES) is an independent, non-profit organization that uses population-based health information to produce knowledge on a broad range of health care issues. ICES' unbiased evidence provides measures of health system performance a, a cleaner understanding of the shifting health care needs of Ontarians, and a stimulus for discussion of practical solutions to optimize scarce resources.

Key to ICES' work is its ability to link population-based health information, at the patient level, in a way that ensures the privacy and confidentiality of personal health information. Linked databases reflecting 13 million of 34 million Canadians allow researchers to follow patient populations through diagnosis and treatment, and to evaluate outcomes.

ICES receives core funding from the Ontario Ministry of Health and Long-Term Care. In addition, ICES scientists and staff compete for peer-reviewed grants from federal funding agencies, such as the Canadian Institutes of Health Research, and receive project-specific funds from provincial and national organizations. ICES' knowledge is highly regarded in Canada and abroad, and is widely used by governments, hospitals, planners and practitioners to make decisions about health care policy and delivery.

Ontario Stroke Report Cards and Progress Reports

The Ontario Stroke Report Cards were developed by the Ontario Stroke Network's (OSN) Ontario Stroke Evaluation and Quality Committee (SEQC) in 2009 to provide a concise mechanism for communicating stroke care performance in the province. Through a series of internal reviews, and by utilizing the Canadian Stroke Strategy's *2008 Performance Measurement Manual*[1], the SEQC identified 20 key indicators considered integral to system efficiency and effectiveness to be presented in the report cards. Seven of the 20 indicators are population-based and the remainder are facility-based indicators. The report cards serve as a valuable stakeholder tool that allows for consistent planning across the 11 Ontario Regional Stroke Networks and the implementation of Quality-Based Procedures (QBPs).[2] In 2015, the SEQC developed a progress report for each LHIN. In contrast to the report card where LHIN performance is compared to provincial high performers, the progress report evaluates each LHIN's progress in achieving best practice by comparing their current performance to their previous three-year performance.

Report cards and progress reports are produced annually for Ontario and each of the 14 Local Health Integration Networks (LHINs). Each year, the SEQC Knowledge Translation and Implementation Subcommittee reviews the indicators to assess data availability, system impact, and the knowledge translation strategy.

Additions to the 2016 report cards include:

- Format changes to the LHIN progress reports based on feedback from the regional networks. Modifications include the range minimum/maximum of performance within the LHIN in the current year and three years earlier; and the facility/sub-LHIN and LHIN with the greatest improvement in achieving best practice care.

- Revisions to the calculations for two indicators:
  - proportion of ischemic stroke inpatients who received carotid imaging (indicator 5)
  - mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation (indicator 17)

Background

In 2009, the Ontario Stroke Network (OSN) commissioned stakeholder consultation to assist the Stroke Evaluation Quality Committee (SEQC) in creating an effective tool for communicating the status of the OSN to key stakeholders. Stakeholders wanted a concise report, which led the SEQC to create one provincial and 14 Local Health Integration Network (LHIN) report cards, one for each region, in 2011.

The SEQC Knowledge Translation and Implementation Subcommittee established a report card dissemination strategy that included an individualized interpretation of the report card to enable system improvement within each LHIN, OSN distribution of report cards and interpretations to the CEO and board chair of each LHIN, scheduled meetings between regional directors and LHIN representatives to review report card data, and the development of quality improvement plans. This active knowledge translation strategy has increased the awareness of stroke system initiatives and has piqued the interest of funders in monitoring the system and targeting gaps.

Organization of the Report Cards and Progress Reports

The indicators cross the care continuum and cover access, effectiveness, efficiency and integration domains. Details of the indicator calculation can be found in **Appendix A**, including the specifics of the risk-adjustment mortality model.

Indicator No.	Domain	Definition
Public Awareness and Patient Education		
1	Access	Proportion of stroke/TIA patients who arrived at the emergency department by ambulance
Prevention of Stroke		
2	Effectiveness	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population)
3	Effectiveness	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients)
4	Effectiveness	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications)
5	Access	Proportion of ischemic stroke inpatients who received carotid imaging
Acute Stroke Management		
6	Efficiency	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes)
7	Access	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA)
8	Effectiveness	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay (HSAA indicator)
9	Effectiveness	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care
10	Efficiency	Proportion of alternate level of care (ALC) days to total length of stay (LOS) in acute care
11	Integration	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation (HSAA indicator)
Stroke Rehabilitation		
12	Efficiency	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation
13	Efficiency	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation
14	Effectiveness	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received
15	Efficiency	Proportion of inpatient stroke rehabilitation patients achieving RPG length of stay target
16	Efficiency	Median FIM[a] efficiency for moderate stroke in inpatient rehabilitation
17	Access	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15
System Integration		
18	Access	Proportion of patients admitted to inpatient rehabilitation with severe stroke (RPG = 1100 or 1110)
19	Integration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC)
20	Integration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients) (HSAA indicator)

a FIM (or Functional Independence Measure) is a trademark of Uniform Data System for Medical Rehabilitation, a division of UB Foundation Activities, Inc.

PERFORMANCE INDICATORS

Performance was analyzed at the facility, sub-LHIN, LHIN and provincial level, except for indicators 4, 9, 12 and 14 where there is currently no data source available. The minimum and maximum performance was also included for each indicator. The provincial report card includes the range of performance results across 14 LHINs, and each LHIN report card includes the range of performance within the LHIN (facilities or sub-LHINs).

Provincial benchmarks are calculated using the Achievable Benchmarks of Care (ABC) methodology[3], which summarizes the performance results of the top-ranked facilities representing at least 20% of all patients eligible for the appropriate care.

COLOUR BANDING LHIN PERFORMANCE

i. Report Cards

Green, yellow and red colour bands were used to distinguish levels of regional performance relative to the benchmark for each indicator. Green indicates exemplary performance (within 5% of the benchmark), yellow represents acceptable performance (at or above the 50th percentile but beyond 5% of the benchmark), and red indicates poor performance (below the 50th percentile).

ii. Progress Reports

Blue, purple and coral colour bands were used to distinguish degrees of LHIN progress from the previous three-year average performance. Blue bands indicate that the LHIN is progressing well (statistically significant improvement), purple bands indicate progress (improving performance but not statistically significant), and coral bands indicate no progress (no change or performance decline) in each indicator. Statistically significant differences in performance were determined by comparing the most recent year's performance to the combined average performance for the previous three years. This comparison was completed using a chi-square test for categorical variables, a Wilcoxon rank-sum test and T-test for continuous variables. For indicators using audit data, the Rao-Scott Chi-square test for categorical variables and survey regression for the mean of continuous variables was used.

HIGH PERFORMERS OR GREATEST CHANGE

Facilities or sub-LHINs with the highest performance result within the fiscal year were identified for each indicator on the report card in order to highlight achievements made across the province, facilitate dialogue among regions, and drive system improvement. The facilities or sub-LHINs with the greatest change (difference between current year and performance three years prior) were identified for each indicator on the progress report. LHINs with the highest performance or greatest change were also identified.

Methodology

Stroke cohorts (aged ≥18 years) were generated from administrative databases using codes from the International Classification of Diseases, 10th Revision, Canada (ICD-10-CA) and include G45 (excluding G45.4), H34.0, H34.1, I60 (excluding I60.8), I61, I63 (excluding I63.6) and I64. The most responsible or main problem diagnosis was used to identify stroke or TIA records for adults aged 18 years or older in the CIHI-DAD and NACRS databases, respectively. Patients receiving palliative care (ICD-10-CA code Z51.5 with prefix 8) as part of their initial treatment plan were excluded. Stroke inpatient rehabilitation patients classified as RCG-1 and without a readmission within the same day were included.

Indicator analyses counted only unique patients for each 12-month period.[b] The majority of indicators reflect the proportion of patients receiving the care among all patients expected to receive the care, reported as a percentage. Indicators are reported at the regional and LHIN levels. Most indicators are facility-based rather than patient residence-based (i.e., they examine how well the facilities in a LHIN performed on various indicators), and seven indicators are population-based (1, 2, 7, 8, 11, 12 and 19). Time-based indicators are reported as median values. The median time is the time required for half of the patients to receive a given service (e.g., inpatient rehabilitation). The mean is the sum of all

b Community Care Access Centre data presented in this report are based on patient visits (i.e. multiple patient-visits are included if they occurred in different LHINs).

services divided by the number of patients receiving services (e.g., CCAC rehabilitation services).

For admissions rates, direct standardization was used to compare rates between regions as if they had similar population compositions. The direct standardized rates were calculated using the 2003/04 Ontario adult population (aged 18 years or older) to examine provincial and regional rates over time. Indirect standardization was used to calculate the performance of readmission and mortality rates. Readmission rate represents patients who survived the initial emergency department (ED) visit or hospitalization, but were readmitted to hospital at least once within 30 days of the index visit or admission. An age-sex regression model was used to calculate an expected revisit/readmission rate for each region; the crude (observed) rate for each region was divided by the expected rate and multiplied by the annual Ontario rate to provide the age- and sex-adjusted rate. The readmission rate is a good indicator of whether there was appropriate discharge planning to prevent secondary complications or another stroke or TIA event.

Thirty-day mortality rates relate to patients who were alive when they arrived at the ED and admitted to hospital. A risk-adjusted regression model was used to calculate an expected mortality rate for each region; the crude (observed) rate for each region was divided by the expected rate and multiplied by the overall annual Ontario rate to provide the risk-adjusted mortality rate. The details of the risk-adjustment model are found in **Appendix A**.

BENCHMARK CALCULATIONS

The following steps were used to calculate each benchmark:

1. Ranked the care providers (facilities or sub-LHINs) in descending order of performance on the indicator;

2. Beginning with the highest-performing care provider (note that low performance results are desired for indicators 2, 3, 6, 10, 13, 19 and 20), added providers until at least 20% of the total number of patients were represented (in the denominator); and

3. Calculated the benchmark using only the providers selected in step 2 (20%) by dividing the total number of patients who received appropriate care by the total number of patients eligible for the care in the subset.

To ensure that high-performing care providers with low numbers of patients did not unduly influence the benchmark rates, the performance results of facilities or sub-LHINs with small sample sizes and high performance levels were adjusted and rank order was based on the adjusted performance results. The benchmarks were calculated by ranking sub-LHIN performance, not facilities, for population-based indicators (report card indicators 1, 2, 7, 8, 11, 12 and 19). Benchmarks for report card indicators 3 and 20 (mortality and readmission) are not included because our current risk-adjustment models do not adequately capture stroke severity; a key predictor of stroke outcomes.

HIGH PERFORMERS OR GREATEST CHANGE

To be considered high performing or to have undergone the greatest change, acute care facilities had to have annual volumes of more than 100 stroke/TIA patients per year, and rehabilitation facilities had to have sample sizes greater than the median number of patients admitted to inpatient rehabilitation in that year (approximately 50 patients each year). High-performing sub-LHINs had to have at least 30 stroke/TIA patients for each indicator. The two highest-performing LHINs for each indicator were also identified. These LHINs had performance rates within 5% of the provincial benchmark, with the exception of indicators 2, 3 and 20, for which the highest-performing LHIN had a performance rate that was lower than the provincial average by a statistically significant amount. For some indicators, no single LHIN had exemplary performance; in these cases, no LHINs were identified. These results were not unexpected, as each LHIN's performance is an aggregate of the performance results of all health care facilities in the LHIN. The two LHINs with the greatest change and statistically significant performance compared to the three-year average are identified on the progress report.

ONTARIO STROKE REPORT CARD,2014/15

Progressing well[1] | Progressing[2] | Not progressing[3] | Data not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
5 Central West
6 Mississauga Halton
7 Toronto Central
8 Central
9 Central East
10 South East
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	Ontario FY 2014/15 (2013/14)	Variance across LHINs (Min–Max)	Provincial Benchmark[5]	High Performer[6]	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	58.0% (58.7%)	49.0–61.8%	64.9% (64.8%)	Essex Sub-LHIN	1, 3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.3 (1.3)	1.1–1.8	1.2 (1.1)	Ottawa Centre Sub-LHIN	7, 8, 9, 11
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	10.6 (11.7)	10.1–14.2	–	–	7
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	78.9% (76.9%)	70.8–87.6%	90.4% (88.3%)	Bluewater Health, Sarnia	7, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	52.0 (57.0)	37.0–76.5	38.0 (33.0)	Niagara Health System, Greater Niagara	4, 8
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	11.9% (11.9%)	8.8–14.9%	17.3% (17.0%)	South Etobicoke–Toronto Sub-LHIN	6, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[7] at any time during their inpatient stay.	32.5% (28.2%)	1.3–75.9%	72.3% (62.7%)	Urban Guelph Sub-LHIN	3, 10
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	26.0% (28.4%)	13.2–32.3%	8.2% (11.7%)	Rouge Valley Health System, Ajax	3
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	35.1% (34.2%)	27.1–42.7%	45.4% (46.3%)	Manitoulin-Sudbury Sub-LHIN	9, 1
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	9.0 (9.0)	6.0–14.0	6.0 (5.0)	BH Sarnia, LH Oshawa, PRH, QHC Belleville and SRHC[8]	8, 9
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	59.7 % (53.2%)	41.5–78.3%	80.8% (76.6%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.0 (0.9)	0.7–1.6	1.5 (1.3)	Grand River Hospital Corp., Freeport	12, 3
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	7.3 (6.0)	5.6 - 14.1	10.8 (8.6)	South East CCAC	10, 13
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	41.3% (37.6%)	31.5–54.7%	58.7% (57.3%)	Grand River Hospital Corp., Freeport	3
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	7.0% (7.8%)	3.5–10.5%	2.5% (2.8%)	Urban Guelph Sub-LHIN	None
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	8.0 (7.7)	7.0–9.2	–	–	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance

1 Statistically significant improvement from previous 3-year average.
2 Performance improving but not statistically significant from previous 3-year average.
3 No change or performance decline from previous 3-year average.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Benchmarks were calculated using the ABC methodology (Weissman et al. *J Eval Clin Pract.* 1999; 5(3):269–81) on facility/sub-LHIN data; the 2013/14 benchmarks are displayed in parentheses.
6 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
7 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.
8 High performers include Bluewater Health (BH) Sarnia site, Lakeridge Health (LH) Oshawa site, Pembroke Regional Hospital (PRH), Quinte Health Care (QHC) Belleville site, and Southlake Regional Health Centre (SRHC).

INTERPRETATION OF 2014/15 STROKE REPORT CARD
Ontario

PERFORMANCE OVERVIEW

The 2014/15 report card shows ongoing progress across key performance indicators. The following trends are noted:

- 14 of 16 indicators displayed improvement compared to the previous three years; of these, 10 indicators displayed a statistically significant improvement.
- 10 of 14 provincial benchmarks also improved since 2013/14.[3]

In addition, highest performance value, lowest performance value and LHIN variation improved for the following indicators:

- Risk-adjusted 30-day mortality (indicator 3)
- Median days to admission to inpatient rehabilitation (13)
- Achievement of RPG target length of stay (15)
- Proportion of severe stroke patients admitted to rehabilitation (18)

AREAS OF PROGRESS

The provincial report card reflects steady improvement, most notably in mortality reduction. In fact, the mortality reduction rate is the lowest ever reported, and Ontario is a leading jurisdiction in this area.[4,5] Patient flow improved as reflected in reduced ALC days, access to rehabilitation and efficiency of rehabilitative care. Regional efforts to consolidate stroke care have resulted in improvements in access to stroke unit care.

AREAS FOR IMPROVEMENT

While steady progress is being made, notable LHIN variation remains and ongoing improvement efforts are required. Additional regional approaches are needed to increase access to stroke unit care, a key step in addressing variation in patient outcomes, particularly mortality, access to rehabilitation and cost reduction. Despite improvement, there remains an ongoing need for rehabilitation system change, particularly improvement in access to outpatient rehabilitation and community services. Readmission rates are not improving and support a need to focus on services for high-risk TIA patients, transitions and community services. Data access and quality continue to be key challenges as illustrated by four indicators for which data are not available.

CURRENT OR PLANNED ACTIVITIES

The OSN will continue its vital collaboration with Ontario's 11 Regional Stroke Networks to align operating plans, education, knowledge translation approaches and implementation strategies to advance access to best practices and continually improve the report card process and outcome indicators.

The OSN will continue its leadership in the implementation of the integrated stroke Quality-Based Procedures (QBP) **Clinical Handbook** recommendations, and advise on indicators, pricing and the quality overlay funding. In 2016/17, there will be a greater focus on implementation of the QBP TIA and community recommendations

The OSN will work with the Ministry of Health and Long-Term Care and the Canadian Institute for Health Information to inform a sustainable stroke data collection and data quality strategy. This strategy will aim to inform the three report card indicators where data are not currently available (i.e., anticoagulation therapy for atrial fibrillation, rehab intensity and dysphagia screening) and to support Rehabilitative Care Alliance work to address availability of outpatient rehabilitation data.

OSN is leading a project to assess the feasibility of collecting data for clinic-based high-risk TIA/secondary prevention management using 'NACRS Clinic Lite.'

The OSN Stroke Evaluation Quality Committee will conduct a review of the report card indicators in the context of stroke QBP and evolving administrative data availability.

The OSN will update the QBP clinical handbook to include endovascular therapy.

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ONTARIO STROKE REPORT CARD, 2014/15:
Erie St. Clair Local Health Integration Network

Poor performance[1] | Acceptable performance[2] | Exemplary performance[3] | Data not available or benchmark not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
5 Central West
6 Mississauga Halton
7 Toronto Central
8 Central
9 Central East
10 South East
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (2013/14)	Variance Within LHIN[5] (Min–Max)	Provincial Benchmark[6]	High Performer[7]	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	61.8% (62.2%)	52.3–68.4%	64.9% (64.8%)	Essex Sub-LHIN	1, 3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.4 (1.5)	1.5–2.3	1.2 (1.1)	Ottawa Centre Sub-LHIN	7, 8, 9,11
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	13.5 (12.2)	8.1–21.3	–	–	7
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	82.7% (77.9%)	42.5–93.9%	90.4% (88.3%)	Bluewater Health, Sarnia	7, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	70.0 (82.0)	57.0–95.0	38.0 (33.0)	Niagara Health System, Greater Niagara	4, 8
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	8.8% (8.7%)	6.2–13.8%	17.3% (17.0%)	South Etobicoke–Toronto Sub-LHIN	6, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	18.2% (18.0%)	1.4–66.4%	72.3% (62.7%)	Urban Guelph Sub-LHIN	3, 10
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	30.6% (33.9%)	12.8–39.4%	8.2% (11.7%)	Rouge Valley Health System, Ajax	3
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	40.4% (39.7%)	38.0–45.1%	45.4% (46.3%)	Manitoulin-Sudbury Sub-LHIN	9, 1
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	8.0 (8.0)	5.0–12.0	6.0 (5.0)	BH Sarnia, LH Oshawa, PRH, QHC Belleville and SRHC[9]	8, 9
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	60.4% (61.4%)	50.0–83.3%	80.8% (76.6%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.1 (1.2)	1.0–1.3	1.5 (1.3)	Grand River Hospital Corp., Freeport	12, 3
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	6.2 (5.2)	–	10.8 (8.6)	South East CCAC	10, 13
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	40.5% (33.6%)	33.3 - 54.0%	58.7% (57.3%)	Grand River Hospital Corp., Freeport	3
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	5.7% (4.8%)	3.5–6.3%	2.5% (2.8%)	Urban Guelph Sub-LHIN	None
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.6 (5.6)	5.2–10.1	–	–	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance

1 Performance below the 50th percentile.
2 Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
3 Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Benchmarks were calculated using the ABC methodology (Weissman et al. *J Eval Clin Pract.* 1999; 5(3):269–81) on facility/sub-LHIN data; the 2013/14 benchmarks are displayed in parentheses.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
8 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.
9 High performers include Bluewater Health (BH) Sarnia site, Lakeridge Health (LH) Oshawa site, Pembroke Regional Hospital (PRH), Quinte Health Care (QHC) Belleville site, and Southlake Regional Health Centre (SRHC).

STROKE PROGRESS REPORT, 2014/15 COMPARED TO 2011/12–2013/14

Erie St. Clair Local Health Integration Network

Progressing well[1] | Progressing[2] | Not progressing[3] | Data not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
5 Central West
6 Mississauga Halton
7 Toronto Central
8 Central
9 Central East
10 South East
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (previous 3-year average)	Variance within LHIN[5] 2014/15 (2011/12)		Greatest Improvement[6]	
				Min	Max	Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	61.8% (60.5%)	52.3% (52.7%)	68.4% (61.1%)	Woodbridge (Vaughan) Sub-LHIN	3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.4 (1.4)	1.5 (1.4)	2.3 (1.9)	Algoma Sub-LHIN	None
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	13.5 (11.6)	8.1 (10.0)	21.3 (15.2)	North Bay Regional Health Centre	6, 2
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	82.7% (75.9%)	42.5% (31.4%)	93.9% (82.9%)	Brockville General Hospital	2, 12
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	70.0 (85.0‡)	57.0 (73.8‡)	95.0 (96.0‡)	Royal Victoria Regional Health Centre	12
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	8.8% (8.1%‡)	6.2% (8.4%‡)	13.8% (10.0%‡)	Flamborough Sub-LHIN	2, 6
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[7] at any time during their inpatient stay.	18.2% (16.7%)	1.4% (1.3%)	66.4% (64.0%)	Belleville Sub-LHIN	10, 3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	30.6% (30.4%)	12.8% (9.3%)	39.4% (33.1%)	Rouge Valley Health System, Ajax	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	40.4% (40.6%)	38.0% (36.3%)	45.1% (42.1%)	Central York Region Sub-LHIN	8, 5
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	8.0 (8.0)	5.0 (6.0)	12.0 (15.5)	Grand River Hospital Corp., Freeport, and Hamilton Health Sciences Corp., General Regional Rehab	8, 3
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	60.4% (56.9%)	50.0% (53.0%)	83.3% (68.0%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.1 (1.0)	1.0 (0.6)	1.3 (1.3)	Grand River Hospital Corp., Freeport	3, 12
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	6.2 (5.9)	–	–	North East CCAC	13, 6
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	40.5% (36.6%)	33.3% (8.0%)	54.0% (44.0%)	Providence Healthcare	8, 5
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	5.7% (7.2%)	3.5% (5.7%)	6.3% (11.0%)	Dufferin County Sub-LHIN	3, 6, 10
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.6 (7.4)	5.2 (0.0)	10.1 (11.1)	Peterborough Regional Health Centre	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance | ‡ Includes Ontario Stroke Audit data (2010/11 and/or 2012/13).

1 Statistically significant improvement.
2 Performance improving but not statistically significant.
3 No change or performance decline.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Greatest Improvement sites/sub-LHINs include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
7 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.

INTERPRETATION OF 2014/15 STROKE REPORT CARD
Erie St. Clair Local Health Integration Network

PERFORMANCE OVERVIEW

Ten of 16 indicators with comparable data are showing a trend towards progress. For three indicators (1, 5, 13), a county or facility in the Erie St. Clair LHIN is considered a provincial high performer. The Erie St. Clair LHIN had exemplary performance on indicators 1 and 11.

AREAS OF PROGRESS

Stroke Prevention	Essex County is leading the province in patients arriving at the ED by ambulance (68.4%) for the second consecutive year. The public awareness FAST campaign was launched in the province in 2014/15.
Stroke Prevention	The proportion of people receiving carotid imaging is highest at the three designated stroke centres. The overall LHIN rate is progressing well at 82.7%. Bluewater Health (BWH) has the highest performance in Ontario (93.9%).
Acute Stroke Management	Median door-to-needle time has improved in the past year, declining from 82 min. to 70 min. The greatest progress was at Chatham-Kent Healthcare Alliance (CKHA) with a median time of 57 min. BWH is also showing progress at 61 min.
Stroke Rehabilitation	A greater proportion of patients with severe stroke are being admitted to the three rehab units in the LHIN at 40.5% (up from 33.6%). An intake nurse position was created to assist with admission process.

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Access: 18.2% of patients receive care in a stroke unit. Mortality rates at 30 days are higher at non-designated stroke centres. The overall LHIN mortality rate has not improved from the previous 3 years (13.5/100 patients).	Two of three designated stroke centres in the Erie St. Clair LHIN (BWH and CKHA) have a stroke unit that meets the provincial definition. Windsor Regional Hospital (WRH) is currently working towards implementing a stroke unit that meets the definition, including the realignment of stroke volumes in Windsor Essex to WRH (Ouellette Campus).
Access: The proportion of ischemic stroke patients who received tPA is below the 50th percentile (8.8%).	All District Stroke Centres (DSCs) have been engaged in quality improvement projects to improve thrombolysis rates (including DTN). BWH became a Telestroke Site (June 2014) with noted improvements. CKHA has a QBP working group focused on tPA. WRH started process improvement in 2015 with internal data showing progress.
Integration: ALC rates have improved slightly but performance remains below the 50th percentile (30.6%). There is wide variability across facilities in the LHIN (12.8%–39.4%) with the highest rates in Windsor Essex.	WRH has quality improvement plans to implement an acute stroke unit and is actively partnering with Hotel-Dieu Grace Healthcare (HDGH) to improve the transition of appropriate patients to inpatient rehab. In 2015, 30 new inpatient rehab beds were opened at HDGH, with plans to establish a community rehabilitation outreach team.
Access: The mean number of CCAC visits is 6.2 for OT, PT, SLP and SW combined, which is significantly below the QBP best practice recommendations of 2-3 visits/week/therapy for 8-12 weeks.	Early supported discharge team business case was submitted to the LHIN in 2014. The Erie St. Clair LHIN's Strategic Plan for Rehabilitation made stroke a priority from 2013–2016. The Southwestern Ontario Stroke Network is working in partnership with the DSCs, CCAC and the LHIN. A future state pathway has been developed and a model of community stroke rehab is being explored in the LHIN.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Continue to work with the Erie St. Clair LHIN on the realignment of stroke care to designated stroke centres with stroke units and on providing community stroke rehabilitation.
- Support the implementation of the Erie St. Clair LHIN stroke care pathway with a focus on access to inpatient rehabilitation and the need for high intensity, stroke-specific outpatient/community rehabilitation across the LHIN.
- The largest opportunity for improvement in the LHIN lies in Windsor Essex with the implementation of stroke unit care and improved access to inpatient rehabilitation.
- All stroke districts in the LHIN require stroke-specific outpatient/community rehabilitation programs.

CONTACT

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ONTARIO LHINs MAP

Erie St. Clair Local Health Integration Network

ONTARIO STROKE REPORT CARD, 2014/15:
South West Local Health Integration Network

Poor performance[1] | Acceptable performance[2] | Exemplary performance[3] | Data not available or benchmark not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
5 Central West
6 Mississauga Halton
7 Toronto Central
8 Central
9 Central East
10 South East
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (2013/14)	Variance Within LHIN[5] (Min–Max)	Provincial Benchmark[6]	High Performer[7]	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	56.3% (59.0%)	46.7–61.6%	64.9% (64.8%)	Essex Sub-LHIN	1, 3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.3 (1.3)	1.3–1.7	1.2 (1.1)	Ottawa Centre Sub-LHIN	7, 8, 9,11
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.9 (14.4)	0.0–42.0	–	–	7
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	74.8% (71.6%)	0.0–88.6%	90.4% (88.3%)	Bluewater Health, Sarnia	7, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	50.5 (62.5)	44.0–61.0	38.0 (33.0)	Niagara Health System, Greater Niagara	4, 8
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	12.3% (11.9%)	6.3–16.8%	17.3% (17.0%)	South Etobicoke–Toronto Sub-LHIN	6, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	3.3% (2.5%)	0.0–8.4%	72.3% (62.7%)	Urban Guelph Sub-LHIN	3, 10
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	16.7% (26.3%)	0.0–66.7%	8.2% (11.7%)	Rouge Valley Health System, Ajax	3
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	33.5% (37.2%)	27.5–41.1%	45.4% (46.3%)	Manitoulin-Sudbury Sub-LHIN	9, 1
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	10.0 (9.0)	7.0–16.0	6.0 (5.0)	BH Sarnia, LH Oshawa, PRH, QHC Belleville and SRHC[9]	8, 9
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	57.8% (54.4%)	56.0–65.2%	80.8% (76.6%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.9 (0.8)	0.8–1.0	1.5 (1.3)	Grand River Hospital Corp., Freeport	12, 3
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	5.8 (5.0)	–	10.8 (8.6)	South East CCAC	10, 13
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	39.8% (42.2%)	35.0–66.7%	58.7% (57.3%)	Grand River Hospital Corp., Freeport	3
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	5.4% (6.3%)	2.3–11.0%	2.5% (2.8%)	Urban Guelph Sub-LHIN	None
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.2 (7.4)	0.0–17.3	–	–	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance

1 Performance below the 50th percentile.
2 Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
3 Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
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7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
8 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.
9 High performers include Bluewater Health (BH) Sarnia site, Lakeridge Health (LH) Oshawa site, Pembroke Regional Hospital (PRH), Quinte Health Care (QHC) Belleville site, and Southlake Regional Health Centre (SRHC).

STROKE PROGRESS REPORT, 2014/15 COMPARED TO 2011/12–2013/14

South West Local Health Integration Network

Progressing well[1] | Progressing[2] | Not progressing[3] | Data not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
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12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (previous 3-year average)	Variance within LHIN[5] 2014/15 (2011/12)		Greatest Improvement[6]	
				Min	Max	Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	56.3% (54.8%)	46.7% (39.7%)	61.6% (58.3%)	Woodbridge (Vaughan) Sub-LHIN	3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.3 (1.3)	1.3 (1.3)	1.7 (1.7)	Algoma Sub-LHIN	None
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.9 (14.9)	0.0 (0.0)	42.0 (24.9)	North Bay Regional Health Centre	6, 2
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	74.8% (65.9%)	0.0% (6.7%)	88.6% (86.7%)	Brockville General Hospital	2, 12
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	50.5 (66.0‡)	44.0 (65.4‡)	61.0 (73.2‡)	Royal Victoria Regional Health Centre	12
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	12.3% (10.0%‡)	6.3% (2.0%‡)	16.8% (11.1%‡)	Flamborough Sub-LHIN	2, 6
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[7] at any time during their inpatient stay.	3.3% (1.5%)	0.0% (0.0%)	8.4% (4.1%)	Belleville Sub-LHIN	10, 3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	16.7% (24.5%)	0.0% (0.0%)	66.7% (67.8%)	Rouge Valley Health System, Ajax	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	33.5% (36.2%)	27.5% (26.8%)	41.1% (37.0%)	Central York Region Sub-LHIN	8, 5
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	10.0 (9.0)	7.0 (7.0)	16.0 (11.0)	Grand River Hospital Corp., Freeport, and Hamilton Health Sciences Corp., General Regional Rehab	8, 3
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	57.8% (51.9%)	56.0% (40.0%)	65.2% (75.0%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.9 (0.9)	0.8 (0.8)	1.0 (1.7)	Grand River Hospital Corp., Freeport	3, 12
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	5.8 (5.6)	–	–	North East CCAC	13, 6
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	39.8% (41.2%)	35.0% (32.5%)	66.7% (62.5%)	Providence Healthcare	8, 5
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	5.4% (5.6%)	2.3% (1.8%)	11.0% (13.7%)	Dufferin County Sub-LHIN	3, 6, 10
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.2 (8.0)	0.0 (2.5)	17.3 (19.4)	Peterborough Regional Health Centre	None

Hospital Service Accountability Agreement indicators, 2010/11 – Data not available § Contributes to QBP performance ‡ Includes Ontario Stroke Audit data (2010/11 and/or 2012/13).

1 Statistically significant improvement.
2 Performance improving but not statistically significant.
3 No change or performance decline.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Greatest Improvement sites/sub-LHINs include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
7 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.

INTERPRETATION OF 2014/15 STROKE REPORT CARD
South West Local Health Integration Network

PERFORMANCE OVERVIEW

11 of 16 indicators with comparable data are showing progress, with five of the 11 indicators showing statistically significant progress over the previous three-year performance. The LHIN demonstrated exemplary performance on indicators 2 and 7.

AREAS OF PROGRESS

Acute Stroke Management	Proportion of ischemic stroke patients receiving tPA progressing well at 12.3% (within 5% of the provincial benchmark). All tPA sites have decreased DTN times with progress from 62.5 to 50.5 min.
Stroke Prevention	The LHIN had the greatest reduction in 30-day mortality, from 14.9% to 11.9% (provincial mean = 10.6%). London Health Sciences Centre (LHSC) has the LHIN's lowest rate at 10.3 with the implementation of quality improvements.
Acute Stroke Management	Proportion of ALC days is improving from 26.3% FY13/14 to 16.7% FY14/15. Of the designated stroke centres, LHSC has shown the greatest progress in reducing the proportion of ALC days from 32.4% to 17.8%.
Stroke Rehabilitation	Proportion of stroke patients achieving rehab LOS targets is progressing well at 57.8%. Three Community Stroke Rehabilitation Teams (CSRTs) provide in-home rehabilitation post-hospital across the LHIN, impacting indicators 11 and 17.

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Access: Proportion of patients who arrive at ED by ambulance has decreased from 59.0% to 56.3%. All sub-LHIN performance has decreased in 2014/15.	The South West LHIN has provided funding for the development of local videos promoting the FAST signs and symptoms of stroke and to call 911. Release of videos will take place during the implementation of the realignment of stroke care from 28 to seven hospitals.
Access: In 2014/15 there was limited access to care in a stroke unit meeting the provincial definition (3.3%). However, significant quality improvements were being made at all Designated Stroke Centres.	As part of continuous quality improvement and through the implementation of the future state of stroke care in the LHIN, Huron Perth Healthcare Alliance (Stratford General Hospital) opened an integrated stroke unit in December 2014, LHSC (University Hospital) and Grey Bruce Health Services (Owen Sound Hospital) opened acute stroke units in April 2015. St. Thomas Elgin General Hospital will also open an integrated stroke unit in 2016/17, further improving access.
Appropriateness: Proportion of patients going to inpatient rehab decreased (33.5%) including a reduction in proportion of patients with severe stroke (39.8%). It is also taking longer to be admitted to rehab (10 days).	Implementation of future state recommendations driving uptake of QBP including LOS targets and appropriateness of care. LHIN has enhanced CSRT funding to improve patient flow including providing rehab to mild stroke patients discharged from acute, allowing greater access to inpatient rehab for moderate to severe stroke patients. CCAC referral, access to inpatient rehab should be consistent.
Effectiveness: Median FIM efficiency for moderate stroke in inpatient rehabilitation is not progressing (0.9) and is well below the provincial benchmark (1.5).	All inpatient rehabilitation units have been focusing on achieving QBP LOS targets with a focus on increased rehabilitation intensity, therapy on the weekends and improved patient flow. Staffing and resource allocation will need to match QBP recommendations.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Implementation planning is currently underway with all LHIN partners on the Phase 1 South West directional recommendations for the realignment of stroke care from 28 to seven hospitals, including the designation of an additional District Stroke Centre (STEGH) to improve access to best practice care.

- Phase 2 SW Stroke Project has been launched to develop directional recommendations for the future state of secondary stroke prevention and community stroke rehabilitation and recovery across the LHIN, with the overall goal of implementing a complete system of care across the continuum.

- Opportunity exists for standardizing the process of patient transition from acute to inpatient rehab, including stroke as priority for CCAC coordinated access.

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ONTARIO LHINs MAP

South West Local Health Integration Network

ONTARIO STROKE REPORT CARD, 2014/15:
Waterloo Wellington Local Health Integration Network

Poor performance[1] | Acceptable performance[2] | Exemplary performance[3] | Data not available or benchmark not available

Local Health Integration Networks (LHINs)

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3 Waterloo Wellington
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6 Mississauga Halton
7 Toronto Central
8 Central
9 Central East
10 South East
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (2013/14)	Variance Within LHIN[5] (Min–Max)	Provincial Benchmark[6]	High Performer[7]	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	61.0% (56.7%)	53.4–66.5%	64.9% (64.8%)	Essex Sub-LHIN	1, 3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.5 (1.5)	1.4–2.1	1.2 (1.1)	Ottawa Centre Sub-LHIN	7, 8, 9,11
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.4 (12.4)	0.0–50.6	–	–	7
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	79.5% (81.7%)	0.0–87.3%	90.4% (88.3%)	Bluewater Health, Sarnia	7, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	56.0 (57.0)	51.5–67.0	38.0 (33.0)	Niagara Health System, Greater Niagara	4, 8
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	11.4% (9.9%)	4.8–18.4%	17.3% (17.0%)	South Etobicoke–Toronto Sub-LHIN	6, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	75.9% (66.3%)	42.6–88.2%	72.3% (62.7%)	Urban Guelph Sub-LHIN	3, 10
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	13.2% (22.9%)	0.0–39.3%	8.2% (11.7%)	Rouge Valley Health System, Ajax	3
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	32.1% (31.8%)	26.5–41.0%	45.4% (46.3%)	Manitoulin-Sudbury Sub-LHIN	9, 1
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	8.0 (8.0)	7.0–8.5	6.0 (5.0)	BH Sarnia, LH Oshawa, PRH, QHC Belleville and SRHC[9]	8, 9
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	78.3% (59.8%)	76.7–80.0%	80.8% (76.6%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.5 (1.0)	1.2–1.9	1.5 (1.3)	Grand River Hospital Corp., Freeport	12, 3
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	8.6 (6.3)	–	10.8 (8.6)	South East CCAC	10, 13
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	54.7% (42.1%)	49.0–60.2%	58.7% (57.3%)	Grand River Hospital Corp., Freeport	3
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	4.3% (5.2%)	0.6–8.9%	2.5% (2.8%)	Urban Guelph Sub-LHIN	None
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	9.2 (7.8)	2.9–13.8	–	–	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance

1 Performance below the 50th percentile.
2 Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
3 Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Benchmarks were calculated using the ABC methodology (Weissman et al. *J Eval Clin Pract.* 1999; 5(3):269–81) on facility/sub-LHIN data; the 2013/14 benchmarks are displayed in parentheses.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
8 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.
9 High performers include Bluewater Health (BH) Sarnia site, Lakeridge Health (LH) Oshawa site, Pembroke Regional Hospital (PRH), Quinte Health Care (QHC) Belleville site, and Southlake Regional Health Centre (SRHC).

STROKE PROGRESS REPORT, 2014/15 COMPARED TO 2011/12–2013/14

Waterloo Wellington Local Health Integration Network

Progressing well[1] | Progressing[2] | Not progressing[3] | Data not available

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Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (previous 3-year average)	Variance within LHIN[5] 2014/15 (2011/12)		Greatest Improvement[6]	
				Min	Max	Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	61.0% (57.3%)	53.4% (37.9%)	66.5% (62.2%)	Woodbridge (Vaughan) Sub-LHIN	3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.5 (1.4)	1.4 (1.3)	2.1 (1.6)	Algoma Sub-LHIN	None
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.4 (11.7)	0.0 (0.0)	50.6 (36.6)	North Bay Regional Health Centre	6, 2
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	79.5% (78.8%)	0.0% (23.1%)	87.3% (81.2%)	Brockville General Hospital	2, 12
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	56.0 (64.0‡)	51.5 (81.0‡)	67.0 (81.0‡)	Royal Victoria Regional Health Centre	12
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	11.4% (9.6%‡)	4.8% (8.6%‡)	18.4% (11.6%‡)	Flamborough Sub-LHIN	2, 6
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[7] at any time during their inpatient stay.	75.9% (62.8%)	42.6% (7.7%)	88.2% (78.5%)	Belleville Sub-LHIN	10, 3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	13.2% (27.7%)	0.0% (2.2%)	39.3% (56.5%)	Rouge Valley Health System, Ajax	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	32.1% (30.7%)	26.5% (17.1%)	41.0% (40.2%)	Central York Region Sub-LHIN	8, 5
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	8.0 (10.0)	7.0 (10.0)	8.5 (12.0)	Grand River Hospital Corp., Freeport, and Hamilton Health Sciences Corp., General Regional Rehab	8, 3
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	78.3% (46.7%)	76.7% (28.2%)	80.0% (46.9%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.5 (0.8)	1.2 (0.7)	1.9 (0.8)	Grand River Hospital Corp., Freeport	3, 12
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	8.6 (6.7)	–	–	North East CCAC	13, 6
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	54.7% (39.5%)	49.0% (29.1%)	60.2% (75.0%)	Providence Healthcare	8, 5
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	4.3% (6.8%)	0.6% (2.4%)	8.9% (12.6%)	Dufferin County Sub-LHIN	3, 6, 10
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	9.2 (7.0)	2.9 (0.0)	13.8 (16.0)	Peterborough Regional Health Centre	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance | ‡ Includes Ontario Stroke Audit data (2010/11 and/or 2012/13).

1 Statistically significant improvement.
2 Performance improving but not statistically significant.
3 No change or performance decline.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Greatest Improvement sites/sub-LHINs include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
7 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.

INTERPRETATION OF 2014/15 STROKE REPORT CARD
Waterloo Wellington Local Health Integration Network

PERFORMANCE OVERVIEW

As a result of system integration, the Waterloo Wellington LHIN is a provincial leader; it is the top performer on six indicators (1, 8, 10, 15, 16, 18), made significant improvement on eight indicators (1, 8, 13, 15, 16, 17, 18, 19) and improved on another five indicators (5, 6, 7, 10, 11).

AREAS OF PROGRESS

Acute Stroke Management	The Waterloo Wellington LHIN has improved the proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay from 62.8% to 75.9%.
Stroke Rehabilitation	The Waterloo Wellington LHIN has a greater proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target from 46.7% to 78.3% and improved median FIM efficiency from 0.8 to 1.5.
Stroke Rehabilitation	The development of the Waterloo Wellington Community Stroke Care Pathway has increased the mean number of CCAC visits provided to stroke/TIA patients from 6.7 to 8.6.
Community Reintegration	The Waterloo Wellington LHIN has improved upon the proportion of stroke/TIA patients discharged from acute care to LTC/CCC from 6.8% to 4.3%.

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Access: Indicator 2: annual age-and-sex adjusted inpatient admission rate for stroke/TIA	Currently in Waterloo Wellington, there is a high admission rate for persons who have had a TIA. To address this issue, the Central South Regional Stroke Network is focused on improving access to urgent stroke prevention services across the region.
Access: Indicator 11: proportion of acute stroke patients discharged from acute care and admitted to inpatient rehabilitation	Further work is being done to explore the transition from acute to inpatient rehabilitation to improve the Waterloo Wellington LHIN admission to inpatient rehabilitation, since significant progress has been made with more severe strokes being admitted to inpatient rehab and fewer patients are going to LTC/CCC following their acute stroke.
Appropriateness: Indicators 6 and 7: median door-to-needle time among patients who received acute tPA; and proportion of ischemic stroke patients who received acute tPA	A great deal of work within the Waterloo Wellington LHIN continues to align with improving the processes for tPA administration. The implementation of 'clot retrieval' processes has provided an opportunity to re-evaluate the current tPA model at Grand River Hospital.
Access: Indicator 13: median number of days between stroke onset and admission to stroke inpatient rehabilitation	In an effort to improve system integration, work to develop the role of the stroke navigator and use of the AlphaFIM in triage will remain a focus in the coming year to improve (reduce) the time from stroke onset to admission to inpatient rehabilitation.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- The Waterloo Wellington LHIN continues to strongly support the Central South Regional Stroke Network's efforts to promote best practice care across the continuum within the LHIN.

CONTACT

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ONTARIO LHINs MAP

Waterloo Wellington Local Health Integration Network

ONTARIO STROKE REPORT CARD, 2014/15:

Hamilton Niagara Haldimand Brant Local Health Integration Network

Poor performance[1] | Acceptable performance[2] | Exemplary performance[3] | Data not available or benchmark not available

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Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (2013/14)	Variance Within LHIN[5] (Min–Max)	Provincial Benchmark[6]	High Performer[7]	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	58.6% (59.7%)	44.4–72.5%	64.9% (64.8%)	Essex Sub-LHIN	1, 3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA } (per 1,000 population).	1.4 (1.4)	1.1–2.7	1.2 (1.1)	Ottawa Centre Sub-LHIN	7, 8, 9,11
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.3 (13.7)	0.0–27.2	–	–	7
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	77.7% (72.5%)	25.0–89.2%	90.4% (88.3%)	Bluewater Health, Sarnia	7, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	37.0 (32.0)	31.0–105.0	38.0 (33.0)	Niagara Health System, Greater Niagara	4, 8
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	13.0% (13.7%)	5.9–25.7%	17.3% (17.0%)	South Etobicoke–Toronto Sub-LHIN	6, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	49.3% (43.6%)	9.3–81.2%	72.3% (62.7%)	Urban Guelph Sub-LHIN	3, 10
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	29.0% (25.3%)	0.0–43.7%	8.2% (11.7%)	Rouge Valley Health System, Ajax	3
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	38.8% (36.4%)	28.1–45.8%	45.4% (46.3%)	Manitoulin-Sudbury Sub-LHIN	9, 1
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	9.0 (10.0)	7.0–11.0	6.0 (5.0)	BH Sarnia, LH Oshawa, PRH, QHC Belleville and SRHC[9]	8, 9
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	51.4% (45.5%)	29.4–60.1%	80.8% (76.6%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.9 (0.8)	0.6–1.0	1.5 (1.3)	Grand River Hospital Corp., Freeport	12, 3
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	6.8 (5.1)	–	10.8 (8.6)	South East CCAC	10, 13
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	36.9% (33.1%)	17.6–51.7%	58.7% (57.3%)	Grand River Hospital Corp., Freeport	3
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	10.5% (9.9%)	0.0–24.4%	2.5% (2.8%)	Urban Guelph Sub-LHIN	None
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.6 (6.7)	0.0–11.5	–	–	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance

1 Performance below the 50th percentile.
2 Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
3 Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
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7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
8 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.
9 High performers include Bluewater Health (BH) Sarnia site, Lakeridge Health (LH) Oshawa site, Pembroke Regional Hospital (PRH), Quinte Health Care (QHC) Belleville site, and Southlake Regional Health Centre (SRHC).

STROKE PROGRESS REPORT, 2014/15 COMPARED TO 2011/12–2013/14

Hamilton Niagara Haldimand Brant Local Health Integration Network

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Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (previous 3-year average)	Variance within LHIN[5] 2014/15 (2011/12)		Greatest Improvement[6]	
				Min	Max	Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	58.6% (58.9%)	44.4% (51.1%)	72.5% (71.4%)	Woodbridge (Vaughan) Sub-LHIN	3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.4 (1.3)	1.1 (1.0)	2.7 (2.7)	Algoma Sub-LHIN	None
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.3 (12.5)	0.0 (7.5)	27.2 (18.6)	North Bay Regional Health Centre	6, 2
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	77.7% (70.0%)	25.0% (35.3%)	89.2% (82.3%)	Brockville General Hospital	2, 12
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	37.0 (43.5‡)	31.0 (33.9‡)	105.0 (90.0‡)	Royal Victoria Regional Health Centre	12
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	13.0% (12.1%‡)	5.9% (5.5%‡)	25.7% (25.1%‡)	Flamborough Sub-LHIN	2, 6
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[7] at any time during their inpatient stay.	49.3% (39.1%)	9.3% (0.0%)	81.2% (58.6%)	Belleville Sub-LHIN	10, 3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	29.0% (25.4%)	0.0% (5.9%)	43.7% (54.2%)	Rouge Valley Health System, Ajax	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	38.8% (33.9%)	28.1% (19.0%)	45.8% (44.4%)	Central York Region Sub-LHIN	8, 5
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	9.0 (10.0)	7.0 (9.0)	11.0 (12.0)	Grand River Hospital Corp., Freeport, and Hamilton Health Sciences Corp., General Regional Rehab	8, 3
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	51.4% (40.1%)	29.4% (21.2%)	60.1% (67.6%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.9 (0.8)	0.6 (0.8)	1.0 (0.9)	Grand River Hospital Corp., Freeport	3, 12
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	6.8 (5.2)	–	–	North East CCAC	13, 6
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	36.9% (36.3%)	17.6% (20.7%)	51.7% (51.4%)	Providence Healthcare	8, 5
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	10.5% (10.2%)	0.0% (0.0%)	24.4% (20.2%)	Dufferin County Sub-LHIN	3, 6, 10
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.6 (7.3)	0.0 (0.0)	11.5 (12.2)	Peterborough Regional Health Centre	None

Hospital Service Accountability Agreement indicators, 2010/11 – Data not available § Contributes to QBP performance ‡ Includes Ontario Stroke Audit data (2010/11 and/or 2012/13).

1 Statistically significant improvement.
2 Performance improving but not statistically significant.
3 No change or performance decline.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Greatest Improvement sites/sub-LHINs include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
7 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.

INTERPRETATION OF 2014/15 STROKE REPORT CARD
Hamilton Niagara Haldimand Brant Local Health Integration Network

PERFORMANCE OVERVIEW

The Hamilton Niagara Haldimand Brant LHIN had significant improvement on eight indicators (3, 5, 8, 11, 13, 15, 16, 17). The LHIN is the top performer for delivering tPA in the shortest time (indicator 6), and a sub-LHIN has shown the greatest improvement in the proportion of patients receiving tPA (indicator 7).

AREAS OF PROGRESS

Stroke Prevention	There has been a significant reduction in 30-day mortality rates and a significant increase in the proportion of ischemic stroke inpatients receiving carotid imaging.
Acute Stroke Management	The proportion of stroke/TIA patients treated on a stroke unit has significantly improved (49.3% vs 39.1%) and progress continues in tPA with more patients receiving it and in a shorter door-to-needle time.
Stroke Rehabilitation	The LHIN has seen significant improvements in the proportion of patients admitted to inpatient rehabilitation, shorter time to inpatient rehabilitation and improved FIM efficiency.
Stroke Rehabilitation	The LHIN implemented the Brant Haldimand Norfolk Community Stroke Rehabilitation Model resulting in excellent progress in the number of CCAC visits provided to stroke/TIA patients.

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Effectiveness: Indicator 10: proportion of ALC days to total length of stay in acute care	The Central South Regional Stroke Network continues to work on integrating stroke services across the Hamilton Niagara Haldimand Brant LHIN as well as on developing stroke units to provide best practice stroke care.
Effectiveness: Indicator 15: proportion of inpatient stroke rehabilitation patients achieving RPG length of stay target	A number of current and planned activities are moving forward to further improve the proportion of patients achieving length of stay targets in rehabilitation. Activities include monitoring stroke rehab intensity as well as planning for the potential expansion of community stroke rehabilitation models.
Access: Indicator 18: proportion of patients admitted to inpatient rehabilitation with severe stroke	The Central South Regional Stroke Network continues to work on integration of stroke services and expansion of community stroke rehabilitation models to improve access to inpatient rehab for severe stroke patients. Further exploration of early supported discharge models is also planned.
Integration: Indicator 19: proportion of stroke/TIA patients discharged from acute care to LTC/CCC	Examine and evaluate the current pathway for severe stroke patients to ensure system integration with a focus on stroke unit care.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- The Hamilton Niagara Haldimand Brant LHIN continues to strongly support the Central South Regional Stroke Network's efforts to promote best practice care across the continuum within the LHIN.
- The LHIN and the Central South Regional Stroke Network are collaboratively leading the planning for further stroke care integration efforts in Hamilton, Niagara and Burlington to ensure equitable access to best practice stroke care services for all residents.
- Opportunities for collaboration include the continued development of stroke unit care and the expansion of community stroke rehabilitation models across the LHIN.

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ONTARIO LHINs MAP

Hamilton Niagara Haldimand Brant Local Health Integration Network

ONTARIO STROKE REPORT CARD, 2014/15:
Central West Local Health Integration Network

Poor performance[1] | Acceptable performance[2] | Exemplary performance[3] | Data not available or benchmark not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
5 Central West
6 Mississauga Halton
7 Toronto Central
8 Central
9 Central East
10 South East
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (2013/14)	Variance Within LHIN[5] (Min–Max)	Provincial Benchmark[6]	High Performer[7]	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	53.1% (55.2%)	50.0–57.8%	64.9% (64.8%)	Essex Sub-LHIN	1, 3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.4 (1.3)	1.2–1.8	1.2 (1.1)	Ottawa Centre Sub-LHIN	7, 8, 9,11
3§	Prevention of stroke	Ri sk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	10.1 (12.9)	9.0–11.3	–	–	7
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	85.5% (85.2%)	70.7–91.7%	90.4% (88.3%)	Bluewater Health, Sarnia	7, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	–	–	38.0 (33.0)	Niagara Health System, Greater Niagara	4, 8
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	10.1% (9.5%)	6.9–12.8%	17.3% (17.0%)	South Etobicoke–Toronto Sub-LHIN	6, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	16.5% (16.6%)	12.2–25.0%	72.3% (62.7%)	Urban Guelph Sub-LHIN	3, 10
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	25.3% (26.7%)	4.3–29.3%	8.2% (11.7%)	Rouge Valley Health System, Ajax	3
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	34.3% (34.7%)	7.5–40.2%	45.4% (46.3%)	Manitoulin-Sudbury Sub-LHIN	9, 1
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	14.0 (16.0)	14.0–18.0	6.0 (5.0)	BH Sarnia, LH Oshawa, PRH, QHC Belleville and SRHC[9]	8, 9
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	50.8% (18.9%)	48.2–69.6%	80.8% (76.6%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.8 (0.6)	0.8–2.0	1.5 (1.3)	Grand River Hospital Corp., Freeport	12, 3
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	5.6 (5.2)	–	10.8 (8.6)	South East CCAC	10, 13
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	41.7% (33.9%)	37.8–69.6%	58.7% (57.3%)	Grand River Hospital Corp., Freeport	3
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	8.2% (7.7%)	3.3–15.8%	2.5% (2.8%)	Urban Guelph Sub-LHIN	None
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.9 (7.4)	7.2–10.3	–	–	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance

1 Performance below the 50th percentile.
2 Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
3 Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Benchmarks were calculated using the ABC methodology (Weissman et al. *J Eval Clin Pract.* 1999; 5(3):269–81) on facility/sub-LHIN data; the 2013/14 benchmarks are displayed in parentheses.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
8 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.
9 High performers include Bluewater Health (BH) Sarnia site, Lakeridge Health (LH) Oshawa site, Pembroke Regional Hospital (PRH), Quinte Health Care (QHC) Belleville site, and Southlake Regional Health Centre (SRHC).

STROKE PROGRESS REPORT, 2014/15 COMPARED TO 2011/12–2013/14

Central West Local Health Integration Network

Progressing well[1] | Progressing[2] | Not progressing[3] | Data not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
5 Central West
6 Mississauga Halton
7 Toronto Central
8 Central
9 Central East
10 South East
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12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (previous 3-year average)	Variance within LHIN[5] 2014/15 (2011/12)		Greatest Improvement[6]	
				Min	Max	Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	53.1% (54.2%)	50.0% (38.8%)	57.8% (58.8%)	Woodbridge (Vaughan) Sub-LHIN	3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.4 (1.3)	1.2 (1.3)	1.8 (1.8)	Algoma Sub-LHIN	None
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	10.1 (10.6)	9.0 (8.7)	11.3 (17.0)	North Bay Regional Health Centre	6, 2
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	85.5% (84.1%)	70.7% (64.4%)	91.7% (87.1%)	Brockville General Hospital	2, 12
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	–(–)	–(–)	–(–)	Royal Victoria Regional Health Centre	12
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	10.1% (9.9%‡)	6.9 (7.6%‡)	12.8% (15.1%‡)	Flamborough Sub-LHIN	2, 6
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[7] at any time during their inpatient stay.	16.5% (15.2%)	12.2% (2.6%)	25.0% (20.4%)	Belleville Sub-LHIN	10, 3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	25.3% (28.9%)	4.3% (19.6%)	29.3% (34.1%)	Rouge Valley Health System, Ajax	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	34.3% (29.7%)	7.5% (18.9%)	40.2% (44.1%)	Central York Region Sub-LHIN	8, 5
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	14.0 (16.0)	14.0 (13.0)	18.0 (19.5)	Grand River Hospital Corp., Freeport, and Hamilton Health Sciences Corp., General Regional Rehab	8, 3
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	50.8% (16.3%)	48.2% (15.5%)	69.6% (20.0%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.8 (0.5)	0.8 (0.3)	2.0 (0.5)	Grand River Hospital Corp., Freeport	3, 12
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	5.6 (6.3)	–	–	North East CCAC	13, 6
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	41.7% (27.8%)	37.8% (12.4%)	69.6% (32.0%)	Providence Healthcare	8, 5
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	8.2% (9.2%)	3.3% (7.7%)	15.8% (23.9%)	Dufferin County Sub-LHIN	3, 6, 10
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.9 (8.1)	7.2 (7.7)	10.3 (8.7)	Peterborough Regional Health Centre	None

Hospital Service Accountability Agreement indicators, 2010/11 – Data not available § Contributes to QBP performance ‡ Includes Ontario Stroke Audit data (2010/11 and/or 2012/13).

1 Statistically significant improvement.
2 Performance improving but not statistically significant.
3 No change or performance decline.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Greatest Improvement sites/sub-LHINs include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
7 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.

INTERPRETATION OF 2014/15 STROKE REPORT CARD
Central West Local Health Integration Network

PERFORMANCE OVERVIEW

Overall, the Central West LHIN has progressed in 12 of the 16 indicators. The greatest progress has been in the area of stroke rehabilitation. Opportunities for improvement remain with the establishment of stroke units and community support for stroke patients.

AREAS OF PROGRESS

Stroke Prevention	The proportion of ischemic stroke patients receiving carotid imaging (indicator 5) continues to improve, and the LHIN has achieved exemplary performance in this area.
Stroke Rehabilitation	There has been a significant improvement in the proportion of stroke patients admitted to inpatient rehabilitation: 34.3% compared to 29.7% in the previous three years.
Stroke Rehabilitation	There has been a significant and impressive improvement in the proportion of stroke patients in rehabilitation achieving length of stay targets: 50.8% compared to 16.3% in the previous three years.
Stroke Rehabilitation	There has been significant improvement in the proportion of severe stroke patients admitted to rehabilitation: 41.7% compared to 27.8% in the previous three years.

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Access: Access to a stroke unit	There are currently no formalized stroke units in the Central West LHIN. Work is being conducted at William Osler Health System (Brampton) to establish an integrated stroke unit.
Access: Access to inpatient rehabilitation	The time to inpatient rehabilitation (14 days) remains a challenge. An in-depth examination of the data is needed to identify where problems exist. The West GTA Stroke Network is working with acute and rehabilitation organizations (William Osler Health System) to enable improvement.
Integration: Community services for stroke patients	Although work continues to be done in the Central West LHIN for stroke patients, specific access to CCAC support remains limited. The West GTA Stroke Network continues to work with both the CCAC and the LHIN to increase community support for stroke patients discharged home.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- The West GTA Stroke Network and the Central West LHIN continue to work in collaboration to improve stroke care within the LHIN.
- The greatest opportunity for improvement in the Central West LHIN is in improving community services for stroke patients in order to improve patient flow within the bedded organizations.
- Another opportunity is to consider redirecting all stroke patients from Headwaters to William Osler for their acute and rehabilitation phase and create a system where they can be reintegrated with support within their community closer to home.

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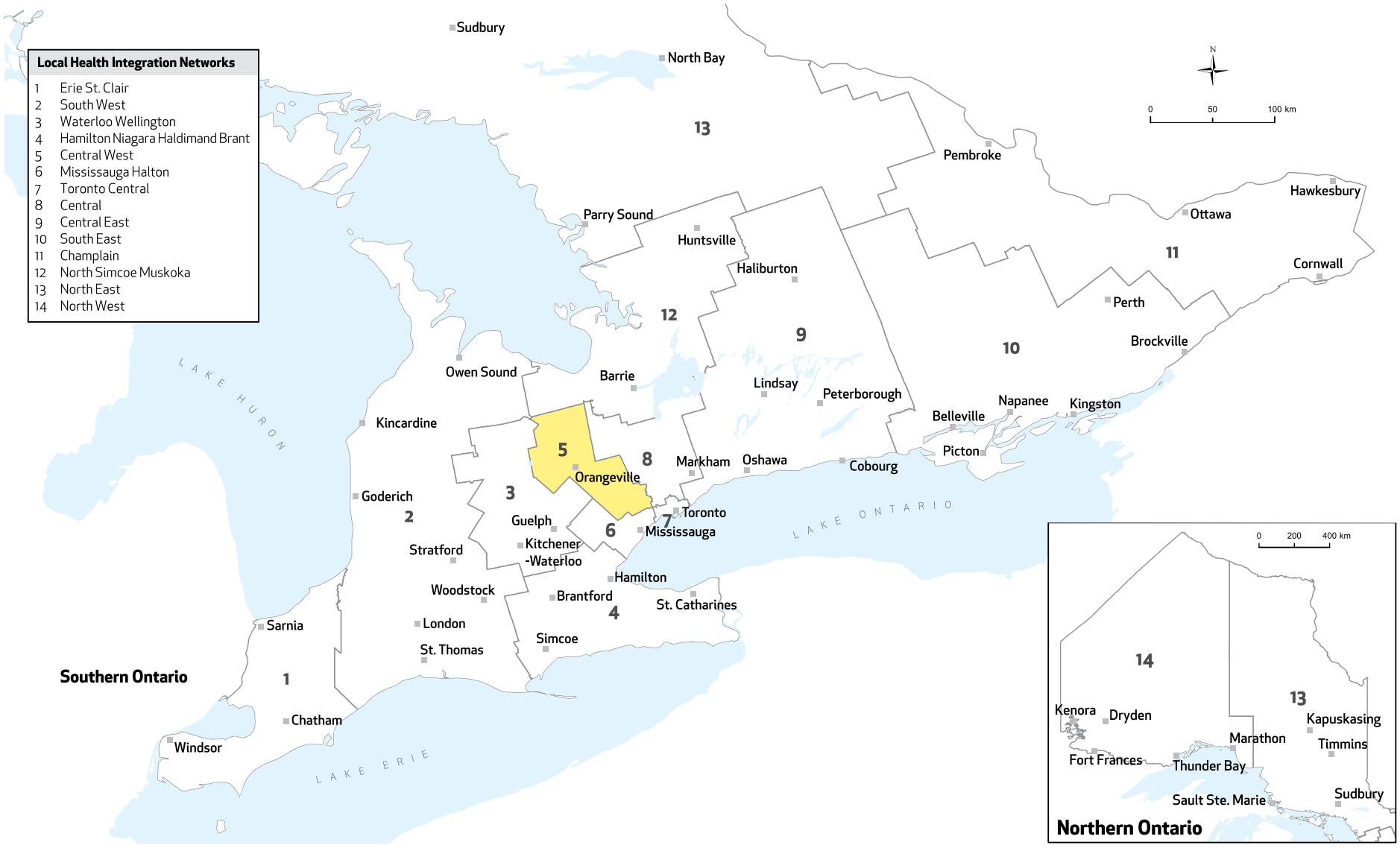
ONTARIO LHINs MAP

Central West Local Health Integration Network



ONTARIO STROKE REPORT CARD, 2014/15:
Mississauga Halton Local Health Integration Network

Poor performance[1] | Acceptable performance[2] | Exemplary performance[3] | Data not available or benchmark not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
5 Central West
6 Mississauga Halton
7 Toronto Central
8 Central
9 Central East
10 South East
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (2013/14)	Variance Within LHIN[5] (Min–Max)	Provincial Benchmark[6]	High Performer[7]	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	55.8% (58.1%)	51.7–61.7%	64.9% (64.8%)	Essex Sub-LHIN	1, 3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.3 (1.2)	1.2–2.1	1.2 (1.1)	Ottawa Centre Sub-LHIN	7, 8, 9,11
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.0 (13.7)	9.6–11.8	–	–	7
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	86.6% (83.1%)	78.0–89.3%	90.4% (88.3%)	Bluewater Health, Sarnia	7, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	49.0 (69.5)	47.0–271.5	38.0 (33.0)	Niagara Health System, Greater Niagara	4, 8
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	14.9% (10.3%)	11.1–20.0%	17.3% (17.0%)	South Etobicoke–Toronto Sub-LHIN	6, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	37.3% (35.7%)	14.9–59.2%	72.3% (62.7%)	Urban Guelph Sub-LHIN	3, 10
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	21.3% (24.3%)	11.9–27.6%	8.2% (11.7%)	Rouge Valley Health System, Ajax	3
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	31.4% (32.6%)	23.0–35.3%	45.4% (46.3%)	Manitoulin-Sudbury Sub-LHIN	9, 1
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	9.0 (8.0)	9.0–10.0	6.0 (5.0)	BH Sarnia, LH Oshawa, PRH, QHC Belleville and SRHC[9]	8, 9
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	65.6% (58.7%)	39.7–77.5%	80.8% (76.6%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.0 (1.0)	0.8–1.3	1.5 (1.3)	Grand River Hospital Corp., Freeport	12, 3
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	7.8 (6.0)	–	10.8 (8.6)	South East CCAC	10, 13
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	51.9% (49.5%)	44.6–57.7%	58.7% (57.3%)	Grand River Hospital Corp., Freeport	3
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	5.5% (8.0%)	2.6–14.6%	2.5% (2.8%)	Urban Guelph Sub-LHIN	None
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.6 (7.2)	5.8–10.0	–	–	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance

1 Performance below the 50th percentile.
2 Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
3 Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Benchmarks were calculated using the ABC methodology (Weissman et al. *J Eval Clin Pract.* 1999; 5(3):269–81) on facility/sub-LHIN data; the 2013/14 benchmarks are displayed in parentheses.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
8 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.
9 High performers include Bluewater Health (BH) Sarnia site, Lakeridge Health (LH) Oshawa site, Pembroke Regional Hospital (PRH), Quinte Health Care (QHC) Belleville site, and Southlake Regional Health Centre (SRHC).

STROKE PROGRESS REPORT, 2014/15 COMPARED TO 2011/12–2013/14

Mississauga Halton Local Health Integration Network

Progressing well[1] | Progressing[2] | Not progressing[3] | Data not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
5 Central West
6 Mississauga Halton
7 Toronto Central
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9 Central East
10 South East
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12 North Simcoe Muskoka
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14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (previous 3-year average)	Variance within LHIN[5] 2014/15 (2011/12)		Greatest Improvement[6]	
				Min	Max	Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	55.8% (57.4%)	51.7% (42.4%)	61.7% (64.6%)	Woodbridge (Vaughan) Sub-LHIN	3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.3 (1.2)	1.2 (1.1)	2.1 (1.6)	Algoma Sub-LHIN	None
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.0 (13.3)	9.6 (9.3)	11.8 (20.8)	North Bay Regional Health Centre	6, 2
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	86.6% (80.0%)	78.0% (64.3%)	89.3% (85.0%)	Brockville General Hospital	2, 12
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	49.0 (70.5‡)	47.0 (74.9‡)	271.5 (74.9‡)	Royal Victoria Regional Health Centre	12
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	14.9% (11.2%‡)	11.1% (3.2%‡)	20.0% (24.4%‡)	Flamborough Sub-LHIN	2, 6
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[7] at any time during their inpatient stay.	37.3% (33.5%)	14.9% (6.5%)	59.2% (54.1%)	Belleville Sub-LHIN	10, 3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	21.3% (22.8%)	11.9% (3.5%)	27.6% (22.9%)	Rouge Valley Health System, Ajax	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	31.4% (34.5%)	23.0% (15.4%)	35.3% (41.9%)	Central York Region Sub-LHIN	8, 5
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	9.0 (9.0)	9.0 (8.0)	10.0 (12.5)	Grand River Hospital Corp., Freeport, and Hamilton Health Sciences Corp., General Regional Rehab	8, 3
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	65.6% (58.5%)	39.7% (30.6%)	77.5% (66.0%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.0 (0.9)	0.8 (0.6)	1.3 (1.0)	Grand River Hospital Corp., Freeport	3, 12
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	7.8 (5.3)	–	–	North East CCAC	13, 6
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	51.9% (45.0%)	44.6% (30.6%)	57.7% (46.9%)	Providence Healthcare	8, 5
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	5.5% (8.1%)	2.6% (5.6%)	14.6% (17.6%)	Dufferin County Sub-LHIN	3, 6, 10
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.6 (8.0)	5.8 (1.3)	10.0 (14.3)	Peterborough Regional Health Centre	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance | ‡ Includes Ontario Stroke Audit data (2010/11 and/or 2012/13).

1 Statistically significant improvement.
2 Performance improving but not statistically significant.
3 No change or performance decline.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Greatest Improvement sites/sub-LHINs include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
7 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.

INTERPRETATION OF 2014/15 STROKE REPORT CARD
Mississauga Halton Local Health Integration Network

PERFORMANCE OVERVIEW

Progress has been made on 12 of the 16 indicators. A top LHIN for indicators 5 and 7. LHIN with greatest improvement in 30-day mortality, thrombolysis, CCAC-based rehab and discharge to LTC/CCC. Opportunity: timely inpatient rehabilitation within QBP target.

AREAS OF PROGRESS

Acute Stroke Management	Median door-to-needle time decreased by 20 minutes from 69.5 minutes (FY13/14) to 49.0 minutes (FY14/15).
Acute Stroke Management	Proportion of stroke patients receiving tPA has increased from 10.3% (FY13/14) to 14.9% (FY14/15).
Stroke Rehabilitation	More inpatient rehabilitation patients are achieving RPG target length of stay: 58.7% (FY13/14) to 65.6% (FY14/15).
Community Reintegration	Decrease in the number of patients being discharged to CCC/LTC from 8.0% (FY13/14) to 5.5% (FY14/15).

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Access: Stroke Unit	There remains only one stroke unit within the Mississauga Halton LHIN, resulting in over 60% of stroke patients not receiving best practice stroke unit care. Mississauga Halton LHIN will continue to work with acute care (Halton Healthcare and Trillium Health Partners - Credit Valley Hospital) to establish additional stroke units meeting the OSN definition.
Access: Access to inpatient rehabilitation	An in-depth examination is needed to understand why there has been a decrease in the proportion of stroke patients admitted to inpatient rehabilitation.
Effectiveness: Median days to rehabilitation	The median time to admission to rehabilitation remains a challenge. An in-depth examination of data is needed to identify root causes of this challenge. The West GTA Stroke Network is working with acute and rehabilitation organizations (Trillium Health Partners and Halton Healthcare) to enable improvement.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- The West GTA Stroke Network and the Mississauga Halton LHIN continue to work collaboratively to improve stroke care within the LHIN.
- The greatest opportunities for Mississauga Halton LHIN are to create stroke units where critical stroke patient volumes exist (> 160 stroke patients/year) and to continue improving community services for stroke patients.
- A further opportunity is to consider consolidating stroke patients from Halton Healthcare's Georgetown and Milton hospitals to Halton Healthcare Oakville Trafalgar and consolidating stroke patients from Trillium Health Partners Credit Valley and Mississauga Hospitals.

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ONTARIO LHINs MAP

Mississauga Halton Local Health Integration Network

ONTARIO STROKE REPORT CARD, 2014/15:
Toronto Central Local Health Integration Network

Poor performance[1] | Acceptable performance[2] | Exemplary performance[3] | Data not available or benchmark not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
5 Central West
6 Mississauga Halton
7 Toronto Central
8 Central
9 Central East
10 South East
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (2013/14)	Variance Within LHIN[5] (Min–Max)	Provincial Benchmark[6]	High Performer[7]	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	58.9% (58.4%)	53.3–61.9%	64.9% (64.8%)	Essex Sub-LHIN	1, 3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.1 (1.1)	1.2–1.5	1.2 (1.1)	Ottawa Centre Sub-LHIN	7, 8, 9,11
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	10.1 (10.3)	4.9–13.1	–	–	7
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	87.6% (84.9%)	70.6–93.2%	90.4% (88.3%)	Bluewater Health, Sarnia	7, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	52.0 (65.0)	49.5– 63.0	38.0 (33.0)	Niagara Health System, Greater Niagara	4, 8
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	12.1% (12.5%)	6.8–15.8%	17.3% (17.0%)	South Etobicoke–Toronto Sub-LHIN	6, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	43.2% (47.4%)	21.1–55.4%	72.3% (62.7%)	Urban Guelph Sub-LHIN	3, 10
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	29.6% (31.6%)	6.8–42.5%	8.2% (11.7%)	Rouge Valley Health System, Ajax	3
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	34.9% (33.6%)	27.0–40.0%	45.4% (46.3%)	Manitoulin-Sudbury Sub-LHIN	9, 1
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	10.0 (10.0)	7.0–11.0	6.0 (5.0)	BH Sarnia, LH Oshawa, PRH, QHC Belleville and SRHC[9]	8, 9
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	58.5% (49.0%)	44.6–72.3%	80.8% (76.6%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.0 (0.9)	0.8–1.4	1.5 (1.3)	Grand River Hospital Corp., Freeport	12, 3
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	6.3 (4.8)	–	10.8 (8.6)	South East CCAC	10, 13
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	36.2% (27.7%)	23.7–58.3%	58.7% (57.3%)	Grand River Hospital Corp., Freeport	3
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	9.9% (11.6%)	7.8–12.7%	2.5% (2.8%)	Urban Guelph Sub-LHIN	None
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	8.4 (8.7)	5.8–10.3	–	–	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance

1 Performance below the 50th percentile.
2 Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
3 Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Benchmarks were calculated using the ABC methodology (Weissman et al. *J Eval Clin Pract.* 1999; 5(3):269–81) on facility/sub-LHIN data; the 2013/14 benchmarks are displayed in parentheses.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
8 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.
9 High performers include Bluewater Health (BH) Sarnia site, Lakeridge Health (LH) Oshawa site, Pembroke Regional Hospital (PRH), Quinte Health Care (QHC) Belleville site, and Southlake Regional Health Centre (SRHC).

STROKE PROGRESS REPORT, 2014/15 COMPARED TO 2011/12–2013/14

Toronto Central Local Health Integration Network

Progressing well[1] | Progressing[2] | Not progressing[3] | Data not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
5 Central West
6 Mississauga Halton
7 Toronto Central
8 Central
9 Central East
10 South East
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (previous 3-year average)	Variance within LHIN[5] 2014/15 (2011/12)		Greatest Improvement[6]	
				Min	Max	Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	58.9% (59.2%)	53.3% (51.3%)	61.9% (64.3%)	Woodbridge (Vaughan) Sub-LHIN	3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.1 (1.1)	1.2 (1.0)	1.5 (1.4)	Algoma Sub-LHIN	None
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	10.1 (10.1)	4.9 (9.1)	13.1 (13.5)	North Bay Regional Health Centre	6, 2
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	87.6% (82.1%)	70.6% (66.0%)	93.2% (88.2%)	Brockville General Hospital	2, 12
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	52.0 (71.7‡)	49.5 (75.6‡)	63.0 (79.8‡)	Royal Victoria Regional Health Centre	12
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	12.1% (11.2%‡)	6.8% (6.2%‡)	15.8% (13.6%‡)	Flamborough Sub-LHIN	2, 6
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[7] at any time during their inpatient stay.	43.2% (47.8%)	21.1% (25.0%)	55.4% (62.0%)	Belleville Sub-LHIN	10, 3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	29.6% (28.1%)	6.8% (13.3%)	42.5% (39.4%)	Rouge Valley Health System, Ajax	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	34.9% (31.0%)	27.0% (20.2%)	40.0% (35.2%)	Central York Region Sub-LHIN	8, 5
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	10.0 (11.0)	7.0 (9.0)	11.0 (21.0)	Grand River Hospital Corp., Freeport, and Hamilton Health Sciences Corp., General Regional Rehab	8, 3
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	58.5% (37.3%)	44.6% (15.8%)	72.3% (35.0%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.0 (0.8)	0.8 (0.5)	1.4 (0.8)	Grand River Hospital Corp., Freeport	3, 12
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	6.3 (4.3)	–	–	North East CCAC	13, 6
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	36.2% (27.1%)	23.7% (15.4%)	58.3% (52.6%)	Providence Healthcare	8, 5
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	9.9% (11.7%)	7.8% (9.7%)	12.7% (17.7%)	Dufferin County Sub-LHIN	3, 6, 10
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	8.4 (8.8)	5.8 (7.2)	10.3 (10.2)	Peterborough Regional Health Centre	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance | ‡ Includes Ontario Stroke Audit data (2010/11 and/or 2012/13).

1 Statistically significant improvement.
2 Performance improving but not statistically significant.
3 No change or performance decline.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Greatest Improvement sites/sub-LHINs include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
7 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.

INTERPRETATION OF 2013/14 STROKE REPORT CARD
Toronto Central Local Health Integration Network

PERFORMANCE OVERVIEW

Significant progress on seven indicators (rehab); no progress on five indicators (prevention/acute). High performer on indicators 2, 3 and 5, but remains below the 50th percentile on six indicators. Further improvement requires system planning across neighbouring LHINs.

AREAS OF PROGRESS

Stroke Prevention	Maintaining exemplary performance on prevention indicators. Variation persists between organizations in prevention practices that, if improved, would ensure equity across acute care organizations.
Acute Stroke Management	Acceptable performance on indicators 6, 7, 8 and 11. From a population perspective, the East Sub-LHIN has the lowest access to stroke unit care, tPA and rehabilitation. Three of five hospitals meet the stroke unit definition.
Stroke Rehabilitation	Toronto Central LHIN stroke rehab reinvestment contributed to reduced variation in time to access inpatient rehab, ability to meet LOS targets and greater proportion of severe strokes admitted to rehab over last year.
Community Reintegration	Reduced variation between organizations and proportion of patients going to LTC. Steady decline in readmission rates from 2011/12 to 2014/15. Further development of community services required.

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Access: 1. Standardized acute stroke unit care across the LHIN. 2. Coordinated approach to endovascular therapy to support local and provincial access.	1. Continued support for the community hospitals to develop stroke units and implement associated best practices. 2. Inter-LHIN collaboration to support implementation of local protocols and provincial strategies for access to endovascular therapy and flow to and from regional centres in the Toronto Central LHIN.
Appropriateness: Standardization of practice and reporting for inpatient and outpatient rehab to inform system planning and ongoing quality improvement.	Continue collaboration on: sustainable process for rehab referral and performance metrics; evaluating the impact of rehab reinvestment and other LHIN initiatives (e.g., ALC, readmission) to inform future strategies. Support standardization of stroke unit rehab intensity and care of severe stroke including access for those with complex needs, cognitive impairment and aphasia.
Integration: Integrated implementation of post-hospital Quality-Based Procedures (QBPs) to facilitate seamless care and improve system flow and patient outcomes.	Agreement to a common model for community-based stroke care across the GTA LHINs and prioritization of foundational elements for implementation to align and support community transformation. Support for and integration of learnings from the Integrated Funding Model project for stroke.
Effectiveness: Patient engagement and co-design in service delivery and system planning to ensure improvements reflect elements that are deemed most meaningful by persons with stroke and their families.	Implement processes for patient and family engagement to co-create system and quality improvement initiatives within the Toronto Stroke Networks (TSNs), including the Patient and Family Advisory Committee. Ongoing capacity building within the TSNs for improving and evaluating patient experience and transitions with health service providers.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Collaborate with neighbouring LHINs to address interdependencies affecting stroke system performance. This includes stroke system planning to facilitate equitable and coordinated access to a standard of best practice services across the GTA with endovascular therapy and implementation of community-based QBPs (rehabilitation, prevention, community re-engagement) for enhanced efficiencies, flow and outcomes.

- Continued direction and support for acute and rehab organizations for best practice implementation and resource utilization.

- Work collaboratively with the Stroke Networks to ensure a comprehensive and sustainable dataset across the continuum that can continue to drive system performance and improvement.

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ONTARIO LHINs MAP

Toronto Central Local Health Integration Network

ONTARIO STROKE REPORT CARD, 2014/15:
Central Local Health Integration Network

Poor performance[1] | Acceptable performance[2] | Exemplary performance[3] | Data not available or benchmark not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
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7 Toronto Central
8 Central
9 Central East
10 South East
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (2013/14)	Variance Within LHIN[5] (Min–Max)	Provincial Benchmark[6]	High Performer[7]	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	59.7% (57.4%)	54.6–63.0%	64.9% (64.8%)	Essex Sub-LHIN	1, 3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.2 (1.1)	1.2–1.6	1.2 (1.1)	Ottawa Centre Sub-LHIN	7, 8, 9,11
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.8 (13.2)	5.2–24.4	–	–	7
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	79.4% (80.1%)	68.5–86.0%	90.4% (88.3%)	Bluewater Health, Sarnia	7, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	40.0 (41.5)	40.0–40.0	38.0 (33.0)	Niagara Health System, Greater Niagara	4, 8
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	10.9% (10.0%)	7.1–13.3%	17.3% (17.0%)	South Etobicoke–Toronto Sub-LHIN	6, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	46.5% (33.0%)	4.9–70.2%	72.3% (62.7%)	Urban Guelph Sub-LHIN	3, 10
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	30.3% (31.6%)	15.7–62.4%	8.2% (11.7%)	Rouge Valley Health System, Ajax	3
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	34.3% (32.3%)	25.4–43.4%	45.4% (46.3%)	Manitoulin-Sudbury Sub-LHIN	9, 1
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	6.0 (6.5)	5.0–8.5	6.0 (5.0)	BH Sarnia, LH Oshawa, PRH, QHC Belleville and SRHC[9]	8, 9
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	76.7% (68.6%)	60.0–86.4%	80.8% (76.6%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.2 (1.1)	1.0–1.7	1.5 (1.3)	Grand River Hospital Corp., Freeport	12, 3
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	6.4 (5.1)	–	10.8 (8.6)	South East CCAC	10, 13
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	51.7% (52.7%)	40.0–55.3%	58.7% (57.3%)	Grand River Hospital Corp., Freeport	3
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	8.6% (8.9%)	5.0–11.7%	2.5% (2.8%)	Urban Guelph Sub-LHIN	None
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	8.6 (8.2)	5.8–12.8	–	–	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance

1 Performance below the 50th percentile.
2 Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
3 Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Benchmarks were calculated using the ABC methodology (Weissman et al. *J Eval Clin Pract.* 1999; 5(3):269–81) on facility/sub-LHIN data; the 2013/14 benchmarks are displayed in parentheses.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
8 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.
9 High performers include Bluewater Health (BH) Sarnia site, Lakeridge Health (LH) Oshawa site, Pembroke Regional Hospital (PRH), Quinte Health Care (QHC) Belleville site, and Southlake Regional Health Centre (SRHC).

STROKE PROGRESS REPORT, 2014/15 COMPARED TO 2011/12–2013/14

Central Local Health Integration Network

Progressing well[1] | Progressing[2] | Not progressing[3] | Data not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
5 Central West
6 Mississauga Halton
7 Toronto Central
8 Central
9 Central East
10 South East
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (previous 3-year average)	Variance within LHIN[5] 2014/15 (2011/12)		Greatest Improvement[6]	
				Min	Max	Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	59.7% (57.5%)	54.6% (52.2%)	63.0% (60.5%)	Woodbridge (Vaughan) Sub-LHIN	3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.2 (1.2)	1.2 (1.1)	1.6 (1.5)	Algoma Sub-LHIN	None
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.8 (11.7)	5.2 (2.6)	24.4 (28.5)	North Bay Regional Health Centre	6, 2
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	79.4% (78.7%)	68.5% (68.4%)	86.0% (100%)	Brockville General Hospital	2, 12
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	40.0 (51.8‡)	40.0 (67.8‡)	40.0 (67.8‡)	Royal Victoria Regional Health Centre	12
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	10.9% (10.3%‡)	7.1% (6.8%‡)	13.3% (15.2%‡)	Flamborough Sub-LHIN	2, 6
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[7] at any time during their inpatient stay.	46.5% (34.5%)	4.9% (2.9%)	70.2% (65.5%)	Belleville Sub-LHIN	10, 3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	30.3% (32.9%)	15.7% (24.4%)	62.4% (45.2%)	Rouge Valley Health System, Ajax	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	34.3% (26.7%)	25.4% (8.2%)	43.4% (33.9%)	Central York Region Sub-LHIN	8, 5
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	6.0 (9.0)	5.0 (8.0)	8.5 (12.0)	Grand River Hospital Corp., Freeport, and Hamilton Health Sciences Corp., General Regional Rehab	8, 3
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	76.7% (49.5%)	60.0% (20.5%)	86.4% (63.8%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.2 (0.8)	1.0 (0.7)	1.7 (1.4)	Grand River Hospital Corp., Freeport	3, 12
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	6.4 (5.6)	–	–	North East CCAC	13, 6
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	51.7% (30.9%)	40.0% (9.6%)	55.3% (40.4%)	Providence Healthcare	8, 5
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	8.6% (10.0%)	5.0% (5.6%)	11.7% (19.2%)	Dufferin County Sub-LHIN	3, 6, 10
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	8.6 (7.9)	5.8 (5.2)	12.8 (20.9)	Peterborough Regional Health Centre	None

Hospital Service Accountability Agreement indicators, 2010/11 – Data not available § Contributes to QBP performance ‡ Includes Ontario Stroke Audit data (2010/11 and/or 2012/13).

1 Statistically significant improvement.
2 Performance improving but not statistically significant.
3 No change or performance decline.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Greatest Improvement sites/sub-LHINs include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
7 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.

INTERPRETATION OF 2013/14 STROKE REPORT CARD
Central Local Health Integration Network

PERFORMANCE OVERVIEW

Improved significantly on seven indicators; no noted improvement in three. Identified as a high performer on indicators 2, 6, 13 and 15. Remains below the benchmark on all but four indicators. System planning across LHINs is necessary to improve overall performance.

AREAS OF PROGRESS

Stroke Prevention	Maintained performance on associated indicators through sustained investment in coordinated secondary prevention (indicator 2).
Acute Stroke Management	Continued focus on stroke unit access, standard assessment and best practice have improved performance on indicators 8, 10 and 11; three of six hospitals have a stroke unit that meets the new definition.
Stroke Rehabilitation	Improved timely access to appropriate rehab with a focus on implementation of rehabilitation standards and consideration of cross-LHIN flow with Toronto Central LHIN (indicators 13, 15, 16, 18 and 19).
Community Reintegration	Reduction in proportion of stroke patients discharged from acute to long-term care linked to proportion of severe stroke patients in rehabilitation. Further development of community services will support this population.

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Access: A standard of best practice hyperacute and acute stroke care across the Central LHIN.	Ongoing system planning and reorganization of hyperacute and acute stroke services to achieve critical mass, enable development of sustainable stroke units and ensure LHIN-wide access to stroke unit hospitals. Confirm and implement process for referral and flow of patients to/from endovascular sites. Indicators: 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 18, 19, 20.
Appropriateness: A standardized approach to timely and appropriate stroke rehabilitation services.	System level planning to increase: rehab intensity, access to high intensity rehab for severe stroke patients and access to outpatient rehab for mild stroke patients. Use of AlphaFIM® to triage for rehabilitation services. Ensure continued access to system-level rehabilitation performance data for organizations who participate in E-Stroke.
Integration: Access to a common model of outpatient and community stroke rehabilitation services across Greater Toronto Area (GTA) LHINs.	Identify priorities for implementation of a common model of outpatient and community stroke rehabilitation, in line with Quality-Based Procedures (QBPs) to address indicators 2, 10, 11, 12, 13, 15, 16, 17, 18, 19 and 20. Leverage the work of the Integrated Funding Model initiative to inform implementation of the broader community model.
Access: Coordinated approach to urgent TIA and secondary stroke prevention services.	Apply a systems approach to align secondary prevention services to support the provincial TIA algorithm and associated opportunities for data collection in the Central LHIN. Indicators: 2, 3, 4, 5, 20.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Continue collaboration in stroke system planning to advance the identified improvement priorities.
- Collaborate with neighbouring LHINs to address interdependencies affecting stroke system performance (e.g., hyperacute, access to inpatient and outpatient rehabilitation, E-Stroke, and community-based stroke prevention and care).
- Integrate QBPs for community stroke care and emerging best practice for endovascular intervention into LHIN planning.
- Work collaboratively with the Stroke Networks and GTA LHINs to develop a comprehensive and sustainable dataset across the continuum that can continue to drive system performance in the Central LHIN priority improvement areas.

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ONTARIO LHINs MAP

Central Local Health Integration Network

ONTARIO STROKE REPORT CARD, 2014/15:
Central East Local Health Integration Network

Poor performance[1] | Acceptable performance[2] | Exemplary performance[3] | Data not available or benchmark not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
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7 Toronto Central
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9 Central East
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Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (2013/14)	Variance Within LHIN[5] (Min–Max)	Provincial Benchmark[6]	High Performer[7]	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	59.0% (57.7%)	56.3–63.6%	64.9% (64.8%)	Essex Sub-LHIN	1, 3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.2 (1.2)	1.3–1.5	1.2 (1.1)	Ottawa Centre Sub-LHIN	7, 8, 9,11
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.7 (11.9)	5.1–22.0	–	–	7
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	70.8% (72.5%)	7.7–88.1%	90.4% (88.3%)	Bluewater Health, Sarnia	7, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	68.0 (58.0)	57.0–250.0	38.0 (33.0)	Niagara Health System, Greater Niagara	4, 8
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	12.0% (12.6%)	8.8–16.4%	17.3% (17.0%)	South Etobicoke–Toronto Sub-LHIN	6, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	42.7% (37.1%)	31.6–50.4%	72.3% (62.7%)	Urban Guelph Sub-LHIN	3, 10
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	20.2% (31.4%)	0.0–56.4%	8.2% (11.7%)	Rouge Valley Health System, Ajax	3
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	42.7% (38.1%)	36.9–47.2%	45.4% (46.3%)	Manitoulin-Sudbury Sub-LHIN	9, 1
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	6.0 (6.0)	5.0–9.0	6.0 (5.0)	BH Sarnia, LH Oshawa, PRH, QHC Belleville and SRHC[9]	8, 9
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	71.3% (61.8%)	41.9–79.3%	80.8% (76.6%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.4 (1.2)	0.9–1.8	1.5 (1.3)	Grand River Hospital Corp., Freeport	12, 3
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	6.7 (5.5)	–	10.8 (8.6)	South East CCAC	10, 13
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	52.9% (46.9%)	36.7–59.9%	58.7% (57.3%)	Grand River Hospital Corp., Freeport	3
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	6.9% (8.1%)	3.2–11.7%	2.5% (2.8%)	Urban Guelph Sub-LHIN	None
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.9 (7.8)	0.0–12.7	–	–	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance

1 Performance below the 50th percentile.
2 Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
3 Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
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6 Benchmarks were calculated using the ABC methodology (Weissman et al. *J Eval Clin Pract.* 1999; 5(3):269–81) on facility/sub-LHIN data; the 2013/14 benchmarks are displayed in parentheses.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
8 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.
9 High performers include Bluewater Health (BH) Sarnia site, Lakeridge Health (LH) Oshawa site, Pembroke Regional Hospital (PRH), Quinte Health Care (QHC) Belleville site, and Southlake Regional Health Centre (SRHC).

STROKE PROGRESS REPORT, 2014/15 COMPARED TO 2011/12–2013/14

Central East Local Health Integration Network

Progressing well[1] | Progressing[2] | Not progressing[3] | Data not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
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Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (previous 3-year average)	Variance within LHIN[5] 2014/15 (2011/12)		Greatest Improvement[6]	
				Min	Max	Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	59.0% (58.4%)	56.3% (54.7%)	63.6% (60.8%)	Woodbridge (Vaughan) Sub-LHIN	3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.2 (1.2)	1.3 (1.2)	1.5 (1.4)	Algoma Sub-LHIN	None
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.7 (11.5)	5.1 (6.4)	22.0 (26.9)	North Bay Regional Health Centre	6, 2
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	70.8% (68.8%)	7.7% (11.1%)	88.1% (86.0%)	Brockville General Hospital	2, 12
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	68.0 (61.4‡)	57.0 (59.1‡)	250.0 (66.0‡)	Royal Victoria Regional Health Centre	12
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	12.0% (12.9%‡)	8.8% (10.0%‡)	16.4% (15.0%‡)	Flamborough Sub-LHIN	2, 6
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[7] at any time during their inpatient stay.	42.7% (35.3%)	31.6% (15.9%)	50.4% (46.0%)	Belleville Sub-LHIN	10, 3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	20.2% (26.8%)	0.0% (0.0%)	56.4% (42.6%)	Rouge Valley Health System, Ajax	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	42.7% (37.2%)	36.9% (25.6%)	47.2% (45.4%)	Central York Region Sub-LHIN	8, 5
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	6.0 (7.0)	5.0 (5.0)	9.0 (15.0)	Grand River Hospital Corp., Freeport, and Hamilton Health Sciences Corp., General Regional Rehab	8, 3
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	71.3% (59.9%)	41.9% (50.0%)	79.3% (95.2%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.4 (1.1)	0.9 (0.9)	1.8 (1.6)	Grand River Hospital Corp., Freeport	3, 12
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	6.7 (5.6)	–	–	North East CCAC	13, 6
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	52.9% (44.3%)	36.7% (15.6%)	59.9% (57.1%)	Providence Healthcare	8, 5
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	6.9% (7.3%)	3.2% (3.9%)	11.7% (9.9%)	Dufferin County Sub-LHIN	3, 6, 10
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.9 (8.2)	0.0 (0.0)	12.7 (23.3)	Peterborough Regional Health Centre	None

Hospital Service Accountability Agreement indicators, 2010/11 – Data not available § Contributes to QBP performance ‡ Includes Ontario Stroke Audit data (2010/11 and/or 2012/13).

1 Statistically significant improvement.
2 Performance improving but not statistically significant.
3 No change or performance decline.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Greatest Improvement sites/sub-LHINs include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
7 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.

INTERPRETATION OF 2014/15 STROKE REPORT CARD
Central East Local Health Integration Network

PERFORMANCE OVERVIEW

Significant improvement on seven indicators; progress continues on five indicators. A high performing LHIN on indicators 2, 11 and 13. Remains below benchmark on all but four indicators. System and cross-LHIN planning are necessary to improve overall LHIN performance.

AREAS OF PROGRESS

Stroke Prevention	Improved access in Scarborough to secondary prevention through new and expanded clinics. Continued focus on rapid access for high-risk TIAs/minor strokes may contribute to decreased admissions.
Acute Stroke Management	Site-specific efforts to implement integrated stroke units and best practice standards have improved the proportion of patients treated on a stroke unit, admitted to inpatient rehabilitation and incurring Alternate Level of Care days.
Stroke Rehabilitation	Significant improvement in all rehab indicators and variation reduced across organizations in time to rehab and in the proportion of severe strokes in rehab (almost 50% or greater) from 2011/12 to 2014/15.
Community Reintegration	Reduction in proportion of stroke patients discharged from acute to LTC linked to proportion of severe stroke patients in rehab. Further development of community services will support this population.

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Integration: Integrated system of best practice stroke care across the continuum.	Use a systems approach to redesign stroke care within the Central East LHIN leveraging the sub-LHIN and site specific progress to date. Reconvene the Central East LHIN Stroke Working Group to ensure stakeholder engagement in the process.
Access: A standard of best practice stroke unit care (acute and rehab) across the LHIN to further improve prevention practices and reduce mortality, readmission rates and institutionalization.	Reorganization of acute and rehab stroke services to achieve critical mass, enable establishment of additional stroke units and implement LHIN-wide patient processes to ensure access to stroke unit hospitals.
Effectiveness: Ensure access to emerging hyperacute best practice care related to endovascular therapy for residents of the Central East LHIN.	Confirm and implement processes for patient referral and transfer to endovascular therapy sites in alignment with provincial recommendations and local protocols.
Appropriateness: Access to a common model of outpatient and community stroke prevention and rehabilitation services across LHINs in the Greater Toronto Area.	Leverage the Stroke Working Group to develop a community model of stroke care. Identify key components of a community model of stroke care in alignment with Quality-Based Procedures for stroke. Consider options for implementation across sub-LHINs.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Continued partnership in stroke system reorganization to support the above improvement priorities.
- Cross-LHIN collaboration to facilitate equitable access to endovascular therapy and a community model of care (prevention, rehabilitation, community re-engagement).
- Work with the stroke networks to ensure a comprehensive and sustainable dataset that will continue to drive system performance and improvement.

CONTACT

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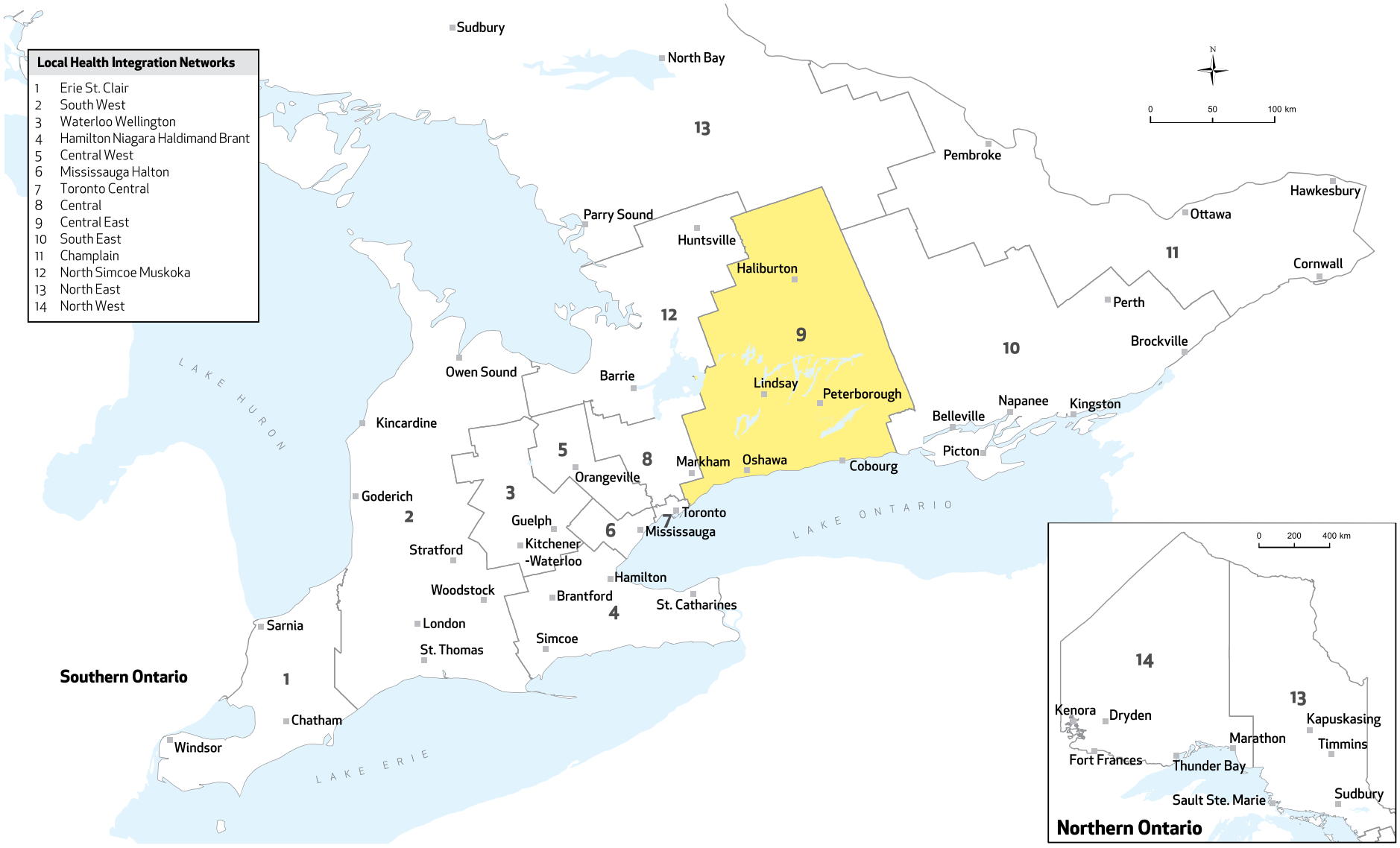
ONTARIO LHINs MAP

Central East Local Health Integration Network



ONTARIO STROKE REPORT CARD, 2014/15:
South East Local Health Integration Network

Poor performance[1] | Acceptable performance[2] | Exemplary performance[3] | Data not available or benchmark not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
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9 Central East
10 South East
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12 North Simcoe Muskoka
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14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (2013/14)	Variance Within LHIN[5] (Min–Max)	Provincial Benchmark[6]	High Performer[7]	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	59.2% (61.5%)	51.0–80.0%	64.9% (64.8%)	Essex Sub-LHIN	1, 3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.5 (1.4)	1.3–2.7	1.2 (1.1)	Ottawa Centre Sub-LHIN	7, 8, 9,11
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	14.2 (16.0)	0.0–27.3	–	–	7
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	77.2% (71.5%)	11.1–85.2%	90.4% (88.3%)	Bluewater Health, Sarnia	7, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	56.0 (50.0)	53.0–70.0	38.0 (33.0)	Niagara Health System, Greater Niagara	4, 8
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	13.2% (14.1%)	0.0–31.6%	17.3% (17.0%)	South Etobicoke–Toronto Sub-LHIN	6, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	68.0% (38.5%)	18.9–83.5%	72.3% (62.7%)	Urban Guelph Sub-LHIN	3, 10
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	21.6% (18.8%)	0.0–42.6%	8.2% (11.7%)	Rouge Valley Health System, Ajax	3
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	27.5% (28.1%)	3.1–45.5%	45.4% (46.3%)	Manitoulin-Sudbury Sub-LHIN	9, 1
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	8.0 (10.0)	5.0–13.0	6.0 (5.0)	BH Sarnia, LH Oshawa, PRH, QHC Belleville and SRHC[9]	8, 9
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	47.1% (46.6%)	40.4–51.7%	80.8% (76.6%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.8 (0.9)	0.7–0.9	1.5 (1.3)	Grand River Hospital Corp., Freeport	12, 3
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	14.1 (14.4)	–	10.8 (8.6)	South East CCAC	10, 13
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	42.0% (43.5%)	17.2–48.9%	58.7% (57.3%)	Grand River Hospital Corp., Freeport	3
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	5.9% (9.1%)	0.0–24.2%	2.5% (2.8%)	Urban Guelph Sub-LHIN	None
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.0 (7.4)	0.0–14.3	–	–	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance

1 Performance below the 50th percentile.
2 Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
3 Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Benchmarks were calculated using the ABC methodology (Weissman et al. *J Eval Clin Pract.* 1999; 5(3):269–81) on facility/sub-LHIN data; the 2013/14 benchmarks are displayed in parentheses.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
8 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.
9 High performers include Bluewater Health (BH) Sarnia site, Lakeridge Health (LH) Oshawa site, Pembroke Regional Hospital (PRH), Quinte Health Care (QHC) Belleville site, and Southlake Regional Health Centre (SRHC).

STROKE PROGRESS REPORT, 2014/15 COMPARED TO 2011/12–2013/14

South East Local Health Integration Network

Progressing well[1] | Progressing[2] | Not progressing[3] | Data not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
5 Central West
6 Mississauga Halton
7 Toronto Central
8 Central
9 Central East
10 South East
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (previous 3-year average)	Variance within LHIN[5] 2014/15 (2011/12)		Greatest Improvement[6]	
				Min	Max	Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	59.2% (59.7%)	51.0% (38.9%)	80.0% (67.6%)	Woodbridge (Vaughan) Sub-LHIN	3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.5 (1.3)	1.3 (0.5)	2.7 (2.1)	Algoma Sub-LHIN	None
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	14.2 (15.4)	0.0 (0.0)	27.3 (24.8)	North Bay Regional Health Centre	6, 2
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	77.2% (70.0%)	11.1% (28.6%)	85.2% (87.0%)	Brockville General Hospital	2, 12
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	56.0 (47.3‡)	53.0 (37.7‡)	70.0 (37.7‡)	Royal Victoria Regional Health Centre	12
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	13.2% (14.4%‡)	0.0% (7.1%‡)	31.6% (37.5%‡)	Flamborough Sub-LHIN	2, 6
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[7] at any time during their inpatient stay.	68.0% (38.4%)	18.9% (2.5%)	83.5% (83.2%)	Belleville Sub-LHIN	10, 3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	21.6% (21.3%)	0.0% (0.0%)	42.6% (41.7%)	Rouge Valley Health System, Ajax	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	27.5% (29.8%)	3.1% (9.4%)	45.5% (52.2%)	Central York Region Sub-LHIN	8, 5
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	8.0 (10.0)	5.0 (6.0)	13.0 (20.0)	Grand River Hospital Corp., Freeport, and Hamilton Health Sciences Corp., General Regional Rehab	8, 3
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	47.1% (43.8%)	40.4% (25.9%)	51.7% (57.5%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.8 (0.8)	0.7 (0.4)	0.9 (1.1)	Grand River Hospital Corp., Freeport	3, 12
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	14.1 (13.5)	–	–	North East CCAC	13, 6
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	42.0% (44.6%)	17.2% (31.0%)	48.9% (63.2%)	Providence Healthcare	8, 5
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	5.9% (10.3%)	0.0% (0.0%)	24.2% (18.2%)	Dufferin County Sub-LHIN	3, 6, 10
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.0 (8.0)	0.0 (5.4)	14.3 (13.4)	Peterborough Regional Health Centre	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance | ‡ Includes Ontario Stroke Audit data (2010/11 and/or 2012/13).

1 Statistically significant improvement.
2 Performance improving but not statistically significant.
3 No change or performance decline.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Greatest Improvement sites/sub-LHINs include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
7 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.

INTERPRETATION OF 2014/15 STROKE REPORT CARD
South East Local Health Integration Network

PERFORMANCE OVERVIEW

Exemplary performer in acute stroke unit utilization, thrombolysis rates and CCAC rehab visits, with low admissions to LTC and low readmit rates. High and variable mortality rates beginning to improve. Persisting low percentage accessing inpatient rehabilitation; high ALC rates.

AREAS OF PROGRESS

Stroke Prevention	Encouraging to see a 2% decrease in the high mortality rates that have persisted in the LHIN. Improved inpatient carotid imaging rates noted with Brockville named as making the greatest change provincially.
Acute Stroke Management	Acute stroke utilization rate increased from 38.5% to 68.0%. LHIN 10 now a high performer with units in Brockville, Belleville and Kingston. Belleville sub-LHIN and LHIN 10 making greatest progress.
Stroke Rehabilitation	Encouraging to see ongoing decrease from 10 to 8 median days from stroke onset to rehabilitation with Belleville as a high performer. Kingston IDEAS project completion helped focus quality improvements.
Community Reintegration	High performance persists in enhanced CCAC rehab service. Stroke support groups, exercise groups and prevention clinics contribute to lowest LHIN 30-day readmission rate in province at 7.0%

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Effectiveness: High mortality rates a persistent concern but decreased this year (16.0% to 14.2%; 10.6% in Ontario). Stroke unit utilization increased (38.5% to 68.0%) improving access to best practice.	Geographic consolidation to acute stroke units to be completed by May 2016 with units in Belleville for Hastings and Prince Edward Counties, Kingston for Kingston, Frontenac, Lennox and Addington Counties, and Brockville for Lanark, Leeds and Grenville Counties. A regional dashboard is being established to monitor best practices and outcomes. Kingston General Hospital received Stroke Distinction status and will pilot Endovascular Mechanical Thrombectomy as of May 2016.
Access: Persistent low access to inpatient rehabilitation (27.5%; 35.1% in Ontario) with variable access to outpatient rehabilitation services adversely affecting patient flow as noted below.	Sustain continuous quality improvement focus on early access to rehabilitation and on increased inpatient rehabilitation intensity. Work with partners to develop innovative models of outpatient and community rehabilitation services. Sustain Enhanced CCAC Rehabilitation Service (Discharge Link); build expert links to community exercise programs.
Appropriateness: High proportion of ALC days to total LOS in acute care (21.6%; 26.0% in Ontario) Patient flow continues to be a barrier. Despite some progress, South East LHIN shows low rehab LOS rates (47.1%; 59.7% in Ontario).	Emphasize enhancing outpatient and community-based rehabilitation services as noted above. Community consultation has demonstrated a need to focus on transitions in care with greater support for co-navigation and care coordination to improve access to community services. This will be emphasized over the coming year with CCAC and Health Links.
Integration: Growth in stroke admission rate with high variance (1.5/1000 in Kingston to 2.7/1000 in Leeds & Grenville; 1.3/1000 in Ontario). Risk profiles in these areas influenced by social determinants of health. Need an integrated approach to vascular health.	Stroke Prevention Clinics continue to focus on standardizing triage and imaging processes, and screening for social and other risks, e.g.; cognitive decline and depression. Connections being built with primary care and Health Links for those at highest risk with compromised social determinants of health. Primary care will pilot OSN tools and resources for integrated vascular health.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

Actively support health system change/transformation required to achieve successful Quality-Based Procedure implementation in stroke care through:

- Ongoing support in the geographic consolidation of stroke unit care to continue to address high stroke mortality rates;
- A regional review of rehabilitation bed designation, inpatient rehabilitation access and outpatient rehabilitation services across the South East LHIN;
- Continuing to collaboratively build new community models of care that support stroke survivors and assist them to transition and connect to services;
- Active support for pilot trials of OSN provincial tools and resources that will be made available in primary care for use in promoting vascular health.

CONTACT

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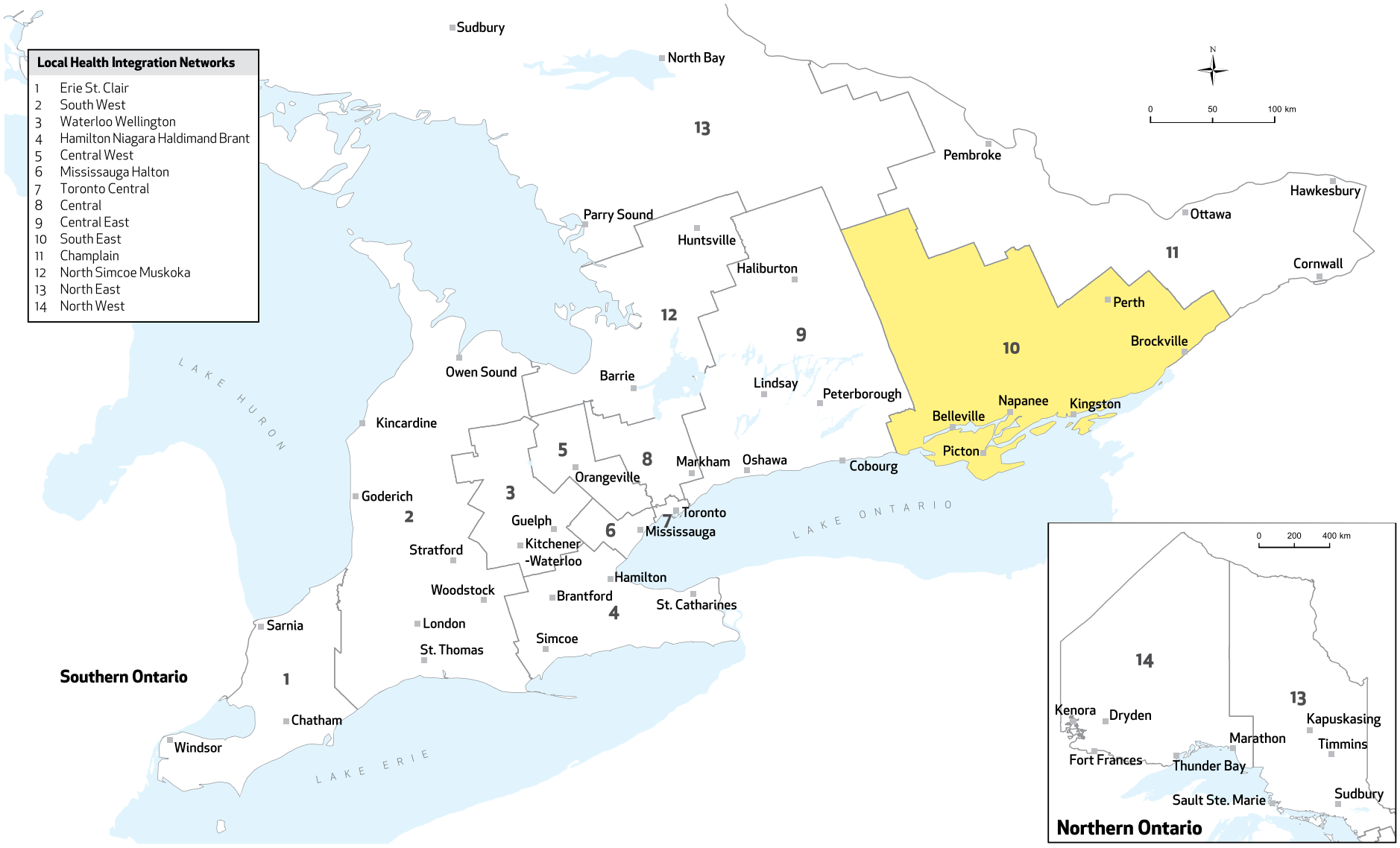
ONTARIO LHINs MAP

South East Local Health Integration Network



ONTARIO STROKE REPORT CARD, 2014/15:
Champlain Local Health Integration Network

Poor performance[1] | Acceptable performance[2] | Exemplary performance[3] | Data not available or benchmark not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
5 Central West
6 Mississauga Halton
7 Toronto Central
8 Central
9 Central East
10 South East
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (2013/14)	Variance Within LHIN[5] (Min–Max)	Provincial Benchmark[6]	High Performer[7]	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	58.2% (59.8%)	54.4–61.3%	64.9% (64.8%)	Essex Sub-LHIN	1, 3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.2 (1.0)	0.9–2.3	1.2 (1.1)	Ottawa Centre Sub-LHIN	7, 8, 9,11
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	10.6 (11.4)	0.0–13.9	–	–	7
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	75.7% (72.0%)	15.0–83.5%	90.4% (88.3%)	Bluewater Health, Sarnia	7, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	46.0 (45.0)	42.0–59.5	38.0 (33.0)	Niagara Health System, Greater Niagara	4, 8
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	11.8% (13.8%)	7.6–14.4%	17.3% (17.0%)	South Etobicoke–Toronto Sub-LHIN	6, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	1.4% (0.9%)	0.4–2.3%	72.3% (62.7%)	Urban Guelph Sub-LHIN	3, 10
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	29.9% (25.4%)	0.0–50.0%	8.2% (11.7%)	Rouge Valley Health System, Ajax	3
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	30.7% (27.9%)	18.2–44.5%	45.4% (46.3%)	Manitoulin-Sudbury Sub-LHIN	9, 1
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	14.0 (14.0)	5.0–23.0	6.0 (5.0)	BH Sarnia, LH Oshawa, PRH, QHC Belleville and SRHC[9]	8, 9
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	65.9% (63.5%)	26.4–87.3%	80.8% (76.6%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.9 (1.0)	0.0–1.0	1.5 (1.3)	Grand River Hospital Corp., Freeport	12, 3
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	5.8 (5.7)	–	10.8 (8.6)	South East CCAC	10, 13
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	33.8% (32.9%)	11.5–45.7%	58.7% (57.3%)	Grand River Hospital Corp., Freeport	3
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	6.6% (10.5%)	2.0–11.2%	2.5% (2.8%)	Urban Guelph Sub-LHIN	None
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.8 (7.8)	0.0–19.6	–	–	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance

1 Performance below the 50th percentile.
2 Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
3 Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
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6 Benchmarks were calculated using the ABC methodology (Weissman et al. *J Eval Clin Pract.* 1999; 5(3):269–81) on facility/sub-LHIN data; the 2013/14 benchmarks are displayed in parentheses.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
8 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.
9 High performers include Bluewater Health (BH) Sarnia site, Lakeridge Health (LH) Oshawa site, Pembroke Regional Hospital (PRH), Quinte Health Care (QHC) Belleville site, and Southlake Regional Health Centre (SRHC).

STROKE PROGRESS REPORT, 2014/15 COMPARED TO 2011/12–2013/14

Champlain Local Health Integration Network

Progressing well[1] | Progressing[2] | Not progressing[3] | Data not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
5 Central West
6 Mississauga Halton
7 Toronto Central
8 Central
9 Central East
10 South East
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (previous 3-year average)	Variance within LHIN[5] 2014/15 (2011/12)		Greatest Improvement[6]	
				Min	Max	Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	58.2% (59.0%)	54.4% (53.1%)	61.3% (63.6%)	Woodbridge (Vaughan) Sub-LHIN	3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.2 (1.1)	0.9 (0.9)	2.3 (2.0)	Algoma Sub-LHIN	None
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	10.6 (11.8)	0.0 (0.0)	13.9 (28.7)	North Bay Regional Health Centre	6, 2
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	75.7% (70.8%)	15.0% (20.0%)	83.5% (83.3%)	Brockville General Hospital	2, 12
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	46.0 (50.0‡)	42.0 (49.5‡)	59.5 (64.4‡)	Royal Victoria Regional Health Centre	12
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	11.8% (12.8%‡)	7.6% (8.3%‡)	14.4% (16.8%‡)	Flamborough Sub-LHIN	2, 6
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[7] at any time during their inpatient stay.	1.4% (0.5%)	0.4% (0.0%)	2.3% (5.9%)	Belleville Sub-LHIN	10, 3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	29.9% (27.9%)	0.0% (0.0%)	50.0% (49.2%)	Rouge Valley Health System, Ajax	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	30.7% (29.7%)	18.2% (5.0%)	44.5% (38.7%)	Central York Region Sub-LHIN	8, 5
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	14.0 (13.0)	5.0 (8.0)	23.0 (19.0)	Grand River Hospital Corp., Freeport, and Hamilton Health Sciences Corp., General Regional Rehab	8, 3
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	65.9% (41.1%)	26.4% (15.0%)	87.3% (48.0%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.9 (0.8)	0.0 (0.6)	1.0 (1.1)	Grand River Hospital Corp., Freeport	3, 12
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	5.8 (5.8)	–	–	North East CCAC	13, 6
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	33.8% (32.2%)	11.5% (9.1%)	45.7% (45.0%)	Providence Healthcare	8, 5
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	6.6% (9.5%)	2.0% (5.6%)	11.2% (10.3%)	Dufferin County Sub-LHIN	3, 6, 10
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.8 (7.6)	0.0 (0.0)	19.6 (18.3)	Peterborough Regional Health Centre	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance | ‡ Includes Ontario Stroke Audit data (2010/11 and/or 2012/13).

1 Statistically significant improvement.
2 Performance improving but not statistically significant.
3 No change or performance decline.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
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6 Greatest Improvement sites/sub-LHINs include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
7 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.

INTERPRETATION OF 2014/15 STROKE REPORT CARD
Champlain Local Health Integration Network

PERFORMANCE OVERVIEW

In 2014/15, the Champlain LHIN achieved exemplary or acceptable performance on seven of the 20 indicators. Three groups/facilities within the LHIN were identified as high performers on the score card indicators related to prevention of stroke and stroke rehabilitation.

AREAS OF PROGRESS

Acute Stroke Management	Regionally the proportion of patients discharged from acute care and admitted to inpatient rehabilitation has increased from 29.7% (2013/14) to 30.7% (2014/15), moving closer to benchmark of 45.4%.
Stroke Rehabilitation	65.9% of stroke patients receiving inpatient rehab are achieving Quality-Based Procedure (QBP) length of stay (LOS) targets. Bruyère is Ontario's high performer on this indicator for the second year in a row.
Community Reintegration	A decrease in the proportion of patients discharged from acute care to LTC/CC from 10.5% (2013/14) to 6.6% (2014/15) was achieved.
Acute Stroke Management	The proportion of ischemic stroke patients receiving carotid imaging increased from 72.0% in 2013/14 to 75.7% in 2014/15. This result continues a trend of year-on-year improvement since 2011/12.

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Effectiveness: Compared to the provincial benchmark of 72.3%, only 1.4% of stroke patients residing in the Champlain LHIN were treated on a stroke unit.	In December 2015, Pembroke Regional Hospital established a stroke unit as per the OSN definition. In 2016, five hospitals in the LHIN are conducting site visits with peer facilities as one part of a broader strategy to meet the OSN definition of a stroke unit within their own facilities.
Access: The mean number of CCAC visits provided to stroke/TIA patients in Champlain LHIN is 5.8 visits compared to the provincial benchmark of 10.8 visits.	The Champlain LHIN funded the partnership between CCAC and the Champlain Regional Stroke Network (CRSN), to pilot a Community Stroke Rehabilitation service delivered through the CCAC in Stormont, Dundas and Glengarry Counties & Akwesasne. The pilot began in January 2016 and is funded until March 2017.
Integration: The median number of days between stroke onset and admission to stroke inpatient rehabilitation is 14 in the Champlain LHIN. The provincial benchmark is 6 days.	The CRSN is collaborating with acute care hospitals in the LHIN to address long LOS for stroke patients. Solutions include: • The opening of four stroke rehabilitation beds at The Ottawa Hospital Rehabilitation Centre • Centralization of referral to stroke rehabilitation. Pembroke Regional Hospital has patients admitted to rehabilitation after five days (median) and is considered high performing.
Appropriateness: 33.8% of patients admitted to inpatient rehabilitation are categorized as having had a severe stroke. This indicator saw only a marginal gain of 0.9% from 32.9% in 2013/14. The provincial benchmark for this indicator is 58.7%.	The six sites in Champlain LHIN providing rehabilitation to stroke patients participated in process mapping and quality improvement initiatives at a CRSN-led Rehabilitation Intensity Workshop. The sites established baseline data and two specific plans to increase rehabilitation intensity toward the three hour per day, six days per week QBP target.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- The LHIN can support the Champlain Regional Stroke Network (CRSN) and the designated LHIN hospitals in their efforts to redesign services in order to achieve the QBP requirements and OSN stroke unit definition.
- The LHIN has set up a sub-acute care steering committee to look at how to align the post-acute health care services. As part of this review, the committee has identified stroke care as a LHIN priority.
- The LHIN and CRSN should continue to strategize and collaborate on key issues (i.e., bed allocation, transitions of care) related to the sub-acute steering committee in order to optimize the system of care for stroke patients in the LHIN.

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ONTARIO LHINs MAP

Champlain Local Health Integration Network

ONTARIO STROKE REPORT CARD, 2014/15:
North Simcoe Muskoka Local Health Integration Network

Poor performance[1] | Acceptable performance[2] | Exemplary performance[3] | Data not available or benchmark not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
5 Central West
6 Mississauga Halton
7 Toronto Central
8 Central
9 Central East
10 South East
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (2013/14)	Variance Within LHIN[5] (Min–Max)	Provincial Benchmark[6]	High Performer[7]	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	54.3% (61.1%)	50.0–57.7%	64.9% (64.8%)	Essex Sub-LHIN	1, 3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.5 (1.3)	1.5–2.1	1.2 (1.1)	Ottawa Centre Sub-LHIN	7, 8, 9,11
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.1 (14.2)	8.6–20.8	–	–	7
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	71.0% (69.5%)	18.8–97.1%	90.4% (88.3%)	Bluewater Health, Sarnia	7, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	45.0 (58.5)	44.0–44.0	38.0 (33.0)	Niagara Health System, Greater Niagara	4, 8
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	12.4% (12.4%)	6.2–14.3%	17.3% (17.0%)	South Etobicoke–Toronto Sub-LHIN	6, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	5.8% (5.9%)	3.5–10.5%	72.3% (62.7%)	Urban Guelph Sub-LHIN	3, 10
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	32.1% (28.8%)	25.2–45.0%	8.2% (11.7%)	Rouge Valley Health System, Ajax	3
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	27.1% (30.2%)	21.7–31.5%	45.4% (46.3%)	Manitoulin-Sudbury Sub-LHIN	9, 1
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	12.0 (8.0)	7.0–20.0	6.0 (5.0)	BH Sarnia, LH Oshawa, PRH, QHC Belleville and SRHC[9]	8, 9
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	58.1% (58.3%)	28.2–85.7%	80.8% (76.6%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.6 (1.4)	1.2–2.6	1.5 (1.3)	Grand River Hospital Corp., Freeport	12, 3
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	9.4 (10.3)	–	10.8 (8.6)	South East CCAC	10, 13
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	42.6% (40.2%)	30.8–51.0%	58.7% (57.3%)	Grand River Hospital Corp., Freeport	3
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	4.3% (5.1%)	2.7–8.8%	2.5% (2.8%)	Urban Guelph Sub-LHIN	None
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	8.6 (9.4)	7.7–10.9	–	–	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance

1 Performance below the 50th percentile.
2 Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
3 Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Benchmarks were calculated using the ABC methodology (Weissman et al. *J Eval Clin Pract.* 1999; 5(3):269–81) on facility/sub-LHIN data; the 2013/14 benchmarks are displayed in parentheses.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
8 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.
9 High performers include Bluewater Health (BH) Sarnia site, Lakeridge Health (LH) Oshawa site, Pembroke Regional Hospital (PRH), Quinte Health Care (QHC) Belleville site, and Southlake Regional Health Centre (SRHC).

STROKE PROGRESS REPORT, 2014/15 COMPARED TO 2011/12–2013/14

North Simcoe Muskoka Local Health Integration Network

Progressing well[1] | Progressing[2] | Not progressing[3] | Data not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
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Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (previous 3-year average)	Variance within LHIN[5] 2014/15 (2011/12)		Greatest Improvement[6]	
				Min	Max	Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	54.3% (58.2%)	50.0% (47.1%)	57.7% (64.8%)	Woodbridge (Vaughan) Sub-LHIN	3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.5 (1.3)	1.5 (1.5)	2.1 (1.8)	Algoma Sub-LHIN	None
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.1 (14.2)	8.6 (8.5)	20.8 (19.6)	North Bay Regional Health Centre	6, 2
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	71.0% (63.9%)	18.8% (32.1%)	97.1% (83.3%)	Brockville General Hospital	2, 12
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	45.0 (66.5‡)	44.0 (72.0‡)	44.0 (79.5‡)	Royal Victoria Regional Health Centre	12
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	12.4% (11.2%‡)	6.2% (3.4%‡)	14.3% (21.4%‡)	Flamborough Sub-LHIN	2, 6
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[7] at any time during their inpatient stay.	5.8% (4.8%)	3.5% (1.0%)	10.5% (6.9%)	Belleville Sub-LHIN	10, 3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	32.1% (30.7%)	25.2% (9.0%)	45.0% (57.2%)	Rouge Valley Health System, Ajax	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	27.1% (33.4%)	21.7% (22.0%)	31.5% (47.6%)	Central York Region Sub-LHIN	8, 5
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	12.0 (8.0)	7.0 (6.0)	20.0 (14.0)	Grand River Hospital Corp., Freeport, and Hamilton Health Sciences Corp., General Regional Rehab	8, 3
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	58.1% (58.5%)	28.2% (19.4%)	85.7% (76.8%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.6 (1.2)	1.2 (0.4)	2.6 (1.5)	Grand River Hospital Corp., Freeport	3, 12
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	9.4 (11.2)	–	–	North East CCAC	13, 6
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	42.6% (42.8%)	30.8% (11.1%)	51.0% (52.6%)	Providence Healthcare	8, 5
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	4.3% (4.5%)	2.7% (2.4%)	8.8% (7.6%)	Dufferin County Sub-LHIN	3, 6, 10
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	8.6 (8.8)	7.7 (5.9)	10.9 (9.2)	Peterborough Regional Health Centre	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance | ‡ Includes Ontario Stroke Audit data (2010/11 and/or 2012/13).

1 Statistically significant improvement.
2 Performance improving but not statistically significant.
3 No change or performance decline.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Greatest Improvement sites/sub-LHINs include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
7 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.

INTERPRETATION OF 2014/15 STROKE REPORT CARD
North Simcoe Muskoka Local Health Integration Network

PERFORMANCE OVERVIEW

The LHIN has improved significantly on four indicators with no noted improvement on eight indicators. Identified as a high performer on indicator 16. Remains below provincial benchmark on all but two indicators. Goal is to continue system-wide focus on consolidating stroke care.

AREAS OF PROGRESS

Stroke Prevention	Continued efforts have resulted in an increase in the proportion of patients who receive carotid imaging (indicator 5). This indicator remains variable across the LHIN and is well below the provincial benchmark.
Acute Stroke Management	Targeted local efforts have resulted in a reduction in door-to-needle times (indicator 6) and an increase in the proportion of patients who received thrombolytic therapy (indicator 7).
Stroke Rehabilitation	An ongoing focus on implementation of rehabilitation standards has resulted in achieving the provincial benchmark for FIM efficiency (indicator 16).
Community Reintegration	No notable areas of progress.

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Access: A standard of best practice stroke unit care across the North Simcoe Muskoka LHIN.	Implement the redirect of Collingwood patients to Royal Victoria Regional Health Centre by year end. Advance planning to develop integrated stroke units at Orillia Soldiers Memorial Hospital and Muskoka Algonquin Healthcare - Huntsville District Memorial Hospital Site. Indicators: 3, 4, 5, 8, 9, 10, 11, 12, 13, 16, 18, 19, 20.
Value: Coordinated approach to urgent TIA and secondary stroke prevention services.	Advance planning to provide a standardized package of services to target TIAs and minor stroke patients in alignment with Quality-Based Procedure (QBP) Phase 2 and the North Simcoe Muskoka Integrated Stroke Model. Full implementation of the provincial TIA algorithm as part of this planning. Explore opportunities to contribute to a sustainable dataset. Indicators: 2, 3, 4, 5, 20.
Integration: Access to outpatient and community rehabilitation stroke services.	Implement the community elements of the North Simcoe Muskoka Integrated Stroke Model in the southern part of the LHIN. This planning is in line with QBP Phase 2 recommendations and addresses indicators 2, 10, 11, 12, 13, 15, 16, 17, 18, 19 and 20.
Access: Access to endovascular therapy.	Confirm and implement processes for referring and transferring patients to endovascular sites to align with provincial recommendations. Indicators: 3, 5, 6, 7, 19.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Continue collaboration in stroke system planning to support the above-noted areas for improvement.
- Consult with planning committees to identify and address barriers to implementation of the North Simcoe Muskoka Integrated Stroke Program as outlined in the project charter.
- Collaborate to ensure access for emerging best practice for endovascular therapy.

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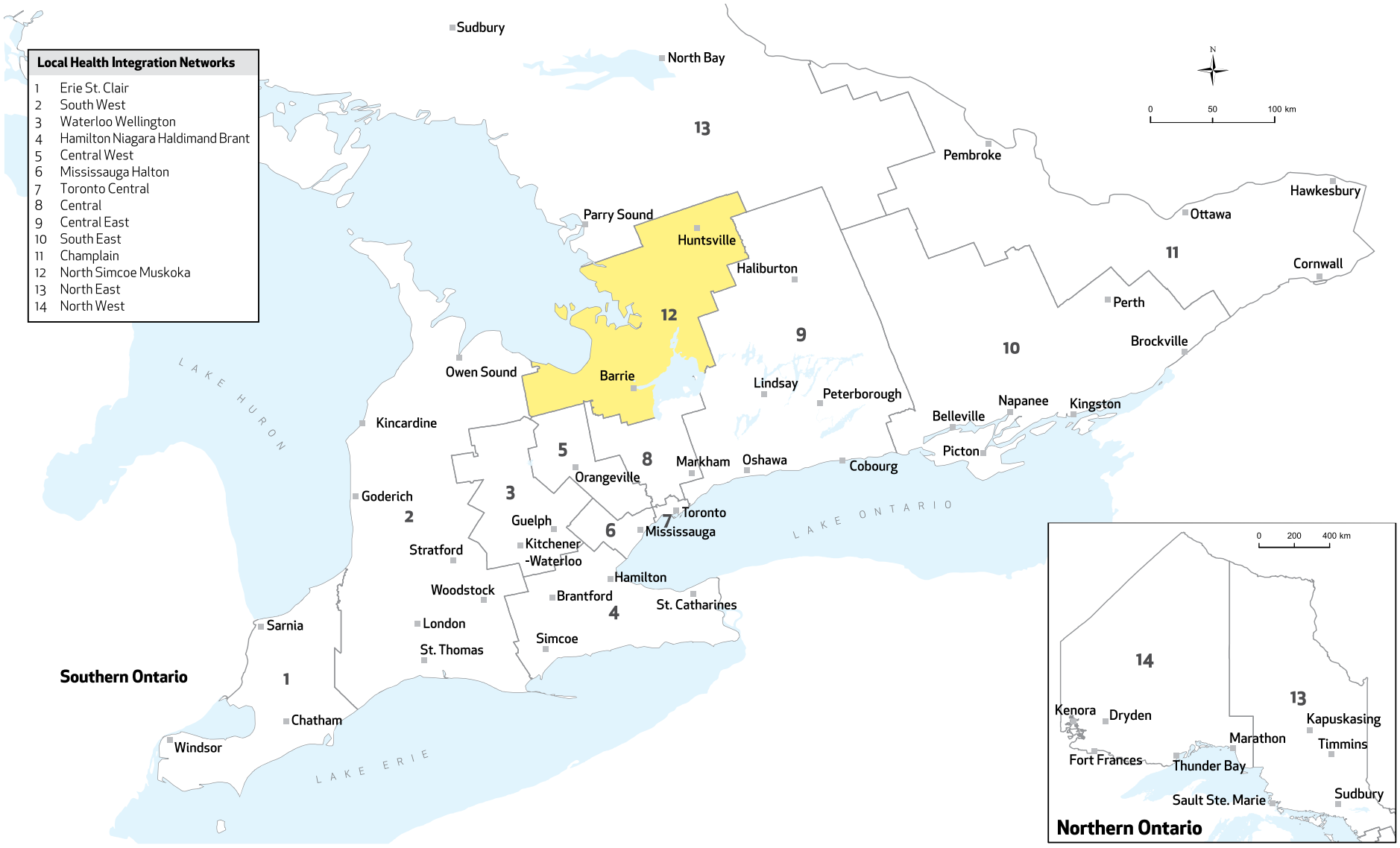
ONTARIO LHINs MAP

North Simcoe Muskoka Local Health Integration Network



ONTARIO STROKE REPORT CARD, 2014/15:
North East Local Health Integration Network

Poor performance[1] | Acceptable performance[2] | Exemplary performance[3] | Data not available or benchmark not available

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Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (2013/14)	Variance Within LHIN[5] (Min–Max)	Provincial Benchmark[6]	High Performer[7]	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	57.6% (59.5%)	46.8–62.5%	64.9% (64.8%)	Essex Sub-LHIN	1, 3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.8 (1.6)	1.6–3.9	1.2 (1.1)	Ottawa Centre Sub-LHIN	7, 8, 9,11
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	13.2 (13.5)	0.0–58.9	–	–	7
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	77.0% (75.5%)	16.7–87.3%	90.4% (88.3%)	Bluewater Health, Sarnia	7, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	76.5 (85.0)	62.5–136.5	38.0 (33.0)	Niagara Health System, Greater Niagara	4, 8
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	10.1% (13.7%)	0.0–12.4%	17.3% (17.0%)	South Etobicoke–Toronto Sub-LHIN	6, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	2.1% (1.8%)	1.1–42.9%	72.3% (62.7%)	Urban Guelph Sub-LHIN	3, 10
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	25.3% (34.8%)	0.0–65.2%	8.2% (11.7%)	Rouge Valley Health System, Ajax	3
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	36.9% (36.5%)	15.6–50.2%	45.4% (46.3%)	Manitoulin-Sudbury Sub-LHIN	9, 1
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	9.0 (8.0)	6.0–14.5	6.0 (5.0)	BH Sarnia, LH Oshawa, PRH, QHC Belleville and SRHC[9]	8, 9
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	41.5% (41.9%)	30.6–66.7%	80.8% (76.6%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.7 (0.8)	0.6–1.3	1.5 (1.3)	Grand River Hospital Corp., Freeport	12, 3
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	10.3 (5.5)	–	10.8 (8.6)	South East CCAC	10, 13
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	31.5% (38.3%)	22.4–56.5%	58.7% (57.3%)	Grand River Hospital Corp., Freeport	3
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	3.5% (3.1%)	0.0–6.5%	2.5% (2.8%)	Urban Guelph Sub-LHIN	None
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	8.4 (8.6)	0.0–50.0	–	–	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance

1 Performance below the 50th percentile.
2 Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
3 Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Benchmarks were calculated using the ABC methodology (Weissman et al. J Eval Clin Pract. 1999; 5(3):269–81) on facility/sub-LHIN data; the 2013/14 benchmarks are displayed in parentheses.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
8 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.
9 High performers include Bluewater Health (BH) Sarnia site, Lakeridge Health (LH) Oshawa site, Pembroke Regional Hospital (PRH), Quinte Health Care (QHC) Belleville site, and Southlake Regional Health Centre (SRHC).

STROKE PROGRESS REPORT, 2014/15 COMPARED TO 2011/12–2013/14

North East Local Health Integration Network

Progressing well[1] | Progressing[2] | Not progressing[3] | Data not available

Local Health Integration Networks (LHINs)

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Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (previous 3-year average)	Variance within LHIN[5] 2014/15 (2011/12)		Greatest Improvement[6]	
				Min	Max	Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	57.6% (58.6%)	46.8% (43.3%)	62.5% (68.1%)	Woodbridge (Vaughan) Sub-LHIN	3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.8 (1.7)	1.6 (1.5)	3.9 (2.3)	Algoma Sub-LHIN	None
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	13.2 (15.2)	0.0 (0.0)	58.9 (31.6)	North Bay Regional Health Centre	6, 2
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	77.0% (72.9%)	16.7% (16.7%)	87.3% (85.6%)	Brockville General Hospital	2, 12
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	76.5 (86.1‡)	62.5 (80.7‡)	136.5 (82.2‡)	Royal Victoria Regional Health Centre	12
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	10.1% (11.4%‡)	0.0% (4.5%‡)	12.4% (18.0%‡)	Flamborough Sub-LHIN	2, 6
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[7] at any time during their inpatient stay.	2.1% (1.5%)	1.1% (0.9%)	42.9% (50.0%)	Belleville Sub-LHIN	10, 3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	25.3% (36.0%)	0.0% (0.0%)	65.2% (87.1%)	Rouge Valley Health System, Ajax	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	36.9% (34.5%)	15.6% (15.2%)	50.2% (37.5%)	Central York Region Sub-LHIN	8, 5
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	9.0 (9.0)	6.0 (7.0)	14.5 (11.0)	Grand River Hospital Corp., Freeport, and Hamilton Health Sciences Corp., General Regional Rehab	8, 3
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	41.5% (38.6%)	30.6% (22.9%)	66.7% (56.9%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.7 (0.7)	0.6 (0.6)	1.3 (1.0)	Grand River Hospital Corp., Freeport	3, 12
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	10.3 (6.2)	–	–	North East CCAC	13, 6
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	31.5% (35.8%)	22.4% (15.8%)	56.5% (44.4%)	Providence Healthcare	8, 5
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	3.5% (4.3%)	0.0% (0.0%)	6.5% (9.4%)	Dufferin County Sub-LHIN	3, 6, 10
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	8.4 (8.7)	0.0 (0.0)	50.0 (25.2)	Peterborough Regional Health Centre	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance | ‡ Includes Ontario Stroke Audit data (2010/11 and/or 2012/13).

1 Statistically significant improvement.
2 Performance improving but not statistically significant.
3 No change or performance decline.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Greatest Improvement sites/sub-LHINs include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
7 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.

INTERPRETATION OF 2013/14 STROKE REPORT CARD
North East Local Health Integration Network

PERFORMANCE OVERVIEW

Progress was made across eight quality indicators (most notably, 30-day mortality rate, carotid imaging rate and mean number of CCAC visits). The Manitoulin-Sudbury Sub-LHIN was the high performer in the province for the proportion of patients admitted to inpatient rehabilitation.

AREAS OF PROGRESS

Stroke Rehabilitation	The Manitoulin-Sudbury Sub-LHIN is the highest performer in the province for the proportion of patients admitted to inpatient rehabilitation (50.2% compared to the provincial average of 35.1%).
Acute Stroke Management	The North Bay Regional Health Centre demonstrated the greatest improvement in the province for risk-adjusted stroke/TIA mortality rate at 30 days. Regionally, our rate dropped from 15.2% to 13.2%.
Stroke Rehabilitation	There was significant improvement in the mean number of CCAC visits (PT, OT, SLP, SW). The North East CCAC demonstrated the greatest improvement in the province for this indicator (using new calculation method).
Acute Stroke Management	Although still well above the provincial benchmark of 8.2%, the proportion of ALC days to total length of stay (LOS) dropped by almost 10% to 25.3% compared to 2013/14.

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Access: Stroke patients in the North East LHIN still do not have access to inpatient units that meet the Ontario Stroke Network definition of a dedicated stroke unit.	Timmins & District Hospital implemented a four-bed Integrated Stroke Unit (April 2016). Stroke Unit redevelopment at the other designated stroke hospitals (Health Sciences North, Sault Area Hospital, North Bay Regional Health Centre) remains a high priority for stroke Quality-Based Procedure (QBP) implementation; co-led by the North East LHIN and the Northeastern Ontario Stroke Network.
Effectiveness: The North East LHIN continues to underperform in the areas of inpatient rehabilitation length of stay and FIM efficiency.	Health Sciences North developed a process to communicate expected LOS upon admission to inpatient rehabilitation for patients and their families. Introduced weekend PT, OT and SLP at North Bay Regional Health Centre and weekend PT and PT assistant at Timmins and District Hospital to improve functional gain and decrease LOS.
Access: The North East LHIN demonstrated a decline in the percentage of patients admitted to inpatient rehabilitation that had experienced a severe stroke. There is wide variation across the LHIN.	Examine inclusion criteria for admission to inpatient rehabilitation as part of the stroke QBP implementation.
Effectiveness: Although improvements have been seen in tPA door-to-needle times, the North East LHIN is still almost 25 minutes over the provincial average and 38 minutes over the provincial benchmark.	Each designated stroke centre is completing chart audits and a review of their internal tPA delivery pathway to identify areas where time can be reduced in the delivery of tPA.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- The Northeastern Ontario Stroke Network will assist the North East LHIN in the implementation of the Stroke Quality-Based Procedures in addition to developing a LHIN-wide, integrated bundled care funding approach to stroke care.

- Each designated stroke centre has developed a "Hub" (district level) QBP implementation committee that is accountable to the North East LHIN for improving the system of stroke care in its geographic area.

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ONTARIO LHINs MAP

North East Local Health Integration Network

ONTARIO STROKE REPORT CARD, 2014/15:
North West Local Health Integration Network

Poor performance[1] | Acceptable performance[2] | Exemplary performance[3] | Data not available or benchmark not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
5 Central West
6 Mississauga Halton
7 Toronto Central
8 Central
9 Central East
10 South East
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (2013/14)	Variance Within LHIN[5] (Min–Max)	Provincial Benchmark[6]	High Performer[7]	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	49.0% (48.7%)	31.9–74.5%	64.9% (64.8%)	Essex Sub-LHIN	1, 3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.8 (1.8)	1.8–2.4	1.2 (1.1)	Ottawa Centre Sub-LHIN	7, 8, 9,11
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.2 (11.9)	0.0–35.9	–	–	7
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	74.5% (82.7%)	33.3–86.7%	90.4% (88.3%)	Bluewater Health, Sarnia	7, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	70.0 (80.0)	70.0–70.0	38.0 (33.0)	Niagara Health System, Greater Niagara	4, 8
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	14.0% (13.9%)	7.6–17.5%	17.3% (17.0%)	South Etobicoke–Toronto Sub-LHIN	6, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	1.3% (0.0%)	0.5–6.1%	72.3% (62.7%)	Urban Guelph Sub-LHIN	3, 10
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	32.3% (34.3%)	0.0–45.5%	8.2% (11.7%)	Rouge Valley Health System, Ajax	3
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	39.0% (36.8%)	17.2–43.5%	45.4% (46.3%)	Manitoulin-Sudbury Sub-LHIN	9, 1
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	-	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	10 (13.0)	10.0–10.0	6.0 (5.0)	BH Sarnia, LH Oshawa, PRH, QHC Belleville and SRHC[9]	8, 9
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	56.5% (46.8%)	56.5–56.5%	80.8% (76.6%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.8 (0.7)	0.8–0.8	1.5 (1.3)	Grand River Hospital Corp., Freeport	12, 3
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	5.9 (5.2)	–	10.8 (8.6)	South East CCAC	10, 13
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	40.0% (28.4%)	40.0–40.0%	58.7% (57.3%)	Grand River Hospital Corp., Freeport	3
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	7.7% (4.7%)	3.3–10.8%	2.5% (2.8%)	Urban Guelph Sub-LHIN	None
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	9.1 (8.6)	5.7–34.4	–	–	None

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | § Contributes to QBP performance

1 Performance below the 50th percentile.
2 Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
3 Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Benchmarks were calculated using the ABC methodology (Weissman et al. J Eval Clin Pract. 1999; 5(3):269–81) on facility/sub-LHIN data; the 2013/14 benchmarks are displayed in parentheses.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
8 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.
9 High performers include Bluewater Health (BH) Sarnia site, Lakeridge Health (LH) Oshawa site, Pembroke Regional Hospital (PRH), Quinte Health Care (QHC) Belleville site, and Southlake Regional Health Centre (SRHC).

STROKE PROGRESS REPORT, 2014/15 COMPARED TO 2011/12–2013/14

North West Local Health Integration Network

Progressing well[1] | Progressing[2] | Not progressing[3] | Data not available

Local Health Integration Networks (LHINs)

1 Erie St. Clair
2 South West
3 Waterloo Wellington
4 Hamilton Niagara Haldimand Brant
5 Central West
6 Mississauga Halton
7 Toronto Central
8 Central
9 Central East
10 South East
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2014/15 (previous 3-year average)	Variance within LHIN[5] 2014/15 (2011/12)		Greatest Improvement[6]	
				Min	Max	Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of stroke/TIA patients who arrived at the ED by ambulance.	49.0% (48.7%)	31.9% (35.9%)	74.5% (56.8%)	Woodbridge (Vaughan) Sub-LHIN	3
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.8 (1.9)	1.8 (1.8)	2.4 (2.2)	Algoma Sub-LHIN	None
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.2 (10.9)	0.0 (0.0)	35.9 (46.4)	North Bay Regional Health Centre	6, 2
4	Prevention of stroke	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications).	–	–	–	–	–
5	Prevention of stroke	Proportion of ischemic stroke inpatients who received carotid imaging.	74.5% (78.5%)	33.3% (12.5%)	86.7% (88.0%)	Brockville General Hospital	2, 12
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	70.0 (82.0‡)	70.0 (66.9‡)	70.0 (99.0‡)	Royal Victoria Regional Health Centre	12
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	14.0% (12.2%‡)	7.6% (8.8%‡)	17.5% (15.4%‡)	Flamborough Sub-LHIN	2, 6
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[7] at any time during their inpatient stay.	1.3% (0.7%)	0.5% (0.0%)	6.1% (8.8%)	Belleville Sub-LHIN	10, 3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	–	–	–	–	–
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	32.3% (29.8%)	0.0% (0.0%)	45.5% (86.3%)	Rouge Valley Health System, Ajax	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	39.0% (36.8%)	17.2% (22.2%)	43.5% (42.8%)	Central York Region Sub-LHIN	8, 5
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	–	–	–	–	–
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	10.0 (11.0)	10.0 (11.0)	10.0 (11.0)	Grand River Hospital Corp., Freeport, and Hamilton Health Sciences Corp., General Regional Rehab	8, 3
14	Stroke rehabilitation	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received.	–	–	–	–	–
15§	Stroke rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target.	56.5% (46.8%)	56.5% (50.8%)	56.5% (50.8%)	Bruyère Continuing Care Inc.	3, 8
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.8 (0.7)	0.8 (0.7)	0.8 (0.7)	Grand River Hospital Corp., Freeport	3, 12
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15.	5.9 (4.7)	–	–	North East CCAC	13, 6
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	40.0% (38.4%)	40.0% (42.6%)	40.0% (42.6%)	Providence Healthcare	8, 5
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	7.7% (5.5%)	3.3% (0.0%)	10.8% (7.7%)	Dufferin County Sub-LHIN	3, 6, 10
20§	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	9.1 (8.6)	5.7 (6.2)	34.4 (46.9)	Peterborough Regional Health Centre	None

Hospital Service Accountability Agreement indicators, 2010/11 – Data not available § Contributes to QBP performance ‡ Includes Ontario Stroke Audit data (2010/11 and/or 2012/13).

1 Statistically significant improvement.
2 Performance improving but not statistically significant.
3 No change or performance decline.
4 Facility-based analysis (excluding indicators 1, 2, 7, 8, 11, 12 and 19) for patients aged 18–108. Indicators are based on CIHI data unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Excludes sites or sub-LHINs with fewer than six patients.
6 Greatest Improvement sites/sub-LHINs include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 58 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.
7 Revised definition obtained through consensus with Ontario Stroke Network regional directors (February 2014). In 2012/13 there were 14 stroke units, in 2013/14 there were 16 stroke units, and in 2014/15 there were 21 stroke units.

INTERPRETATION OF 2014/15 STROKE REPORT CARD
North West Local Health Integration Network

PERFORMANCE OVERVIEW

Where comparative data are available, 11 of 16 indicators show improvement. Exemplary performance and ongoing progress is seen in tPA delivery rates where the North West LHIN is the provincial high performer. Since 2013/14, tPA door-to-needle time improved by 10 minutes.

AREAS OF PROGRESS

Acute Stroke Management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA) continues to improve (14.0%) compared to previous three-year average (12.2%).
Acute Stroke Management	Median door-to-needle time among patients who received acute tPA continues to improve (70 minutes) compared to the previous three-year average (82 minutes).
Stroke Rehabilitation	Median number of days between stroke onset and admission to inpatient rehabilitation has improved by 3 days and is now 10 days, compared to 13 in 2013/14.
Stroke Rehabilitation	Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay (LOS) target has improved by 9.7% (56.5% compared to 46.8% in 2013/14).

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Integration: The proportion of alternate level of care (ALC) days to total LOS in acute care has decreased from the previous year. The North West LHIN's performance is poor compared to the provincial rate/benchmark.	A chart audit will be conducted in collaboration with the Regional Stroke Unit Utilization Coordinator to examine factors that impact ALC days related to unit/system processes, resources and practice. Action plans will be developed based on the results. We continue to regularly meet with post-acute services to improve stroke care transitions and flow.
Effectiveness: Median FIM efficiency for moderate stroke in inpatient rehabilitation has improved slightly; however, the North West LHIN's performance is poor compared to the provincial rate/benchmark.	Weekend therapy has been implemented and will contribute to improved FIM efficiency. The inpatient rehabilitation team has implemented weekly reviews of LOS targets for all stroke clients, as well as the tracking of rehabilitation intensity time. Action plans to address delays in discharge and supporting enhanced rehabilitation time are also in progress.
Access: The proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay (indicator 8) was negligible in 2014/15. Admission data will be reflected in the 2015/16 report.	The Regional Stroke Centre monitors stroke admissions to ensure all stroke patients are cared for on the stroke unit for at least 75% of their admission. Consultation continues with the regional hospitals to ensure that all stroke patients requiring stroke unit care are transported to the regional stroke unit at Thunder Bay Regional Health Sciences Centre.
Appropriateness: Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population): the North West LHIN's admission rate of 1.8 is high compared to the provincial benchmark of 1.2.	A regional TIA and Minor Non-Disabling Stroke Triage Toolkit is being rolled out. The triage algorithm will facilitate timely access to stroke specialists and diagnostic imaging to decrease TIA and minor non-disabling stroke admissions.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Continue collaboration in stroke system planning to support the Network's priorities.
- Continue striving for an integrated stroke system model in the North West LHIN.
- Collectively identify a model for emerging endovascular treatment interventions in the North West LHIN.
- Enter into discussions around CT mobile stroke units for rural and remote communities.
- Enhance LHIN direction and collaboration to improve access to outpatient and community-based stroke care across the North West LHIN.

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ONTARIO LHINs MAP

North West Local Health Integration Network

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Appendices

APPENDIX A Indicator Definitions

Indicator No.	Definition	Calculation	Data Source
Public Awareness and Patient Education			
1	Proportion of stroke/TIA patients who arrived at the emergency department (ED) by ambulance	**Numerator**: Number of stroke/TIA patients transported by ambulance **Denominator**: Total number of patients admitted to an ED for stroke/TIA *Population-based analysis (patient's LHIN)	CIHI-NACRS
Prevention of Stroke			
2	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population)	Adult stroke/TIA admissions to acute care inpatient setting per 1,000 population *Population-based analysis (patient's LHIN), standardized using Ontario's 2003/04 population	CIHI-DAD
3	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients)	Risk-adjusted mortality rate per 100 patients within 30 days of stroke/TIA index event between April 1, 2014 and March 31, 2015 (among inpatients only) **Risk-adjusted model**: Age + sex + ambulance arrival + atrial fibrillation + stroke/TIA + coronary artery disease or percutaneous coronary intervention or coronary artery bypass graft + carotid disease or carotid endarterectomy/stent+ diabetes + hypertension + peripheral vascular disease + hyperlipidemia + stroke type	CIHI-DAD, RPDB
4	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications)	**Numerator:** Number of ischemic stroke/TIA patients with a history of or new onset of atrial fibrillation prescribed or recommended (as part of short-term treatment plan but not prescribed) anticoagulant therapy on discharge from acute care **Denominator:** Total number of ischemic stroke/TIA patients with a diagnosis of atrial fibrillation (history of or new onset) discharged alive from an ED or inpatient acute care (excludes patients with contraindications). Contraindications include a history of intracranial hemorrhage, GI bleed, cirrhosis, renal disease or a GI hemorrhage while in hospital	Data not available in 2014/15[†]
5	Proportion of ischemic stroke inpatients who received carotid imaging	**Numerator:** Number of ischemic stroke patients who undergo carotid imaging (carotid doppler, carotid CTA, carotid MRA or carotid angiography) **Denominator:** All admitted patients with ischemic stroke	CIHI-DAD and OHIP Billing
Acute Stroke Management			
6	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes)	**Median** number of minutes from ED arrival (registration time) to administration of tPA **Denominator:** All patients who receive IV, IV/IA or intra-arterial thrombolysis in an ED or admitted as inpatients with date/time of registration and tPA given date/time (includes only tPA capacity sites – see Appendix D)	CIHI-DAD Special Project 340, CIHI-NACRS Special Project 340
7	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA)	**Numerator:** Number of ischemic stroke patients who receive IV, IV/IA or intra-arterial thrombolysis (includes only tPA capacity sites – see Appendix D) **Denominator:** Number of ischemic stroke patients presenting to the ED or admitted in inpatient care *Population-based analysis (patient's LHIN)	CIHI-DAD Special Project 340, CIHI-NACRS Special Project 340
8	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay (HSAA indicator)	**Numerator:** Number of stroke/TIA inpatients treated in an acute care stroke unit at any time during hospital stay **Denominator:** Total number of stroke/TIA patients admitted to hospital *Population-based analysis (patient's LHIN) **Stroke unit = revised definition: A stroke unit is a geographical unit with identifiable co-located beds (e.g. 5A-7, 5A-8, 5A-9, 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	CIHI-DAD Special Project 340
9	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care	**Numerator:** Number of stroke patients with a documented dysphagia screening or assessment performed within 72 hours of hospital arrival **Denominator:** Total number of acute care stroke inpatients (excludes unconscious patients and TIA patients)	Data not available in 2014/15[¥]
10	Proportion of alternate level of care (ALC) days to total length of stay (LOS) in acute care	**Numerator:** Sum of ALC days **Denominator:** Total number of LOS days among stroke/TIA patients admitted to inpatient care	CIHI-DAD
11	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation (HSAA indicator)	**Numerator:** Number of stroke inpatients admitted to inpatient rehabilitation **Denominator:** Total number of stroke inpatients discharged alive from acute care (excludes TIA patients) *Population-based analysis (patient's LHIN)	CIHI-DAD, CIHI-NRS

Stroke Rehabilitation			
12	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation	**Numerator:** Number of stroke patients discharged alive from acute care and referred to outpatient rehabilitation **Denominator:** Total number of stroke patients discharged alive from acute care (excludes TIA patients) *Population-based analysis (patient's LHIN)	Data not available in 2014/15§
13	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation	**Median** time from stroke onset to admission to inpatient rehabilitation **Denominator:** All stroke patients (excludes TIA patients) discharged alive from acute care and admitted to inpatient rehabilitation classified as RCG-1	CIHI-DAD, CIHI-NRS
14	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received	Unavailable in 2014/15	CIHI-NRSϕ determined
15	Proportion of inpatient stroke rehabilitation patients achieving RPG length of stay target	**Numerator:** Number of patients within each RPG achieving target active length of stay **Denominator:** Number of stroke inpatient rehabilitation patients (RCG-1)	CIHI-NRS
16	Median FIM[c] efficiency for moderate stroke in inpatient rehabilitation	FIM efficiency = (FIM discharge – FIM admission)/total LOS **Denominator:** Stroke patients (RCG-1) with moderate disability RPGs 1120, 1130 and 1140)	CIHI-NRS
17	Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14–2014/15	**Mean** number of rehabilitation services visits (involving physiotherapy, occupational therapy, speech language pathology, social work) over a 180-day period discharge from inpatient acute care or inpatient rehabilitation (HCD-OACCAC 2013/14 and 2014/15) **Denominator:** All stroke patients who received a CCAC rehabilitation visit within 60 days of discharge from inpatient care (CIHI-DAD 2013/14) or inpatient rehabilitation (CIHI-NRS 2013/14)	CIHI-DAD, CIHI-NRS, HCD-OACCAC
System Integration			
18	Proportion of patients admitted to inpatient rehabilitation with severe stroke	**Numerator:** Number of stroke patients with severe disability (RPG 1100 or 1110) in inpatient rehabilitation **Denominator:** Total number of stroke (RCG-1) patients admitted to inpatient rehabilitation	CIHI-NRS
19	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC)	**Numerator:** Number of stroke/TIA patients discharged to LTC/CCC **Denominator:** Total number of stroke/TIA admitted patients discharged alive (excludes patients originating from LTC/nursing home/CCC) *Population-based analysis (patient's LHIN)	CIHI-DAD
20	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients) (HSAA indicator)	**Numerator:** Total number of non-elective readmissions to acute inpatient care due to any cause (CIHI-DAD only) **Denominator:** Total number of alive ED/DAD stroke separations between April 1, 2014 and March 31, 2015 (CIHI-DAD/NACRS) (excludes transfers and elective admissions)	CIHI-DAD, CIHI-NACRS

† CIHI-DAD Special Project 340, CIHI-NACRS Special Project 340 do not provide the specificity needed. SEQC will be reviewing the indicator definition for inclusion in future report cards.

¥ Available through CIHI-DAD and NACRS Special Project 640 as of 2014/15 on a voluntary basis.

§ SEQC to review future inclusion on the report card in June 2016.

ϕ Minutes a patient participated in types of rehabilitation therapy became a mandatory NRS data element in 2015/16.

c FIM (or Functional Independence Measure) is a trademark of Uniform Data System for Medical Rehabilitation, a division of UB Foundation Activities, Inc.

APPENDIX B Contact Information for High-Performing Facilities and Sub-LHINs by Indicator

Indicator	High-Performing Facility/Sub-LHIN	Contact Information
1. Proportion of stroke/TIA patients who arrived at the emergency department by ambulance	Essex Sub-LHIN	Denise St. Louis Coordinator, Windsor Essex District Stroke Centre denise.st.louis@wrh.on.ca 519-973-4411 ext. 33770
2. Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population)	Ottawa Centre Sub-LHIN	Sean Gehring Regional Director, Champlain Regional Stroke Network sgehring@toh.ca 613-798-5555 ext.16167
5. Proportion of ischemic stroke inpatients who received carotid imaging	Bluewater Health, Sarnia	Linda Dykes Manager, Sarnia-Lambton District Stroke Centre ldykes@bluewaterhealth.ca 519-464-4400 ext. 4465
6. Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes)	Niagara Health System, Greater Niagara	Leanne Hammond District Stroke Coordinator, Niagara Health System leanne.hammond@niagarahealth.on.ca 905-378-4647 ext. 55557
7. Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA)	South Etobicoke–Toronto Sub-LHIN	Nicole Pageau Regional Director, West GTA Stroke Network nicole.pageau@trilliumhealthpartners.ca 905-848-7580 ext. 2657
8. Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay	Urban Guelph Sub-LHIN	Tammy Tebbutt District Stroke Coordinator, Grand River, Kitchener tammy.tebbutt@grhosp.on.ca 519-749-4300 ext. 2605
10. Proportion of alternate level of care (ALC) days to total length of stay in acute care	Rouge Valley Health System, Ajax	Jacqueline Willems Regional Director, Southeast Toronto Stroke Network willemsj@smh.ca 416-864-6060 ext. 3537
11. Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation	Manitoulin-Sudbury Sub-LHIN	Darren Jermyn Regional Director, Northeastern Ontario Stroke Network djermyn@hsnsudbury.ca 705-523-7100 ext. 3138
13. Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation	Bluewater Health Sarnia, Lakeridge Health Corporation Oshawa, Pembroke Regional Hospital, Quinte Health Centre Belleville and Southlake Regional Health Centre	Linda Dykes Manager, Sarnia-Lambton District Stroke Centre ldykes@bluewaterhealth.ca 519-464-4400 ext. 4465 Amy Maebrae-Waller District Stroke Coordinator, Lakeridge Health Corporation awaller@lakeridgehealth.on.ca 905-576-8711 ext. 2553 Karen Roosen District Stroke Coordinator, Pembroke Regional Hospital karen.roosen@pemreghos.org 613-732-3675 ext. 6530 Bonnie Molinsk District Stroke Coordinator, Quinte Health Centre bmolinski@qhc.on.ca 613-969-7400 ext. 2374 Judy Murray District Stroke Coordinator, Mackenzie Health judy.murray@mackenziehealth.ca 905-883-1212 ext. 3882
15. Proportion of inpatient stroke rehabilitation patients achieving RPG length of stay target	Bruyère Continuing Care Inc.	Sean Gehring Regional Director, Champlain Regional Stroke Network sgehring@toh.ca 613-798-5555 ext.16167
16. Median FIM[d] efficiency for moderate stroke in inpatient rehabilitation	Grand River Hospital Corporation, Freeport	Tammy Tebbutt District Stroke Coordinator, Grand River, Kitchener tammy.tebbutt@grhosp.on.ca 519-749-4300 ext. 2605

d FIM (or Functional Independence Measure) is a trademark of Uniform Data System for Medical Rehabilitation, a division of UB Foundation Activities, Inc.

Indicator	High-Performing Facility/Sub-LHIN	Contact Information
17. Mean number of CCAC visits provided to stroke patients on discharge from inpatient acute care or inpatient rehabilitation in 2013/14 and 2014/15	South East CCAC	Gwen Brown Community and LTC Coordinator, Stroke Network of Southeastern Ontario browng2@kgh.kari.net 613-549-6666 ext. 6867 Jennifer Loshaw Director, Client Services, South East Community Care Access Centre jennifer.loshaw@se-ccac.ont.ca 613-966-3530 ext. 4245
18. Proportion of patients admitted to inpatient rehabilitation with severe stroke (RPG = 1100 or 1110) (RCG-1)	Grand River Hospital Corporation, Freeport	Tammy Tebbutt District Stroke Coordinator, Grand River, Kitchener tammy.tebbutt@grhosp.on.ca 519-749-4300 ext. 2605
19. Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC)	Urban Guelph Sub-LHIN	Stefan Pagliuso Regional Director, Central South Stroke Network pagliuso@hhsc.ca 905-527-4322 ext. 44127

APPENDIX C Glossary

Term/Acronym	Definition
ABC methodology	Achievable Benchmarks of Care methodology
ALC	Alternate level of care. An ALC patient is one who has finished the acute care phase of his/her treatment but remains in an acute care bed. This classification is invoked when the patient's physician gives an order to change the level of care from acute care and requests a transfer for the patient.
AlphaFIM	Standardized method of assessing patient disability/functional status in the acute care setting. AlphaFIM is a registered trademark of Uniform Data System for Medical Rehabilitation, a division of UB Foundation Activities, Inc.
CCAC	Community Care Access Centre
CCC	Complex continuing care
CIHI	Canadian Institute for Health Information
CIHI-DAD	CIHI's Discharge Abstract Database; captures administrative, clinical and demographic information on hospital discharges (including deaths, sign-outs and transfers). Some provinces and territories also use the DAD to capture day surgery.
CIHI-NACRS	CIHI's National Ambulatory Care Reporting System; contains data for all hospital- and community-based ambulatory care
CIHI-NRS	CIHI's National Rehabilitation Reporting System; contains client data collected from participating adult inpatient rehabilitation facilities and programs across Canada.
CSS	Canadian Stroke Strategy
CT	Computed tomography
Discharge Link Service	An initiative that delivers enhanced rehabilitation therapy in community settings through CCAC-contracted providers
District stroke centre	A facility that has written stroke protocols for emergency services, emergency department care and acute care including: transport and triage protocols; ability to offer thrombolytic therapy to suitable ischemic stroke patients; timely computed tomography (CT) scanning and expert interpretation; clinicians with stroke expertise; and linkages to rehabilitation and secondary prevention.
DTN	Door-to-needle time; the time from patient arrival to patient receiving tPA
Dysphagia	Difficulty in swallowing
ED	Emergency department
EMS	Emergency medical services

Term/Acronym	Definition
E-Stroke	A web-based rehabilitation referral and patient-tracking system that provides timely, equitable and efficient access to stroke rehabilitation and enables reporting of unique patient and system information to support local organization- and system-based quality improvement. E-Stroke is utilized by 19 acute care and rehabilitation hospital sites in Toronto (crossing GTA LHIN regions). Membership is held under a formal memorandum of understanding since 2008. E-Stroke is considered a standard of practice in Toronto.
FAST	A national public awareness campaign launched by the Heart and Stroke Foundation to help Canadians recognize stroke symptoms by promoting the acronym FAST: **F**ace: is it drooping? **A**rms: can you raise both? **S**peech: is it slurred or jumbled? **T**ime to call 9-1-1 right away
FIM	Functional Independence Measure. FIM is a registered trademark of Uniform Data System for Medical Rehabilitation, a division of UB Foundation Activities, Inc.
FIM efficiency	FIM efficiency = (FIM discharge – FIM admission)/total length of stay
GTA	Greater Toronto Area
HCD-OACCAC	Home Care Database, from the Ontario Association of Community Care Access Centres
HSAA	Hospital Service Accountability Agreement
ICES	Institute for Clinical Evaluative Sciences
Ischemic stroke	Stroke caused by the interruption of blood flow to the brain due to a blood clot
LHIN	Local Health Integration Network; one of 14 not-for-profit corporations established in Ontario by the MOHLTC, each with specific geographic boundaries. Each LHIN is responsible for planning, integrating and funding local health services.
LOS	Length of stay
LTC	Long-term care
MOHLTC	Ontario Ministry of Health and Long-Term Care
MRI	Magnetic resonance imaging
OSN	Ontario Stroke Network; provides provincial leadership and coordination for the 11 Ontario Regional Stroke Networks
OT	Occupational therapy
PT	Physiotherapy

Term/Acronym	Definition
QBP	Quality-Based Procedure; a specific group of patient services that offers opportunities for health care providers to share best practices that will allow the system to achieve better quality and system efficiencies. The *Quality-Based Procedures Clinical Handbook for Stroke (Acute)* was developed in two phases. Phase 1, released in April 2013, includes best practices for the emergency department, acute care and inpatient rehabilitation. Phase 2 includes best practices for TIA and stroke prevention clinics, early supported discharge and outpatient and community rehabilitation, resulting in the release of an updated *Quality-Based Procedures Clinical Handbook for Stroke (Acute and Postacute)* in December 2015.
RCG	Rehabilitation Client Group. In the CIHI-NRS, the RCG describes the primary reason for admission to rehabilitation.
Regional stroke centre	A facility that has all the requirements of a district stroke centre plus neurosurgical facilities and interventional radiology
RPDB	Registered Persons Database; provides basic demographic information about anyone who has ever received an Ontario health card number
RPG	Rehabilitation Patient Group. In the CIHI-NRS, the RPG describes stroke severity.
Separation	Release of a patient from a course of care
SEQC	Stroke Evaluation and Quality Committee
SLP	Speech-language pathology
Stroke	Occurs when a vessel in the brain ruptures or is blocked by a blood clot
Stroke unit	A geographical unit with identifiable co-located beds (e.g., 5A-7, 5A-8, 5A-9, 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.
Sub-LHIN	A subdivision of a Local Health Integration Network
SW	Social work
TIA	Transient ischemic attack, or "mini-stroke"
tPA	Tissue plasminogen activator; a protein that can be used to break down blood clots in people who are having an ischemic stroke

APPENDIX D Acute Care Institutional Resources for Stroke/TIA in Ontario, 2014/15[1]

Legend	
Regional stroke centre	A facility that meets all the requirements of a district stroke centre, plus neurosurgical facilities and interventional radiology.
District stroke centre	A facility with written stroke protocols (e.g., transport and triage, thrombolytic therapy, neuroimaging), clinicians with stroke expertise, and linkages to rehabilitation and secondary prevention.
Non-designated	An acute care hospital that does not fit the definition of district or regional stroke centre.

LHIN/Institution (Site)	Institution no.	Location	Ontario Stroke Network Region	Stroke unit as per OSN definition[2]	CT Scanner	MRI Scanner	CTA	MRA	Administers tPA	Telestroke centre[3]	Stroke prevention clinic
Ontario, n	**169**			**21**	**97**	**63**	**77**	**52**	**45**	**25**	**45**
1. Erie St. Clair											
Bluewater Health (Sarnia)	4415	Sarnia	Southwestern Ontario		X	X	X	X	X	X	X
Bluewater Health (Charlotte Eleanor Englehart)	4418	Petrolia	Southwestern Ontario								
Chatham-Kent Health Alliance (Chatham)	1223	Chatham	Southwestern Ontario	X	X	X	X	X	X		X
Chatham-Kent Health Alliance (Sydenham)	1239	Wallaceburg	Southwestern Ontario								
Leamington District Memorial Hospital	1067	Leamington	Southwestern Ontario		X						
Windsor Regional Hospital (Metropolitan)	1079	Windsor	Southwestern Ontario		X	X	X	X	X		
Windsor Regional Hospital (Ouellette Campus)	4773	Windsor	Southwestern Ontario		X	X	X	X	X[4]		X
2. South West											
Alexandra Hospital	1696	Ingersoll	Southwestern Ontario								
Alexandra Marine and General Hospital	1206	Goderich	Southwestern Ontario		X		X		X	X	
Four Counties Health Services Corporation	1507	Newbury	Southwestern Ontario								
Grey Bruce Health Services (Lion's Head)	1030	Lion's Head	Southwestern Ontario								
Grey Bruce Health Services (Markdale)	4025	Markdale	Southwestern Ontario								
Grey Bruce Health Services (Meaford)	4027	Meaford	Southwestern Ontario								
Grey Bruce Health Services (Owen Sound)	3944	Owen Sound	Southwestern Ontario		X	X	X	X	X	X	X
Grey Bruce Health Services (Southampton)	4030	Southampton	Southwestern Ontario								
Grey Bruce Health Services (Wiarton)	4033	Wiarton	Southwestern Ontario								
Hanover and District Hospital	1124	Hanover	Southwestern Ontario								
Huron Perth Healthcare Alliance (Clinton)	1199	Clinton	Southwestern Ontario								
Huron Perth Healthcare Alliance (Seaforth)	1213	Seaforth	Southwestern Ontario								
Huron Perth Healthcare Alliance (St. Marys)	1748	St. Marys	Southwestern Ontario								
Huron Perth Healthcare Alliance (Stratford)	1754	Stratford	Southwestern Ontario	X	X	X	X		X		X
Listowel Memorial Hospital	1740	Listowel	Southwestern Ontario								
London Health Sciences Centre (University)	3850	London	Southwestern Ontario		X	X	X	X	X[4]		X
London Health Sciences Centre (Victoria)	4359	London	Southwestern Ontario		X	X	X	X	X		
South Bruce Grey Health Centre (Chesley)	4042	Chesley	Southwestern Ontario								
South Bruce Grey Health Centre (Durham)	4036	Durham	Southwestern Ontario								
South Bruce Grey Health Centre (Kincardine)	3907	Kincardine	Southwestern Ontario								

LHIN/Institution (Site)	Institution no.	Location	Ontario Stroke Network Region	Stroke unit as per OSN definition[2]	CT Scanner	MRI Scanner	CTA	MRA	Administers tPA	Telestroke centre[3]	Stroke prevention clinic
South Bruce Grey Health Centre (Walkerton)	4039	Walkerton	Southwestern Ontario		X		X				
South Huron Hospital	1203	Exeter	Southwestern Ontario								
St. Joseph's Health Care London	1497	London	Southwestern Ontario		X	X	X				
St. Thomas-Elgin General Hospital	1059	London	Southwestern Ontario		X		X				
Strathroy Middlesex General Hospital	1515	Strathroy	Southwestern Ontario		X						
Tillsonburg District Memorial Hospital	1709	Tillsonburg	Southwestern Ontario		X						
Wingham and District Hospital	1217	Wingham	Southwestern Ontario								
Woodstock General Hospital	1716	Woodstock	Southwestern Ontario		X	X	X	X			
3. Waterloo Wellington											
Cambridge Memorial Hospital	1905	Cambridge	Central South		X	X					
Grand River Hospital (Kitchener-Waterloo)	3734	Kitchener	Central South	X	X	X	X		X	X	X
Groves Memorial Community Hospital	1936	Fergus	Central South		X						
Guelph General Hospital	1946	Guelph	Central South	X	X	X	X	X	X	X	
North Wellington Health Care (Louise Marshall)	4323	Mount Forest	Central South								
North Wellington Health Care (Palmerston and District)	4326	Palmerston	Central South								
St. Mary's General Hospital	1921	Kitchener	Central South		X						
4. Hamilton Niagara Haldimand Brant											
Brant Community Health Care System (Brantford)	4675	Brantford	Central South	X	X	X	X	X	X	X	X
Brant Community Health Care System (Willet)	4680	Paris	Central South								
Haldimand War Memorial Hospital	1146	Dunnville	Central South		X						
Hamilton Health Sciences Corp (General)	1982	Hamilton	Central South	X	X	X	X	X	X[4]		X
Hamilton Health Sciences Corp (Juravinski)	1983	Hamilton	Central South		X	X	X	X			
Hamilton Health Sciences Corp (West End)	4737	Hamilton	Central South								
Joseph Brant Hospital	1160	Burlington	Central South		X	X	X	X	X		
Niagara Health System (Douglas Memorial)	4210	Fort Erie	Central South								
Niagara Health System (Greater Niagara)	4213	Niagara Falls	Central South	X	X	X	X	X	X	X	X
Niagara Health System (Port Colborne)	4219	Port Colborne	Central South								
Niagara Health System (St. Catharines General)	4224	St. Catharines	Central South		X	X	X	X			
Niagara Health System (Welland County)	4227	Welland	Central South		X	X		X			
Norfolk General Hospital	1591	Simcoe	Central South		X						X
St. Joseph's Health Care System (Hamilton)	2003	Hamilton	Central South		X	X	X	X			
West Haldimand General Hospital	1149	Hagersville	Central South								
West Lincoln Memorial Hospital	4788	Grimsby	Central South								
5. Central West											
Headwaters Health Care Centre (Dufferin)	3684	Orangeville	West GTA		X						
William Osler Health System (Brampton)	4681	Brampton	West GTA		X	X	X	X			X[5]
William Osler Health System (Etobicoke)	3929	Etobicoke	West GTA		X	X	X	X			X[5]
6. Mississauga Halton											
Halton Healthcare (Georgetown)	4622	Georgetown	West GTA								
Halton Healthcare (Milton)	4022	Milton	West GTA		X						
Halton Healthcare (Oakville)	3926	Oakville	West GTA		X	X	X	X	X		

LHIN/Institution (Site)	Institution no.	Location	Ontario Stroke Network Region	Stroke unit as per OSN definition[2]	CT Scanner	MRI Scanner	CTA	MRA	Administers tPA	Telestroke centre[3]	Stroke prevention clinic
Trillium Health Partners (Mississauga)	4752	Mississauga	West GTA	X	X	X	X	X	X[4]		X
Trillium Health Partners (Queensway)	4759	Toronto	West GTA		X						
Trillium Health Partners (Credit Valley)	4747	Mississauga	West GTA		X	X	X	X	X		
7. Toronto Central											
Sinai Health System (Mount Sinai)	4804	Toronto	Toronto West		X	X	X	X			
St. Joseph's Health Centre	1443	Toronto	Toronto West	X	X	X	X	X			
St. Michael's Hospital	1444	Toronto	Toronto – Southeast	X	X	X	X	X	X[4]		X
Sunnybrook Health Sciences Centre	3936	Toronto	Toronto – North and East	X	X	X	X	X	X[4]		X[6]
The Toronto East General Hospital	1302	Toronto	Toronto – Southeast		X	X					X
University Health Network (Toronto General)	3910	Toronto	Toronto West		X	X	X	X			
University Health Network (Toronto Western)	3910	Toronto	Toronto West	X	X	X	X	X	X[4]		X[6]
8. Central											
Humber River Regional Hospital (Church)	3883	Weston	Toronto West	X	X	X	X	X			
Humber River Regional Hospital (Finch)	1343	Downsview	Toronto West		X	X	X	X			X
Mackenzie Health (Mackenzie Richmond Hill Hospital)	2046	Richmond Hill	Central East	X	X	X	X		X		X
Markham Stouffville Hospital (Markham)	3587	Markham	Central East		X	X					X
North York General Hospital	1330	Toronto	Toronto – North and East	X	X	X	X	X			X
Southlake Regional Health Centre	2038	Newmarket	Central East		X	X					X
Stevenson Memorial Hospital	1817	Alliston	Central East		X		X				
9. Central East											
Campbellford Memorial Hospital	1597	Campbellford	Central East		X						
Haliburton Highlands Health Services (Haliburton)	3737	Haliburton	Central East				X				
Haliburton Highlands Health Services (Minden)	4191	Minden	Central East								
Lakeridge Health (Bowmanville)	4008	Clarington	Central East		X		X				
Lakeridge Health (Oshawa)	3932	Oshawa	Central East	X	X	X	X	X	X	X	X
Lakeridge Health (Port Perry)	4005	Port Perry	Central East								
Markham Stouffville Hospital (Uxbridge)	4465	Uxbridge	Central East		X	X	X				
Northumberland Hills Hospital	3860	Cobourg	Central East		X	X	X				
Peterborough Regional Health Centre	1768	Peterborough	Central East	X	X	X	X	X	X	X	X[7]
Ross Memorial Hospital	1893	Lindsay	Central East		X		X	X			
Rouge Valley Health System (Ajax)	4014	Ajax	Toronto – Southeast		X	X			X	X	
Rouge Valley Health System (Centenary)	3943	Scarborough	Toronto – Southeast	X	X	X			X	X	X
Scarborough Hospital (Birchmount)	4154	Scarborough	Toronto – North and East		X	X	X	X			X[8]
Scarborough Hospital (Scarborough General)	4152	Scarborough	Toronto – North and East		X	X	X	X			X[8]
10. South East											
Brockville General Hospital	1273	Brockville	South East	X	X		X				X
Hotel Dieu Hospital	4601	Kingston	South East		X		X				
Kingston General Hospital	1100	Kingston	South East	X	X	X	X	X	X		X[6]
Lennox and Addington County General Hospital	1295	Napanee	South East								
Perth and Smiths Falls District (Perth)	3732	Perth	South East		X[9]		X[9]				X
Perth and Smiths Falls District (Smith Falls)	1269	Smiths Falls	South East		X[9]		X[9]				
Quinte Healthcare Corporation (Bancroft)	3991	Bancroft	South East								

LHIN/Institution (Site)	Institution no.	Location	Ontario Stroke Network Region	Stroke unit as per OSN definition[2]	CT Scanner	MRI Scanner	CTA	MRA	Administers tPA	Telestroke centre[3]	Stroke prevention clinic
Quinte Healthcare Corporation (Belleville)	3988	Belleville	South East	X	X	X	X	X	X	X	X
Quinte Healthcare Corporation (Picton)	3992	Picton	South East								
Quinte Healthcare Corporation (Trenton)	3994	Trenton	South East		X						
11. Champlain											
Almonte General Hospital	1254	Almonte	East - Champlain								
Arnprior and District Memorial Hospital	1799	Arnprior	East - Champlain								
Carleton Place and District Memorial Hospital	1256	Carleton Place	East - Champlain								
Cornwall Community Hospital	4451	Cornwall	East - Champlain		X	X	X	X	X	X	X
Deep River and District Hospital	1803	Deep River	East - Champlain								
Glengarry Memorial Hospital	1870	Alexandria	East - Champlain								
Hawkesbury and District General Hospital	1777	Hawkesbury	East - Champlain		X		X		X	X	
Hôpital Montfort	1661	Ottawa	East - Champlain		X	X	X	X			
Kemptville District Hospital	1284	Kemptville	East - Champlain								
The Ottawa Hospital (Civic)	4046	Ottawa	East - Champlain		X	X	X	X	X[4]		X
The Ottawa Hospital (General)	4048	Ottawa	East - Champlain		X	X	X	X	X		
Pembroke Regional Hospital Inc.	1804	Pembroke	East - Champlain		X	X	X	X	X	X	X
Queensway-Carleton Hospital	1681	Ottawa	East - Champlain		X	X	X	X			X
Renfrew Victoria Hospital	1813	Renfrew	East - Champlain								
St. Francis Memorial Hospital	1801	Barry's Bay	East - Champlain								
University of Ottawa Heart Institute	4164	Ottawa	East - Champlain		X	X	X	X			
Winchester District Memorial Hospital	1885	Winchester	East - Champlain		X		X				
12. North Simcoe Muskoka											
Collingwood General and Marine Hospital	1833	Collingwood	Central East		X		X				
Georgian Bay General Hospital (Midland)	1844	Midland	Central East		X		X				
Muskoka Algonguin Healthcare (Bracebridge)	4619	Bracebridge	Central East		X		X				
Muskoka Algonguin Healthcare (Huntsville)	4616	Huntsville	Central East		X		X		X		
Orillia Soldiers' Memorial Hospital	1853	Orillia	Central East		X	X	X	X			
Royal Victoria Regional Health Centre	1825	Barrie	Central East		X	X	X	X	X	X	X
13. North East											
Anson General Hospital	2084	Iroquois Falls	Northeast								
Bingham Memorial Hospital	2090	Matheson	Northeast								
Blind River District Health Centre/Pavillon Santé	2057	Blind River	Northeast								
Blind River District Health Centre(Richards Landing)	4768	Richards Landing	Northeast								
Blind River District Health Centre(Thessaion)	4770	Thessalon	Northeast								
Englehart and District Hospital	2204	Englehart	Northeast								
Espanola Regional Hospital and Health Centre	2174	Espanola	Northeast								
Health Sciences North/Horizon Santé-Nord	4059	Sudbury	Northeast		X	X	X	X	X	X	X
Hornepayne Community Hospital	2061	Hornepayne	Northeast								
Kirkland and District Hospital	2211	Kirkland Lake	Northeast								
Lady Dunn Health Centre	2076	Wawa	Northeast								
The Lady Minto Hospital	2078	Cochrane	Northeast								
Manitoulin Health Centre (Little Current)	2121	Little Current	Northeast								

LHIN/Institution (Site)	Institution no.	Location	Ontario Stroke Network Region	Stroke unit as per OSN definition[2]	CT Scanner	MRI Scanner	CTA	MRA	Administers tPA	Telestroke centre[3]	Stroke prevention clinic
Manitoulin Health Centre (Mindemoya)	2123	Mindemoya	Northeast								
Mattawa General Hospital	2126	Mattawa	Northeast								
North Bay Regional Health Centre	4730	North Bay	Northeast		X	X	X	X	X	X	X
Notre Dame Hospital	2082	Hearst	Northeast								
Sault Area Hospital	4407	Sault Ste. Marie	Northeast		X	X	X	X	X	X	X
Sensenbrenner Hospital	2088	Kapuskasing	Northeast								
Service de Santéde Chapleau Health Service	2173	Chapleau	Northeast								
Smooth Rock Falls Hospital	2094	Smooth Rock Falls	Northeast								
St. Joseph's General Hospital	2058	Elliot Lake	Northeast								
Temiskaming Hospital	2207	New Liskeard	Northeast		X				X	X	
Timmins and District General Hospital	3414	Timmins	Northeast		X	X	X	X	X	X	X
Weeneebayko Area Health Authority	4698	Moose Factory	Northeast								
West Nipissing General Hospital	2812	Sturgeon Falls	Northeast								
West Parry Sound Health Centre	3729	Parry Sound	Northeast		X						
14. North West											
Atikokan General Hospital	2147	Atikokan	Northwest								
Dryden Regional Health Centre	2103	Dryden	Northwest		X		X		X	X	
Geraldton District Hospital	2175	Geraldton	Northwest								
Lake-of-the-Woods District Hospital	2110	Kenora	Northwest		X		X		X	X	X
Manitouwadge General Hospital	2176	Manitouwadge	Northwest								
McCausland Hospital	2180	Terrace Bay	Northwest								
Nipigon District Memorial Hospital	2178	Nipigon	Northwest								
The Red Lake Margaret Cochenour Memorial Hospital	2115	Red lake	Northwest								
Riverside Health Care Facilities (Emo)	2148	Emo	Northwest								
Riverside Health Care Facilities (La Verendrye)	2150	Fort Frances	Northwest		X		X		X	X	X
Riverside Health Care Facilities (Rainy River)	2153	Rainy River	Northwest								
Sioux Lookout Meno-Ya-Win Health Centre (District)	4353	Sioux Lookout	Northwest		X		X		X	X	X
Thunder Bay Regional Health Sciences Centre	3853	Thunder Bay	Northwest		X	X	X	X	X[4]		X
Wilson Memorial General Hospital	2177	Marathon	Northwest								X

1 Based on the Ontario Stroke Network 's annual acute stroke care resource survey (as of April 2016). Survey includes facilities (e.g. emergency departments, urgent care centres and inpatient care) that had at least one stroke/TIA ED visit or DAD discharge in 2014/15.

2 Stroke Unit (revised definition, February 2014): A geographical unit with identifiable co-located beds (e.g., 5A-7, 5A-8, 5A-9, 5A-10, 5A-11) that are occupied by stroke patients 75% of the time. and a dedicated interprofessional team with expertise in stroke care represented by the following professions at a minimum: nursing, physiotherapy, occupational therapy, speech-language pathology.

3 A funded Ontario Telemedicine Network site in 2014/15.

4 Also provides endovascular therapy (EVT).

5 A cardiovascular clinic, not specific to stroke.

6 Also has a rapid transient ischemic attack (TIA) and minor ischemic stroke clinic.

7 Patients from Peterborough Regional Health Centre have access to a stroke prevention clinic through the Peterborough Regional Vascular Health Network.

8 Urgent TIA patients have access to the Scarborough Stroke Clinic.

9 CT scanner shared between the Perth and Smiths Falls sites.

Data
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