Ontario and LHIN 2013/14

Stroke Report Cards and Progress Reports

Driving knowledge exchange and implementing stroke best practices

June 2015

ontario stroke network
Advancing the Ontario Stroke System

Canadian Stroke Network
Réseau Canadien contre les accidents cérébrovasculaires

ICES

Ontario and LHIN 2013/14

Stroke Report Cards and Progress Reports

Driving knowledge exchange and implementing stroke best practices

Authors

Ontario Stroke Network's Stroke Evaluation Quality Committee – Knowledge Translation and Accountability Subcommittee

Publication Information

The Institute for Clinical Evaluative Sciences (ICES) is funded by an annual grant from the Ontario Ministry of Health and Long-Term Care (MOHLTC). The opinions, results and conclusions included in this report are those of the authors and are independent from the funding sources. No endorsement by the Institute for Clinical Evaluative Sciences (ICES) or the Ontario Ministry of Health and Long-Term Care (MOHLTC) is intended or should be inferred.

INSTITUTE FOR CLINICAL EVALUATIVE SCIENCES
G1 06, 2075 Bayview Avenue
Toronto, ON M4N 3M5
Telephone: 416-480-4055
Email: **communications@ices.on.ca**

ISBN: 978-1-926850-59-7 (Print)
ISBN: 978-1-926850-60-3 (Online)

How to cite this publication

Hall R, Linkewich B, Khan F, Levi J, Zhou L, Fang J, Lumsden J, Martin C, Morrison K, Moore P, Kelloway L, Kapral MK, O'Callaghan C, Bayley M. *Ontario and LHIN 2013/14 Stroke Report Cards and Progress Reports: Driving knowledge exchange and implementing stroke best practices*. Toronto, ON: Institute for Clinical Evaluative Sciences; 2015.

This document and the full report are available at **www.ices.on.ca**.

Contents

Authors' Affiliations

Ruth Hall, PhD
Ontario Stroke Network Evaluation Specialist and *Adjunct Scientist*, Institute for Clinical Evaluative Sciences / *Assistant Adjunct Professor*, Institute for Health Policy, Management and Evaluation, University of Toronto

Beth Linkewich, MPA, OT Reg (Ont)
Chair, Knowledge Translation and Accountability Subcommittee, Ontario Stroke Network / *Regional Director*, North and East GTA Stroke Network, Sunnybrook Health Sciences Centre / *Assistant Professor*, Clinical Sciences Division, Northern Ontario School of Medicine / *Lecturer*, Department of Occupational Science and Occupational Therapy, University of Toronto

Ferhana Khan, MPH
Senior Research Project Manager, Ontario Stroke Network Evaluation Office and Ontario Stroke Registry, Institute for Clinical Evaluative Sciences

Jen Levi, BA
Research Assistant, Ontario Stroke Network Evaluation Office and Ontario Stroke Registry, Institute for Clinical Evaluative Sciences

Limei Zhou, PhD
Senior Research Analyst, Institute for Clinical Evaluative Sciences

Jiming Fang, PhD
Lead Research Analyst, Institute for Clinical Evaluative Sciences

Jim Lumsden, BScPT, MPA
Regional Director, Champlain Regional Stroke Network, The Ottawa Hospital

Cally Martin, BScPT, MSc
Regional Director, Stroke Network of Southeastern Ontario (SNSEO), Kingston General Hospital

Kay Morrison, RN, MScN
Regional Stroke Education Coordinator, Central East Stroke Network OREG Representative

Patrick Moore, MA
Communications Manager, Ontario Stroke Network

Linda Kelloway, RN, MN, CNN(c)
Best Practice Leader, Ontario Stroke Network

Moira K. Kapral, MD, MSc, FRCPC
Professor, Department of Medicine and Institute of Health Policy, Management and Evaluation, University of Toronto / *Senior Scientist*, Institute for Clinical Evaluative Sciences / *Senior Scientist*, Toronto General Research Institute / *Staff Physician*, General Internal Medicine, University Health Network and Mount Sinai Hospital

Christina O'Callaghan, BAppSc (PT)
Executive Director, Ontario Stroke Network

Mark Bayley, MD, FRCPC
Medical Director, Brain and Spinal Cord Rehabilitation Program, Toronto Rehabilitation Institute / *Associate Professor*, Faculty of Medicine, University of Toronto / *Adjunct Scientist*, Institute for Clinical Evaluative Sciences / *Chair*, Ontario Stroke Network SEQC Committee

Acknowledgements

Paula Gilmore, Regional Director, Southwestern Ontario Stroke Network / **Darren Jermyn**, Regional Director, Northeastern Ontario Stroke Network / **Caterina Kmill**, Regional Director, Northwestern Ontario Stroke Network / **Cheryl Moher**, Regional Director, Central East Stroke Network / **Nicole Pageau**, Regional Director, West GTA Stroke Network / **Shelley Sharp**, Regional Director, Toronto West Stroke Network / **Rhonda Whiteman**, Interim Regional Director, Central South Regional Stroke Network / **Jacqueline Willems**, Regional Director, Southeast Toronto Stroke Network

About the Organizations Involved in this Report

The 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.

The OSN is funded by the Ontario Ministry of Health and Long-Term Care.

Ontario Ministry of Health and Long-Term Care

The Negotiations and Accountability Management Division of the Ministry of Health and Long-Term Care supported the 2012/13 Ontario Stroke Audit of Acute Care Facilities by funding the collection of baseline indicator data for the stroke QBP health funding reform initiative.

Canadian Stroke Network

The Canadian Stroke Network (CSN) in partnership with the OSN has helped to fund the Ontario Stroke Registry (formerly known as the Registry of the Canadian Stroke Network) between 2002 and 2012 and in partnership with the **Heart and Stroke Foundation**, established the **Canadian Best Practice Recommendations for Stroke Care**.

Institute for Clinical Evaluative Sciences

The Institute for Clinical Evaluative Sciences (ICES) is an independent, non-profit organization that produces knowledge to enhance the effectiveness of health care for Ontarians. Internationally recognized for its innovative use of population-based health information, ICES evidence supports health policy development and guides changes to the organization and delivery of health care services.

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 project-specific funds from provincial and national organizations. These combined sources enable ICES to have a large number of projects underway, covering a broad range of topics. The knowledge that arises from these efforts is always produced independently of funding bodies, which is critical to ICES' success as Ontario's objective, credible source of evidence guiding health care.

Ontario Stroke Report Cards

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]

Report cards are produced annually for Ontario and each of the 14 Local Health Integration Networks (LHINs). Each year, the SEQC Knowledge Translation and Accountability Subcommittee reviews the indicators to assess data availability, system impact, and the knowledge translation strategy.
Additions to the 2015 report cards include:

1. For the first time, 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 3-year performance.
2. Three new indicators:
   i. proportion of stroke/TIA patients who arrived by ambulance
   ii. proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA)
   iii. median door-to-needle time among patients who received tPA
3. Nine indicators that have been denoted as being associated with important best practices related to stroke QBP and will contribute to stroke QBP implementation.

4. A revised stroke unit definition, based on consensus among the OSN Regional Directors and District Coordinators in February 2014 that was developed by applying the following guiding principles:

    i. align with definition used in the Canadian Best Practice Recommendations[3]

    ii. be measurable and allow for reliable hospital reporting

    iii. be applicable for real world implementation and sustainability within the context of Ontario

The revised stroke unit definition is: *A geographical unit with identifiable co-located beds that are occupied by stroke patients 75% of the time and has a dedicated interprofessional team with expertise in stroke care including, at a minimum, nursing, physiotherapy, occupational therapy and speech-language pathology.* In addition, stroke unit utilization is measured at the population level to reflect the regionalization of stroke care. There are currently 16 stroke units in Ontario acute care hospitals, an increase from 14 during the baseline year in 2012/13. See **Appendix D** for the list of stroke units in Ontario.

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 Ontario Stroke Network 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 Accountability Subcommittee established a report card dissemination strategy. The dissemination strategy 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 without atrial fibrillation 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/TIA patients in 2012/13 and 2013/14
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[4], 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

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

ii. Progress Reports

Teal, purple and coral colour bands were used to distinguish degrees of LHIN progress from the previous 3-year average performance. Coral bands indicate no progress (no change or performance decline), purple bands indicate progress (improving performance but not statistically significant), and teal bands indicate that the LHIN is progressing well (statistically significant improvement) 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

Facilities or sub-LHINs with the highest performance result were identified for each indicator in order to highlight achievements made across the province, facilitate dialogue among regions, and drive system improvement.

Methodology

Stroke cohorts (ages ≥18) 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 with palliative care (ICD-10-CA code of 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).

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).

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. 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

To be considered high performing, 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 facilities in the LHIN.

ONTARIO STROKE REPORT CARD, 2013/14

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 2013/14 (2012/13)	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.	58.7% (57.6%)	48.7–62.2%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.3 (1.3)	1.0–1.8	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.7 (11.8)	10.3–16.0	–	–	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).	– (76.3%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	79.2% (74.6%)	72.9–87.7%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	57.0 (62.5‡)	32.0–85.0	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	11.9% (11.2%)	8.7–14.1%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[7] at any time during their inpatient stay.	28.2% (25.7%)	0.0–66.3%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (67.2%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	28.4% (27.7%)	18.8–34.8%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	34.2% (32.6%)	27.9–39.7%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (6.8%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	9.0 (10.0)	6.0–16.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	53.2% (45.0%)	18.9–68.6%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.9 (0.9)	0.6–1.4	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	5.6 (5.8)	4.4–12.1	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	37.6% (34.5%)	27.7–52.7%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	7.8% (7.9%)	3.1–11.6%	2.8% (2.8%)	Barrie and Area 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).	7.7 (7.9)	5.6–9.4	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute 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 unless otherwise specified. 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 2012/13 benchmarks are displayed in brackets.
6 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on 2012/13 Ontario Stroke Audit data.

INTERPRETATION OF 2013/14 STROKE REPORT CARD
Ontario

PERFORMANCE OVERVIEW

The 2013/14 report card shows ongoing progress across key performance indicators. For indicators where comparative performance results are available, the following trends are noted:

- 14 of 16 indicators displayed improvement compared to the previous three years;
- 12 indicators displayed a statistically significant improvement compared to the previous three years;
- For 13 indicators, the lower limit of the LHIN range has improved compared to 2012/13;
- 10 of 14 provincial benchmarks have also improved since 2012/13. [1]

AREAS OF PROGRESS

The provincial report card reflects steady improvement in stroke prevention, acute stroke management and stroke rehabilitation. Provincial benchmarks exceed or meet 3 out of 4 Ontario Stroke Network (OSN) targets[2] (inpatient admissions, access to stroke unit and access to inpatient rehabilitation).

AREAS FOR IMPROVEMENT

While steady progress is being made, notable LHIN variation remains and ongoing improvement will be required to reach the four key OSN targets.

Additional regional approaches are required to increase access to stroke unit care, which is a key step in addressing variation in patient outcomes, particularly mortality. Despite some improvement, there remains an ongoing need for rehabilitation system change, particularly an improvement in access to hospital-based outpatient rehabilitation and Community Care Access Centre services. Data access and quality remained a key challenge this year as four indicators were removed and three were modified due to data availability.

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, public awareness efforts and implementation strategies to advance access to best practices and continually improve the report card process and outcome indicators.

- The OSN will continue in its collaboration with Health Quality Ontario (HQO) and the Ministry of Health and Long-Term Care (MOHLTC) to implement the recommendations of the **Integrated Stroke Quality-Based Procedures (QBP) Clinical Handbook** including best practices, indicators and pricing.

- The OSN will continue its work with the MOHLTC and the Canadian Institute for Health Information to inform a sustainable stroke data collection and data quality strategy.
- Through the Strategy for Patient-Oriented Research (**SPOR**) and in partnership with Ontario SPOR Support Unit researchers, the OSN is introducing a framework for the evaluation of stroke QBP implementation using rapid cycle/ pragmatic research methods and patient and family engagement.

CONTACT

Christina O'Callaghan
Executive Director
Ontario Stroke Network
info@ontariostrokenetwork.ca
647-943-3198

1 Provincial benchmarks were calculated using the ABC methodology (Weissman et al. *J Eval Clin Pract*. 1999; 5(3):269–81).

2 Key OSN targets are:
- Stroke hospitalization: Reduce admissions to 1.14 per 1,000 LHIN population;
- Stroke units: Increase access to 52.6% of patients;
- Inpatient rehabilitation: Reduce access time to within 5 days;
- Community reintegration: Reduce long-term care admissions to 3.75% of patients one year after stroke.

NB: A further OSN goal is to reduce LHIN variation by half across all four targets.

ONTARIO STROKE REPORT CARD, 2013/14

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 2013/14 (2012/13)	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.	62.2% (60.2%)	55.2–66.2%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.5 (1.4)	1.6–2.1	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.2 (12.2)	0.0–22.8	–	–	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).	– (76.3%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	80.7% (77.1%)	0.0–90.7%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	82.0 (82.5‡)	60.5–103.0	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	8.7% (6.6%)	4.6–15.7%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	18.0% (15.7%)	1.6–70.3%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (76.8%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	33.9% (33.6%)	0.0–64.2%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	39.7% (39.1%)	31.5–55.1%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (7.2%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	8.0 (8.0)	3.0–11.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	61.4% (53.3%)	44.9–76.0%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.2 (0.9)	0.0–1.4	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	4.8 (5.8)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	33.6% (37.0%)	18.2–37.5%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	4.8% (8.0%)	3.4–6.1%	2.8% (2.8%)	Barrie and Area 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).	5.6 (7.3)	0.0–6.3	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute 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 unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on 2012/13 Ontario Stroke Audit data.

STROKE PROGRESS REPORT, 2013/14 COMPARED TO 2010/11 – 2012/13

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 2013/14 (previous 3-year average)	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.	62.2% (58.7%)	55.2–66.2%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.5 (1.4)	1.6–2.1	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.2 (12.2)	0.0–22.8	–	–	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).	– (72.5%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	80.7% (78.0%)	0.0–90.7%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	82.0% (82.9%‡)	60.5–103	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	8.7% (7.1%‡)	4.6–15.7%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	18.0% (15.7%)	1.6–70.3%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (64.3%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	33.9% (28.1%)	0.0–64.2%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	39.7% (40.3%)	31.5–55.1%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (5.2%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	8.0 (9.0)	3.0–11.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	61.4% (52.3%)	44.9–76.0%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.2 (0.8)	0.0–1.4	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	4.8 (5.3)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	33.6% (38.5%)	18.2–37.5%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	4.8% (8.2%)	3.4–6.1%	2.8% (2.8%)	Barrie and Area 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).	5.6 (7.6)	0.0–6.3	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute to QBP performance

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 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on Ontario Stroke Audit data (2008/09, 2010/11 and 2012/13). The 2012/13 benchmark for indicators 4, 6, 9 and 12 were calculated using 2012/13 Ontario Stroke Audit data.

INTERPRETATION OF 2013/14 STROKE REPORT CARD
Erie St. Clair Local Health Integration Network

PERFORMANCE OVERVIEW

Ten of 16 indicators with comparable data have shown improvement. Erie St. Clair LHIN has a county or facility considered a leading performer in the province for three indicators (1, 11 and 13). Inpatient admission rate has increased to 1.5/1,000 population.

AREAS OF PROGRESS

Stroke Prevention	Essex County is leading the province for patients arriving at the ED by ambulance (66.2%). Continued improvement is expected with the launch of the new public awareness FAST campaign.
Stroke Rehabilitation	Rehabilitation programs in the LHIN have made significant improvement in median FIM efficiency for moderate stroke (from 0.9 to 1.2), with Hôtel-Dieu Grace Healthcare leading the LHIN for this indicator at 1.4.
Stroke Rehabilitation	Bluewater Health is the high performer for median days to inpatient rehabilitation (4 days) with Hôtel-Dieu Grace Healthcare demonstrating improvement to 11 days. Improvement noted in reaching Quality-Based Procedure (QBP) length of stay (LOS) targets.
Community Reintegration	Fewer stroke patients are being discharged from acute care to LTC/CCC (from 8.0% to 4.8%). Reduction in readmission has also been noted across the LHIN (from 7.3% to 5.6%).

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Access: The proportion of ischemic stroke patients who received tPA was below the 50th percentile (8.7%).	All designated stroke centres have been engaged in quality improvement projects to improve tPA rates. Bluewater Health became a Telestroke Referring Site in June 2014. Windsor Regional Hospital Quality Improvement Committee and Chatham-Kent Health Alliance Acute Stroke Quality Improvement Team are engaged in quality improvement initiatives to improve processes and coding.
Appropriateness: Just 18.0% of patients in the LHIN received care in a stroke unit according to the 2014 revised stroke unit definition. The Chatham-Kent Health Alliance Integrated Stroke Unit meets the revised definition.	All designated stroke centres have completed a QBP gap analysis and are working towards implementing stroke units according to the revised definition. Windsor Regional Hospital has developed a business case to redesign acute stroke services in Essex County.
Integration: Alternate level of care rates are high (33.9%) with variability in the LHIN ranging from 0-64.2%. Performance is below the 50th percentile.	Partners are collaborating to facilitate timely transition of clients to appropriate postacute care including inpatient rehabilitation. Early supported discharge team business case submitted to the LHIN. Implementation of early supported discharge teams will provide access to rehabilitation in the community, creating bed capacity in inpatient rehabilitation, improving system flow.
Appropriateness: Fewer severe stroke survivors are accessing inpatient rehabilitation in the LHIN (33.6%) ranging from 18.2%-37.5%.	Partners are collaborating to prioritize moderate/severe stroke access to inpatient rehabilitation. Early supported discharge team business case submitted to the LHIN, which will allow milder stroke patients to be discharged home from acute care. This move will increase bed capacity and improve the access and flow of severe stroke patients to inpatient rehabilitation.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Continue to work with the Erie St. Clair LHIN Quality Council to improve access to tPA, stroke unit care and community rehabilitation in the LHIN.
- Support the implementation of the Erie St. Clair LHIN Future State Stroke Care Pathway (focus on access to inpatient rehabilitation for severe stroke and the need for high intensity, stroke-specific outpatient/community rehabilitation).
- Advocate for the implementation of early supported discharge teams as recommended in the updated QBP Clinical Handbook for Stroke. Outpatient and community rehabilitation is limited, evidenced by a decrease in the mean number of CCAC visits per patient (from 5.8 to 4.8).

CONTACT

Paula Gilmore
Regional Director
Southwestern Ontario Stroke Network
paula.gilmore@lhsc.on.ca
519-381-5705

ONTARIO STROKE REPORT CARD, 2013/14

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 2013/14 (2012/13)	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% (53.6%)	50.3–63.3%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.3 (1.4)	1.2–1.9	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	14.4 (15.7)	0.0–47.4	–	–	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).	– (74.9%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	73.5% (64.6%)	0.0–87.9%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	62.5 (67.9‡)	54.0–92.5	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	11.9% (10.3%)	6.1–16.3%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	2.5% (1.1%)	0.0–8.9%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (71.2%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	26.3% (23.8%)	0.0–74.3%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	37.2% (37.9%)	32.1–47.9%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (6.1%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	9.0 (9.0)	5.5–25.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	54.4% (50.6%)	0.0–100%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.8 (1.0)	0.7–7.2	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	4.6 (5.3)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	42.2% (37.2%)	25.0–65.5%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	6.3% (5.0%)	1.0–11.4%	2.8% (2.8%)	Barrie and Area 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).	7.4 (8.4)	0.0–21.9	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute 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 unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on 2012/13 Ontario Stroke Audit data.

STROKE PROGRESS REPORT, 2013/14 COMPARED TO 2010/11 – 2012/13

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
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 2013/14 (previous 3-year average)	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% (52.4%)	50.3–63.3%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.3 (1.3)	1.2–1.9	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	14.4 (15.3)	0.0–47.4	–	–	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).	– (70.6%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	73.5% (63.0%)	0.0–87.9%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	62.5 (70.1‡)	54.0–92.5	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	11.9% (8.9%‡)	6.1–16.3%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	2.5% (1.1%)	0.0–8.9%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (64.2%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	26.3% (22.0%)	0.0–74.3%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	37.2% (35.7%)	32.1–47.9%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (3.9%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	9.0 (9.0)	5.5–25.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	54.4% (52.0%)	0.0–100%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.8 (0.9)	0.7–7.2	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	4.6 (5.7)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	42.2% (39.9%)	25.0–65.5%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	6.3% (5.6%)	1.0–11.4%	2.8% (2.8%)	Barrie and Area 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).	7.4 (7.9)	0.0–21.9	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute to QBP performance

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 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on Ontario Stroke Audit data (2008/09, 2010/11 and 2012/13). The 2012/13 benchmark for indicators 4, 6, 9 and 12 were calculated using 2012/13 Ontario Stroke Audit data.

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

PERFORMANCE OVERVIEW

Ten of 16 indicators with comparable data have improved. Grey Bruce Health Services (Owen Sound) and Huron Perth Healthcare Alliance (Stratford) were high performers in the province for indicators 10 and 18, respectively.

AREAS OF PROGRESS

Acute Stroke Management	Improvement in the proportion of patients who arrived at the ED by ambulance (from 53.6% to 59.0%). Continued improvement is expected with the launch of the new public awareness FAST campaign.
Stroke Prevention	Improvement noted in access to carotid imaging for patients without atrial fibrillation (from 64.6% to 73.5%). Quality improvement projects implemented at individual facilities.
Acute Stroke Management	Median door-to-needle (DTN) time is 62.5 minutes (best practice target <60 minutes). London Health Sciences Centre launched a hyperacute stroke unit in March 2014 with an improved DTN time of 54 minutes for 2013/14.
Stroke Rehabilitation	More severe stroke survivors are gaining access to inpatient rehabilitation (42.2%). Huron Perth Healthcare Alliance (Stratford) is the high performer in the province (65.5%).

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Access: Limited access to tPA among all ischemic stroke (11.9%). Middlesex County had the highest rate in the LHIN (16.3%).	Implementation of the South West LHIN Stroke Capacity Assessment and Best Practice Implementation Project directional recommendations to realign stroke services will improve access. Designated stroke centres are making quality improvements; London Health Sciences Centre opened a hyperacute stroke unit in March 2014 and Grey Bruce Health Services (Owen Sound) became a Telestroke Referring Site in December 2014.
Appropriateness: A revised stroke unit definition was released by the OSN in 2014, resulting in limited access to stroke units in South West LHIN. Mortality rate remains above the provincial mean (14.4%).	Huron Perth Healthcare Alliance (Stratford) opened an Integrated Stroke Unit (ISU) in December 2014. London Health Sciences Centre and Grey Bruce Health Services (Owen Sound) opened acute stroke units in April 2015. Implementation of the South West LHIN Stroke Capacity Assessment and Best Practice Implementation Project directional recommendations, including an additional ISU at St. Thomas Elgin General Hospital, will increase access to stroke units and improve mortality rates with the provision of expert care.
Integration: Proportion of alternate level of care days to total length of stay in acute care has increased (from 23.8% to 26.3%), with a variance between 0 to 74.3%. Grey Bruce Health Services (Owen Sound) is the high performer in the province (3.7%).	Implementation of the South West LHIN Stroke Capacity Assessment and Best Practice Implementation Project directional recommendations will streamline transitions and flow to appropriate postacute care (e.g. collaboration between London Health Sciences Centre and Parkwood to improve flow/transition). Partnering with CCAC to ensure timely transfers to appropriate postacute services.
Effectiveness: The proportion of inpatient rehabilitation programs meeting Quality-Based Procedure (QBP) length of stay targets is low (54.4%). Median FIM efficiency for moderate stroke is also low (0.8).	Increased rehabilitation intensity in therapy programs to 3 hours/day, 6-7 days/week will help improve FIM efficiency. All designated stroke centre rehabilitation programs have identified length of stay and FIM efficiency as a priority. In addition, Parkwood Institute has identified length of stay targets for moderate and severe stroke as a Quality Improvement Plan indicator.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Three Designated Stroke Centres (London Health Sciences Centre, Huron Perth Healthcare Alliance (Stratford), Grey Bruce Health Services (Owen Sound)) and Parkwood have committed to advancing Quality-Based Procedures outlined in Quality-Based Procedure Clinical Handbook for Stroke.

- Implementation of the South West LHIN Capacity Assessment and Best Practice Implementation Project's directional recommendations (approved by the LHIN Board of Directors in March 2015) will realign stroke services from 28 to 7 hospitals in the LHIN including the designation of an additional District Stroke Centre (St. Thomas Elgin General Hospital), which will require continued support and collaboration between stroke partners and the LHIN.

- Advocacy will continue for more access to post-hospital care including secondary stroke prevention, outpatient/community rehabilitation programs and community support services.

CONTACT

Paula Gilmore
Regional Director
Southwestern Ontario Stroke Network
paula.gilmore@lhsc.on.ca
519-381-5705

ONTARIO STROKE REPORT CARD, 2013/14

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)

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 2013/14 (2012/13)	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.	56.7% (57.8%)	49.2–63.9%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.5 (1.4)	1.1–2.0	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.4 (12.2)	10.2–43.5	–	–	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).	– (77.3%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	83.1% (81.9%)	22.2–88.2%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	57.0 (59.5‡)	55.0–57.5	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	9.9% (9.9%)	7.0–15.3%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	66.3% (58.9%)	19.0–79.2%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (74.5%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	22.9% (27.9%)	12.0–37.0%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	31.8% (30.5%)	28.4–40.0%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (13.0%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	8.0 (10.0)	7.0–9.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	59.8% (38.0%)	56.5–71.4%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.0 (0.8)	0.9–1.5	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	6.0 (6.8)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	42.1% (33.7%)	37.0–47.6%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	5.2% (6.6%)	0.0–8.9%	2.8% (2.8%)	Barrie and Area 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 (5.9)	7.3–9.3	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute 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 unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on 2012/13 Ontario Stroke Audit data.

STROKE PROGRESS REPORT, 2013/14 COMPARED TO 2010/11 – 2012/13

Waterloo Wellington 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 2013/14 (previous 3-year average)	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.	56.7% (57.8%)	49.2–63.9%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.5 (1.4)	1.1–2.0	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.4 (12.5)	10.2–43.5	–	–	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).	– (76.5%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	83.1% (78.5%)	22.2–88.2%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	57.0 (65.4‡)	55.0–57.5	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	9.9% (8.6%‡)	7.0–15.3%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	66.3% (58.9%)	19.0–79.2%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (66.5%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	22.9% (32.3%)	12.0–37.0%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	31.8% (30.1%)	28.4–40.0%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (7.3%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	8.0 (11.0)	7.0–9.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	59.8% (38.2%)	56.5–71.4%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.0 (0.7)	0.9–1.5	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	6.0 (6.1)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	42.1% (33.6%)	37.0–47.6%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	5.2% (9.6%)	0.0–8.9%	2.8% (2.8%)	Barrie and Area 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 (7.0)	7.3–9.3	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 – Data not available n/a = Not applicable § = Contribute to QBP performance

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 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on Ontario Stroke Audit data (2008/09, 2010/11 and 2012/13). The 2012/13 benchmark for indicators 4, 6, 9 and 12 were calculated using 2012/13 Ontario Stroke Audit data.

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

PERFORMANCE OVERVIEW

The LHIN experienced significant improvement across most indicators. There were downward trends in patients discharged to LTC/CCC, a reduction in alternate level of care days and earlier access to rehabilitation as measured by acute length of stay and time to rehabilitation admission.

AREAS OF PROGRESS

Stroke Rehabilitation	The LHIN sends more severe stroke patients to inpatient rehabilitation by utilizing outpatient services for mild stroke patients (42.1% vs. 33.7% of inpatient rehabilitation care provided to severe stroke patients)
Stroke Rehabilitation	59.8% of inpatient stroke rehabilitation patients achieved the ambitious Quality-Based Procedure (QBP) length of stay target compared to 38.0% in 2012/13.
Stroke Rehabilitation	FIM efficiency increased from 0.8 in 2012/13 to 1.0 in 2013/14. Patients are being discharged home with more functional gain, despite arriving to rehabilitation earlier and sicker.
Acute Stroke Management	With the addition of a second acute stroke unit in the LHIN in December 2013, access to stroke unit care has increased.

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Effectiveness: The implementation and evaluation of the integrated best practice stroke model of care.	The Waterloo Wellington Integrated Stroke System was implemented in April 2014 to further improvements in access and outcomes across the system. The integration and consolidation of two acute stroke units and three rehabilitation stroke units are expected to achieve critical mass to allow for inter-professional expertise in stroke care.
Access: The proportion of patients treated with thrombolysis.	A second tPA site at Guelph General Hospital opened in December 2013 to improve access to tPA for patients in the North Wellington region of the LHIN.
Access: The proportion of stroke patients discharged to inpatient rehabilitation, outpatient rehabilitation and the proportion of those with severe stroke who receive access to inpatient rehab.	A triage tool was developed to provide patients with timely access to the appropriate rehabilitation setting.
Access: The mean number of CCAC visits provided to stroke/TIA patients.	In November 2013, the LHIN completed a partial launch of a CCAC Community Stroke Model, based on best practice guidelines. The model was fully implemented in April 2014 and will increase access to, and intensity of, community-based stroke rehabilitation for Waterloo Wellington residents.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Waterloo Wellington LHIN and the Waterloo Wellington Integrated Stroke System have worked closely over the past four years on system redesign and transformation, and will continue to work closely to evaluate the stroke system redesign.

- The LHIN will continue to showcase the transformation's impact on patient and system outcomes, in the hopes of helping other regions move forward with similar improvements.

CONTACT

Rhonda Whiteman
Interim Regional Director
Central South Regional Stroke Network
mcnicolr@hhsc.ca
905-527-4322 ext. 46705

Louise MacRae
Regional Director
Central South Regional Stroke Network
macrael@hhsc.ca
905-527-4322 ext. 44425

ONTARIO STROKE REPORT CARD, 2013/14

Hamilton Niagara Haldimand Brant 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 2013/14 (2012/13)	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% (57.9%)	52.9–71.0%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.4 (1.3)	0.9–3.4	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	13.7 (13.0)	0.0–92.0	–	–	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).	– (71.9%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	75.6% (70.0%)	0.0–89.9%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	32.0 (49.1‡)	29.0–92.0	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	13.7% (11.6%)	0.6–21.0%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	43.6% (34.3%)	9.4–61.3%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (65.8%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	25.3% (23.4%)	0.0–60.8%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	36.4% (33.5%)	24.0–50.0%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (6.0%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	10.0 (9.5)	6.0–11.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	45.5% (39.8%)	26.7–63.8%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.8 (0.8)	0.7–1.3	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	4.8 (4.8)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	33.1% (34.4%)	6.7–52.1%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	9.9% (9.3%)	0.0–19.4%	2.8% (2.8%)	Barrie and Area 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).	6.7 (7.6)	0.0–47.9	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute 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 unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on 2012/13 Ontario Stroke Audit data.

STROKE PROGRESS REPORT, 2013/14 COMPARED TO 2010/11 – 2012/13

Hamilton Niagara Haldimand Brant 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 2013/14 (previous 3-year average)	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% (58.9%)	52.9–71.0%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.4 (1.3)	0.9–3.4	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	13.7 (12.7)	0.0–92.0	–	–	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).	– (70.7%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	75.6% (69.8%)	0.0–89.9%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	32.0 (59.2‡)	29.0–92.0	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	13.7% (11.0%‡)	0.6–21.0%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	43.6% (34.3%)	9.4–61.3%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (62.5%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	25.3% (29.2%)	0.0–60.8%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	36.4% (32.6%)	24.0–50.0%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (6.3%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	10.0 (10.0)	6.0–11.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	45.5% (40.6%)	26.7–63.8%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.8 (0.8)	0.7–1.3	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	4.8 (5.1)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	33.1% (36.8%)	6.7–52.1%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	9.9% (10.9%)	0.0–19.4%	2.8% (2.8%)	Barrie and Area 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).	6.7 (7.5)	0.0–47.9	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute to QBP performance

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 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on Ontario Stroke Audit data (2008/09, 2010/11 and 2012/13). The 2012/13 benchmark for indicators 4, 6, 9 and 12 were calculated using 2012/13 Ontario Stroke Audit data.

INTERPRETATION OF 2013/14 STROKE REPORT CARD
Hamilton Niagara Haldimand Brant Local Health Integration Network

PERFORMANCE OVERVIEW

Hamilton Niagara Haldimand Brant LHIN improved on 8 indicators: 1, 5, 6, 7, 8, 11, 15 and 20. The LHIN is the top performer for tPA indicators: door-to-needle (DTN) time and proportion who receive tPA. Low-volume sites continue to drive wide variation across the LHIN.

AREAS OF PROGRESS

Acute Stroke Management	The addition of an integrated stroke unit at Brant Community Health System in June 2013 improved access to acute stroke unit care (from 34.3% in 2012/13 to 43.6% in 2013/14).
Acute Stroke Management	Quality improvement initiatives have resulted in significant reduction in tPA DTN time (from 49.1 to 32.0 minutes) and increased the proportion of patients receiving tPA (from 11.6% to 13.7%).
Stroke Rehabilitation	The opening of an integrated stroke unit in Brant, Haldimand and Norfolk has resulted in an increase in the proportion of patients discharged to inpatient rehabilitation (from 33.5% to 36.4%).
Stroke Rehabilitation	Rehabilitation patient groups (RPG) length of stay quality improvement initiatives have resulted in an increased proportion of inpatient stroke patients achieving RPG length of stay targets (from 39.8% to 45.5%).

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Effectiveness: Indicator 10: proportion of alternate level of care (ALC) days to total length of stay in acute care	Further stroke care integration within Niagara, Hamilton and Burlington to increase access to stroke unit care and decrease acute ALC days. The Central South Regional Stroke Network to work collaboratively with the LHIN to implement ALC strategies for the stroke population and optimize access to the Home First program for patients waiting for long-term care.
Access: Indicator 13: median number of days between stroke onset and admission to stroke inpatient rehabilitation	Each organization is working on acute and rehabilitation Quality-Based Procedures (QBPs) quality improvement initiatives to decrease time between stroke onset and admission to rehabilitation. In addition, further stroke unit integration efforts within Niagara, Hamilton and Burlington in order to decrease time to rehabilitation.
Effectiveness: Indicator 15: median FIM efficiency for moderate stroke in inpatient rehabilitation.	Rehabilitation QBP quality improvement initiatives to achieve RPG length of stay target. Efforts to increase rehabilitation intensity are expected to improve performance on this indicator.
Appropriateness: Indicator 19: proportion of stroke/TIA patients discharged from acute care to LTC/CCC	Some severe stroke patients are receiving rehabilitation within restorative care. Development of criteria to identify the appropriate setting for rehabilitation of severe stroke patients to improve performance. Expansion of Brant, Haldimand, Norfolk Community Stroke Rehabilitation Model across the LHIN for mild stroke patients, in order to increase access to rehabilitation beds for severe stroke patients.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

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

- The LHIN and the Central South Regional Stroke Network are working collaboratively to plan for further stroke care integration efforts in Hamilton, Niagara and Burlington, to ensure equitable access to best practice stroke care services for residents.

CONTACT

Rhonda Whiteman
Interim Regional Director
Central South Regional Stroke Network
mcnicolr@hhsc.ca
905-527-4322 ext. 46705

Louise MacRae
Regional Director
Central South Regional Stroke Network
macrael@hhsc.ca
905-527-4322 ext. 44425

ONTARIO STROKE REPORT CARD, 2013/14

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 2013/14 (2012/13)	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.	55.2% (52.4%)	50.0–63.5%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.3 (1.3)	1.0–1.9	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.9 (7.6)	11.7–15.0	–	–	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).	– (81.2%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	87.7% (85.4%)	85.0–89.0%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	n/a (n/a‡)	–	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	9.5% (9.1%)	6.5–16.3%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	16.6% (13.6%)	5.9–25.5%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (62.3%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	26.7% (30.7%)	11.4–29.8%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	34.7% (29.4%)	14.0–41.0%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (5.2%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	16.0 (17.0)	15.0–19.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	18.9% (17.2%)	18.3–28.6%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.6 (0.4)	0.6–0.6	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	4.8 (6.1)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	33.9% (23.4%)	30.0–100%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	7.7% (8.2%)	4.3–25.0%	2.8% (2.8%)	Barrie and Area 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).	7.4 (9.0)	6.6–8.2	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute 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 unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on 2012/13 Ontario Stroke Audit data.

STROKE PROGRESS REPORT, 2013/14 COMPARED TO 2010/11 – 2012/13

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
11 Champlain
12 North Simcoe Muskoka
13 North East
14 North West

Indicator No.	Care Continuum Category	Indicator[4]	LHIN FY 2013/14 (previous 3-year average)	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.	55.2% (53.4%)	50.0–63.5%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.3 (1.4)	1.0–1.9	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.9 (10.0)	11.7–15.0	–	–	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).	– (81.1%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	87.7% (84.4%)	85.0–89.0%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	n/a (n/a‡)	–	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	9.5% (10.5%‡)	6.5–16.3%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	16.6% (13.6%)	5.9–25.5%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (64.8%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	26.7% (30.0%)	11.4–29.8%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	34.7% (26.6%)	14.0–41.0%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (5.3%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	16.0 (16.0)	15.0–19.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	18.9% (17.2%)	18.3–28.6%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.6 (0.5)	0.6–0.6	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	4.8 (6.5)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	33.9% (21.4%)	30.0–100%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	7.7% (9.6%)	4.3–25.0%	2.8% (2.8%)	Barrie and Area 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).	7.4 (8.6)	6.6–8.2	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute to QBP performance

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 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on Ontario Stroke Audit data (2008/09, 2010/11 and 2012/13). The 2012/13 benchmark for indicators 4, 6, 9 and 12 were calculated using 2012/13 Ontario Stroke Audit data.

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

PERFORMANCE OVERVIEW

There has been improvement for many indicators throughout this report card. As identified at the West GTA Stroke Network Steering Committee meetings and reflected in this fiscal year's work plan, the priorities remain to improve flow throughout the continuum of care.

AREAS OF PROGRESS

Acute Stroke Management	Proportion of alternate level of care days to total length of stay in acute care has decreased (from 30.7% to 26.7%).
Acute Stroke Management	Proportion of acute stroke patients (excluding TIA) discharged from acute care and admitted to inpatient rehabilitation increased (from 29.4% to 34.7%).
Stroke Rehabilitation	Proportion of stroke patients admitted to inpatient rehabilitation with severe strokes increased (from 23.4% to 33.9%).
Community Reintegration	Age- and sex-adjusted all-cause readmission rate at 30 days for stroke/TIA patients decreased (from 9.0% to 7.4%).

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Appropriateness: Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	At this time, there remains only one stroke unit in the West GTA Stroke Network. Within the last year, William Osler Health System has been working towards creating an integrated stroke unit. The West GTA Stroke Network will continue to support William Osler Health System by providing advice and education.
Access: Median number of days between stroke (excluding TIA) onset and admission to rehabilitation.	The West GTA Stroke Network, along with each health care organization, has been working diligently to rapidly identify appropriate stroke patients with the AlphaFIM tool at Day 3 and with a rehabilitation referral tool for the stroke population. Education continues regarding length of stay in rehab, based on stroke severity (rehabilitation patient groups).
Effectiveness: Proportion of inpatient stroke rehabilitation patients achieving rehabilitation patient group (RPG) active length of stay target.	Education sessions on how to determine length of stay using the admission FIM are being conducted with each health care organization. A reporting process between the organizations and the West GTA Stroke Network will be established in order to monitor progress and provide support.
Effectiveness: Median FIM efficiency for moderate stroke in inpatient rehabilitation.	Continue the efforts to increase rehabilitation intensity for stroke patients and work to decrease length of stay. An impact on FIM efficiency is expected.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- There are opportunities within Central West LHIN to support more ambulatory and community rehabilitation services to enable milder stroke patients to be discharged to the community sooner.
- With the release of the latest Quality-Based Procedures Clinical Handbook for Stroke that incorporates the community, the Network will need the assistance of the LHIN to help assess the region's community and ambulatory stroke needs.
- Overall, with the support of the LHIN, the West GTA Stroke Network is working diligently to have the right stroke patient in the right place at the right time, and to improve flow across the continuum of care.

CONTACT

Nicole Pageau
Regional Director
West GTA Stroke Network
nicole.pageau@trilliumhealthpartners.ca
905-848-7580 ext. 5476

ONTARIO STROKE REPORT CARD, 2013/14

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 2013/14 (2012/13)	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.	58.1% (57.7%)	53.1–63.2%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.2 (1.2)	1.0–2.2	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	13.7 (11.7)	6.7–18.0	–	–	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).	– (78.4%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	87.2% (80.7%)	69.2–90.5%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	69.5 (67.5‡)	69.5–69.5	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	10.3% (11.2%)	4.8–14.1%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	35.7% (31.2%)	9.0–55.3%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (66.1%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	24.3% (23.8%)	9.1–46.8%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	32.6% (35.4%)	19.0–35.5%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (6.8%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	8.0 (9.0)	8.0–13.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	58.7% (66.3%)	30.9–73.0%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.0 (1.2)	0.6–1.5	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	5.6 (4.6)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	49.5% (41.5%)	32.4–62.0%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	8.0% (7.5%)	4.0–17.9%	2.8% (2.8%)	Barrie and Area 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 (8.0)	2.5–14.3	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute 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 unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on 2012/13 Ontario Stroke Audit data.

STROKE PROGRESS REPORT, 2013/14 COMPARED TO 2010/11 – 2012/13

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
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 2013/14 (previous 3-year average)	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.	58.1% (57.1%)	53.1–63.2%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.2 (1.2)	1.0–2.2	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	13.7 (13.1)	6.7–18.0	–	–	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).	– (79.4%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	87.2% (81.0%)	69.2–90.5%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	69.5 (68.1‡)	69.5–69.5	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	10.3% (11.3%‡)	4.8–14.1%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	35.7% (31.2%)	9.0–55.3%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (65.9%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	24.3% (22.9%)	9.1–46.8%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	32.6% (31.6%)	19.0–35.5%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (5.5%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	8.0 (9.0)	8.0–13.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	58.7% (61.4%)	30.9–73.0%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.0 (1.0)	0.6–1.5	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	5.6 (4.6)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	49.5% (41.1%)	32.4–62.0%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	8.0% (9.1%)	4.0–17.9%	2.8% (2.8%)	Barrie and Area 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 (8.0)	2.5–14.3	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute to QBP performance

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 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on Ontario Stroke Audit data (2008/09, 2010/11 and 2012/13). The 2012/13 benchmark for indicators 4, 6, 9 and 12 were calculated using 2012/13 Ontario Stroke Audit data.

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

PERFORMANCE OVERVIEW

Overall, there has been no significant change from the last stroke report card. As identified at the West GTA Stroke Network Steering Committee meetings and reflected in this fiscal year's work plan, the priorities remain to improve flow throughout the continuum of care.

AREAS OF PROGRESS

Stroke Prevention	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging increased (from 80.7% to 87.2%).
Acute Stroke Management	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.
Stroke Rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation decreased (from 9 days to 8 days).
Stroke Rehabilitation	Proportion of stroke patients admitted to inpatient rehabilitation with severe strokes increased (from 41.5% to 49.5%).

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Effectiveness: Proportion of alternate level of care days to total length of stay in acute care.	As a LHIN and a Network, continuous work is being done to determine patients' AlphaFIM on day 3 to enable early discharge planning. Work is also being done to improve timely access to inpatient rehabilitation. In addition, an audit of community and ambulatory rehabilitation stroke services is planned for 2015/16.
Appropriateness: Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	Halton Healthcare Oakville and Trillium Health Partners Credit Valley do not have stroke units that meet the revised OSN stroke unit definition. The Trillium Health Partners Mississauga site (Regional Stroke Centre) is the only site with a stroke unit that meets this definition. Ongoing work is being done with all health care organizations to move towards creating stroke units.
Appropriateness: Proportion of acute stroke (excluding TIA) patients discharged from acute care to inpatient rehabilitation.	Continuous work is being done to ensure each patient receives rehabilitation in the appropriate setting. The West GTA Stroke Network is working with each health care organization to facilitate the rehabilitation referral process to ensure appropriate patients are being referred to the appropriate setting.
Effectiveness: Proportion of inpatient stroke rehabilitation patients achieving rehabilitation patient group (RPG) active length of stay target.	Education sessions are being conducted with each health care organization on how to determine length of stay using the admission FIM. A reporting process between the health care organizations and the West GTA Stroke Network will be established in order to monitor progress and to provide support.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- The West GTA Stroke Network continues to ask for the support of the Mississauga Halton LHIN to encourage health care organizations with stroke critical mass to establish stroke units.
- Also, with the release of the latest Quality-Based Procedures Clinical Handbook for Stroke that incorporates the community, the Network will need the assistance of the LHIN to assess our community and ambulatory stroke needs.
- Overall, the West GTA Stroke Network, with the support of the LHIN, is working diligently to have the right stroke patient in the right place at the right time, and to improve flow across the continuum of care.

CONTACT

Nicole Pageau
Regional Director
West GTA Stroke Network
nicole.pageau@trilliumhealthpartners.ca
905-848-7580 ext. 5476

ONTARIO STROKE REPORT CARD, 2013/14

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 2013/14 (2012/13)	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.	58.4% (60.1%)	53.6–60.8%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.2 (1.2)	0.9–1.4	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	10.3 (9.2)	9.6–10.8	–	–	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).	– (78.3%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	87.0% (83.3%)	71.8–93.1%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	65.0 (68.9‡)	61.0–66.0	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	12.5% (10.8%)	8.8–19.4%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	47.4% (47.6%)	29.9–61.8%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (81.7%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	31.6% (28.3%)	19.4–41.8%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	33.6% (31.3%)	26.5–40.9%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (6.6%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	10.0 (12.0)	9.0–18.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	49.0% (29.5%)	33.9–100%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.9 (0.8)	0.0–1.3	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	4.4 (3.6)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	27.7% (24.2%)	21.7–39.0%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	11.6% (11.0%)	8.3–18.2%	2.8% (2.8%)	Barrie and Area 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).	8.7 (8.9)	6.9–12.7	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute 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 unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on 2012/13 Ontario Stroke Audit data.

STROKE PROGRESS REPORT, 2013/14 COMPARED TO 2010/11 – 2012/13

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 2013/14 (previous 3-year average)	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.	58.4% (59.0%)	53.6–60.8%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.2 (1.2)	0.9–1.4	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	10.3 (10.6)	9.6–10.8	–	–	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).	– (77.6%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	87.0% (82.6%)	71.8–93.1%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	65.0 (72.3‡)	61.0–66.0	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	12.5% (9.9%‡)	8.8–19.4%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	47.4% (47.6%)	29.9–61.8%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (74.5%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	31.6% (27.1%)	19.4–41.8%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	33.6% (30.3%)	26.5–40.9%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (5.0%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	10.0 (12.0)	9.0–18.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	49.0% (29.0%)	33.9–100%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.9 (0.7)	0.0–1.3	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	4.4 (3.8)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	27.7% (24.4%)	21.7–39.0%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	11.6% (11.3%)	8.3–18.2%	2.8% (2.8%)	Barrie and Area 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).	8.7 (8.7)	6.9–12.7	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute to QBP performance

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 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on Ontario Stroke Audit data (2008/09, 2010/11 and 2012/13). The 2012/13 benchmark for indicators 4, 6, 9 and 12 were calculated using 2012/13 Ontario Stroke Audit data.

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

PERFORMANCE OVERVIEW

Compared to the previous 3-year average, there was significant progress on six indicators (5, 6, 13, 15, 16 and 17). Progress was also noted on four indicators (3, 7, 11 and 18). Compared to peers in the province, the LHIN has positive colour band changes on three indicators (5, 8 and 16), but six indicators remain red.

AREAS OF PROGRESS

Stroke Prevention	Acceptable to exemplary performance with some variation across hospitals. Two of six acute hospitals focus on avoidable admissions through coordinated management for emergent secondary prevention.
Acute Stroke Management	A focus on pre-hospital coordination, stroke unit care and timely rehabilitation referral has resulted in improvements in access to tPA and rehabilitation for persons with stroke in the LHIN.
Stroke Rehabilitation	The LHIN's reinvestment strategy to build capacity in rehabilitation has yielded initial progress toward timely access, ability to meet length of stay targets, FIM efficiency and access for persons with severe stroke.
Community Reintegration	No specific focus on community reintegration supports relative to enabling best practice in other parts of the system. Subsequently, there has been limited progress and LHIN-wide variability remains.

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Access: Continued promotion of avoidable hospital admissions with timely access to necessary secondary prevention services across the LHIN.	Develop a system-wide model for secondary prevention that integrates the provincial triage algorithm and stroke best practice guidelines.
Access: Consistent and timely access to best practice acute stroke care and high intensity rehabilitation for persons with severe stroke.	Establish a plan for implementing access to new endovascular care. Establish a monitoring and reporting process for implementation of acute/rehabilitation stroke units including weekend protocols. Work with acute and rehabilitation organizations to address special needs of severe stroke patients (e.g. behavioural). Facilitate implementation of recommended rehabilitation intensity.
Appropriateness: A standardized model of care for outpatient rehabilitation and community supports aligned to the integrated Quality-Based Procedures (QBP) Clinical Handbook.	Develop a model for community care that focuses on the first 60 days post hospital discharge and reflects a wellness approach for longer-term community re-engagement.
Effectiveness: Attention paid to patient experience to ensure that system planning and service implementation improvements reflect the components of care deemed most meaningful by persons with stroke and their families.	Describe and design mechanisms for ensuring patient engagement in system planning, co-design and empowerment in managing their health needs. Identify meaningful measures and strategies to collect data on the patient experience. Create and implement new and revised resources to support a sustainable standard for transitions of care.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Engage in planning for a coordinated approach across Toronto to:
  a. support access for TIA and minor stroke patients to secondary prevention services to support avoidable hospital admissions; and

  b. enable appropriate and timely access to outpatient rehabilitation and community-based services in alignment with the integrated QBP Clinical Handbook (February 2015).

- Work collaboratively with Toronto Stroke Networks and GTA LHINs to secure a comprehensive and sustainable dataset across the continuum that can continue to drive system improvement.

- Identify accountabilities and formalize reporting mechanisms to the LHINs related to Network responsibilities and activities associated with the funding to the Regional Stroke Centres.

CONTACT

Shelley Sharp
Regional Director
Toronto West Stroke Network
shelley.sharp@uhn.ca
416-603-5076

ONTARIO STROKE REPORT CARD, 2013/14

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 2013/14 (2012/13)	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.	57.4% (58.1%)	52.1–64.5%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.1 (1.1)	1.2–1.4	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	13.2 (11.7)	8.8–18.0	–	–	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).	– (81.2%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	82.9% (79.0%)	74.2–90.0%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	41.5 (52.4‡)	41.5–41.5	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	10.0% (10.8%)	7.0–14.7%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	33.0% (35.8%)	11.8–51.0%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (48.2%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	31.6% (32.5%)	8.9–50.3%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	32.3% (24.2%)	23.2–54.2%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (7.4%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	6.5 (9.0)	4.0–56.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	68.6% (47.6%)	46.0–100%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.1 (0.8)	0.8–1.3	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	4.7 (5.5)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	52.7% (24.9%)	44.4–100%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	8.9% (9.6%)	4.2–12.6%	2.8% (2.8%)	Barrie and Area 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).	8.2 (7.5)	6.9–9.4	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute 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 unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on 2012/13 Ontario Stroke Audit data.

STROKE PROGRESS REPORT, 2013/14 COMPARED TO 2010/11 – 2012/13

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 2013/14 (previous 3-year average)	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.	57.4% (57.4%)	52.1–64.5%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.1 (1.2)	1.2–1.4	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	13.2 (11.7)	8.8–18.0	–	–	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).	– (76.8%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	82.9% (79.7%)	74.2–90.0%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	41.5 (62.5‡)	41.5–41.5	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	10.0% (10.3%‡)	7.0–14.7%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	33.0% (35.8%)	11.8–51.0%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (54.1%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	31.6% (35.4%)	8.9–50.3%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	32.3% (24.2%)	23.2–54.2%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (6.9%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	6.5 (10.0)	4.0–56.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	68.6% (40.5%)	46.0–100%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.1 (0.8)	0.8–1.3	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	4.7 (5.7)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	52.7% (22.7%)	44.4–100%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	8.9% (11.3%)	4.2–12.6%	2.8% (2.8%)	Barrie and Area 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).	8.2 (7.8)	6.9–9.4	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute to QBP performance

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 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on Ontario Stroke Audit data (2008/09, 2010/11 and 2012/13). The 2012/13 benchmark for indicators 4, 6, 9 and 12 were calculated using 2012/13 Ontario Stroke Audit data.

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

PERFORMANCE OVERVIEW

The Central LHIN has improved significantly on seven indicators with no noted improvement on six indicators. It is identified as a high performer on indicators 2 and 18, but remains below the benchmark on all but one indicator. System planning is necessary to improve overall LHIN performance.

AREAS OF PROGRESS

Stroke Prevention	Maintained performance on associated prevention indicators through sustained investment in coordinated secondary prevention (green for indicator 2).
Acute Stroke Management	Continued focus on stroke unit access, a standard approach to assessment, and best practice has improved performance (indicators 5, 10 and 11).
Stroke Rehabilitation	Improved timely access to appropriate rehabilitation with a focus on implementation of rehabilitation standards (indicators 13, 15, 16, 18 and 19).
Community Reintegration	No notable areas of progress.

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Access: A standard of best practice acute stroke care across the Central LHIN.	System planning and reorganization of acute stroke services to achieve critical mass, enable development of sustainable stroke units, and ensure LHIN-wide access to stroke unit hospitals. Explore feasibility of Telestroke for hyperacute services at Southlake Regional Health Centre as part of the broader system planning approach. Indicators: 3, 4, 5, 8, 9, 10, 11, 12, 13, 16, 18, 19 and 20
Appropriateness: A standardized approach to timely and appropriate stroke rehabilitation services.	System-level planning to increase: rehabilitation intensity, access to high intensity rehabilitation for severe stroke patients, and access to outpatient rehabilitation for mild stroke patients. Use of AlphaFIM to triage patients for rehabilitation services. Ensure continued access to system-level rehabilitation performance data for organizations who participate in E-Stroke Rehab Referral System.
Integration: Access to outpatient and community rehabilitation stroke services.	Accelerate development of a model of care for outpatient and community rehabilitation in line with Quality-Based Procedure (QBP) Phase 2 recommendations to address indicators 2, 10, 11, 12, 13, 15, 16, 17, 18, 19 and 20.
Access: Coordinated approach to urgent TIA and secondary stroke prevention services	Develop standardized package of services to target TIA and minor stroke patients, in alignment with QBP Phase 2. Implement provincial TIA algorithm in the Central LHIN, in alignment with system planning, and build on existing secondary prevention services. Indicators: 2, 3, 4, 5 and 20

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Continue collaboration in stroke system planning to support identified LHIN priorities.
- Foster cross-LHIN collaboration to facilitate equitable and coordinated access to best practice services across the GTA (e.g. E-Stroke, pre-hospital care).
- Integrate QBP recommendations for community care and emerging best practice for endovascular intervention into LHIN planning.
- Work collaboratively with the Stroke Networks and GTA LHINs to secure a comprehensive and sustainable dataset across the continuum that can continue to drive system improvement.

CONTACT

Beth Linkewich
Regional Director
North & East GTA Stroke Network
beth.linkewich@sunnybrook.ca
416-480-6100 ext. 7300

ONTARIO STROKE REPORT CARD, 2013/14

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
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 2013/14 (2012/13)	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.	57.7% (60.0%)	55.9–60.4%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.1 (1.2)	1.2–1.5	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.9 (11.9)	4.2–25.4	–	–	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).	– (70.7%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	74.3% (71.0%)	22.2–88.9%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	58.0 (63.0‡)	52.0–110.0	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	12.6% (13.8%)	10.2–14.0%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	37.1% (33.1%)	18.2–49.2%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (63.7%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	31.4% (24.8%)	4.4–54.8%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	38.1% (36.4%)	26.6–47.6%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (6.4%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	6.0 (7.0)	5.0–30.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	61.8% (61.7%)	51.2–75.0%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.2 (1.1)	0.9–1.3	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	5.1 (5.3)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	46.9% (41.6%)	25.0–57.4%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	8.1% (6.5%)	5.3–12.9%	2.8% (2.8%)	Barrie and Area 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 (8.1)	4.1–11.3	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute 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 unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on 2012/13 Ontario Stroke Audit data.

STROKE PROGRESS REPORT, 2013/14 COMPARED TO 2010/11 – 2012/13

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
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 2013/14 (previous 3-year average)	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.	57.7% (58.4%)	55.9–60.4%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.1 (1.2)	1.2–1.5	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.9 (11.4)	4.2–25.4	–	–	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).	– (72.0%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	74.3% (67.8%)	22.2–88.9%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	58.0 (62.7‡)	52.0–110.0	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	12.6% (11.2%‡)	10.2–14.0%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	37.1% (33.1%)	18.2–49.2%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (63.2%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	31.4% (27.0%)	4.4–54.8%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	38.1% (35.7%)	26.6–47.6%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (4.6%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	6.0 (7.0)	5.0–30.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	61.8% (61.0%)	51.2–75.0%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.2 (1.1)	0.9–1.3	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	5.1 (5.4)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	46.9% (40.6%)	25.0–57.4%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	8.1% (7.6%)	5.3–12.9%	2.8% (2.8%)	Barrie and Area 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 (8.3)	4.1–11.3	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute to QBP performance

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 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on Ontario Stroke Audit data (2008/09, 2010/11 and 2012/13). The 2012/13 benchmark for indicators 4, 6, 9 and 12 were calculated using 2012/13 Ontario Stroke Audit data.

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

PERFORMANCE OVERVIEW

The Central East LHIN was exemplary for indicators 2, 7 and 16; poor for indicators 1, 10 and 19; and a high performer for indicators 2 and 16. There was a positive colour band change for indicator 8 and a negative change for 19. Compared to the previous three years, there was significant improvement on four indicators but no notable improvement on five indicators.

AREAS OF PROGRESS

Stroke Prevention	Continued efforts to support rapid TIA assessment and secondary prevention have impacted cluster-based performance on admission and readmission rates.
Acute Stroke Management	Continued focus on stroke unit access, standardized assessments and best practice has improved performance on indicators 5, 7, 8 and 11, as well as the readmission rates displayed in indicator 20.
Stroke Rehabilitation	Improvements in timely access to appropriate rehabilitation with a focus on implementation of rehabilitation best practice standards (indicators 13, 15, 16 and 18).
Community Reintegration	There has been no specific focus on community reintegration within the Central East LHIN, resulting in wide variation in performance for indicators 19 and 20.

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Access: A standard of integrated best practice stroke care across the Central East LHIN.	System planning and reorganization of stroke services to achieve critical mass and enable the development of a sustainable stroke unit to ensure LHIN-wide access to stroke units. Impact is anticipated on indicators 1, 2, 3, 4, 5, 7, 9, 10, 11, 12, 13, 18, 19 and 20. Advocate for extensive stakeholder engagement in LHIN-wide stroke system planning.
Effectiveness: Standardized approach to ensure timely and appropriate access to inpatient rehabilitation.	System planning to increase rehabilitation intensity, access for severe strokes to high intensity inpatient rehabilitation and access for mild strokes to outpatient rehabilitation. Use of AlphaFIM to triage patients for rehabilitation services. Ensure access to system performance data for rehabilitation referral and outcomes.
Integration: Access to outpatient and community rehabilitation services.	Support further development of a model of care for outpatient and community rehabilitation including early supported discharge, in alignment with Quality-Based Procedure (QBP) Phase 2 recommendations to address indicators 2, 10, 11, 12, 13, 15, 16, 17, 18, 19 and 20.
Appropriateness: Coordinated approach to urgent TIA and secondary prevention services.	Develop standardized package of services to target TIAs and minor stroke patients in alignment with QBP Phase 2 recommendations. Implement provincial TIA algorithm in the Central East LHIN in alignment with system planning, with impacts expected on indicators 2, 3, 4 and 20.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Confirm next steps and determine the Network's role in supporting Central East LHIN's stroke system planning.
- Foster cross-LHIN collaboration to facilitate equitable and coordinated access to best practice services across the GTA (e.g. E-Stroke, pre-hospital care).
- Integrate QBP recommendations for community care and emerging best practice for endovascular intervention into LHIN planning.
- Work collaboratively with the Stroke Networks and GTA LHINs to secure a comprehensive and sustainable dataset across the continuum that can continue to drive system improvement.

CONTACT

Jacqueline Willems
Regional Director
South East Toronto Stroke Network
willemsj@smh.ca
416-864-6060 ext. 3537

ONTARIO STROKE REPORT CARD, 2013/14

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
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 2013/14 (2012/13)	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.	61.5% (56.9%)	46.4–76.9%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.3 (1.3)	1.1–2.0	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	16.0 (15.6)	0.0–31.8	–	–	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).	– (81.3%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	74.0% (70.9%)	41.7–85.4%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	50.0 (53.0‡)	47.0–67.0	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	14.1% (15.2%)	0.0–28.6%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	38.5% (38.5%)	2.6–79.0%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (56.9%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	18.8% (24.7%)	0.0–42.0%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	28.1% (28.1%)	2.8–45.8%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (4.2%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	10.0 (12.0)	7.0–15.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	46.6% (43.2%)	26.3–68.2%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.9 (0.8)	0.7–1.0	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	12.1 (12.1)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	43.5% (45.5%)	31.8–47.4%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	9.1% (12.1%)	0.0–18.9%	2.8% (2.8%)	Barrie and Area 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).	7.4 (8.4)	3.2–10.5	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute 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 unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on 2012/13 Ontario Stroke Audit data.

STROKE PROGRESS REPORT, 2013/14 COMPARED TO 2010/11 – 2012/13

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 2013/14 (previous 3-year average)	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.	61.5% (59.4%)	46.4–76.9%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.3 (1.3)	1.1–2.0	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	16.0 (15.6)	0.0–31.8	–	–	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).	– (79.7%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	74.0% (69.2%)	41.7–85.4%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	50.0 (47.0‡)	47.0–67.0	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	14.1% (14.4%‡)	0.0–28.6%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	38.5% (38.5%)	2.6–79.0%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (59.2%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	18.8% (26.8%)	0.0–42.0%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	28.1% (29.8%)	2.8–45.8%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (5.6%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	10.0 (12.0)	7.0–15.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	46.6% (37.8%)	26.3–68.2%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.9 (0.8)	0.7–1.0	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	12.1 (11.3)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	43.5% (40.7%)	31.8–47.4%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	9.1% (10.9%)	0.0–18.9%	2.8% (2.8%)	Barrie and Area 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).	7.4 (8.3)	3.2–10.5	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute to QBP performance

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 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on Ontario Stroke Audit data (2008/09, 2010/11 and 2012/13). The 2012/13 benchmark for indicators 4, 6, 9 and 12 were calculated using 2012/13 Ontario Stroke Audit data.

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

PERFORMANCE OVERVIEW

There has been encouraging progress in LHIN performance relative to provincial standing (6 red bands this year vs. 12 last year). The LHIN established strength in access to thrombolysis and had significant progress in the area of patient flow. Persisting concerns include high and variable mortality rates and low access to rehabilitation.

AREAS OF PROGRESS

Stroke Prevention	Stable stroke admission rates despite high demographic risk; Stroke Prevention Clinics' focus on triage led to decreased wait times for those at highest risk; improving timely use of carotid and brain imaging.
Acute Stroke Management	Acute stroke units (ASUs): Belleville for western area, Kingston for central area, Brockville for east area; decreasing mortality rates in facilities with ASU access; Eastern Integrated Planning Team established in January 2015.
Stroke Rehabilitation	Improving flow with decreasing alternate level of care (ALC) rate, decreased onset to rehabilitation admission from 12 to 10 days (approaching provincial rate of 9 days); good progress in % achieving RPG (rehabilitation patient group) length of stay target over 4 years.
Community Reintegration	Decreased 30-day readmission rates; expanded community services: enhanced community-based rehabilitation (increased volume, stable visit rate and wait times); stroke survivor and caregiver support groups.

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Effectiveness: • Variable 30-day mortality rates (16.0%) (range: 14.0-31.8%) vs. Ontario (11.7%), with very high rates in Lanark County (28.2-31.8%). • Variable access to stroke unit care (38.5%) (range: 2.6-79.0%) vs. Ontario (28.2%).	• Continue to implement geographic clustering of acute stroke unit care across LHIN (3 units: East, Central and West). - Establish an acute stroke unit for the entire east area (Lanark, Leeds and Grenville counties) - Spread accreditation work to continuously improve ASU care - Enhance team expertise and use of standardized care plans • Develop regional ASU dashboard; support Quality-Based Procedure (QBP) implementation
Access: • Persistent low access to rehabilitation (28.1%) vs. Ontario (34.2%) (target 46.3%). • Long wait times from stroke onset to rehabilitation admission (10 days) vs. Ontario (9 days) (target 5 days). • Wide variation achieving RPG length of stay (46.6%) (range: 26.3-68.2%) vs. Ontario (53.2%).	• Implement the regional rehabilitation plan to support: - Early access and flow; Continuous Quality Improvement follow-up on the Improving and Driving Excellence Across Sectors (IDEAS) project (MOHLTC funded program); - Intensification: regional rehabilitation symposium in fall 2015; - Expertise in outpatient and community-based rehabilitation. • Develop a current dashboard to monitor rehabilitation indicators. • Support QBP implementation.
Appropriateness: • High % discharged from acute care to LTC/CCC (9.1%) vs. Ontario (7.8%) (target 2.8%). Inconsistent stroke patient flow across organizations and sites. • Despite gains, ALC days to total acute length of stay (18.8%) vs. Ontario (28.4%).	• Support South East CCAC and rehabilitation providers in continuous improvement of enhanced community-based rehabilitation service in support of earlier hospital discharge and patient flow • Complete a community consultation on reintegration needs • Perform current-state analysis of LHIN services against community standards outlined in the QBP Integrated Handbook
Integration: • Vascular health: capacity growth for integrated approaches to care coordination and prevention in primary care and Health Links • Community reintegration: community consultation is required to inform needs; stroke support groups lack reach to rural partners	• Collaborate with other Networks, primary care and Health Links to: - Launch the regional Vascular Directory developed within South East Healthline by the Health Collaborative and the CCAC; - Pilot Ontario Stroke Network primary care vascular health tools - Broaden the Indigenous Hypertension Awareness Program; - Extend the reach of the stroke survivor and caregiver support groups.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

Actively support the health system change and transformation that is required to achieve successful QBP implementation in stroke care through:

- Geographic clustering of acute stroke unit care with a focus on integration in the east to reach recommended volumes and decrease mortality;
- Regional rehabilitation review of bed designation and access to rehabilitation beds and outpatient rehabilitation services across the LHIN;
- Growth of community-based CCAC stroke rehabilitation ("Discharge Link Service") and stroke survivor and caregiver support groups;
- Link the LHIN Chronic Disease Prevention Management Plan and the South East Health Collaborative activities for integrated vascular health in primary care and within Health Links.

CONTACT

Cally Martin
Regional Director
Stroke Network of Southeastern Ontario (SNSEO)
martinc@kgh.kari.net
613-549-6666 ext. 3562

ONTARIO STROKE REPORT CARD, 2013/14

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 2013/14 (2012/13)	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.	59.8% (59.4%)	56.0–63.9%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.0 (1.1)	1.0–1.7	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.4 (12.5)	0.0–36.2	–	–	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).	– (78.6%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	72.9% (70.5%)	0.0–100%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	45.0 (51.5‡)	40.5–68.5	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	13.8% (12.5%)	10.5–16.8%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	0.9% (0.7%)	0.5–2.6%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (66.4%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	25.4% (29.8%)	0.0–50.3%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	27.9% (30.3%)	20.6–41.0%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (4.1%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	14.0 (12.0)	5.0–43.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	63.5% (36.0%)	0.0–85.0%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.0 (0.9)	0.5–1.8	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	5.7 (5.2)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	32.9% (32.0%)	14.3–41.3%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	10.5% (9.3%)	2.6–15.2%	2.8% (2.8%)	Barrie and Area 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 (7.4)	0.0–25.2	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute 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 unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on 2012/13 Ontario Stroke Audit data.

STROKE PROGRESS REPORT, 2013/14 COMPARED TO 2010/11 – 2012/13

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 2013/14 (previous 3-year average)	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.	59.8% (58.8%)	56.0–63.9%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.0 (1.1)	1.0–1.7	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.4 (12.5)	0.0–36.2	–	–	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).	– (80.5%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	72.9% (72.6%)	0.0–100%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	45.0 (58.7‡)	40.5–68.5	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	13.8% (11.2%‡)	10.5–16.8%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	0.9% (0.7%)	0.5–2.6%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (70.3%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	25.4% (31.7%)	0.0–50.3%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	27.9% (30.5%)	20.6–41.0%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (4.7%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	14.0 (13.0)	5.0–43.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	63.5% (31.2%)	0.0–85.0%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.0 (0.8)	0.5–1.8	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	5.7 (5.2)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	32.9% (30.3%)	14.3–41.3%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	10.5% (9.8%)	2.6–15.2%	2.8% (2.8%)	Barrie and Area 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 (7.6)	0.0–25.2	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute to QBP performance

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 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on Ontario Stroke Audit data (2008/09, 2010/11 and 2012/13). The 2012/13 benchmark for indicators 4, 6, 9 and 12 were calculated using 2012/13 Ontario Stroke Audit data.

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

PERFORMANCE OVERVIEW

Champlain LHIN's year-over-year performance has improved. However, key performance indicators related to assessment, triage, and early transition to postacute care remain well below Ontario benchmarks.

AREAS OF PROGRESS

Stroke Prevention	Stroke prevention performance remains strong with exemplary age- and sex-adjusted inpatient admission rate and mortality rate at 30 days.
Acute Stroke Management	Hyperacute stroke care performance remains strong with exemplary risk-adjusted mortality rate at 30 days, proportion of ischemic stroke patients receiving tPA, and door-to-needle times of 45 minutes.
Stroke Rehabilitation	Median FIM efficiency for moderate stroke has increased (from 0.9 to 1.0) and there has been dramatic improvement in the proportion of inpatient stroke rehabilitation patients achieving their RPG active length of stay target (from 36.0% to 63.5%). Bruyère Continuing Care was recognized as the province's high performing facility for this indicator.

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Integration: Proportion of alternate level of care days to total length of stay in acute care declined (from 29.8% to 25.4%) but remains well above the Ontario benchmark of 11.7%.	The Champlain Regional Stroke Network (CRSN) completed the development of the Champlain Regional Stroke Acute Care System during the 2014/15 fiscal year with the implementation of stroke units across the LHIN: The Ottawa Hospital-Civic (2003), Pembroke (2004), The Ottawa Hospital-General (2012), Cornwall (2013), Monfort (2014) and Queensway Carleton Hospital (2015).
Access: Proportion of acute stroke patients discharged from acute care and admitted to inpatient rehabilitation declined (from 30.3% to 27.9%) and is well below the Ontario benchmark of 46.3%.	The LHIN has eliminated a large proportion of the inpatient stroke rehabilitation capacity since the 2011/12 fiscal year with closures at the Cornwall Community Hospital, The Ottawa Hospital, and Bruyère Continuing Care. The CRSN is developing a Champlain Regional Stroke Rehabilitation Capacity and Allocation Report for inpatient and outpatient care.
Integration: Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation increased (from 12 to 14 days), well above the Ontario benchmark of 5 days.	Champlain Regional Stroke Rehabilitation System (CRSRS) Project Charter and the CRSRS Patient Flow Algorithm were approved in 2013 and 2014, respectively, and the algorithm will be piloted in September 2015. The Ottawa Hospital and Bruyère continue to co-chair the Stroke Door-to-Transfer Time Working Group to improve assessment, triage, and discharge processes.
Appropriateness: Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC) increased (from 9.3% to 10.5%), well above the Ontario benchmark of 2.8%.	The CRSRS, Champlain Regional Stroke Rehabilitation Capacity and Allocation Report, and CRSN Community Stroke Rehabilitation Pilot are collectively intended to improve the assessment, triage, and postacute integration to ensure stroke patients get the right care, at the right time, and in the right place.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Fund and support a consistent and centralized electronic rehabilitation referral system across the Champlain region.
- Support the implementation of consistent and objective stroke rehabilitation standards and admission criteria across the Champlain region.
- Evaluate the stroke rehabilitation beds at Glengarry Memorial Hospital.
- Support the Health System Improvement Proposal for the CRSN Community Stroke Rehabilitation Pilot in the Cornwall area.

CONTACT

Jim Lumsden
Regional Director
Champlain Regional Stroke Network
jlumsden@toh.on.ca
613-798-5555 ext. 16167

ONTARIO STROKE REPORT CARD, 2013/14

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 2013/14 (2012/13)	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.	61.1% (57.2%)	53.4–65.4%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
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	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	14.2 (13.9)	10.0–22.0	–	–	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).	– (73.2%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	74.3% (62.3%)	18.4–87.6%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	58.5 (67.5‡)	58.0–79.0	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	12.4% (11.9%)	5.2–15.6%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	5.9% (4.3%)	4.2–7.9%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (72.0%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	28.8% (34.2%)	16.6–48.7%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	30.2% (32.9%)	15.7–37.9%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (7.4%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	8.0 (10.0)	6.5–15.5	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	58.3% (58.9%)	20.5–75.0%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.4 (1.2)	1.0–2.3	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	9.6 (10.4)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	40.2% (43.3%)	28.6–49.2%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	5.1% (5.0%)	1.6–10.9%	2.8% (2.8%)	Barrie and Area 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).	9.4 (8.7)	8.2–12.3	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute 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 unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on 2012/13 Ontario Stroke Audit data.

STROKE PROGRESS REPORT, 2013/14 COMPARED TO 2010/11 – 2012/13

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
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 2013/14 (previous 3-year average)	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.	61.1% (56.7%)	53.4–65.4%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.3 (1.4)	1.3–1.7	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	14.2 (14.1)	10.0–22.0	–	–	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).	– (69.1%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	74.3% (61.4%)	18.4–87.6%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	58.5 (74.2‡)	58.0–79.0	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	12.4% (11.2%‡)	5.2–15.6%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	5.9% (4.3%)	4.2–7.9%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (72.0%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	28.8% (32.5%)	16.6–48.7%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	30.2% (32.6%)	15.7–37.9%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (5.1%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	8.0 (8.0)	6.5–15.5	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	58.3% (58.3%)	20.5–75.0%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.4 (1.1)	1.0–2.3	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	9.6 (8.9)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	40.2% (41.5%)	28.6–49.2%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	5.1% (5.5%)	1.6–10.9%	2.8% (2.8%)	Barrie and Area 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).	9.4 (8.7)	8.2–12.3	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute to QBP performance

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 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on Ontario Stroke Audit data (2008/09, 2010/11 and 2012/13). The 2012/13 benchmark for indicators 4, 6, 9 and 12 were calculated using 2012/13 Ontario Stroke Audit data.

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

PERFORMANCE OVERVIEW

The LHIN has improved significantly on four indicators with no notable improvement for six indicators. It was identified as a high performer on indicators 16 and 17, but remains below benchmark on all but four indicators. System-wide changes are necessary to improve outcomes.

AREAS OF PROGRESS

Acute Stroke Management	Heightened public awareness increases the opportunity to follow a standardized series of critical steps for stroke survival to maximize treatment options and improve health outcomes (indicators 1 and 7).
Acute Stroke Management	Innovative approaches using LEAN methodology have resulted in a reduction in door-to-needle times (indicators 6 and 7). Eligible patients should be treated without delay to improve clinical outcomes.
Acute Stroke Management	Targeted local efforts have resulted in more carotid imaging, which guides urgent management (indicator 5). This indicator remains variable across the LHIN.
Stroke Rehabilitation	A focus on implementation of rehabilitation standards has resulted in exemplary performance on indicator 16 (improved FIM efficiency).

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Access: A standard of best practice stroke unit care across the North Simcoe Muskoka LHIN.	Establish integrated stroke units (ISUs) at three hospitals to provide best practice care for stroke patients in both acute care and inpatient rehabilitation across the LHIN. Indicators 1, 2, 3, 4, 5, 7, 9, 10, 11, 12, 13, 18, 19 and 20
Appropriateness: A standardized approach to timely and appropriate stroke rehabilitation services.	System planning to increase rehabilitation intensity, access for severe strokes to high tolerance inpatient rehab and access for mild strokes to outpatient rehab. Use of AlphaFIM to triage patients for rehabilitation services. Use of Stroke Rehabilitation Candidacy Screening Tool. Indicators 11, 12, 13, 14, 15, 16, 18, 19 and 20
Integration: Access to outpatient and community rehabilitation stroke services.	Establish three clinical service design teams to explore opportunities to advance the Stroke Rehab and Transition Model within that geography (includes ISUs, early supported discharge teams, outpatient day rehab, community rehabilitation satellite clinics and mobile stroke rehabilitation teams). Indicators 2, 10, 11, 12, 13, 15, 16, 17, 18, 19 and 20
Value: Coordinated approach to urgent TIA and secondary stroke prevention services	Advance system planning to provide standardized package of services to target TIAs and minor stroke patients in alignment with Quality-Based Procedure (QBP) Phase 2. Implement provincial TIA algorithm in the LHIN as part of this planning. Indicators 2, 3, 4, 5 and 20

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Continue collaboration in stroke system planning to support areas for improvement.

- Identify and address barriers to implementation of the Integrated Stroke Program through activities outlined in the North Simcoe Muskoka expression of interest for the MOHLTC Integrated Funding Models. Goals of this collaboration include informing an integrated payment model, further informing clinical services design, coordinating enabling strategies, engagement of patients and families and supporting evaluation and continuous quality improvement.

CONTACT

Cheryl Moher
Regional Director
Central East Stroke Network
moherc@rvh.on.ca
705-728-9090 ext. 46300

ONTARIO STROKE REPORT CARD, 2013/14

North 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
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 2013/14 (2012/13)	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.	59.5% (58.0%)	14.3–63.3%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.6 (1.6)	0.8–2.1	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	13.5 (16.1)	0.0–36.7	–	–	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).	– (71.4%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	76.4% (71.1%)	0.0–100%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	85.0 (89.1‡)	72.0–105.0	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	13.7% (10.7%)	0.0–18.0%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	1.8% (1.4%)	0.0–5.4%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (62.0%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	34.8% (33.1%)	0.0–68.8%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	36.5% (35.3%)	7.9–48.0%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (8.4%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	8.0 (9.0)	6.0–20.5	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	41.9% (41.9%)	35.3–62.5%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.8 (0.6)	-5.8–1.0	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	4.9 (5.1)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	38.3% (38.1%)	34.3–68.8%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	3.1% (3.5%)	0.0–5.7%	2.8% (2.8%)	Barrie and Area 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 (8.1)	0.0–47.7	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute 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 unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on 2012/13 Ontario Stroke Audit data.

STROKE PROGRESS REPORT, 2013/14 COMPARED TO 2010/11 – 2012/13

North 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 2013/14 (previous 3-year average)	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.	59.5% (56.9%)	14.3–63.3%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.6 (1.7)	0.8–2.1	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	13.5 (16.0)	0.0–36.7	–	–	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).	– (75.9%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	76.4% (73.0%)	0.0–100%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	85.0 (84.1‡)	72.0–105.0	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	13.7% (9.3%‡)	0.0–18.0%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	1.8% (1.4%)	0.0–5.4%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (62.7%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	34.8% (36.8%)	0.0–68.8%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	36.5% (33.2%)	7.9–48.0%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (8.3%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	8.0 (9.0)	6.0–20.5	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	41.9% (39.1%)	35.3–62.5%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.8 (0.7)	-5.8–1.0	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	4.9 (5.5)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	38.3% (32.7%)	34.3–68.8%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	3.1% (4.7%)	0.0–5.7%	2.8% (2.8%)	Barrie and Area 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 (8.8)	0.0–47.7	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute to QBP performance

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 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on Ontario Stroke Audit data (2008/09, 2010/11 and 2012/13). The 2012/13 benchmark for indicators 4, 6, 9 and 12 were calculated using 2012/13 Ontario Stroke Audit data.

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

PERFORMANCE OVERVIEW

In comparison to 2012/13 data, the North East LHIN demonstrated an improvement across 11 indicators and a decline in three indicators.

AREAS OF PROGRESS

Acute Stroke Management	Significant drop in risk-adjusted stroke/TIA mortality rate in comparison to previous 3-year average (13.5% vs. 16.0%).
Acute Stroke Management	Thrombolytic rate improved in comparison to previous 3-year average (13.7% vs. 9.3%).
Stroke Rehabilitation	Decrease in mean number of days between stroke onset and admission to inpatient rehabilitation from 2012/13 (8 days vs. 9 days).
Stroke Rehabilitation	Improvement in FIM efficiency from 2012/13 (0.8 vs. 0.6).

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Access: Currently none of the acute stroke units within the North East LHIN's designated stroke centre hospitals meet the Ontario Stroke Network's updated definition of a stroke unit.	As per the Quality-Based Procedures (QBPs), it is recommended that inpatient stroke care be consolidated to the four designated stroke centres. Each stroke centre will work toward redeveloping their stroke units to meet the OSN definition. This discussion will include determining the feasibility of implementing integrated stroke units.
Access: The mean number of CCAC visits per client dropped slightly from 2012/13.	The Network will lead a working group to develop a new service delivery model for outpatient and community-based stroke and TIA services in the region. This group will include partnerships between hospitals, CCAC and community care providers to increase access to, and improve the frequency and intensity of, this type of care.
Effectiveness: Both inpatient rehabilitation length of stay and median FIM efficiency remain below the provincial benchmark.	The Network is leading a group tasked with developing a new service delivery model for outpatient services. Enhanced outpatient services should support shorter acute and rehabilitation length of stay and improve FIM efficiency.
Effectiveness: Current thrombolytic door-to-needle time for LHIN (85.0 minutes) is well above the provincial average (57.0 minutes) and the provincial benchmark (33.0 minutes).	Site-specific chart audits and reporting are being completed to identify which elements of the tPA delivery process are causing delays.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- The implementation of the Stroke QBP will provide significant opportunities for collaboration between the LHIN and the Stroke Network to examine the "current state" and develop an integrated regional plan to improve access to stroke best practice care across the entire LHIN.

- In alignment with the QBP work, the North East Outpatient Stroke and TIA Services Working Group will provide the LHIN with a proposed service delivery model and plan to enhance outpatient services across the region, with the goal of decreasing acute care costs and improving patient outcomes and community reintegration of stroke survivors and their families.

CONTACT

Darren Jermyn
Regional Director
Northeastern Ontario Stroke Network
djermyn@hsnsudbury.ca
705-523-7170 ext. 3138

ONTARIO STROKE REPORT CARD, 2013/14

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 2013/14 (2012/13)	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.	48.7% (46.2%)	37.9–52.3%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.8 (2.0)	1.9–2.1	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.9 (9.7)	0.0–158.1	–	–	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).	– (85.5%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	84.2% (80.3%)	0.0–94.4%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	80.0 (82.5‡)	70.0–119.0	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	13.9% (9.9%)	9.1–16.1%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	0.0% (2.5%)	0.0–0.0%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (73.5%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	34.3% (21.9%)	0.0–79.8%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	36.8% (35.3%)	25.0–50.0%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (13.2%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	13.0 (11.0)	13.0–13.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	46.8% (44.4%)	46.8–46.8%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.7 (0.7)	0.7–0.7	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	4.8 (4.0)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	28.4% (41.9%)	28.4–28.4%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	4.7% (6.3%)	2.5–5.6%	2.8% (2.8%)	Barrie and Area 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 (8.4)	0.0–50.6	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute 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 unless otherwise specified. Low rates are desired for indicators 2, 3, 6, 10, 13, 19 and 20.
5 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on 2012/13 Ontario Stroke Audit data.

STROKE PROGRESS REPORT, 2013/14 COMPARED TO 2010/11 – 2012/13

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 2013/14 (previous 3-year average)	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.	48.7% (49.6%)	37.9–52.3%	64.8% (64.0%)	Essex Sub-LHIN	1, 10
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.8 (2.0)	1.9–2.1	1.1 (1.1)	Flamborough and East Sub-LHINs	11, 8, 9
3§	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.9 (11.2)	0.0–158.1	–	–	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).	– (83.5%‡)	–	– (87.4%‡)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging.	84.2% (77.7%)	0.0–94.4%	90.8% (88.5%)	Thunder Bay Regional Health Sciences Centre	5, 6
6	Acute stroke management	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes).	80.0 (74.3‡)	70.0–119.0	33.0 (48.0‡)	Niagara Health System, Greater Niagara	4
7§	Acute stroke management	Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA).	13.9% (10.0%‡)	9.1–16.1%	17.0% (17.0%)	East Niagara Sub-LHIN	10, 11, 14
8§	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit[8] at any time during their inpatient stay.	0.0% (2.5%)	0.0–0.0%	62.7% (61.4%)	Urban Guelph Sub-LHIN	3
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	– (84.3%‡)	–	– (87.5%‡)	Grey Bruce Health Services, Owen Sound	None
10§	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	34.3% (33.7%)	0.0–79.8%	11.7% (12.4%)	Grey Bruce Health Services, Owen Sound	None
11§	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	36.8% (36.2%)	25.0–50.0%	46.3% (44.3%)	Lambton Sub-LHIN	None
12	Stroke rehabilitation	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation.	– (12.8%‡)	–	– (12.8%‡)	Thunder Bay City Sub-LHIN	14, 3
13§	Stroke rehabilitation	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation.	13.0 (12.0)	13.0–13.0	5.0 (6.0)	Southlake Regional Health Centre and Bluewater Health, Sarnia	None
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.	46.8% (41.4%)	46.8–46.8%	76.6% (73.1%)	Bruyère Continuing Care Inc.	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.7 (0.7)	0.7–0.7	1.3 (1.2)	Royal Victoria Regional Health Centre	12, 1, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14.	4.8 (4.3)	–	8.2 (8.5)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	28.4% (39.3%)	28.4–28.4%	57.3% (49.0%)	Stratford General Hospital	8
19§	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	4.7% (6.2%)	2.5–5.6%	2.8% (2.8%)	Barrie and Area 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 (8.5)	0.0–50.6	–	–	1

Hospital Service Accountability Agreement indicators, 2010/11 | – Data not available | n/a = Not applicable | § = Contribute to QBP performance

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 Interpret with caution as the minimum or maximum values may be based on 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 2012/13 benchmarks are displayed in brackets.
7 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 52 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.
‡ Based on Ontario Stroke Audit data (2008/09, 2010/11 and 2012/13). The 2012/13 benchmark for indicators 4, 6, 9 and 12 were calculated using 2012/13 Ontario Stroke Audit data.

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

PERFORMANCE OVERVIEW

Where comparative data is available, nine of 16 indicators showed improvement. Exemplary performance and ongoing progress is seen in tPA delivery rates with the LHIN as a provincial high performer. Thunder Bay Regional Health Sciences Centre is the provincial high performer in appropriate carotid imaging.

AREAS OF PROGRESS

Stroke Prevention	Ongoing progress is seen in carotid imaging, which has led to timely access to intervention (from 80.3% to 84.2%).
Acute Stroke Management	The proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA) continues to improve (from 9.9% to 13.9%).
Stroke Rehabilitation	Continued progress in the proportion of patients that are admitted to inpatient rehabilitation (from 35.3% to 36.8%).
Community Reintegration	Continued progress in the reduction of the proportion of patients discharged to LTC/CCC (from 6.3% to 4.7%).

AREAS FOR IMPROVEMENT	ASSOCIATED CURRENT OR PLANNED ACTIVITIES
Access: Less than half of stroke/TIA patients arrived at an emergency department by ambulance in the North West LHIN.	Educate front-line health care providers to disseminate the key messages of the Heart and Stroke Foundation's public awareness campaign, emphasizing to call 9-1-1 immediately. Consultation has begun with Telestroke sites and land and air ambulance providers to develop a regional plan to facilitate timely access to transport, accounting for the LHIN's geography.
Effectiveness: Median door-to-needle times are considerably longer than best practice targets and are not meeting the provincial benchmark.	Focused efforts in this area are underway and include in-depth reviews to determine areas where improvement is needed. Process changes such as improving awareness of urgency among EMS and emergency department staff and addressing time to neurology consultation are in progress. Exploring the use of "Code Stroke" paging at the Regional Stroke Centre.
Integration: Proportion of alternate level of care days to total length of stay in acute care has increased from 2012/13 and remains well above the provincial benchmark.	The creation of an acute regional stroke unit (2015) as well as an inpatient rehabilitation stroke unit (2014) will address efforts to improve patient flow. The use of standardized tools to support triage to appropriate postacute care settings has been implemented. Efforts in this area, inclusive of hospital and community-based providers, are ongoing.
Effectiveness: Median FIM efficiency is well below the provincial benchmark and has not improved from 2012/13.	Delays in transfer from acute to rehabilitation result in functional gains for patients that are not captured during their inpatient rehabilitation stay. In 2014/15, several initiatives were undertaken including the creation of a dedicated inpatient rehabilitation stroke unit with associated enhanced staffing and weekend therapy provision that will support improvements in this area.

OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Strengthen and formalize relationships between the Stroke Network and the LHIN to support efforts in implementing Stroke Quality-Based Procedures (QBPs) across the continuum of care.
- LHIN support to enhance relationships with regional Telestroke sites and align with QBP-recommended practices for stroke care.
- LHIN direction and collaboration toward efforts to enhance access to outpatient and community-based stroke care across the LHIN.

CONTACT

Caterina Kmill
Regional Director
Northwestern Ontario Regional Stroke Network
kmillc@tbh.net
807-684-6702

References

1. CSS Information and Evaluation Working Group. *Performance Measurement Manual: A Supplement to the Canadian Stroke Strategy Canadian Best Practices Recommendations for Stroke Care, Update 2008*. Accessed May 7, 2015 at **http://www.strokebestpractices.ca/wp-content/uploads/2012/07/CSS-Performance-Manual-2008_EN.pdf.**

2. Health Quality Ontario; Ministry of Health and Long-Term Care. *Quality-based procedures: clinical handbook for stroke (acute and postacute)*. Toronto: Health Quality Ontario; 2015 February. 148 p. Accessed May 19, 2015 at **http://www.hqontario.ca/Portals/0/Documents/eds/clinical-handbooks/community-stroke-20151802-en.pdf.**

3. Heart and Stroke Foundation. *Canadian Stroke Best Practice Recommendations*. Accessed May 19, 2015 at **http://www.strokebestpractices.ca**

4. Weissman NW, Allison JJ, Keife CI, et al. Achievable benchmarks of care: the ABCs of benchmarking. *J Eval Clin Pract*. 1999; 5(3):269-81.

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, 2013 and March 31, 2014 (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 2013/14
5	Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging	**Numerator:** Number of ischemic stroke patients without atrial fibrillation who undergo carotid imaging (carotid doppler, carotid CTA, carotid MRA or carotid angiography) **Denominator:** All admitted patients with ischemic stroke without atrial fibrillation	CIHI-DAD and OHIP Billing
Acute Stroke Management			
6	Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes)	**Numerator**: 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 – RSC, DSC, Telestroke site)	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 – RSC, DSC, Telestroke site) **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 2013/14
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 2013/14
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 for all stroke patients (RCG-1) admitted to inpatient rehabilitation (excludes TIA patients)	CIHI-DAD, CIHI-NRS
14	Mean number of minutes per day of direct therapy that inpatient stroke rehabilitation patients received	Unavailable in 2013/14	To be 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)/LOS (includes all stroke patients with moderate disability (RCG-1) admitted to inpatient rehabilitation) *Moderate disability = RPGs 1120, 1130 and 1140	CIHI-NRS
17	Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14	**Numerator**: Total number of rehabilitation services visits (involving physiotherapy, occupational therapy, speech language pathology, social work) within 180 days of discharge from inpatient care (HCD-OACCAC 2012/13 and 2013/14) **Denominator**: Total number of stroke/TIA patients who received a CCAC rehabilitation visit within 60 days of discharge from inpatient care (CIHI-DAD 2012/13)	CIHI-DAD, 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, 2013 and March 31, 2014 (CIHI-DAD/NACRS) (excludes transfers and elective admissions)	CIHI-DAD, CIHI-NACRS

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)	Flamborough and East Sub-LHINs	Louise MacRae Regional Director, Central South Regional Stroke Network macrael@hhsc.ca 905-527-4322 ext. 44425 Shelley Sharp Regional Director, Toronto West Stroke Network shelley.sharp@uhn.ca 416-603-5076
4. Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care (excluding those with contraindications)	William Osler Health System, Etobicoke	Nicole Pageau Regional Director, West GTA Stroke Network nicole.pageau@trilliumhealthpartners.ca 905-848-7580 ext. 5476
5. Proportion of ischemic stroke inpatients without atrial fibrillation who received carotid imaging	Thunder Bay Regional Health Sciences Centre	Caterina Kmill Regional Director, Northwestern Ontario Regional Stroke Network kmillc@tbh.net 807-684-6702
6. Median door-to-needle time among patients who received acute thrombolytic therapy (tPA) (minutes)	Niagara Health System, Greater Niagara	Louise MacRae Regional Director, Central South Regional Stroke Network macrael@hhsc.ca 905-527-4322 ext. 44425
7. Proportion of ischemic stroke patients who received acute thrombolytic therapy (tPA)	East Niagara Sub-LHIN	Louise MacRae Regional Director, Central South Regional Stroke Network macrael@hhsc.ca 905-527-4322 ext. 44425
8. Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay	Urban Guelph Sub-LHIN	Louise MacRae Regional Director, Central South Regional Stroke Network macrael@hhsc.ca 905-527-4322 ext. 44425

Indicator	High-Performing Facility/Sub-LHIN	Contact Information
9. Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care	Grey Bruce Health Services, Owen Sound	Joan Ruston Berge Manager Rehabilitation, Restorative Care and Grey Bruce District Stroke Centre JRustonBerge@gbhs.on.ca 519-376-2121 ext. 2920
10. Proportion of alternate level of care (ALC) days to total length of stay in acute care	Grey Bruce Health Services, Owen Sound	Joan Ruston Berge Manager Rehabilitation, Restorative Care and Grey Bruce District Stroke Centre jrustonberge@gbhs.on.ca 519-376-2121 ext. 2920
11. Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation	Lambton Sub-LHIN	Linda Dykes Manager, Sarnia Lambton District Stroke Centre ldykes@bluewaterhealth.ca 519-464-4400 ext. 4465
12. Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation	Thunder Bay City Sub-LHIN	Caterina Kmill Regional Director, Northwestern Ontario Regional Stroke Network kmillc@tbh.net 807-684-6702
13. Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation	Southlake Regional Health Centre and Bluewater Health, Sarnia	Beth Linkewich Regional Director, North and East GTA Stroke Network beth.linkewich@sunnybrook.ca 416-480-6100 ext. 7300 Linda Dykes Manager, Sarnia Lambton District Stroke Centre ldykes@bluewaterhealth.ca 519-464-4400 ext. 4465
15. Proportion of inpatient stroke rehabilitation patients achieving RPG length of stay target	Bruyère Continuing Care Inc.	Jim Lumsden Regional Director, Champlain Regional Stroke Network jlumsden@toh.on.ca 613-798-5555 ext.16167
16. Median FIM[d] efficiency for moderate stroke in inpatient rehabilitation	Royal Victoria Regional Health Centre	Cheryl Moher Regional Director, Central East Stroke Network moherc@rvh.on.ca 705-728-9090 ext. 46300

Indicator	High-Performing Facility/Sub-LHIN	Contact Information
17. Mean number of CCAC visits provided to stroke/TIA patients in 2012/13 and 2013/14	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)	Stratford General Hospital	Ellen Richards Manager, Huron Perth District Stroke Centre ellen.richards@hpha.ca 519-272-8210 ext. 2298
19. Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC)	Barrie and Area Sub-LHIN	Cheryl Moher Regional Director, Central East Stroke Network moherc@rvh.on.ca 705-728-9090 ext. 46300

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

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 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.
CSN	Canadian Stroke Network
CSS	Canadian Stroke Strategy (or System)
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.
Dysphagia	Difficulty in swallowing
ED	Emergency department
EMS	Emergency medical services
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 and rehabilitation hospital sites in Toronto (crossing GTA LHIN regions). Membership has been held under a formal memorandum of understanding since 2008. E-Stroke is considered a standard of practice in Toronto.

Term/Acronym	Definition
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.
GTA	Greater Toronto Area
HCD-OACCAC	Home Care Database, from the Ontario Association of Community Care Access Centres
HQO	Health Quality Ontario
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
LEAN	A method to streamline manufacturing processes through the elimination of waste in work processes. The lean principles were first developed for the automotive industry by the car maker Toyota and are increasingly being applied to other industries such as health care.
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
OSA Acute	Ontario Stroke Audit of acute care facilities
OSN	Ontario Stroke Network; provides provincial leadership and coordination for the 11 Ontario Regional Stroke Networks
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 includes best practices for the emergency department, acute care and inpatient rehabilitation and was released in April 2013. 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 Feb 2015. http://www.hqontario.ca/Portals/0/Documents/eds/clinical-handbooks/community-stroke-20151802-en.pdf

Term/Acronym	Definition
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
SPOR	Strategy for Patient-Oriented Research
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	Smaller subdivisions for each of the 14 Local Health Integration Networks
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 Institutional Resources for Stroke in Ontario, 2013/14[1]

Legend	
Regional stroke centre	A facility that meets all the requirements of a district stroke centre and has 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 centre	An acute care hospital that does not fit the definition of district or regional stroke centre.

LHIN/Institution (Site)[2]	Institution Number	Location	Ontario Stroke Network Region	Stroke Unit[3]	CT Scanner	MRI Scanner	Angiography[4]	Telestroke Centre[5]	Stroke Prevention Clinic
Ontario, n				**16**	**97**	**60**	**21**	**23**	**48**
1. Erie St. Clair									
Bluewater Health (Sarnia)	4415	Sarnia	Southwestern Ontario		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
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			
Windsor Regional Hospital (Ouellette Campus)	4773	Windsor	Southwestern Ontario		X	X	X		X
2. South West									
Alexandra Hospital	1696	Ingersoll	Southwestern Ontario						
Alexandra Marine and General Hospital	1206	Goderich	Southwestern Ontario		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
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
Listowel Memorial Hospital	1740	Listowel	Southwestern Ontario						
London Health Sciences Centre (University)	3850	London	Southwestern Ontario		X	X	X		X
London Health Sciences Centre (Victoria)	4359	London	Southwestern Ontario		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)[2]	Institution Number	Location	Ontario Stroke Network Region	Stroke Unit[3]	CT Scanner	MRI Scanner	Angiography[4]	Telestroke Centre[5]	Stroke Prevention Clinic
South Bruce Grey Health Centre (Walkerton)	4039	Walkerton	Southwestern Ontario		X				
South Huron Hospital	1203	Exeter	Southwestern Ontario						
St. Joseph's Health Care London	1497	London	Southwestern Ontario		X	X			
St. Thomas–Elgin General Hospital	1059	London	Southwestern Ontario		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			
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
Groves Memorial Community Hospital	1936	Fergus	Central South		X				
Guelph General Hospital	1946	Guelph	Central South	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
Haldimand War Memorial Hospital	1146	Dunnville	Central South		X				
Hamilton Health Sciences Corp (General)	1982	Hamilton	Central South	X	X	X	X		X
Hamilton Health Sciences Corp (Juravinski)	1983	Hamilton	Central South		X	X			
Joseph Brant Hospital	1160	Burlington	Central South		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
Niagara Health System (Port Colborne)	4219	Port Colborne	Central South						
Niagara Health System (St. Catharines General)	4224	St. Catharines	Central South		X	X			
Niagara Health System (Welland County)	4227	Welland	Central South		X				
Norfolk General Hospital	1591	Simcoe	Central South		X				X
St. Joseph's Health Care System (Hamilton)	2003	Hamilton	Central South		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[6]
William Osler Health System (Etobicoke)	3929	Etobicoke	West GTA		X	X			X[6]
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			
Trillium Health Partners (Mississauga)	4752	Mississauga	West GTA	X	X	X	X		X
Trillium Health Partners (Queensway)	4759	Toronto	West GTA		X				

LHIN/Institution (Site)[2]	Institution Number	Location	Ontario Stroke Network Region	Stroke Unit[3]	CT Scanner	MRI Scanner	Angiography[4]	Telestroke Centre[5]	Stroke Prevention Clinic
Trillium Health Partners (Credit Valley)	4747	Mississauga	West GTA		X	X			
7. Toronto Central									
Mount Sinai Hospital	1423	Toronto	Toronto West		X	X			
St. Joseph's Health Centre	1443	Toronto	Toronto West		X	X			
St. Michael's Hospital	1444	Toronto	Toronto – Southeast	X	X	X	X		X
Sunnybrook Health Sciences Centre	3936	Toronto	Toronto – North and East	X	X	X	X		X
The Toronto East General Hospital	1302	Toronto	Toronto – Southeast		X	X			X
University Health Network (Toronto General)	3910	Toronto	Toronto West		X	X			
University Health Network (Toronto Western)	3910	Toronto	Toronto West	X	X	X	X		X
8. Central									
Humber River Regional Hospital (Church)	3883	Weston	Toronto West	X	X				
Humber River Regional Hospital (Finch)	1343	Downsview	Toronto West		X	X			X
Mackenzie Health (Mackenzie Richmond Hill Hospital)	2046	Richmond Hill	Central East	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
Southlake Regional Health Centre	2038	Newmarket	Central East		X	X			X
Stevenson Memorial Hospital (Alliston)	1817	Alliston	Central East		X				
9. Central East									
Campbellford Memorial Hospital	1597	Campbellford	Central East		X				
Haliburton Highlands Health Services (Haliburton)	3737	Haliburton	Central East						
Haliburton Highlands Health Services (Minden)	4191	Minden	Central East						
Lakeridge Health (Bowmanville)	4008	Clarington	Central East		X				
Lakeridge Health (Oshawa)	3932	Oshawa	Central East	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			
Northumberland Hills Hospital	3860	Cobourg	Central East		X	X			
Peterborough Regional Health Centre	1768	Peterborough	Central East	X	X	X	X	X	X[7]
Ross Memorial Hospital	1893	Lindsay	Central East		X				
Rouge Valley Health System (Ajax)	4014	Ajax	Toronto – Southeast		X	X		X	
Rouge Valley Health System (Centenary)	3943	Scarborough	Toronto – Southeast		X	X		X	X[8]
Scarborough Hospital (Birchmount)	4154	Scarborough	Toronto – North and East		X	X			X[8]
Scarborough Hospital (Scarborough General)	4152	Scarborough	Toronto – North and East		X	X			X[8]
10. South East									
Brockville General Hospital	1273	Brockville	South East	X	X				X
Hotel Dieu Hospital	4601	Kingston	South East		X				
Kingston General Hospital	1100	Kingston	South East	X	X	X	X		X
Lennox and Addington County General Hospital	1295	Napanee	South East						
Perth and Smiths Falls District (Perth)	3732	Perth	South East		X[9]				X
Perth and Smiths Falls District (Smith Falls)	1269	Smiths Falls	South East		X[9]				
Quinte Healthcare Corporation (Bancroft)	3991	Bancroft	South East						
Quinte Healthcare Corporation (Belleville)	3988	Belleville	South East		X	X	X	X	X
Quinte Healthcare Corporation (Picton)	3992	Picton	South East						

LHIN/Institution (Site)[2]	Institution Number	Location	Ontario Stroke Network Region	Stroke Unit[3]	CT Scanner	MRI Scanner	Angiography[4]	Telestroke Centre[5]	Stroke Prevention Clinic
Quinte Healthcare Corporation (Trenton)	3994	Trenton	South East						
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
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
Hôpital Montfort	1661	Ottawa	East – Champlain		X	X			
Kemptville District Hospital	1284	Kemptville	East – Champlain						
The Ottawa Hospital (Civic)	4046	Ottawa	East – Champlain		X	X	X		X
The Ottawa Hospital (General)	4048	Ottawa	East – Champlain		X	X			
Pembroke Regional Hospital Inc.	1804	Pembroke	East – Champlain		X			X	X
Queensway-Carleton Hospital	1681	Ottawa	East – Champlain		X	X			X
Renfrew Victoria Hospital	1813	Renfrew	East – Champlain		X				
St. Francis Memorial Hospital	1801	Barry's Bay	East – Champlain						
University of Ottawa Heart Institute	4164	Ottawa	East – Champlain		X	X			
Winchester District Memorial Hospital	1885	Winchester	East – Champlain		X				
12. North Simcoe Muskoka									
Collingwood General and Marine Hospital	1833	Collingwood	Central East		X				
Georgian Bay General Hospital (Midland)	1844	Midland	Central East		X				
Muskoka Algonguin Healthcare (Bracebridge)	4619	Bracebridge	Central East		X				
Muskoka Algonguin Healthcare (Huntsville)	4616	Huntsville	Central East		X		X		
Orillia Soldiers' Memorial Hospital	1853	Orillia	Central East		X	X			
Royal Victoria Regional Health Centre	1825	Barrie	Central East		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/Pavillion Santé	2057	Blind River	Northeast						
Blind River District Health Centre (Richards Landing)	4768	Richards Landing	Northeast						
Blind River District Health Centre (Thessalon)	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
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						
Manitoulin Health Centre (Mindemoya)	2123	Mindemoya	Northeast						
Mattawa General Hospital	2126	Mattawa	Northeast						

LHIN/Institution (Site)[2]	Institution Number	Location	Ontario Stroke Network Region	Stroke Unit[3]	CT Scanner	MRI Scanner	Angiography[4]	Telestroke Centre[5]	Stroke Prevention Clinic
North Bay Regional Health Centre	4730	North Bay	Northeast		X	X		X	X
Hopital Notre Dame Hospital	2082	Hearst	Northeast						
Sault Area Hospital	4407	Sault Ste. Marie	Northeast		X	X	X	X	X
Sensenbrenner Hospital	2088	Kapuskasing	Northeast						
Service de Santé de 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	
Timmins and District General Hospital	3414	Timmins	Northeast		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	
Geraldton District Hospital	2175	Geraldton	Northwest						
Lake-of-the-Woods District Hospital	2110	Kenora	Northwest		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 (La Verendrye)	2150	Fort Frances	Northwest		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
Thunder Bay Regional Health Sciences Centre	3853	Thunder Bay	Northwest		X	X	X		X
Wilson Memorial General Hospital	2177	Marathon	Northwest						X

1 Based on Ontario Stroke Network hospital resources survey as of May 2015.

2 Sites in boldface participated in the 2012/2013 Ontario Stroke Audit of Acute Care Facilities.

3 Stroke unit (revised definition, February 2014): 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 has a dedicated interprofessional team with expertise in stroke care including, at a minimum, nursing, physiotherapy, occupational therapy and speech-language pathology.

4 Sites denoted in the context of resource availability for Endovascular Treatment.

5 A funded Ontario Telemedicine Network site in 2013/14.

6 A cardiovascular clinic; not specific to stroke.

7 Patients at 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
Discovery
Better Health

Institute for Clinical Evaluative Sciences
G1 06, 2075 Bayview Avenue
Toronto, Ontario M4N 3M5
www.ices.on.ca