

## Ontario Stroke Evaluation Report 2014

# On Target for Stroke Prevention and Care

**SUPPLEMENT:  
ONTARIO STROKE REPORT CARDS**

June 2014





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## Publication Information

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# Ontario Stroke Report Cards

The Ontario Stroke Report Cards were developed by the Ontario Stroke Evaluation and Quality Committee (SEQC) in 2009 to provide a concise mechanism for communicating stroke care performance in the province. The report cards serve as a valuable stakeholder tool that allows for consistent planning across the Ontario Stroke System, and the implementation of quality-based procedures (QBPs).

Report cards are produced annually for Ontario and each of the 14 Local Health Integration Networks (LHINs). Additions to the 2014 report cards include:

- Updates on 8 of the 20 indicators based on the 2012/13 Ontario Stroke Audit of Acute Care Facilities, which was not available last year;
- Two new rehabilitation indicators, to align with indicators set by the Ministry of Health and Long-Term Care;<sup>1</sup>
- The identification of indicators for which the most recent performance was statistically significantly different from the previous three-year performance;
- A report card interpretation document that highlights areas of progress and opportunities for quality improvement to address the gaps.

The new rehabilitation indicators are (1) Proportion of patients achieving the target active length of stay in inpatient rehabilitation (replacing Proportion of alternative level of care days to total length of stay in

inpatient rehabilitation); and (2) Mean number of minutes per day of direct rehabilitation therapy (replacing Rehabilitation therapy staff/bed ratio for inpatient stroke rehabilitation).

The SEQC Knowledge Translation and Accountability Subcommittee established a report card dissemination strategy to enable stroke system improvement. The OSN distributed the report cards and interpretations to the CEO and board chair of each LHIN. Meetings were then scheduled with LHIN representatives to review the data and develop quality improvement plans.

1 Quality-Based Procedures: Clinical Handbook for Stroke. March 2013 (Updated September 2013). Toronto, ON: Health Quality Ontario and Ministry of Health and Long-Term Care; 2013. Accessed April 8, 2014 at [http://health.gov.on.ca/en/pro/programs/ecfa/docs/qbp\\_stroke.pdf](http://health.gov.on.ca/en/pro/programs/ecfa/docs/qbp_stroke.pdf).

ONTARIO STROKE REPORT CARD, 2012/13

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 <sup>1</sup>	Ontario FY 2012/13 <sup>2</sup> (2011/12)	Variance Across LHINs (Min-Max)	Provincial Benchmark <sup>3</sup>	High Performer <sup>4</sup>	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of patients who arrived at ED less than 3.5 hours from stroke symptom onset.	44.7%* (42.3%)	37.1-54.0%	55.3% (52.0%)	Rural Waterloo Sub-LHIN	12
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 Sub-LHIN	11, 8
3	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.6* (12.8)	7.2-16.6	-	-	5, 14
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% (73.4%)	70.7-85.5%	87.4% (87.7%)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	82.3%* (78.7%)	62.5-94.2%	93.6% (92.8%)	Rouge Valley Health System, Ajax	5
6	Acute stroke management	Proportion of suspected stroke/TIA patients who received a brain CT/MRI within 24 hours of arrival at ED.	93.2%* (89.6%)	86.0-97.1%	97.9% (97.7%)	Toronto East General Hospital	5, 7
7	Acute stroke management	Proportion of ischemic stroke patients who arrived at ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	38.6%* (32.4%)	0.0-50.6%	61.0% (61.2%)	Lakeridge Health, Oshawa	None
8	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	48.1%* (38.3%)	0.0-77.4%	89.7% (87.5%)	Bluewater Health, Sarnia	None
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	67.2%* (64.8%)	48.2-81.7%	87.5% (83.7%)	Grey Bruce Health Services, Owen Sound	None
10	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	27.7%* (27.3%)	21.9-34.2%	12.4% (14.6%)	Halton Healthcare Services Corporation, Oakville	None
11	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	32.6%* (31.5%)	24.2-39.1%	44.3% (42.6%)	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%* (5.9%)	4.1-13.2%	12.8% (12.1%)	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)	7.0-17.0	6.0 (6.5)	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.	45.0%* (41.7%)	17.2-66.3%	73.1% (66.9%)	Trillium Health Partners, Mississauga Hospital	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.9* (0.8)	0.4-1.2	1.2 (1.1)	Trillium Health Partners, Mississauga Hospital	6, 12, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2011/12 and 2012/13.	5.8* (5.7)	3.6-12.1	8.5 (7.9)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	34.5% (31.6%)	23.4-45.5%	49.0% (48.6%)	Grey Bruce Health Services, Owen Sound	10
19	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	7.9%* (9.1%)	3.5-12.1%	2.8% (3.7%)	Renfrew County 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* (8.1)	5.4-8.4	-	-	3

Hospital Service Accountability Agreement indicators, 2010/11 - Data not available

1 Facility-based analysis (excluding indicators 1, 2, 11, 12 and 19) for patients aged 18-108. Indicators 2, 3, 10, 11 and 13-20 are based on 2012/13 CIHI data; data in brackets are from the 2011/12 report card. Indicators 1, 4-9, and 12 are based on 2012/13 OSA data; data in brackets are from the 2010/11 OSA. Low rates are desired for indicators 2, 3, 10, 13, 19 and 20.

2 The 2012/13 performance is statistically significantly different from the previous three-year performance, with \* indicating an improvement and † indicating a decline.

3 Provincial benchmarks are calculated using the ABC methodology on facility/sub-LHIN data. For indicators 2, 10, 11 and 13-19, data in brackets are 2011/12 benchmarks; for indicators 1, 4-9 and 12, data in brackets are 2010/11 benchmarks. For the benchmarking methodology, see Weissman et al. *Journal of Evaluation in Clinical Practice* 1999; 5(3):269-81.

4 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 44 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.

## INTERPRETATION OF 2012/13 STROKE REPORT CARD

### Ontario

#### PERFORMANCE OVERVIEW

The 2012/13 report card shows ongoing progress for key performance indicators. For indicators where comparative performance results are available, the following trends are noted:

- Sixteen of the 19 indicators showed improvement in comparison to 2011/12 results. For 15 indicators, there was a statistically significant improvement in performance compared to the previous three-year performance (2009/10 to 2011/12).
- Additionally, 14 of the 17 benchmarks have also improved.<sup>1</sup>

#### AREAS OF PROGRESS

The provincial report card reflects steady improvement in stroke prevention, acute stroke management and stroke 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.<sup>2</sup> There is also a need for further regional approaches to

increase access to stroke unit care, which is a key step in addressing variation in patient outcomes, particularly mortality. And while there has been improvement, there is an ongoing need for rehabilitation system change (such as access to hospital-based outpatient rehabilitation services in addition to CCAC) to address patient flow and access.

#### 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 and public awareness efforts and implementation strategies in advancing access to best practices to continually improve report card process and outcome indicators.
- The OSN will continue its role in advancing HQO and MOHLTC development and implementation of phases 1 and 2 of stroke Quality Based Procedures (QBP) best practices, indicators and pricing.
- Through the Strategy for Patient-Oriented Research (SPOR) and in partnership with Ontario SPOR Support Unit researchers, OSN will develop

and implement a framework for evaluating the implementation of stroke QBPs using rapid cycle/pragmatic research methods.

#### CONTACT

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<sup>1</sup> Provincial benchmarks were calculated using the ABC methodology (Weissman et al. *Journal of Evaluation in Clinical Practice* 1999; 5(3):269-81).

<sup>2</sup> Key OSN targets are:

- Stroke hospitalization: Reduce admissions to 1.14 per 1,000 LHIN population.
- Stroke units: Increase access to 76% of patients.
- Inpatient rehabilitation: Reduce access time to within 5 days.
- Community reintegration: Reduce long-term care admissions to 3.2% 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, 2012/13 Erie St. Clair Local Health Integration Network

■ Poor performance<sup>1</sup>
■ Acceptable performance<sup>2</sup>
■ Exemplary performance<sup>3</sup>
■ Benchmark not available<sup>4</sup>

### Local Health Integration Networks (LHINs)

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

Indicator No.	Care Continuum Category	Indicator <sup>5</sup>	LHIN FY 2012/13 <sup>6</sup> (2011/12)	Variance Within LHIN (Min-Max)	Provincial Benchmark <sup>7</sup>	High Performer <sup>8</sup>	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of patients who arrived at ED less than 3.5 hours from stroke symptom onset.	45.0% (44.8%)	43.4-49.3%	55.3% (52.0%)	Rural Waterloo Sub-LHIN	12
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.4 (1.4)	1.5-1.9	1.1 (1.1)	Flamborough Sub-LHIN	11, 8
3	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.7 (11.7)	0.0-22.0	-	-	5, 14
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% (71.0%)	50.0-83.8%	87.4% (87.7%)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	81.3% (81.3%)	37.5-94.2%	93.6% (92.8%)	Rouge Valley Health System, Ajax	5
6	Acute stroke management	Proportion of suspected stroke/TIA patients who received a brain CT/MRI within 24 hours of arrival at ED.	95.4%* (88.2%)	84.0-98.2%	97.9% (97.7%)	Toronto East General Hospital	5, 7
7	Acute stroke management	Proportion of ischemic stroke patients who arrived at ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	19.3% (27.8%)	0.0-26.5%	61.0% (61.2%)	Lakeridge Health, Oshawa	None
8	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	68.3%* (61.3%)	0.0-94.4%	89.7% (87.5%)	Bluewater Health, Sarnia	None
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	76.8%* (59.5%)	43.8-91.6%	87.5% (83.7%)	Grey Bruce Health Services, Owen Sound	None
10	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	33.6%* (23.4%)	0.0-41.5%	12.4% (14.6%)	Halton Healthcare Services Corporation, Oakville	None
11	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	39.1% (36.3%)	30.1-51.3	44.3% (42.6%)	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% (2.4%)	1.5-11.3%	12.8% (12.1%)	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)	5.0-16.0	6.0 (6.5)	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.	53.3% (56.1%)	42.6-65.6%	73.1% (66.9%)	Trillium Health Partners, Mississauga Hospital	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.9* (0.8)	0.6-1.2	1.2 (1.1)	Trillium Health Partners, Mississauga Hospital	6, 12, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2011/12 and 2012/13.	5.8* (5.4)	-	8.5 (7.9)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	37.0% (33.8%)	25.0-41.7%	49.0% (48.6%)	Grey Bruce Health Services, Owen Sound	10
19	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	8.0% (9.0%)	4.9-10.7%	2.8% (3.7%)	Renfrew County 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 (7.9)	0.0-7.1	-	-	3

Hospital Service Accountability Agreement indicators, 2010/11 - Data not available n/a Not applicable

1 Performance below the 50<sup>th</sup> percentile.  
 2 Performance at or above the 50<sup>th</sup> 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 Data not available or benchmark under development.  
 5 Facility-based analysis (excluding indicators 1, 2, 11, 12 and 19) for patients aged 18-108. Indicators 2, 3, 10, 11 and 13-20 are based on 2012/13 CIHI data; data in brackets are from the 2011/12 report card. Indicators 1, 4-9, and 12 are based on 2012/13 Ontario Stroke Audit (OSA) data; data in brackets are from the 2010/11 OSA. Low rates are desired for indicators 2, 3, 10, 13, 19 and 20.

6 The 2012/13 performance is statistically significantly different from the previous three-year performance, with \* indicating an improvement and † indicating a decline.  
 7 Provincial benchmarks are calculated using the ABC methodology on facility/sub-LHIN data. For indicators 2, 10, 11 and 13-19, data in brackets are 2011/12 benchmarks; for indicators 1, 4-9 and 12, data in brackets are 2010/11 benchmarks. For the benchmarking methodology, see Weisman et al. *Journal of Evaluation in Clinical Practice* 1999; 5(3):269-81.  
 8 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 44 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.



## INTERPRETATION OF 2012/13 STROKE REPORT CARD

### Erie St. Clair Local Health Integration Network

#### PERFORMANCE OVERVIEW

Report card key messages include the need for system improvement by maintaining/reviewing the stroke prevention clinic models of care, consolidating stroke services into designated centres with stroke units and improving access to inpatient and community rehabilitation.

#### AREAS OF PROGRESS

<b>Acute Stroke Management</b>	Bluewater Health was provincial high performer for stroke/TIA patients treated on a stroke unit (94.4%). Significant improvements were made across the LHIN for dysphagia screening (from 59.5% to 76.8%).
<b>Stroke Rehabilitation</b>	Indicators 18 and 19 were below the 50 <sup>th</sup> percentile, but gains were made with more severe stroke patients accessing rehabilitation (37%) and fewer patients discharged to long-term care from acute care (8%).
<b>Stroke Rehabilitation</b>	Lambton County was provincial high performer for admitting patients to rehabilitation (51.3%) followed by Chatham-Kent County (50.4%). Essex County had the highest volumes and greater challenges at 30.1%.
<b>Stroke Rehabilitation</b>	Bluewater Health was the provincial high performer for admitting patients to rehabilitation within 5 days. Across the LHIN, performance ranged from 5 to 16 days for this indicator.

#### AREAS FOR IMPROVEMENT

#### ASSOCIATED CURRENT OR PLANNED ACTIVITIES

<b>Effectiveness:</b> Risk-adjusted mortality rate increased from 11.7 to 12.7. Stroke units are associated with lower mortality, and patients in Essex County have the lowest access to stroke unit care in the LHIN.	Quality-Based Procedures for Stroke provides the opportunity to advocate for the need to consolidate stroke care at designated stroke centres. Erie St. Clair LHIN Quality Council has agreed in principle for the need to consolidate stroke care into designated centres of excellence with stroke units.
<b>Access:</b> tPA rates decreased across the LHIN from 27.8% in 2010/11 to 19.3% in 2012/13. The provincial benchmark is 61.0%.	Bluewater Health was approved as a Telestroke site in Fall 2013 and will begin to use the provincial consulting services in Spring 2014. Quality improvement projects are currently underway at Windsor Regional Hospital (Ouellette) and Chatham-Kent Health Alliance to improve the tPA process. Consolidation of stroke services would also ensure all stroke survivors are treated at designated stroke centres.
<b>Appropriateness:</b> Proportion of Alternate Level of Care (ALC) days to total length of stay in acute care increased from 23.4% to 33.6% and occurred at all sites. Non-designated sites had the highest proportion of ALC days (41.5%).	Opportunities exist with the Erie St. Clair LHIN Rehabilitation Bed Capacity and Planning work to improve access to inpatient rehabilitation. The Erie St. Clair LHIN Early Supported Discharge Team Business Case was created to address the need for outpatient/community rehabilitation services to improve patient outcomes and increase system flow.
<b>Access:</b> Access to inpatient rehabilitation in Windsor-Essex involved long waits (16 days) and a low rate of admissions (30.1%), demonstrating a need for better access to rehabilitation for moderate to severe stroke, and access to community rehabilitation for mild stroke.	Opportunities exist with the Erie St. Clair LHIN Early Supported Discharge Team Business Case and the Erie St. Clair LHIN Rehabilitation Strategic Plan to develop a stroke care pathway. As well, the Erie St. Clair LHIN Quality Council has agreed in principle to advocate for community rehabilitation services in the LHIN to improve access.

#### OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- MOHLTC Quality-Based Procedures for Stroke
- Erie St. Clair LHIN Quality Council
- Erie St. Clair LHIN Rehabilitation Strategic Implementation Plan
- Early Supported Discharge Team Business Case
- Telestroke siting at district stroke centres (Bluewater Health and Chatham-Kent Health Alliance) to improve tPA rates

#### CONTACT

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## ONTARIO STROKE REPORT CARD, 2012/13 South West Local Health Integration Network

■ Poor performance<sup>1</sup>
■ Acceptable performance<sup>2</sup>
■ Exemplary performance<sup>3</sup>
■ Benchmark not available<sup>4</sup>

### Local Health Integration Networks (LHINs)

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

Indicator No.	Care Continuum Category	Indicator <sup>5</sup>	LHIN FY 2012/13 <sup>6</sup> (2011/12)	Variance Within LHIN (Min-Max)	Provincial Benchmark <sup>7</sup>	High Performer <sup>8</sup>	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of patients who arrived at ED less than 3.5 hours from stroke symptom onset.	48.8% (51.1%)	44.1-68.1%	55.3% (52.0%)	Rural Waterloo Sub-LHIN	12
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.4 (1.3)	1.3-1.9	1.1 (1.1)	Flamborough Sub-LHIN	11, 8
3	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	15.3 (15.0)	0.0-100	-	-	5, 14
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% (73.8%)	16.7-90.0%	87.4% (87.7%)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	83.1%* (72.8%)	33.3-100%	93.6% (92.8%)	Rouge Valley Health System, Ajax	5
6	Acute stroke management	Proportion of suspected stroke/TIA patients who received a brain CT/MRI within 24 hours of arrival at ED.	90.8%* (78.1%)	59.3-98.1%	97.9% (97.7%)	Toronto East General Hospital	5, 7
7	Acute stroke management	Proportion of ischemic stroke patients who arrived at ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	35.4%* (18.9%)	0.0-66.7%	61.0% (61.2%)	Lakeridge Health, Oshawa	None
8	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	38.3%* (44.6%)	0.0-84.5%	89.7% (87.5%)	Bluewater Health, Sarnia	None
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	71.2%* (57.4%)	40.0-100%	87.5% (83.7%)	Grey Bruce Health Services, Owen Sound	None
10	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	23.8% (23.3%)	0.0-76.0%	12.4% (14.6%)	Halton Healthcare Services Corporation, Oakville	None
11	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	37.9%* (33.5%)	29.1-50.0%	44.3% (42.6%)	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%* (3.8%)	0.0-14.9%	12.8% (12.1%)	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	6.0 (6.5)	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.	50.6% (52.6%)	0.0-100%	73.1% (66.9%)	Trillium Health Partners, Mississauga Hospital	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.0* (0.9)	0.7-1.5	1.2 (1.1)	Trillium Health Partners, Mississauga Hospital	6, 12, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2011/12 and 2012/13.	5.3* (5.7)	-	8.5 (7.9)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	37.2% (37.8%)	28.2-100%	49.0% (48.6%)	Grey Bruce Health Services, Owen Sound	10
19	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	5.0%* (5.5%)	3.1-7.0%	2.8% (3.7%)	Renfrew County 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 (7.9)	0.0-23.6	-	-	3

Hospital Service Accountability Agreement indicators, 2010/11 - Data not available n/a Not applicable

1 Performance below the 50<sup>th</sup> percentile.  
 2 Performance at or above the 50<sup>th</sup> 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 Data not available or benchmark under development.  
 5 Facility-based analysis (excluding indicators 1, 2, 11, 12 and 19) for patients aged 18-108. Indicators 2, 3, 10, 11 and 13-20 are based on 2012/13 CIHI data; data in brackets are from the 2011/12 report card. Indicators 1, 4-9, and 12 are based on 2012/13 Ontario Stroke Audit (OSA) data; data in brackets are from the 2010/11 OSA. Low rates are desired for indicators 2, 3, 10, 13, 19 and 20.

6 The 2012/13 performance is statistically significantly different from the previous three-year performance, with \* indicating an improvement and † indicating a decline.  
 7 Provincial benchmarks are calculated using the ABC methodology on facility/sub-LHIN data. For indicators 2, 10, 11 and 13-19, data in brackets are 2011/12 benchmarks; for indicators 1, 4-9 and 12, data in brackets are 2010/11 benchmarks. For the benchmarking methodology, see Weisman et al. *Journal of Evaluation in Clinical Practice* 1999; 5(3):269-81.  
 8 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 44 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.

## INTERPRETATION OF 2012/13 STROKE REPORT CARD South West Local Health Integration Network

### PERFORMANCE OVERVIEW

Key messages from the report card support the work of the South West LHIN Stroke Capacity Assessment and Best Practice Implementation Project to consolidate stroke services into centres of excellence and ensure access to SSPCs and community rehabilitation.

### AREAS OF PROGRESS

<b>Acute Stroke Management</b>	Improvement in access to CT scans within 24 hours (from 78.1% to 90.8%). tPA rates also improved (from 18.9% to 35.4%), but the South West LHIN remains below the 50 <sup>th</sup> percentile provincially.
<b>Acute Stroke Management</b>	Improvement across the LHIN in dysphagia screening. Grey Bruce Health Services (Owen Sound) was provincial high performer with 100% of its patients screened for swallowing impairments.
<b>Stroke Rehabilitation</b>	More stroke survivors accessed inpatient rehabilitation. Rates improved to 37.9% in the LHIN; Perth County had the greatest improvement (from 28.1% to 50%) followed by Elgin County (from 35.8% to 43.8%).
<b>Stroke Rehabilitation</b>	Timely access to inpatient rehabilitation improved across the LHIN from 10 to 9 days, with Huron Perth Healthcare Alliance (Stratford) and Grey Bruce Health Services (Owen Sound) at 6 days and St. Thomas Elgin General Hospital at 6.5 days. Community stroke rehabilitation team has improved flow.

### AREAS FOR IMPROVEMENT

### ASSOCIATED CURRENT OR PLANNED ACTIVITIES

<b>Access:</b> Inpatient admission rate (1.4 per 1000 population) was above the provincial benchmark (1.1). Work is needed to improve access to secondary stroke prevention clinics (SSPCs) if this rate is to improve.	<ul style="list-style-type: none"> <li>• Development of a regional SSPC data set.</li> <li>• Access to SSPCs and community-based prevention programming.</li> <li>• Consistent approach to raising public awareness of the signs and symptoms of stroke.</li> <li>• Review model of SSPC (QBP for Stroke).</li> </ul>
<b>Effectiveness:</b> Risk-adjusted 30-day mortality rate rose from 15.0 to 15.3. Access to stroke unit care was limited; hospitals with <165 ischemic strokes per year tended to have higher mortality rates	<ul style="list-style-type: none"> <li>• South West LHIN Stroke Capacity Assessment and Best Practice Implementation Project.</li> <li>• QBP Quality Improvement Projects at London Health Sciences Centre (LHSC), including implementation of a hyperacute stroke unit and University Hospital tPA process improvement.</li> <li>• Integrated Stroke Unit at Huron Perth Healthcare Alliance and Telestroke siting at Grey Bruce Health Services.</li> </ul>
<b>Access:</b> tPA rates increased yet remained below the 50 <sup>th</sup> percentile provincially. At least 39 patients may have qualified for tPA but were not referred to a stroke centre with medical expertise.	<ul style="list-style-type: none"> <li>• South West LHIN Stroke Capacity Assessment and Best Practice Implementation Project.</li> <li>• QBP Quality Improvement Projects at LHSC including implementation of a hyperacute stroke unit and University Hospital tPA process improvement.</li> <li>• Integrated stroke unit at Huron Perth Healthcare Alliance and Telestroke at Grey Bruce Health Services.</li> </ul>
<b>Access:</b> Access to inpatient rehabilitation was low (29.1%) in Huron and Bruce Counties. Among severe stroke patients, access ranged from 28.2% to 53.7% at Grey Bruce Health Services, the provincial high performer. Median time to admission to inpatient rehabilitation ranged from 6 to 16 days.	<ul style="list-style-type: none"> <li>• South West LHIN Stroke Capacity Assessment and Best Practice Implementation Project.</li> <li>• CCAC Coordinated Access – need for a more timely, accurate process to improve system flow.</li> <li>• QBP quality improvement project with LHSC and Parkwood to improve transitions and severe stroke access inpatient rehabilitation.</li> </ul>

### OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- South West LHIN Stroke Capacity Assessment and Best Practice Implementation Project
- MOHLTC Quality-Based Procedures for Stroke
- Review access to care process for stroke admissions for efficiencies to ensure the right patient receives the right care at the right time
- South West LHIN Rehabilitative Care Committee to implement Provincial Rehabilitative Care Alliance recommendations in the LHIN
- South West LHIN Complex Continuing Care and Rehabilitation Plan (Final Report, March 29, 2012)

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ONTARIO STROKE REPORT CARD, 2012/13

Waterloo Wellington Local Health Integration Network

■ Poor performance<sup>1</sup>
■ Acceptable performance<sup>2</sup>
■ Exemplary performance<sup>3</sup>
■ Benchmark not available<sup>4</sup>

Local Health Integration Networks (LHINs)

- |                                    |                      |                         |
|------------------------------------|----------------------|-------------------------|
| 1 Erie St. Clair                   | 6 Mississauga Halton | 11 Champlain            |
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| 3 Waterloo Wellington              | 8 Central            | 13 North East           |
| 4 Hamilton Niagara Haldimand Brant | 9 Central East       | 14 North West           |
| 5 Central West                     | 10 South East        |                         |

Indicator No.	Care Continuum Category	Indicator <sup>5</sup>	LHIN FY 2012/13 <sup>6</sup> (2011/12)	Variance Within LHIN (Min-Max)	Provincial Benchmark <sup>7</sup>	High Performer <sup>8</sup>	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of patients who arrived at ED less than 3.5 hours from stroke symptom onset.	48.2%* (44.5%)	46.5-81.4%	55.3% (52.0%)	Rural Waterloo Sub-LHIN	12
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.4 (1.4)	1.1-1.5	1.1 (1.1)	Flamborough Sub-LHIN	11, 8
3	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.9 (11.2)	9.7-22.3	-	-	5, 14
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% (63.6%)	66.7-100%	87.4% (87.7%)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	87.4%* (83.0%)	80.0-92.6%	93.6% (92.8%)	Rouge Valley Health System, Ajax	5
6	Acute stroke management	Proportion of suspected stroke/TIA patients who received a brain CT/MRI within 24 hours of arrival at ED.	94.1%* (90.8%)	72.4-97.1%	97.9% (97.7%)	Toronto East General Hospital	5, 7
7	Acute stroke management	Proportion of ischemic stroke patients who arrived at ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	37.2%* (25.4%)	0.0-49.1%	61.0% (61.2%)	Lakeridge Health, Oshawa	None
8	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	71.1%* (43.9%)	0-91.7%	89.7% (87.5%)	Bluewater Health, Sarnia	None
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	74.5%* (67.7%)	0.0-87.8%	87.5% (83.7%)	Grey Bruce Health Services, Owen Sound	None
10	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	27.9%* (31.8%)	4.5-48.6%	12.4% (14.6%)	Halton Healthcare Services Corporation, Oakville	None
11	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	30.5% (30.8%)	25.0-47.6%	44.3% (42.6%)	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%* (4.9%)	0.0-16.4%	12.8% (12.1%)	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 (11.0)	7.0-11.0	6.0 (6.5)	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.	38.0% (35.8%)	32.8-61.5%	73.1% (66.9%)	Trillium Health Partners, Mississauga Hospital	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.8 (0.8)	0.6-1.5	1.2 (1.1)	Trillium Health Partners, Mississauga Hospital	6, 12, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2011/12 and 2012/13.	6.8* (6.0)	-	8.5 (7.9)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	33.7% (36.8%)	27.6-46.2%	49.0% (48.6%)	Grey Bruce Health Services, Owen Sound	10
19	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	6.6%* (10.0%)	3.4-9.1%	2.8% (3.7%)	Renfrew County 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).	5.7 (7.1)	0.0-9.8	-	-	3

Hospital Service Accountability Agreement indicators, 2010/11 - Data not available n/a Not applicable

1 Performance below the 50<sup>th</sup> percentile.  
 2 Performance at or above the 50<sup>th</sup> percentile and greater than 5% absolute/relative difference from the benchmark.  
 3 Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.  
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 7 Provincial benchmarks are calculated using the ABC methodology on facility/sub-LHIN data. For indicators 2, 10, 11 and 13-19, data in brackets are 2011/12 benchmarks; for indicators 1, 4-9 and 12, data in brackets are 2010/11 benchmarks. For the benchmarking methodology, see Weissman et al. *Journal of Evaluation in Clinical Practice* 1999; 5(3):269-81.  
 8 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 44 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.

## INTERPRETATION OF 2012/13 STROKE REPORT CARD

### Waterloo Wellington Local Health Integration Network

#### PERFORMANCE OVERVIEW

The LHIN experienced significant improvement across most indicators. There was a significant reduction in patients discharged to long-term care and complex continuing care.

#### AREAS OF PROGRESS

<b>Acute Stroke Management</b>	The proportion of patients receiving stroke unit care rose from 43.9% to 71.1%. Stroke care was provided on a stroke unit and a stroke cluster. Performance will improve with the ongoing Waterloo Wellington acute integration.
<b>Stroke Rehabilitation</b>	There was a significant increase in the proportion of stroke patients referred to outpatient rehabilitation: from 4.9% to 13.0%. This exceeds the provincial benchmark of 12.8%.
<b>Acute Stroke Management</b>	The number of patients receiving tPA rose from 25% to 37% (provincial range, 0 to 49%). This is expected to improve further through integration and the addition of a second thrombolysis centre in the region.
<b>Community Reintegration</b>	Fewer patients were sent to long-term care (from 10.0% to 6.6%). Additional marked reduction is anticipated with implementation of a new system where all stroke patients go to rehabilitation for maximum gain and function.

#### AREAS FOR IMPROVEMENT

#### ASSOCIATED CURRENT OR PLANNED ACTIVITIES

<b>Effectiveness:</b> Continues to be variability in stroke mortality across the LHIN.	The Waterloo Wellington Integrated Stroke System was implemented in April 2014 and further improvements in access and outcomes are expected across the system. Integration and consolidation on two acute stroke units and three rehabilitation stroke units are expected to achieve critical mass and stroke expertise.
<b>Access:</b> Only one tPA provider in the region.	The Integrated Stroke System opened a second thrombolysis site at Guelph General Hospital as a Telestroke site in December 2013. This additional site will improve access for patients in North Wellington and increase the proportion of stroke patients who receive tPA in the LHIN.
<b>Access:</b> Proportion of stroke patients discharged to inpatient rehabilitation and proportion of those with severe strokes getting access to inpatient rehabilitation.	The Integrated Stroke System is implementing a new model of care (the banding model) that will triage patients and flow them to the most appropriate rehabilitation setting to improve appropriate and timely access to services. A key element of the banding model is utilization of the Alpha FIM instrument to triage patients for rehabilitation.
<b>Access:</b> Mean number of CCAC visits provided to stroke/TIA patients.	Although there was improvement in this indicator from 2011/12, the Integrated Stroke System implemented in the Waterloo Wellington CCAC Stroke Community Model to increase access to specialized stroke best practice community home-based rehabilitation within the LHIN, further improvement is expected.

#### OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

The Waterloo Wellington LHIN and the Waterloo Wellington Integrated Stroke System have worked closely over the past three years on system redesign and transformation. The LHIN and the Stroke System will continue to evaluate and revise changes made within the LHIN to ensure objectives are achieved and stroke care performance is enhanced.

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**ONTARIO STROKE REPORT CARD, 2012/13**

**Hamilton Niagara Haldimand Brant Local Health Integration Network**

■ Poor performance<sup>1</sup>
■ Acceptable performance<sup>2</sup>
■ Exemplary performance<sup>3</sup>
■ Benchmark not available<sup>4</sup>

Local Health Integration Networks (LHINs)

- |                                    |                      |                         |
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Indicator No.	Care Continuum Category	Indicator <sup>5</sup>	LHIN FY 2012/13 <sup>6</sup> (2011/12)	Variance Within LHIN (Min-Max)	Provincial Benchmark <sup>7</sup>	High Performer <sup>8</sup>	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of patients who arrived at ED less than 3.5 hours from stroke symptom onset.	44.9%* (40.9%)	30.0-52.6%	55.3% (52.0%)	Rural Waterloo Sub-LHIN	12
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.3 (1.3)	0.9-2.8	1.1 (1.1)	Flamborough Sub-LHIN	11, 8
3	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.9 (11.8)	0.0-16.4	-	-	5, 14
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% (63.6%)	57.9-100%	87.4% (87.7%)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	78.3%* (66.9%)	64.1-100%	93.6% (92.8%)	Rouge Valley Health System, Ajax	5
6	Acute stroke management	Proportion of suspected stroke/TIA patients who received a brain CT/MRI within 24 hours of arrival at ED.	92.6%* (87.2%)	51.9-97.0%	97.9% (97.7%)	Toronto East General Hospital	5, 7
7	Acute stroke management	Proportion of ischemic stroke patients who arrived at ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	44.5%* (31.8%)	0.0-60.7%	61.0% (61.2%)	Lakeridge Health, Oshawa	None
8	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	48.6%* (25.4%)	0-81.4%	89.7% (87.5%)	Bluewater Health, Sarnia	None
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	65.8%* (58.4%)	21.4-85.7%	87.5% (83.7%)	Grey Bruce Health Services, Owen Sound	None
10	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	23.4%* (27.7%)	0.0-38.1%	12.4% (14.6%)	Halton Healthcare Services Corporation, Oakville	None
11	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	33.5% (31.0%)	14.3-41.3%	44.3% (42.6%)	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% (6.2%)	0.0-20.0%	12.8% (12.1%)	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.	9.5* (11.0)	8.0-11.5	6.0 (6.5)	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.	39.8% (36.8%)	20.0-100%	73.1% (66.9%)	Trillium Health Partners, Mississauga Hospital	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.8 (0.8)	0.6-1.2	1.2 (1.1)	Trillium Health Partners, Mississauga Hospital	6, 12, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2011/12 and 2012/13.	4.8* (5.0)	-	8.5 (7.9)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	34.4% (38.0%)	0.0-46.8%	49.0% (48.6%)	Grey Bruce Health Services, Owen Sound	10
19	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	9.3%* (11.9%)	0.0-17.7%	2.8% (3.7%)	Renfrew County 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).	7.1 (7.6)	0.0-11.0	-	-	3

Hospital Service Accountability Agreement indicators, 2010/11 - Data not available n/a Not applicable

1 Performance below the 50<sup>th</sup> percentile.  
 2 Performance at or above the 50<sup>th</sup> percentile and greater than 5% absolute/relative difference from the benchmark.  
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 8 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 44 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.

## INTERPRETATION OF 2012/13 STROKE REPORT CARD Hamilton Niagara Haldimand Brant Local Health Integration Network

### PERFORMANCE OVERVIEW

There was improvement in 13 of the 19 indicators from 2011/12, and for most of the indicators, there was significant improvement across the LHIN. There continues to be significant variation in performance across the LHIN.

### AREAS OF PROGRESS

<b>Acute Stroke Management</b>	Acute stroke unit care rose from 25.4% to 48.6%; the LHIN has two stroke units and two facilities with beds clustered. This improved performance in stroke prevention and management indicators 4-11.
<b>Stroke Prevention</b>	Proportion of ischemic stroke patients without atrial fibrillation receiving carotid imaging rose from 66.9% to 78.3%, the result of education and implementation of a data collection mechanism for monitoring.
<b>Acute Stroke Management</b>	Proportion of ischemic stroke patients receiving tPA less than 3.5 hours from symptom onset increased from 31.8% to 44.5% as a result of quality improvement efforts at each of the four thrombolysis sites.
<b>Stroke Rehabilitation</b>	Median number of days between stroke onset to admission to rehabilitation decreased from 11 days to 9.5 days with utilization of the Alpha FIM to triage patients to rehabilitation and facilitate timely transfer.

### AREAS FOR IMPROVEMENT

### ASSOCIATED CURRENT OR PLANNED ACTIVITIES

<b>Access:</b> Increase access to stroke unit care	In June 2013, stroke care services were reorganized in Brant, Haldimand and Norfolk counties to increase access to stroke unit care in the 20-bed integrated stroke unit at Brantford. A reorganization in Hamilton will increase access to stroke unit care in Hamilton, Grimsby and Dunnville. Planning is underway to consolidate services in Niagara into one large stroke unit.
<b>Access:</b> Increase access to outpatient rehabilitation	As part of the Brant, Haldimand and Norfolk reorganization, the Brantford outpatient program implemented processes to enhance access to outpatient rehabilitation within 72 hours for those living within a 30-minute drive, to align with the community stroke rehabilitation model. Planning is underway to formulate recommendations for a best practice community-based rehabilitation program in Hamilton.
<b>Access:</b> Increase the number of CCAC visits	Brant, Haldimand and Norfolk stroke community rehabilitation model through CCAC was implemented in Fall 2013 to allow residents who live beyond a 30-minute drive timely access to home-based stroke rehabilitation. Planning is in place to develop a stroke community-based rehabilitation program in Hamilton using the same methodology as the pilot. These initiatives should increase the number of visits.
<b>Appropriateness:</b> Increase access to rehabilitation for patients with severe stroke (RPG 1100 or 1110)	Within the LHIN, some severe stroke patients receive rehabilitation on restorative care units; the focus is on ensuring best practice therapy intensity. Increased use of alpha FIM and increased access to community stroke rehabilitation will ensure that patients with moderate/severe stroke have access to inpatient rehabilitation.

### OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

The LHIN has been actively engaged with the Central South Regional Stroke Network and has supported development of stroke care integration efforts within the LHIN to ensure equitable access to best practice stroke care services for residents.

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## ONTARIO STROKE REPORT CARD, 2012/13 Central West Local Health Integration Network

■ Poor performance<sup>1</sup>
■ Acceptable performance<sup>2</sup>
■ Exemplary performance<sup>3</sup>
■ Benchmark not available<sup>4</sup>

### Local Health Integration Networks (LHINs)

- |                                    |                      |                         |
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Indicator No.	Care Continuum Category	Indicator <sup>5</sup>	LHIN FY 2012/13 <sup>6</sup> (2011/12)	Variance Within LHIN (Min-Max)	Provincial Benchmark <sup>7</sup>	High Performer <sup>8</sup>	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of patients who arrived at ED less than 3.5 hours from stroke symptom onset.	38.4% (41.7%)	28.8–42.3%	55.3% (52.0%)	Rural Waterloo Sub-LHIN	12
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.3* (1.3)	1.2–1.8	1.1 (1.1)	Flamborough Sub-LHIN	11, 8
3	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	7.2* (11.4)	6.4–7.6	–	–	5, 14
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% (73.6%)	64.3–96.3%	87.4% (87.7%)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	94.2%* (88.3%)	92.5–100%	93.6% (92.8%)	Rouge Valley Health System, Ajax	5
6	Acute stroke management	Proportion of suspected stroke/TIA patients who received a brain CT/MRI within 24 hours of arrival at ED.	97.1%* (97.3%)	92.0–98.5%	97.9% (97.7%)	Toronto East General Hospital	5, 7
7	Acute stroke management	Proportion of ischemic stroke patients who arrived at ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	0.0% (8.6%)	0.0–0.0%	61.0% (61.2%)	Lakeridge Health, Oshawa	None
8	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	0.0% (0.0%)	0.0–0.0%	89.7% (87.5%)	Bluewater Health, Sarnia	None
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	62.3% (64.0%)	55.6–67.5%	87.5% (83.7%)	Grey Bruce Health Services, Owen Sound	None
10	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	30.7% (29.3%)	2.6–36.1%	12.4% (14.6%)	Halton Healthcare Services Corporation, Oakville	None
11	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	29.4% (25.3%)	13.9–32.1%	44.3% (42.6%)	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% (8.9%)	0.0–16.4%	12.8% (12.1%)	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.	17.0* (15.0)	17.0–21.0	6.0 (6.5)	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.	17.2% (16.4%)	0.0–19.1%	73.1% (66.9%)	Trillium Health Partners, Mississauga Hospital	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.4 (0.5)	0.1–0.5	1.2 (1.1)	Trillium Health Partners, Mississauga Hospital	6, 12, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2011/12 and 2012/13.	6.1* (6.9)	–	8.5 (7.9)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	23.4% (14.1%)	20.0–53.8%	49.0% (48.6%)	Grey Bruce Health Services, Owen Sound	10
19	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	8.2% (10.8%)	4.7–17.1%	2.8% (3.7%)	Renfrew County Sub-LHIN	None
20	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	8.4 (7.8)	7.0–11.7	–	–	3

Hospital Service Accountability Agreement indicators, 2010/11 – Data not available n/a Not applicable

1 Performance below the 50<sup>th</sup> percentile.  
 2 Performance at or above the 50<sup>th</sup> 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 Data not available or benchmark under development.  
 5 Facility-based analysis (excluding indicators 1, 2, 11, 12 and 19) for patients aged 18–108. Indicators 2, 3, 10, 11 and 13–20 are based on 2012/13 CIHI data; data in brackets are from the 2011/12 report card. Indicators 1, 4–9, and 12 are based on 2012/13 Ontario Stroke Audit (OSA) data; data in brackets are from the 2010/11 OSA. Low rates are desired for indicators 2, 3, 10, 13, 19 and 20.

6 The 2012/13 performance is statistically significantly different from the previous three-year performance, with \* indicating an improvement and † indicating a decline.  
 7 Provincial benchmarks are calculated using the ABC methodology on facility/sub-LHIN data. For indicators 2, 10, 11 and 13–19, data in brackets are 2011/12 benchmarks; for indicators 1, 4–9 and 12, data in brackets are 2010/11 benchmarks. For the benchmarking methodology, see Weisman et al. *Journal of Evaluation in Clinical Practice* 1999; 5(3):269–81.  
 8 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 44 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.



## INTERPRETATION OF 2012/13 STROKE REPORT CARD Central West Local Health Integration Network

### PERFORMANCE OVERVIEW

The Central West LHIN led in indicators 3, 5 and 6. It also improved in 7 of the 19 indicators. Main areas for improvement are the establishment of stroke units, access to rehabilitation and functional outcomes.

### AREAS OF PROGRESS

<b>Stroke Prevention</b>	The LHIN is leading in overall low mortality rates.
<b>Acute Stroke Management</b>	The LHIN is leading in the proportion of patients who received a CT/MRI within 24 hours.
<b>Stroke Rehabilitation</b>	The LHIN has improved by almost 10% in admitting severe stroke patients to inpatient rehabilitation.
<b>Community Reintegration</b>	The LHIN has decreased the proportion of stroke patients discharged to LTC/CCC.

### AREAS FOR IMPROVEMENT

### ASSOCIATED CURRENT OR PLANNED ACTIVITIES

<b>Appropriateness:</b> Patients should be admitted to a specialized, geographically defined unit dedicated to the management of stroke patients. Stroke units are aligned with QBP.	Both sites of William Osler Health System (Brampton and Etobicoke) have sufficient stroke admission volumes to support a dedicated stroke unit. At this time, William Osler Health System is evaluating different stroke unit models that will fit with the organization. A plan is being developed to create a dedicated stroke unit at each site.
<b>Access:</b> Access to inpatient rehabilitation for stroke patients remains below the provincial average with 29.4% (provincial average is 32.6%).	William Osler Health System is considering dedicating inpatient stroke rehabilitation beds to align with the stroke QBP clinical handbook.
<b>Effectiveness:</b> Low FIM efficiency score and long length of stay in rehabilitation are probably related, and these would also have an impact on low access to inpatient rehabilitation beds.	The West GTA Stroke Network is working with partner organizations to identify strategies to increase the intensity of direct patient therapy and improve patient outcomes and system efficiency. The network is providing education regarding RPG-specific length of stay to better plan rehabilitation stays for each severity group.
<b>Integration:</b> The average number of CCAC visits to stroke patients remains low, based on best practice recommendations. With better access to CCAC visits, stroke patients could be discharged to the community earlier.	To be determined.

### OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

The Central West LHIN can assist with stroke performance by promoting more community stroke services related to rehabilitation (outpatient and home rehabilitation). Recommendations from the Rehab Alliance and the Stroke Reference Group will also enable this process.

### CONTACT

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ONTARIO STROKE REPORT CARD, 2012/13

Mississauga Halton Local Health Integration Network

■ Poor performance<sup>1</sup>
■ Acceptable performance<sup>2</sup>
■ Exemplary performance<sup>3</sup>
■ Benchmark not available<sup>4</sup>

Local Health Integration Networks (LHINs)

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

Indicator No.	Care Continuum Category	Indicator <sup>5</sup>	LHIN FY 2012/13 <sup>6</sup> (2011/12)	Variance Within LHIN (Min-Max)	Provincial Benchmark <sup>7</sup>	High Performer <sup>8</sup>	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of patients who arrived at ED less than 3.5 hours from stroke symptom onset.	43.7% (40.9%)	32.3-54.4%	55.3% (52.0%)	Rural Waterloo Sub-LHIN	12
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.2 (1.1)	1.0-1.6	1.1 (1.1)	Flamborough Sub-LHIN	11, 8
3	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.3* (15.6)	9.0-20.6	-	-	5, 14
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% (73.8%)	50.0-100%	87.4% (87.7%)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	87.3%* (82.9%)	77.4-100%	93.6% (92.8%)	Rouge Valley Health System, Ajax	5
6	Acute stroke management	Proportion of suspected stroke/TIA patients who received a brain CT/MRI within 24 hours of arrival at ED.	95.4%* (95.1%)	89.2-98.1%	97.9% (97.7%)	Toronto East General Hospital	5, 7
7	Acute stroke management	Proportion of ischemic stroke patients who arrived at ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	45.9% (51.7%)	0.0-58.7%	61.0% (61.2%)	Lakeridge Health, Oshawa	None
8	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	41.6% (40.2%)	0.0-73.8%	89.7% (87.5%)	Bluewater Health, Sarnia	None
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	66.1% (70.2%)	38.5-71.6%	87.5% (83.7%)	Grey Bruce Health Services, Owen Sound	None
10	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	23.8% (19.7%)	7.0-27.2%	12.4% (14.6%)	Halton Healthcare Services Corporation, Oakville	None
11	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	35.4%* (35.9%)	17.1-40.0%	44.3% (42.6%)	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% (6.5%)	0.0-13.3%	12.8% (12.1%)	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)	9.0-35.5	6.0 (6.5)	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.	66.3%* (55.3%)	38.3-80.0%	73.1% (66.9%)	Trillium Health Partners, Mississauga Hospital	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.2* (0.9)	0.8-2.5	1.2 (1.1)	Trillium Health Partners, Mississauga Hospital	6, 12, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2011/12 and 2012/13.	4.6* (4.6)	-	8.5 (7.9)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	41.5% (39.5%)	41.2-50.0%	49.0% (48.6%)	Grey Bruce Health Services, Owen Sound	10
19	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	7.5%* (8.5%)	2.1-14.3%	2.8% (3.7%)	Renfrew County 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)	0-9.7	-	-	3

Hospital Service Accountability Agreement indicators, 2010/11 - Data not available n/a Not applicable

1 Performance below the 50<sup>th</sup> percentile.  
 2 Performance at or above the 50<sup>th</sup> percentile and greater than 5% absolute/relative difference from the benchmark.  
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 5 Facility-based analysis (excluding indicators 1, 2, 11, 12 and 19) for patients aged 18-108. Indicators 2, 3, 10, 11 and 13-20 are based on 2012/13 CIHI data; data in brackets are from the 2011/12 report card. Indicators 1, 4-9, and 12 are based on 2012/13 Ontario Stroke Audit (OSA) data; data in brackets are from the 2010/11 OSA. Low rates are desired for indicators 2, 3, 10, 13, 19 and 20.

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 7 Provincial benchmarks are calculated using the ABC methodology on facility/sub-LHIN data. For indicators 2, 10, 11 and 13-19, data in brackets are 2011/12 benchmarks; for indicators 1, 4-9 and 12, data in brackets are 2010/11 benchmarks. For the benchmarking methodology, see Weisman et al. *Journal of Evaluation in Clinical Practice* 1999; 5(3):269-81.  
 8 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 44 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.

## INTERPRETATION OF 2012/13 STROKE REPORT CARD Mississauga Halton Local Health Integration Network

### PERFORMANCE OVERVIEW

Overall, the LHIN improved in 11 of the 19 indicators. The LHIN was a high performer for FIM efficiency: Trillium Health Partners for FIM efficiency and length of stay in rehabilitation, and Oakville for low proportion of ALC days in acute care.

### AREAS OF PROGRESS

<b>Stroke Prevention</b>	The LHIN mortality rate dropped by 3%.
<b>Stroke Rehabilitation</b>	The LHIN was a high performer for FIM efficiency.
<b>Stroke Rehabilitation</b>	The LHIN increased its proportion of severe stroke admissions to inpatient rehabilitation.
<b>Community Reintegration</b>	The LHIN decreased its overall readmission rate and is meeting the provincial average.

### AREAS FOR IMPROVEMENT

### ASSOCIATED CURRENT OR PLANNED ACTIVITIES

<b>Appropriateness:</b> Patients should be admitted to a specialized, geographically defined unit dedicated to the management of stroke patients. Stroke units are aligned with QBP	At this time, only Trillium Health Partners (Mississauga site) has a dedicated stroke unit. Credit Valley Hospital and Halton Health Care (Oakville site) have adequate stroke patient volumes, and work is in progress with these two facilities to create dedicated stroke units.
<b>Appropriateness:</b> Proportion of stroke patients with a documented initial dysphagia screening performed during admission to acute care	The West GTA Stroke Network is working with partner organizations regarding the education and importance of implementing a dysphagia screening tool. Strategies around documentation for the tool are also being developed.
<b>Access:</b> Proportion of ALC days to total length of stay was almost double the provincial benchmark.	The West GTA Stroke Network is in the process of developing strategies to improve patient flow throughout the stroke continuum of care. The CCAC stroke rehabilitation program will enable earlier discharges for acute and rehab stroke patients throughout the LHIN.
<b>Access:</b> Proportion of acute stroke patients discharged to inpatient rehabilitation.	The West GTA Stroke Network, in conjunction with partner organizations, is looking at strategies to increase the intensity of direct patient therapy to improve patient outcomes and efficiencies. The network is also providing education regarding RPG-specific length of stay to better plan rehabilitation stay for each severity group.

### OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

The West GTA Stroke Network has been working with the Mississauga Halton LHIN to improve stroke care across the continuum of care. The focus for 2014/15 will be to enhance community services for stroke patients to improve flow and reintegration from inpatient acute and rehabilitation services. Recommendations from the Rehab Alliance Group and Stroke Reference Group will also enable this process.

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**ONTARIO STROKE REPORT CARD, 2012/13**  
**Toronto Central Local Health Integration Network**

■ Poor performance<sup>1</sup> ■ Acceptable performance<sup>2</sup> ■ Exemplary performance<sup>3</sup> ■ Benchmark not available<sup>4</sup>

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 <sup>5</sup>	LHIN FY 2012/13 <sup>6</sup> (2011/12)	Variance Within LHIN (Min-Max)	Provincial Benchmark <sup>7</sup>	High Performer <sup>8</sup>	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of patients who arrived at ED less than 3.5 hours from stroke symptom onset.	37.1% (38.1%)	28.3-45.3%	55.3% (52.0%)	Rural Waterloo Sub-LHIN	12
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.2 (1.2)	1.1-1.4	1.1 (1.1)	Flamborough Sub-LHIN	11, 8
3	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	9.8* (11.9)	5.8-11.0	-	-	5, 14
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% (75.8%)	60.0-86.5%	87.4% (87.7%)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	85.2%* (87.4%)	66.7-93.9%	93.6% (92.8%)	Rouge Valley Health System, Ajax	5
6	Acute stroke management	Proportion of suspected stroke/TIA patients who received a brain CT/MRI within 24 hours of arrival at ED.	96.6% (97.1%)	94.5-99.1%	97.9% (97.7%)	Toronto East General Hospital	5, 7
7	Acute stroke management	Proportion of ischemic stroke patients who arrived at ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	50.6%* (45.5%)	0.0-60.4%	61.0% (61.2%)	Lakeridge Health, Oshawa	None
8	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	50.8%* (35.8%)	0.0-75.4%	89.7% (87.5%)	Bluewater Health, Sarnia	None
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	81.7%* (69.6%)	72.5-86.3%	87.5% (83.7%)	Grey Bruce Health Services, Owen Sound	None
10	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	28.3%* (24.0%)	16.1-37.2%	12.4% (14.6%)	Halton Healthcare Services Corporation, Oakville	None
11	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	31.3% (29.1%)	17.3-41.7%	44.3% (42.6%)	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%* (5.2%)	2.0-12.6%	12.8% (12.1%)	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.	12.0* (12.0)	11.0-13.5	6.0 (6.5)	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.	29.5% (26.0%)	17.1-52.2%	73.1% (66.9%)	Trillium Health Partners, Mississauga Hospital	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.8* (0.7)	0.6-0.9	1.2 (1.1)	Trillium Health Partners, Mississauga Hospital	6, 12, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2011/12 and 2012/13.	3.6* (4.0)	-	8.5 (7.9)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	24.2% (22.0%)	0.0-30.4%	49.0% (48.6%)	Grey Bruce Health Services, Owen Sound	10
19	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	11.0% (13.1%)	6.0-15.4%	2.8% (3.7%)	Renfrew County 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 (8.5)	0.0-10.5	-	-	3

Hospital Service Accountability Agreement indicators, 2010/11 - Data not available n/a Not applicable

1 Performance below the 50<sup>th</sup> percentile.  
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 8 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 44 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.

## INTERPRETATION OF 2012/13 STROKE REPORT CARD Toronto Central Local Health Integration Network

### PERFORMANCE OVERVIEW

Changes in overall report card performance from 2011/12 include improvement on indicators 2, 4 and 11 (band colour). Additional improvements within indicators are aligned with local and system engagement efforts (indicators 3, 7, 8, 9, 12, 15, 16, 18, 19 and 20).

### AREAS OF PROGRESS

<b>Stroke Prevention</b>	There is a focus on avoidable hospital admissions within the Toronto Central LHIN. Stroke prevention therapies and associated imaging have improved where coordinated processes were initiated.
<b>Acute Stroke Management</b>	A strategic focus by some stroke unit hospitals to organize care to best practice. Improvement in system access to these hospitals through implementation of new and revised pre-hospital protocols.
<b>Stroke Rehabilitation</b>	A system focus on early rehabilitation referrals and implementation of a triage tool to direct patients to the appropriate level of rehabilitation. Increased awareness of the need for improved access for mild and severe stroke.
<b>Community Reintegration</b>	Slight improvement noted for a proportion of patients going directly to LTC/CCC from acute care. Improvement also noted in readmission rates but with high variability within the LHIN.

### AREAS FOR IMPROVEMENT

### ASSOCIATED CURRENT OR PLANNED ACTIVITIES

<p><b>Appropriateness:</b> A standardized model of care for inpatient rehabilitation (3-hour intensity, 6 days/week minimum, 7 days/week admissions) and outpatient rehabilitation (admission within 2 weeks postdischarge, 2 to 3 sessions per week for 8 to 12 weeks).</p>	<ul style="list-style-type: none"> <li>• Continue system stakeholder engagement groups (Stroke Flow) and reporting of E-Stroke metrics to inform change.</li> <li>• Increase awareness, knowledge exchange and monitoring to support improvement in system planning and rehabilitation intensity.</li> <li>• Explore application of Early Supported Discharge models in Toronto Stroke Networks to complement inpatient/outpatient rehabilitation models.</li> </ul>
<p><b>Integration:</b> A standard approach to support the patient's experience through transitions. Optimal use of E-Stroke Rehabilitation Referral for outpatient rehabilitation.</p>	<ul style="list-style-type: none"> <li>• Advance and sustain the implementation of Transition Improvement for Continuity of Care resources and processes.</li> <li>• Facilitate utilization of E-Stroke and associated data for outpatient services, further system planning, and development of outpatient and community service models aligned with QBP practice and targets.</li> </ul>
<p><b>Access:</b> Consistent access to high-intensity inpatient rehabilitation for severe stroke patients and those with cognitive impairment. Access to outpatient and community rehabilitation.</p>	<ul style="list-style-type: none"> <li>• Build capacity in inpatient stroke rehabilitation for cognitive rehabilitation by implementing the Cognitive Orientation to Daily Occupational Performance model.</li> <li>• Work with acute care and rehabilitation organizations to address special needs of severe stroke patients (e.g., nasogastric, intravenous).</li> <li>• Enhance specificity of the rehabilitation triage tool for severe stroke.</li> <li>• Create a model of care for outpatient and community services.</li> </ul>
<p><b>Access:</b> Coordinated approach to urgent TIA and secondary stroke prevention services.</p>	<ul style="list-style-type: none"> <li>• Create a model of care for coordinated secondary stroke prevention services for Toronto.</li> <li>• Develop an implementation plan for the provincial TIA algorithm in Toronto.</li> </ul>

### OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Shared investment in architectural upgrades to sustain E-Stroke as a resource to provide efficient access to rehabilitation and system quality improvement. E-Stroke can assist with implementation and monitoring of Quality-Based Procedures; therefore, enhanced cross-LHIN utilization of E-Stroke should be considered.
- Continue to sustain current stroke system planning groups and implement system monitoring infrastructures with the Stroke Networks in Toronto.
- Formalize reporting mechanisms and/or relationships between Toronto Stroke Networks and LHINs in the GTA.

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## ONTARIO STROKE REPORT CARD, 2012/13 Central Local Health Integration Network

■ Poor performance<sup>1</sup>
■ Acceptable performance<sup>2</sup>
■ Exemplary performance<sup>3</sup>
■ Benchmark not available<sup>4</sup>

### Local Health Integration Networks (LHINs)

- |                                    |                      |                         |
|------------------------------------|----------------------|-------------------------|
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| 2 South West                       | 7 Toronto Central    | 12 North Simcoe Muskoka |
| 3 Waterloo Wellington              | 8 Central            | 13 North East           |
| 4 Hamilton Niagara Haldimand Brant | 9 Central East       | 14 North West           |
| 5 Central West                     | 10 South East        |                         |

Indicator No.	Care Continuum Category	Indicator <sup>5</sup>	LHIN FY 2012/13 <sup>6</sup> (2011/12)	Variance Within LHIN (Min-Max)	Provincial Benchmark <sup>7</sup>	High Performer <sup>8</sup>	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of patients who arrived at ED less than 3.5 hours from stroke symptom onset.	42.1%* (36.0%)	31.8–46.4%	55.3% (52.0%)	Rural Waterloo Sub-LHIN	12
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.1 (1.2)	1.0–1.5	1.1 (1.1)	Flamborough Sub-LHIN	11, 8
3	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.1 (10.8)	7.3–23.4	–	–	5, 14
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%* (80.0%)	66.7–100%	87.4% (87.7%)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	83.4% (82.4%)	72.7–91.3%	93.6% (92.8%)	Rouge Valley Health System, Ajax	5
6	Acute stroke management	Proportion of suspected stroke/TIA patients who received a brain CT/MRI within 24 hours of arrival at ED.	95.8%* (94.2%)	92.6–100%	97.9% (97.7%)	Toronto East General Hospital	5, 7
7	Acute stroke management	Proportion of ischemic stroke patients who arrived at ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	28.3%* (23.6%)	0.0–58.6%	61.0% (61.2%)	Lakeridge Health, Oshawa	None
8	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	48.7%* (40.5%)	0–70.2%	89.7% (87.5%)	Bluewater Health, Sarnia	None
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	48.2%* (58.7%)	5.6–63.6%	87.5% (83.7%)	Grey Bruce Health Services, Owen Sound	None
10	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	32.5%* (34.5%)	11.2–47.9%	12.4% (14.6%)	Halton Healthcare Services Corporation, Oakville	None
11	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	24.2% (24.0%)	17.7–34.7%	44.3% (42.6%)	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% (8.2%)	0.0–13.5%	12.8% (12.1%)	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)	5.0–14.5	6.0 (6.5)	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.	47.6%* (35.4%)	30.9–100%	73.1% (66.9%)	Trillium Health Partners, Mississauga Hospital	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.8 (0.8)	0.1–1.5	1.2 (1.1)	Trillium Health Partners, Mississauga Hospital	6, 12, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2011/12 and 2012/13.	5.5* (5.5)	–	8.5 (7.9)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	24.9% (16.5%)	0.0–43.5%	49.0% (48.6%)	Grey Bruce Health Services, Owen Sound	10
19	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	9.6% (11.5%)	5.7–17.3%	2.8% (3.7%)	Renfrew County 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).	6.9 (8.0)	5.5–11.8	–	–	3

Hospital Service Accountability Agreement indicators, 2010/11 – Data not available n/a Not applicable

1 Performance below the 50<sup>th</sup> percentile.  
 2 Performance at or above the 50<sup>th</sup> 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 Data not available or benchmark under development.  
 5 Facility-based analysis (excluding indicators 1, 2, 11, 12 and 19) for patients aged 18–108. Indicators 2, 3, 10, 11 and 13–20 are based on 2012/13 CIHI data; data in brackets are from the 2011/12 report card. Indicators 1, 4–9, and 12 are based on 2012/13 Ontario Stroke Audit (OSA) data; data in brackets are from the 2010/11 OSA. Low rates are desired for indicators 2, 3, 10, 13, 19 and 20.

6 The 2012/13 performance is statistically significantly different from the previous three-year performance, with \* indicating an improvement and † indicating a decline.  
 7 Provincial benchmarks are calculated using the ABC methodology on facility/sub-LHIN data. For indicators 2, 10, 11 and 13–19, data in brackets are 2011/12 benchmarks; for indicators 1, 4–9 and 12, data in brackets are 2010/11 benchmarks. For the benchmarking methodology, see Weisman et al. *Journal of Evaluation in Clinical Practice* 1999; 5(3):269–81.  
 8 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 44 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.

## INTERPRETATION OF 2012/13 STROKE REPORT CARD

### Central Local Health Integration Network

#### PERFORMANCE OVERVIEW

There was minimal change in LHIN performance. Where targeted local efforts were made, slight increases in indicator performance were noted (e.g., indicator 8). There was improvement in 13 of the 19 indicators. The LHIN was a high performer for indicator 2.

#### AREAS OF PROGRESS

<b>Stroke Prevention</b>	There was ongoing commitment to secondary prevention across the LHIN with associated improved performance on indicators 2 and 20.
<b>Acute Stroke Management</b>	Focused efforts to increase stroke unit access and best practices improved performance on indicators 6, 8 and 20, although variation continued to be evident.
<b>Stroke Rehabilitation</b>	Although variation persisted, the proportion of severe stroke patients admitted to inpatient rehabilitation increased by 8% and time to rehabilitation decreased by 1 day.
<b>Community Reintegration</b>	There were no notable areas of progress.

#### AREAS FOR IMPROVEMENT

#### ASSOCIATED CURRENT OR PLANNED ACTIVITIES

<b>Access:</b> A standard of best practice acute stroke care across the LHIN.	<ul style="list-style-type: none"> <li>Effect 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.</li> <li>Explore feasibility of Telestroke for hyperacute services at Southlake as part of the broader system planning approach.</li> </ul>
<b>Appropriateness:</b> A standardized approach to timely and appropriate stroke rehabilitation services.	<ul style="list-style-type: none"> <li>Use of system-level planning to increase rehab intensity, access to high-intensity inpatient rehab for severe stroke patients, and access to outpatient rehab for mild stroke patients.</li> <li>Use of Alpha FIM to triage for rehabilitation services.</li> <li>Adoption of E-Stroke Rehabilitation Referral System to monitor system performance and meet patient needs.</li> </ul>
<b>Integration:</b> Access to outpatient and community rehabilitation stroke services.	<ul style="list-style-type: none"> <li>Create a model of care for outpatient and community rehabilitation to support seamless transitions for stroke patients and align with QBP Phase 2.</li> <li>Consider utilization of E-Stroke to support outpatient referrals and monitor performance.</li> </ul>
<b>Access:</b> Coordinated approach to urgent TIA and secondary stroke prevention services.	<ul style="list-style-type: none"> <li>Develop a plan for implementation of the provincial TIA algorithm in the LHIN, in alignment with system planning.</li> </ul>

#### OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Strengthen and formalize relationships between the Stroke Networks and the Central LHIN to collaboratively improve stroke care in the Central LHIN. Establish a Central LHIN Stroke System Planning Committee, comprised of decision-makers, to support system-wide implementation of Quality-Based Procedures (QBPs), system integration and improved patient experience.
- To assist with the implementation and monitoring of QBPs, enhanced cross-LHIN utilization of E-Stroke should be considered.

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## ONTARIO STROKE REPORT CARD, 2012/13 Central East Local Health Integration Network

■ Poor performance<sup>1</sup>
■ Acceptable performance<sup>2</sup>
■ Exemplary performance<sup>3</sup>
■ Benchmark not available<sup>4</sup>

### Local Health Integration Networks (LHINs)

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

Indicator No.	Care Continuum Category	Indicator <sup>5</sup>	LHIN FY 2012/13 <sup>6</sup> (2011/12)	Variance Within LHIN (Min-Max)	Provincial Benchmark <sup>7</sup>	High Performer <sup>8</sup>	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of patients who arrived at ED less than 3.5 hours from stroke symptom onset.	44.8%* (39.0%)	35.4-54.0%	55.3% (52.0%)	Rural Waterloo Sub-LHIN	12
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.2 (1.1)	1.2-1.4	1.1 (1.1)	Flamborough Sub-LHIN	11, 8
3	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.2 (11.9)	6.4-31.3	-	-	5, 14
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% (78.1%)	33.3-100%	87.4% (87.7%)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	80.3%* (73.1%)	0.0-96.2%	93.6% (92.8%)	Rouge Valley Health System, Ajax	5
6	Acute stroke management	Proportion of suspected stroke/TIA patients who received a brain CT/MRI within 24 hours of arrival at ED.	91.2%* (88.2%)	60.7-97.9%	97.9% (97.7%)	Toronto East General Hospital	5, 7
7	Acute stroke management	Proportion of ischemic stroke patients who arrived at ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	37.1%* (36.8%)	0.0-63.0%	61.0% (61.2%)	Lakeridge Health, Oshawa	None
8	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	35.3%* (28.4%)	0.0-79.8%	89.7% (87.5%)	Bluewater Health, Sarnia	None
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	63.7% (68.3%)	14.3-91.9%	87.5% (83.7%)	Grey Bruce Health Services, Owen Sound	None
10	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	24.8%* (23.5%)	0.0-39.4%	12.4% (14.6%)	Halton Healthcare Services Corporation, Oakville	None
11	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	36.4% (35.9%)	25.6-44.6%	44.3% (42.6%)	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%* (4.7%)	4.4-7.3%	12.8% (12.1%)	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.	7.0 (7.0)	5.0-14.0	6.0 (6.5)	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.	61.7% (60.0%)	42.9-100%	73.1% (66.9%)	Trillium Health Partners, Mississauga Hospital	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.1* (1.1)	1.0-2.0	1.2 (1.1)	Trillium Health Partners, Mississauga Hospital	6, 12, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2011/12 and 2012/13.	5.3* (5.3)	-	8.5 (7.9)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	41.6% (38.9%)	23.1-58.6%	49.0% (48.6%)	Grey Bruce Health Services, Owen Sound	10
19	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	6.5%* (7.6%)	2.6-9.6%	2.8% (3.7%)	Renfrew County Sub-LHIN	None
20	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.6 (8.5)	0.0-13.3	-	-	3

Hospital Service Accountability Agreement indicators, 2010/11 - Data not available n/a Not applicable

1 Performance below the 50<sup>th</sup> percentile.  
 2 Performance at or above the 50<sup>th</sup> 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 Data not available or benchmark under development.  
 5 Facility-based analysis (excluding indicators 1, 2, 11, 12 and 19) for patients aged 18-108. Indicators 2, 3, 10, 11 and 13-20 are based on 2012/13 CIHI data; data in brackets are from the 2011/12 report card. Indicators 1, 4-9, and 12 are based on 2012/13 Ontario Stroke Audit (OSA) data; data in brackets are from the 2010/11 OSA. Low rates are desired for indicators 2, 3, 10, 13, 19 and 20.

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 7 Provincial benchmarks are calculated using the ABC methodology on facility/sub-LHIN data. For indicators 2, 10, 11 and 13-19, data in brackets are 2011/12 benchmarks; for indicators 1, 4-9 and 12, data in brackets are 2010/11 benchmarks. For the benchmarking methodology, see Weisman et al. *Journal of Evaluation in Clinical Practice* 1999; 5(3):269-81.  
 8 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 44 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.



## INTERPRETATION OF 2012/13 STROKE REPORT CARD Central East Local Health Integration Network

### PERFORMANCE OVERVIEW

There has been modest system change in LHIN performance. Where there were targeted local efforts, slight improvements were noted in indicator performance. Improvements were made in 11 of the 19 indicators. The LHIN repeated as a high performer for FIM efficiency.

### AREAS OF PROGRESS

<b>Stroke Prevention</b>	Concentrated efforts to support secondary prevention and rapid TIA assessment clinics have impacted cluster-based performance in admission and readmission rates.
<b>Acute Stroke Management</b>	Focused efforts to increase stroke unit access and best practices have improved performance on indicators 5, 6, 8, 11 and 20, although variation continues to be evident.
<b>Stroke Rehabilitation</b>	Although further improvement is required, there have been small gains in the proportion of severe strokes admitted to inpatient rehab, referrals to outpatient rehabilitation and admissions to long-term care.
<b>Community Reintegration</b>	There have been no notable areas of progress.

### AREAS FOR IMPROVEMENT

### ASSOCIATED CURRENT OR PLANNED ACTIVITIES

<b>Access:</b> A standard of best practice integrated stroke care across the LHIN.	<ul style="list-style-type: none"> <li>• System planning and reorganization of acute stroke services to achieve critical mass, enable development of sustainable stroke units, and ensure LHIN-wide access to hospitals with stroke unit.</li> <li>• Engage facility administrators and key stakeholders to apply the LHIN Decision Making Framework in the selection of an optimal cluster-based model for stroke care.</li> </ul>
<b>Appropriateness:</b> Standardized approach to ensure access to timely and appropriate rehabilitation services.	<ul style="list-style-type: none"> <li>• System level planning to: increase rehabilitation intensity, access for severe stroke patients to high intensity inpatient rehabilitation, and access for mild stroke patients to outpatient rehabilitation.</li> <li>• Use of Alpha FIM to triage for rehabilitation services.</li> <li>• Adoption of E-Stroke Rehabilitation Referral System in the LHIN to monitor system performance and meet patient needs.</li> </ul>
<b>Integration:</b> Access to outpatient and community rehabilitation stroke services.	<ul style="list-style-type: none"> <li>• Through the Central East LHIN Stroke Working Group, create a model of care for outpatient and community rehabilitation to support seamless transitions for stroke patients and align with QBP Phase 2.</li> <li>• Utilization of E-Stroke to support outpatient referrals and monitor performance.</li> </ul>
<b>Effectiveness:</b> Coordinated approach to urgent TIA and secondary stroke prevention services.	<ul style="list-style-type: none"> <li>• Create a model of care for prevention services across the LHIN based on the Decision Making Framework.</li> <li>• Develop a plan for implementation of the provincial TIA algorithm in prevention clinics across the LHIN.</li> </ul>

### OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Continue to leverage Central East LHIN Stroke Working Group to engage stakeholders in stroke system planning and implementation of Quality-Based Procedures for Stroke (QBP). Engage the facility delegates and key stakeholders in system planning to apply the LHIN Decision Making Framework in selection of the optimal cluster-based option for stroke care and establish implementation plan.
- Assist with implementation and monitoring of QBP. Enhanced cross-LHIN utilization of e-Stroke should be considered.
- Continue to support the Central East LHIN as an early adopter of the Regional Vascular Health Collaborative.

### CONTACT

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## ONTARIO STROKE REPORT CARD, 2012/13 South East Local Health Integration Network

■ Poor performance<sup>1</sup>
■ Acceptable performance<sup>2</sup>
■ Exemplary performance<sup>3</sup>
■ Benchmark not available<sup>4</sup>

### Local Health Integration Networks (LHINs)

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

Indicator No.	Care Continuum Category	Indicator <sup>5</sup>	LHIN FY 2012/13 <sup>6</sup> (2011/12)	Variance Within LHIN (Min-Max)	Provincial Benchmark <sup>7</sup>	High Performer <sup>8</sup>	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of patients who arrived at ED less than 3.5 hours from stroke symptom onset.	49.1% (37.0%)	16.6-62.8%	55.3% (52.0%)	Rural Waterloo Sub-LHIN	12
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.3 (1.3)	0.6-2.0	1.1 (1.1)	Flamborough Sub-LHIN	11, 8
3	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	14.9 (14.4)	0.0-24.0	-	-	5, 14
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% (71.8%)	0.0-100%	87.4% (87.7%)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	79.1% (78.7%)	0.0-85.8%	93.6% (92.8%)	Rouge Valley Health System, Ajax	5
6	Acute stroke management	Proportion of suspected stroke/TIA patients who received a brain CT/MRI within 24 hours of arrival at ED.	86.0%* (81.9%)	18.5-94.0%	97.9% (97.7%)	Toronto East General Hospital	5, 7
7	Acute stroke management	Proportion of ischemic stroke patients who arrived at ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	46.4%* (43.9%)	0.0-61.2%	61.0% (61.2%)	Lakeridge Health, Oshawa	None
8	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	52.4%* (47.3%)	0.0-78.5%	89.7% (87.5%)	Bluewater Health, Sarnia	None
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	56.9% (57.6%)	0.0-83.3%	87.5% (83.7%)	Grey Bruce Health Services, Owen Sound	None
10	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	24.7%* (20.3%)	0.0-31.4%	12.4% (14.6%)	Halton Healthcare Services Corporation, Oakville	None
11	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	28.1% (31.7%)	6.5-41.2%	44.3% (42.6%)	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% (4.6%)	0.0-21.7%	12.8% (12.1%)	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.	12.0 (10.5)	6.0-18.0	6.0 (6.5)	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.	43.2%* (43.8%)	20.7-62.5%	73.1% (66.9%)	Trillium Health Partners, Mississauga Hospital	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.8 (0.9)	0.6-1.1	1.2 (1.1)	Trillium Health Partners, Mississauga Hospital	6, 12, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2011/12 and 2012/13.	12.1* (10.9)	-	8.5 (7.9)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	45.5%* (37.2%)	41.4-55.6%	49.0% (48.6%)	Grey Bruce Health Services, Owen Sound	10
19	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	12.1% (9.3%)	0.0-22.2%	2.8% (3.7%)	Renfrew County Sub-LHIN	None
20	Reintegration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.9 (8.2)	3.9-12.4	-	-	3

Hospital Service Accountability Agreement indicators, 2010/11 - Data not available n/a Not applicable

1 Performance below the 50<sup>th</sup> percentile.  
 2 Performance at or above the 50<sup>th</sup> percentile and greater than 5% absolute/relative difference from the benchmark.  
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 8 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 44 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.

## INTERPRETATION OF 2012/13 STROKE REPORT CARD South East Local Health Integration Network

### PERFORMANCE OVERVIEW

Significant variability in many indicators requires regional planning and/or system change. Performance successes include Kingston General Hospital stroke unit with a utilization rate of 79% and a 30-day mortality rate of 12.5% (Ontario 12.6%); Quinte Health Care with a median rehabilitation wait time of 6 days (Ontario target 6 days); top performer in CCAC rehabilitation.

### AREAS OF PROGRESS

<b>Stroke Prevention</b>	Southeastern Ontario Health Collaborative is well established promoting vascular health among several chronic disease networks, public health, primary care, Health Links and the South East LHIN.
<b>Acute Stroke Management</b>	Acute stroke units are now established in Brockville and Kingston with planning underway in Belleville for Quinte Health Care. Collaborative planning is now underway to cluster acute care across Lanark, Leeds and Grenville; Kingston, Frontenac, Lennox and Addington; and Hastings and Prince Edward.
<b>Stroke Rehabilitation</b>	Improving access to a range of rehabilitation services: (a) re-designation of CCC to rehabilitation beds at Quinte Health Care, (b) St. Mary's of the Lake (Hospital) restorative rehabilitative care, and (c) sustained, enhanced CCAC rehabilitation (DC Link).
<b>Community Reintegration</b>	Stroke Survivor and Caregiver Support Groups now fully implemented by community support service partners across the South East LHIN with strong positive evaluation results.

### AREAS FOR IMPROVEMENT

### ASSOCIATED CURRENT OR PLANNED ACTIVITIES

<p><b>Access:</b></p> <ul style="list-style-type: none"> <li>Low admission to rehabilitation: LHIN 28%; Ontario 33% (target 44%).</li> <li>Long wait from stroke onset to rehabilitation: LHIN 12 days; Ontario 10 days (target 6 days).</li> <li>Wide variation achieving RPG length of stay: LHIN 43% (range 21%–63%); Ontario 45%.</li> </ul>	<ul style="list-style-type: none"> <li>Implement a regional rehabilitation plan to improve:                             <ul style="list-style-type: none"> <li>early access to rehabilitation;</li> <li>intensification of rehabilitation services and</li> <li>access to outpatient and community based rehabilitation.</li> </ul> </li> <li>Local QBP activities underway across the region in each area.</li> </ul>
<p><b>Appropriateness:</b></p> <ul style="list-style-type: none"> <li>High proportion discharged directly from acute care to LTC/CCC: LHIN 12%; Ontario 8%.</li> <li>Low access to outpatient rehabilitation: LHIN 4.2%; Ontario 6.8%.</li> <li>Impact of above 5 indicators is 25% ALC per total acute care length of stay (high).</li> </ul>	<ul style="list-style-type: none"> <li>Implement a regional plan to improve access to acute stroke unit care that includes:                             <ul style="list-style-type: none"> <li>geographic clustering;</li> <li>interprofessional expert team care and</li> <li>standardized use of evidence-based care plans.</li> </ul> </li> <li>Local QBP activities underway across the region in each area.</li> </ul>
<p><b>Effectiveness:</b></p> <ul style="list-style-type: none"> <li>Variable 30-day mortality rates: LHIN 14.9% (12–24%); Ontario 12.6%.</li> <li>Variable stroke unit utilization rates: LHIN 52% (range 0–79%); Ontario 48%.</li> </ul>	<ul style="list-style-type: none"> <li>Cluster Acute Stroke Unit Care with standardized care plans:                             <ul style="list-style-type: none"> <li>Kingston General Hospital to maintain Accreditation Canada stroke distinction status.</li> <li>Brockville General Hospital stroke unit opened in December 2013. Next step is planning to cluster all LLG acute stroke care at Brockville General Hospital.</li> <li>Quinte corporate planning for clustered stroke unit continues.</li> </ul> </li> </ul>
<p><b>Integration:</b></p> <ul style="list-style-type: none"> <li>Vascular health lack widespread uptake of integrated approach.</li> <li>Lack of stroke patient flow across organizations and sites.</li> <li>Community reintegration – Stroke Survivor and Caregiver Support Groups lack adequate outreach to rural partners.</li> </ul>	<ul style="list-style-type: none"> <li>Collaborate with other networks and Health Links to build capacity within primary care for integrated vascular health.</li> <li>Improve rehabilitation triage processes and regional patient flow.</li> <li>Integrate stroke care across Lanark Leeds and Grenville.</li> <li>Enhance growth and extend reach of current Stroke Survivor and Caregiver Support Groups.</li> </ul>

### OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

Acknowledge and actively support the regional system change/transformation that is required to achieve successful QBP implementation in stroke care through:

- Integration and geographic clustering of Acute Stroke Unit Care to reach recommended volumes in the east, central and west areas of the LHIN;
- Early transfer to rehabilitation;
- Intensification of rehabilitation services;
- Equitable access to interprofessional outpatient stroke rehabilitation service;
- Sustained funding for community-based CCAC rehabilitation services ("Discharge Link Service") and Stroke Survivor and Caregiver Support Groups; and
- Continued active involvement in the Southeastern Ontario Health Collaborative for integrated vascular health in primary care and within Health Links.

### CONTACT

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## ONTARIO STROKE REPORT CARD, 2012/13 Champlain Local Health Integration Network

■ Poor performance<sup>1</sup>
■ Acceptable performance<sup>2</sup>
■ Exemplary performance<sup>3</sup>
■ Benchmark not available<sup>4</sup>

### Local Health Integration Networks (LHINs)

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

Indicator No.	Care Continuum Category	Indicator <sup>5</sup>	LHIN FY 2012/13 <sup>6</sup> (2011/12)	Variance Within LHIN (Min-Max)	Provincial Benchmark <sup>7</sup>	High Performer <sup>8</sup>	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of patients who arrived at ED less than 3.5 hours from stroke symptom onset.	44.0%* (48.4%)	36.1-54.6%	55.3% (52.0%)	Rural Waterloo Sub-LHIN	12
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.1 (1.1)	1.0-1.6	1.1 (1.1)	Flamborough Sub-LHIN	11, 8
3	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.7 (12.4)	6.5-39.4	--	--	5, 14
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% (81.9%)	55-100%	87.4% (87.7%)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	79.3%* (78.6%)	0.0-87.5%	93.6% (92.8%)	Rouge Valley Health System, Ajax	5
6	Acute stroke management	Proportion of suspected stroke/TIA patients who received a brain CT/MRI within 24 hours of arrival at ED.	92.9%* (92.8%)	52.0-97.3%	97.9% (97.7%)	Toronto East General Hospital	5, 7
7	Acute stroke management	Proportion of ischemic stroke patients who arrived at ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	47.7%* (31.6%)	0.0-59.7%	61.0% (61.2%)	Lakeridge Health, Oshawa	None
8	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	53.9%* (52.1%)	0.0-86.2%	89.7% (87.5%)	Bluewater Health, Sarnia	None
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	66.4% (67.0%)	0.0-84.8%	87.5% (83.7%)	Grey Bruce Health Services, Owen Sound	None
10	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	29.8%* (28.1%)	0.0-46.3%	12.4% (14.6%)	Halton Healthcare Services Corporation, Oakville	None
11	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	30.3% (30.9%)	22.0-49.5%	44.3% (42.6%)	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% (3.6%)	1.4-9.6%	12.8% (12.1%)	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.	12.0* (15.0)	7.0-15.0	6.0 (6.5)	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.	36.0%* (25.6%)	31.6-100%	73.1% (66.9%)	Trillium Health Partners, Mississauga Hospital	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.9* (0.7)	0.8-1.3	1.2 (1.1)	Trillium Health Partners, Mississauga Hospital	6, 12, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2011/12 and 2012/13.	5.2* (5.1)	-	8.5 (7.9)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	32.0% (27.0%)	9.1-50.0%	49.0% (48.6%)	Grey Bruce Health Services, Owen Sound	10
19	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	9.3% (8.7%)	1.4-14.5%	2.8% (3.7%)	Renfrew County 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).	6.8 (7.5)	0.0-34.9	-	-	3

Hospital Service Accountability Agreement indicators, 2010/11 - Data not available n/a Not applicable

1 Performance below the 50<sup>th</sup> percentile.  
 2 Performance at or above the 50<sup>th</sup> 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 Data not available or benchmark under development.  
 5 Facility-based analysis (excluding indicators 1, 2, 11, 12 and 19) for patients aged 18-108. Indicators 2, 3, 10, 11 and 13-20 are based on 2012/13 CIHI data; data in brackets are from the 2011/12 report card. Indicators 1, 4-9, and 12 are based on 2012/13 Ontario Stroke Audit (OSA) data; data in brackets are from the 2010/11 OSA. Low rates are desired for indicators 2, 3, 10, 13, 19 and 20.

6 The 2012/13 performance is statistically significantly different from the previous three-year performance, with \* indicating an improvement and † indicating a decline.  
 7 Provincial benchmarks are calculated using the ABC methodology on facility/sub-LHIN data. For indicators 2, 10, 11 and 13-19, data in brackets are 2011/12 benchmarks; for indicators 1, 4-9 and 12, data in brackets are 2010/11 benchmarks. For the benchmarking methodology, see Weisman et al. *Journal of Evaluation in Clinical Practice* 1999; 5(3):269-81.  
 8 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 44 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.

## INTERPRETATION OF 2012/13 STROKE REPORT CARD Champlain Local Health Integration Network

### PERFORMANCE OVERVIEW

The LHIN's year-over-year performance has generally been stable or improved. However, key performance indicators related to access to stroke unit care and early transition to rehabilitation remain well below Ontario benchmarks.

### AREAS OF PROGRESS

<b>Stroke Prevention</b>	Stroke prevention performance remained strong with exemplary age- and sex-adjusted inpatient admission rate and readmission rate at 30 days.
<b>Acute Stroke Management</b>	Proportion of ischemic stroke patients who arrived at the ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy increased from 31.6% to 47.7%.
<b>Stroke Rehabilitation</b>	Median FIM efficiency for moderate stroke increased from 0.7 to 0.9 and now falls within the acceptable performance category. There was a 3-day reduction in the median number of days between stroke onset and admission to stroke inpatient rehabilitation that likely contributed to this improvement.

### AREAS FOR IMPROVEMENT

<b>Access:</b> Proportion of stroke/TIA patients treated on a stroke unit at any time during an inpatient stay was 53.9%, well below the provincial benchmark of 89.7%.
<b>Effectiveness:</b> Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge was 79.3%, well below the provincial benchmark of 93.6%.
<b>Integration:</b> Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation (RCG-1) was 12 days, which is twice the Ontario benchmark of 6 days.
<b>Value:</b> Proportion of inpatient stroke rehabilitation patients achieving RPG active length of stay target (RCG-1) was 36.0%, which is less than half the Ontario benchmark of 73.1%.

### ASSOCIATED CURRENT OR PLANNED ACTIVITIES

The Champlain Regional Stroke Network (CRSN) is actively expanding the number of stroke units. Existing and planned units are as follows: Ottawa (Civic) (2003), Pembroke (2004), Ottawa (General) (2012), Cornwall (2013), Montfort (2014), Queensway Carleton (2015).
Stroke unit expansion and patient consolidation to stroke unit hospitals are being implemented through the Stroke Walk-In Protocol (2014) and CRSN Addendum to Paramedic Prompt Card for Acute Stroke Protocol (2014). The Stroke Walk-In Protocol will be expanded to patients outside the tPA treatment window when stroke unit capacity can accommodate this change.
The Champlain Regional Stroke Rehabilitation System (CRSRS) Project Charter has been approved (2013). The CRSRS Patient Flow Algorithm is slated for approval in 2014. Bruyere Continuing Care has agreed to pilot the CRSRS Patient Flow Algorithm once it is approved.
The CRSN Community Stroke Rehabilitation Pilot is under development as the third component of the CRSRS. The goal is to align a Health System Improvement Proposal with the new Stroke Quality-Based Procedures (QBP) funding model so that outpatient rehabilitation services can be piloted in the Cornwall area and then transitioned to permanent funding under QBP.

### OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

- Support establishing stroke units at the Montfort Hospital and Queensway Carleton Hospital.
- Fund and support a consistent and centralized electronic rehabilitation referral system across Champlain LHIN.
- Support the development and implementation of consistent and objective stroke rehabilitation standards and admission criteria across 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.

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## ONTARIO STROKE REPORT CARD, 2012/13 North Simcoe Muskoka Local Health Integration Network

■ Poor performance<sup>1</sup>
■ Acceptable performance<sup>2</sup>
■ Exemplary performance<sup>3</sup>
■ Benchmark not available<sup>4</sup>

### Local Health Integration Networks (LHINs)

- |                                    |                      |                         |
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Indicator No.	Care Continuum Category	Indicator <sup>5</sup>	LHIN FY 2012/13 <sup>6</sup> (2011/12)	Variance Within LHIN (Min-Max)	Provincial Benchmark <sup>7</sup>	High Performer <sup>8</sup>	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of patients who arrived at ED less than 3.5 hours from stroke symptom onset.	54.0%* (41.9%)	50.7-60.7%	55.3% (52.0%)	Rural Waterloo Sub-LHIN	12
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.3 (1.4)	1.2-2.0	1.1 (1.1)	Flamborough Sub-LHIN	11, 8
3	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	13.6 (14.4)	12.2-15.7	-	-	5, 14
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% (71.6%)	50.0-83.3%	87.4% (87.7%)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	62.5% (67.6%)	29.6-85.7%	93.6% (92.8%)	Rouge Valley Health System, Ajax	5
6	Acute stroke management	Proportion of suspected stroke/TIA patients who received a brain CT/MRI within 24 hours of arrival at ED.	88.9%* (89.9%)	79.2-96.6%	97.9% (97.7%)	Toronto East General Hospital	5, 7
7	Acute stroke management	Proportion of ischemic stroke patients who arrived at ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	33.2% (29.1%)	0.0-50.0%	61.0% (61.2%)	Lakeridge Health, Oshawa	None
8	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	25.5% (22.4%)	0.0-65.8%	89.7% (87.5%)	Bluewater Health, Sarnia	None
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	72.0% (72.9%)	59.4-87.9%	87.5% (83.7%)	Grey Bruce Health Services, Owen Sound	None
10	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	34.2%* (28.6%)	22.5-44.9%	12.4% (14.6%)	Halton Healthcare Services Corporation, Oakville	None
11	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	32.9% (35.8%)	21.7-40.8%	44.3% (42.6%)	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% (5.7%)	2.9-19.7%	12.8% (12.1%)	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 (7.0)	7.0-18.5	6.0 (6.5)	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.	58.9% (61.3%)	29.5-72.5%	73.1% (66.9%)	Trillium Health Partners, Mississauga Hospital	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	1.2 (1.1)	0.6-1.3	1.2 (1.1)	Trillium Health Partners, Mississauga Hospital	6, 12, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2011/12 and 2012/13.	10.4* (8.6)	-	8.5 (7.9)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	43.3% (36.8%)	32.1-52.2%	49.0% (48.6%)	Grey Bruce Health Services, Owen Sound	10
19	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	5.0% (4.5%)	1.7-8.9%	2.8% (3.7%)	Renfrew County 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 (8.3)	5.5-12.5	-	-	3

Hospital Service Accountability Agreement indicators, 2010/11 - Data not available n/a Not applicable

1 Performance below the 50<sup>th</sup> percentile.  
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 8 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 44 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.

## INTERPRETATION OF 2012/13 STROKE REPORT CARD

### North Simcoe Muskoka Local Health Integration Network

#### PERFORMANCE OVERVIEW

The LHIN was a high performer on indicators 1, 16 and 17. There was little overall change in the LHIN performance (colour bands). Where there were targeted local efforts, slight improvements were noted. Significant variance within the LHIN continued.

#### AREAS OF PROGRESS

<b>Stroke Prevention</b>	Public awareness, patient education, admission rate; patients accessing emergency services in a more timely fashion following stroke symptom onset has allowed a greater opportunity for early intervention.
<b>Acute Stroke Management</b>	Focused efforts to increase stroke unit utilization at one site have improved performance on indicator 8.
<b>Stroke Rehabilitation</b>	Although variation persists, there is some improvement in the rehabilitation FIM efficiency, and the proportion of severe stroke patients admitted to inpatient rehabilitation has increased by more than 6%.
<b>Community Reintegration</b>	Focused efforts by the North Simcoe Muskoka CCAC has resulted in an increase in CCAC visits. Ongoing efforts are required to fully implement a model of care for community and outpatient rehabilitation.

#### AREAS FOR IMPROVEMENT

#### ASSOCIATED CURRENT OR PLANNED ACTIVITIES

<b>Access:</b> A standard of best practice acute stroke care across the North Simcoe Muskoka LHIN.	<ul style="list-style-type: none"> <li>• Advance 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.</li> <li>• Explore feasibility of an additional Telestroke site to advance hyperacute services as part of broader system planning.</li> </ul>
<b>Appropriateness:</b> A standardized approach to timely and appropriate inpatient rehabilitation services (3 hours/day intensity, minimum 6 days/week, 7 days/week admissions).	<ul style="list-style-type: none"> <li>• System-level planning to increase early access and rehabilitation intensity for moderate and severe stroke inpatients.</li> <li>• Use of Alpha FIM to triage for rehabilitation services.</li> </ul>
<b>Integration:</b> Model of care for outpatient prevention, rehabilitation (admission within 2 weeks post-discharge, 2-3 visits/week for 8-12 weeks) and community reintegration stroke services.	<ul style="list-style-type: none"> <li>• Finalize North Simcoe Muskoka LHIN Stroke Rehabilitation and Transition Model to support seamless transitions for stroke patients (includes model of care for coordinated secondary stroke prevention services).</li> <li>• Finalize North Simcoe Muskoka LHIN Community Business Case.</li> </ul>
<b>Value:</b> Stroke data quality	<ul style="list-style-type: none"> <li>• Develop data quality action plans in collaboration with decision support teams at district stroke centres.</li> </ul>

#### OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

Support the LHIN in stroke system redesign and QBP Implementation by:

- Finalizing the implementation plan and establish time lines for North Simcoe Muskoka LHIN Demonstration Project if approved (includes governance model, communication plan, evaluation plan, education plan, etc.).
- Assisting with the implementation and monitoring of phase one and two of Stroke QBP (standardized care pathway, data quality, etc.).
- Supporting the North Simcoe Muskoka LHIN as an early adopter at the Regional Vascular Health Collaborative planning tables.

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## ONTARIO STROKE REPORT CARD, 2012/13 North East Local Health Integration Network

■ Poor performance<sup>1</sup>
■ Acceptable performance<sup>2</sup>
■ Exemplary performance<sup>3</sup>
■ Benchmark not available<sup>4</sup>

### Local Health Integration Networks (LHINs)

- |                                    |                      |                         |
|------------------------------------|----------------------|-------------------------|
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| 2 South West                       | 7 Toronto Central    | 12 North Simcoe Muskoka |
| 3 Waterloo Wellington              | 8 Central            | 13 North East           |
| 4 Hamilton Niagara Haldimand Brant | 9 Central East       | 14 North West           |
| 5 Central West                     | 10 South East        |                         |

Indicator No.	Care Continuum Category	Indicator <sup>5</sup>	LHIN FY 2012/13 <sup>6</sup> (2011/12)	Variance Within LHIN (Min-Max)	Provincial Benchmark <sup>7</sup>	High Performer <sup>8</sup>	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of patients who arrived at ED less than 3.5 hours from stroke symptom onset.	50.2%* (46.4%)	33.0-59.9%	55.3% (52.0%)	Rural Waterloo Sub-LHIN	12
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	1.6* (1.8)	1.3-2.3	1.1 (1.1)	Flamborough Sub-LHIN	11, 8
3	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	16.6 (17.0)	0.0-71.8	-	-	5, 14
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% (77.5%)	50.0-100%	87.4% (87.7%)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	83.5%* (84.5%)	40.0-91.3%	93.6% (92.8%)	Rouge Valley Health System, Ajax	5
6	Acute stroke management	Proportion of suspected stroke/TIA patients who received a brain CT/MRI within 24 hours of arrival at ED.	90.4%* (80.0%)	42.9-96.2%	97.9% (97.7%)	Toronto East General Hospital	5, 7
7	Acute stroke management	Proportion of ischemic stroke patients who arrived at ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	29.2%* (25.7%)	0.0-42.2%	61.0% (61.2%)	Lakeridge Health, Oshawa	None
8	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	68.9%* (41.4%)	0.0-92.9%	89.7% (87.5%)	Bluewater Health, Sarnia	None
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	62.0%* (64.8%)	7.7-81.0%	87.5% (83.7%)	Grey Bruce Health Services, Owen Sound	None
10	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	33.1%* (39.1%)	0.0-75.0%	12.4% (14.6%)	Halton Healthcare Services Corporation, Oakville	None
11	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	35.3%* (31.3%)	12.0-60.0%	44.3% (42.6%)	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% (9.8%)	0.0-15.4%	12.8% (12.1%)	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)	6.0-11.0	6.0 (6.5)	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% (37.8%)	33.3-87.5%	73.1% (66.9%)	Trillium Health Partners, Mississauga Hospital	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.6 (0.7)	0.6-2.1	1.2 (1.1)	Trillium Health Partners, Mississauga Hospital	6, 12, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2011/12 and 2012/13.	5.1* (5.3)	-	8.5 (7.9)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	38.1% (23.1%)	24.7-70.0%	49.0% (48.6%)	Grey Bruce Health Services, Owen Sound	10
19	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	3.5% (5.8%)	0.0-5.2%	2.8% (3.7%)	Renfrew County 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).	7.5 (8.9)	0.0-42.9	-	-	3

Hospital Service Accountability Agreement indicators, 2010/11 - Data not available n/a Not applicable

1 Performance below the 50<sup>th</sup> percentile.  
 2 Performance at or above the 50<sup>th</sup> 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 Data not available or benchmark under development.  
 5 Facility-based analysis (excluding indicators 1, 2, 11, 12 and 19) for patients aged 18-108. Indicators 2, 3, 10, 11 and 13-20 are based on 2012/13 CIHI data; data in brackets are from the 2011/12 report card. Indicators 1, 4-9, and 12 are based on 2012/13 Ontario Stroke Audit (OSA) data; data in brackets are from the 2010/11 OSA. Low rates are desired for indicators 2, 3, 10, 13, 19 and 20.

6 The 2012/13 performance is statistically significantly different from the previous three-year performance, with \* indicating an improvement and † indicating a decline.  
 7 Provincial benchmarks are calculated using the ABC methodology on facility/sub-LHIN data. For indicators 2, 10, 11 and 13-19, data in brackets are 2011/12 benchmarks; for indicators 1, 4-9 and 12, data in brackets are 2010/11 benchmarks. For the benchmarking methodology, see Weisman et al. *Journal of Evaluation in Clinical Practice* 1999; 5(3):269-81.  
 8 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 44 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.



## INTERPRETATION OF 2012/13 STROKE REPORT CARD North East Local Health Integration Network

### PERFORMANCE OVERVIEW

The LHIN improved in 12 of the 19 indicators in 2012/13. Many indicators trended closer to acceptable performance levels; however, the LHIN underperformed across the care continuum in relation to provincial benchmarks.

### AREAS OF PROGRESS

<b>Acute Stroke Management</b>	Improved percentage of patients receiving CT or MRI within 24 hours of arrival at emergency department (90.4% in 2012/13 vs. 80.0% in 2010/11).
<b>Acute Stroke Management</b>	Improved percentage of patients being treated on a stroke unit during their inpatient stay (68.9% in 2012/13 vs. 41.4% in 2010/11). Note: the definition of stroke unit will become more stringent in 2014/15.
<b>Stroke Rehabilitation</b>	Improved percentage of patients admitted to inpatient rehabilitation that have had a severe stroke (38.1% vs. 23.1% in 2011/12).
<b>Community Reintegration</b>	Decline in percentage of patients discharged from acute care to LTC/CCC (3.5% vs. 5.8% previously).

### AREAS FOR IMPROVEMENT

### ASSOCIATED CURRENT OR PLANNED ACTIVITIES

<b>Access:</b> Further improvement in access to best practice stroke interventions including CT/MRI, carotid imaging, thrombolytic therapy and stroke unit care for all LHIN residents.	In conjunction with the North East LHIN QBP Implementation Committee, working toward regional consolidation of inpatient stroke care (including standardized care maps/order sets utilized across the region).
<b>Access:</b> Improving overall access to inpatient rehabilitation and meeting benchmarks for therapy intensity, FIM efficiency and length of stay.	In conjunction with the North East LHIN QBP Implementation Committee, examining future need for inpatient rehabilitation beds and developing strategies to increase the intensity of therapies, decrease length of stay and improve FIM efficiency.
<b>Appropriateness:</b> Improved access to and utilization of the regional stroke prevention clinic model to ensure TIA patients are treated urgently as outpatients and, if possible, not admitted to hospital.	The Northeastern OSN is developing a business plan to coincide with the Hay Group report and recommendations regarding improved utilization of outpatient stroke prevention clinics.
<b>Access:</b> Improved access to outpatient Stroke Re-Check Clinics and outpatient rehabilitation services across the LHIN.	The Northeastern OSN is developing a regional model of outpatient stroke services including the use of telemedicine.

### OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

The Northeastern Ontario Stroke Network was an active member of the North East LHIN Clinical Services Review Steering Committee and will be a very active participant with the Stroke QBP Implementation. The Stroke Network has Carol Halt, LHIN Rehabilitation and CCC Lead, as a voting member; this provides for a strong partnership and communication.

### CONTACT

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**ONTARIO STROKE REPORT CARD, 2012/13**  
**North West Local Health Integration Network**

■ Poor performance<sup>1</sup> ■ Acceptable performance<sup>2</sup> ■ Exemplary performance<sup>3</sup> ■ Benchmark not available<sup>4</sup>

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 <sup>5</sup>	LHIN FY 2012/13 <sup>6</sup> (2011/12)	Variance Within LHIN (Min-Max)	Provincial Benchmark <sup>7</sup>	High Performer <sup>8</sup>	
						Sub-LHIN/Facility	LHIN
1	Public awareness and patient education	Proportion of patients who arrived at ED less than 3.5 hours from stroke symptom onset.	42.4% (43.7%)	29.4-46.7%	55.3% (52.0%)	Rural Waterloo Sub-LHIN	12
2	Prevention of stroke	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population).	2.0 (1.9)	2.1-2.5	1.1 (1.1)	Flamborough Sub-LHIN	11, 8
3	Prevention of stroke	Risk-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	9.1 (12.0)	0.0-48.8	-	-	5, 14
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% (72.4%)	80.0-100%	87.4% (87.7%)	William Osler Health System, Etobicoke	14
5	Prevention of stroke	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	88.5%* (85.4%)	35.7-96.0%	93.6% (92.8%)	Rouge Valley Health System, Ajax	5
6	Acute stroke management	Proportion of suspected stroke/TIA patients who received a brain CT/MRI within 24 hours of arrival at ED.	94.8%* (91.0%)	92.1-95.2%	97.9% (97.7%)	Toronto East General Hospital	5, 7
7	Acute stroke management	Proportion of ischemic stroke patients who arrived at ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	47.5%* (31.5%)	25.0-57.1%	61.0% (61.2%)	Lakeridge Health, Oshawa	None
8	Acute stroke management	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	77.4%* (70.1%)	0.0-91.8%	89.7% (87.5%)	Bluewater Health, Sarnia	None
9	Acute stroke management	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	73.5% (88.9%)	21.1-85.7%	87.5% (83.7%)	Grey Bruce Health Services, Owen Sound	None
10	Acute stroke management	Proportion of ALC days to total length of stay in acute care.	21.9%* (32.2%)	0.0-76.4%	12.4% (14.6%)	Halton Healthcare Services Corporation, Oakville	None
11	Acute stroke management	Proportion of acute stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation.	35.3% (39.1%)	24.3-41.9%	44.3% (42.6%)	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% (16.1%)	4.6-16.9%	12.8% (12.1%)	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.	11.0 (10.5)	11.0-11.0	6.0 (6.5)	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.	44.4% (50.8%)	44.4%-44.4%	73.1% (66.9%)	Trillium Health Partners, Mississauga Hospital	None
16	Stroke rehabilitation	Median FIM efficiency for moderate stroke in inpatient rehabilitation.	0.7 (0.7)	0.7-0.7	1.2 (1.1)	Trillium Health Partners, Mississauga Hospital	6, 12, 9
17	Stroke rehabilitation	Mean number of CCAC visits provided to stroke/TIA patients in 2011/12 and 2012/13.	4.0 (4.0)	-	8.5 (7.9)	South East CCAC	10, 12
18	Stroke rehabilitation	Proportion of patients admitted to inpatient rehabilitation with severe strokes (RPG = 1100 or 1110).	41.9% (41.4%)	41.9%-41.9%	49.0% (48.6%)	Grey Bruce Health Services, Owen Sound	10
19	Reintegration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	6.3% (5.3%)	2.6-10.2%	2.8% (3.7%)	Renfrew County 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)	0.0-92.4	-	-	3

Hospital Service Accountability Agreement indicators, 2010/11 - Data not available n/a Not applicable

1 Performance below the 50<sup>th</sup> percentile.  
 2 Performance at or above the 50<sup>th</sup> 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 Data not available or benchmark under development.  
 5 Facility-based analysis (excluding indicators 1, 2, 11, 12 and 19) for patients aged 18-108. Indicators 2, 3, 10, 11 and 13-20 are based on 2012/13 CIHI data; data in brackets are from the 2011/12 report card. Indicators 1, 4-9, and 12 are based on 2012/13 Ontario Stroke Audit (OSA) data; data in brackets are from the 2010/11 OSA. Low rates are desired for indicators 2, 3, 10, 13, 19 and 20.

6 The 2012/13 performance is statistically significantly different from the previous three-year performance, with \* indicating an improvement and † indicating a decline.  
 7 Provincial benchmarks are calculated using the ABC methodology on facility/sub-LHIN data. For indicators 2, 10, 11 and 13-19, data in brackets are 2011/12 benchmarks; for indicators 1, 4-9 and 12, data in brackets are 2010/11 benchmarks. For the benchmarking methodology, see Weisman et al. *Journal of Evaluation in Clinical Practice* 1999; 5(3):269-81.  
 8 High performers include acute care institutions treating more than 100 stroke patients per year, rehabilitation facilities admitting more than 44 stroke patients per year, or sub-LHINs with at least 30 stroke patients per year.

## INTERPRETATION OF 2012/13 STROKE REPORT CARD North West Local Health Integration Network

### PERFORMANCE OVERVIEW

Where comparative data were available, 9 of 19 indicators showed improvement. LHIN strengths include treatment of atrial fibrillation, timely brain imaging and referral to outpatient rehabilitation. The LHIN's 30-day mortality rate places it as a high performer provincially.

### AREAS OF PROGRESS

<b>Acute Stroke Management</b>	Timely CT/MRI (94.8% vs. benchmark 97.9%) improved through collaboration with the ED and diagnostic imaging. The majority of stroke patients were cared for in the stroke unit (77.4% vs. benchmark 89.7%).
<b>Stroke Prevention</b>	Ischemic stroke/TIA patients with atrial fibrillation prescribed anticoagulants on discharge from acute care: 85.5% (benchmark 87.4%). Thirty-day mortality per 100 patients: 9.1 in 2012/13, 12.0 in 2011/12.
<b>Stroke Rehabilitation</b>	Stroke patients discharged from acute care who were referred to outpatient rehab: 13.2% (benchmark 12.8%). The LHIN is the provincial high performer despite a paucity of services in the region.
<b>Community Reintegration</b>	An improvement in the 30-day all-cause readmission rate from 8.6% in 2011/12 to 7.4% in 2012/13 places the LHIN at par with the provincial rate.

### AREAS FOR IMPROVEMENT

### ASSOCIATED CURRENT OR PLANNED ACTIVITIES

<b>Effectiveness:</b> Less than half of those eligible for tPA received the medication.	A working group has been instituted in the regional stroke centre with a mandate to improve door-to-needle times. A regional acute stroke working group has been established to review processes related to acute stroke care at the Telestroke site.
<b>Appropriateness:</b> The proportion of ALC days to total length of stay in acute care was well above the provincial benchmark.	We are working in collaboration with inpatient rehabilitation to streamline patient flow from acute care. We have collaborated with the laboratory, diagnostic imaging, and cardiology to improve timely access to and timely reporting of diagnostic tests and procedures.
<b>Access:</b> The admission rate for stroke and TIA was almost double the provincial benchmark.	Plans are in place to consult with regional stakeholders for the development of a LHIN-wide TIA triage tool that will help to identify the right care in the right place at the right time, with the potential to decrease the number of TIA and minor stroke admissions.
<b>Effectiveness:</b> The proportion of inpatient rehabilitation patients achieving the active length of stay target was lower than the provincial benchmark.	Plans are underway to develop a dedicated inpatient rehabilitation stroke unit with increased staffing and the potential for weekend therapy. Consultations are underway to support the development of an early supported discharge service for enhanced community-based care

### OPPORTUNITIES FOR LHIN AND STROKE NETWORK COLLABORATION

Collaboration efforts should include a regional plan to address the areas for improvement highlighted in this report card. Support is required for capacity planning and organizational implementation of stroke best practice recommendations across the continuum of care. The establishment of a dedicated stroke unit within the region's only acute stroke centre is a priority that will help to support the ongoing delivery of quality stroke care in Northwestern Ontario.

### CONTACT

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# Appendices

## APPENDIX A Indicator Definitions

Through a series of internal reviews, and utilizing the Canadian Stroke Strategy's 2008 Performance Measurement Manual,<sup>2</sup> the Stroke Evaluation and Quality Committee (SEQC) identified a core set of 45 performance indicators and associated databases to

evaluate how well the Ontario Stroke System provides care across the province. The SEQC also identified a subset of 20 key indicators considered integral to system efficiency and effectiveness to be presented in the report cards. Five of the 20

indicators are population-based; the remainder are facility-based indicators. The majority (75%) of the indicators are process-based.

Indicator No.	Definition	Calculation	Data Source
<b>Public Awareness and Patient Education</b>			
1	Proportion of patients who arrived at ED less than 3.5 hours from stroke symptom onset	<b>Numerator:</b> Number of stroke/TIA patients arriving at an ED within 3.5 hours of stroke/TIA symptom onset (includes UTD) <b>Denominator:</b> Total number of patients admitted to an ED for suspected stroke/TIA (includes UTD) <b>*Population-based analysis (patient's LHIN)</b>	OSA Acute (2012/13)
<b>Prevention of Stroke</b>			
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 <b>*Population-based analysis (patient's LHIN), standardized using Ontario's 2003/04 population</b>	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, 2012 and March 31, 2013 (includes inpatients only) <b>Risk-adjusted model:</b> 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	<b>Numerator:</b> 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 <b>Denominator:</b> 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 GI bleed, cirrhosis, renal disease or a GI hemorrhage while in hospital	OSA Acute (2012/13)
5	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge	<b>Numerator:</b> Number of ischemic stroke inpatients without atrial fibrillation who had carotid imaging completed prior to hospital discharge (does not include patients where documentation indicated "booked") <b>Denominator:</b> Total number of admitted ischemic stroke inpatients without atrial fibrillation (history of or new onset)	OSA Acute (2012/13)
<b>Acute Stroke Management</b>			
6	Proportion of suspected stroke/TIA patients who received a brain CT/MRI scan within 24 hours of arrival at ED	<b>Numerator:</b> Number of stroke/TIA/UTD patients who arrived at the ED and had an initial CT or MRI scan completed within 24 hours of arrival <b>Denominator:</b> Total number of stroke/TIA/UTD patients admitted to an ED and/or inpatient care (excludes patients with missing scan time)	OSA Acute (2012/13)
7	Proportion of ischemic stroke patients who arrived at ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy (tPA)	<b>Numerator:</b> Number of ischemic stroke patients who received thrombolytic therapy <b>Denominator:</b> Total number of ischemic stroke patients who arrived at an ED within 3.5 hours of stroke symptom onset (excludes patients with contraindications)	OSA Acute (2012/13)

2 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 April 8, 2014 at [http://www.strokebestpractices.ca/wp-content/uploads/2012/07/CSS-Performance-Manual-2008\\_EN.pdf](http://www.strokebestpractices.ca/wp-content/uploads/2012/07/CSS-Performance-Manual-2008_EN.pdf).

8	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay (HSAA indicator)	<b>Numerator:</b> Number of stroke/TIA inpatients treated in an acute care stroke unit at any time during hospital stay <b>Denominator:</b> Total number of stroke/TIA patients admitted to hospital <b>*A stroke unit is a specialized, geographically-located hospital unit with a dedicated stroke team and stroke resources (e.g., care pathway, educational materials, monitored beds). The unit does not need to have all of these resources or be exclusively used for stroke patients, but it must be in one location in the hospital.</b>	OSA Acute (2012/13)
9	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care	<b>Numerator:</b> Number of stroke patients with a documented dysphagia screening or assessment performed within 72 hours of hospital arrival <b>Denominator:</b> Total number of acute care stroke inpatients (excludes unconscious patients and TIA patients)	OSA Acute (2012/13)
10	Proportion of Alternate Level of Care (ALC) days to total length of stay (LOS) in acute care	<b>Numerator:</b> Sum of ALC days <b>Denominator:</b> Total number of LOS days among stroke/TIA patients admitted to inpatient care	CIHI-DAD
11	Proportion of stroke (excluding TIA) patients discharged from acute care and admitted to inpatient rehabilitation (HSAA indicator)	<b>Numerator:</b> Number of stroke inpatients admitted to inpatient rehabilitation <b>Denominator:</b> Total number of stroke inpatients discharged alive from acute care (excludes TIA patients) <b>*Population-based analysis (patient's LHIN)</b>	CIHI-DAD, CIHI-NRS
<b>Stroke Rehabilitation</b>			
12	Proportion of stroke (excluding TIA) patients discharged from acute care who received a referral for outpatient rehabilitation	<b>Numerator:</b> Number of stroke patients discharged alive from acute care and referred to outpatient rehabilitation <b>Denominator:</b> Total number of stroke patients discharged alive from acute care (excludes TIA patients) <b>*Population-based analysis (patient's LHIN)</b>	OSA Acute
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 receive	Unavailable in 2012/13	To be determined
15	Proportion of inpatient stroke rehabilitation patients achieving RPG length of stay target (RCG-1)	<b>Numerator:</b> Number of patients within each RPG achieving target active length of stay <b>Denominator:</b> Number of stroke inpatient rehabilitation patients (RCG-1)	CIHI-NRS
16	Median FIM <sup>3</sup> 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) <b>* Moderate disability = RPGs 1120, 1130 and 1140</b>	CIHI-NRS
17	Mean number of CCAC visits provided to stroke/TIA patients in 2011/12 and 2012/13	<b>Numerator:</b> 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 2011/12 and 2012/13) <b>Denominator:</b> Total number of stroke/TIA patients who received a CCAC rehabilitation visit within 60 days of discharge from inpatient care (DAD 2011/12)	CIHI-DAD, HCD-OACCAC
<b>System Integration</b>			
18	Proportion of patients admitted to inpatient rehabilitation with severe stroke	<b>Numerator:</b> Number of stroke patients with severe disability (RPG 1100 or 1110) in inpatient rehabilitation <b>Denominator:</b> 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)	<b>Numerator:</b> Number of stroke/TIA patients discharged to LTC/CCC <b>Denominator:</b> Total number of stroke/TIA admitted patients discharged alive (excludes patients originating from LTC/nursing home/CCC) <b>*Population-based analysis (patient's LHIN)</b>	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)	<b>Numerator:</b> Total number of non-elective readmissions to acute inpatient care due to any cause (CIHI-DAD only) <b>Denominator:</b> Total number of alive ED/DAD stroke separations between April 1, 2012 and March 31, 2013 (CIHI-DAD/NACRS) (excludes transfers and elective admissions)	CIHI-DAD, CIHI-NACRS

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

## APPENDIX B Methodology

### Indicator Performance

Performance was analyzed at the facility, sub-LHIN, LHIN and provincial levels, excluding indicator 14 for which there was no data source available. The range of performance results (minimum and maximum) 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 results across all facilities within the LHIN, including those with small sample sizes.

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 using a chi-square test, a Wilcoxon rank-sum test, and Poisson and logistic regressions where appropriate.

### Benchmark Calculations

Provincial benchmarks were calculated for a subset of indicators presented in the Ontario Stroke Report Cards. These calculations followed the Achievable Benchmarks of Care (ABC) methodology,<sup>4</sup> which

summarizes the performance results of the top-ranked facilities representing at least 20% of all patients eligible for the appropriate care. The calculations used demonstrated care data from a few facilities (i.e., not only the top-ranked facility), and therefore the resulting benchmarks were achievable.

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 process indicator;
2. Beginning with the highest-performing care provider (note that low performance results are desired for indicators 2, 3, 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, 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.

### Colour Banding

Red, green and yellow colour bands were used to distinguish levels of regional performance relative to the benchmark for each indicator, with red representing poor performance (below the 50<sup>th</sup> percentile), green indicating exemplary performance (within 5% of the benchmark), and yellow representing acceptable performance (at or above the 50<sup>th</sup> percentile but beyond 5% of the benchmark).

4 Weissman NW, Allison JJ, Keife CI, et al. Achievable benchmarks of care: the ABCs of benchmarking. *Journal of Evaluation in Clinical Practice* 1999; 5(3):269-81.

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## 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. 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 40 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.



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

Indicator	High-Performing Facility/Sub-LHIN	Contact Information
Proportion of patients who arrived at ED less than 3.5 hours from stroke symptom onset	Rural Waterloo Sub-LHIN	Rhonda Whiteman Interim Program Director, Central South Regional Stroke Program mnicolr@hhsc.ca 905-527-4322 ext. 46705
Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 population)	Flamborough Sub-LHIN	Rhonda Whiteman Interim Director, Central South Regional Stroke Program mnicolr@hhsc.ca 905-527-4322 ext. 46705
Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed or recommended anticoagulant therapy on discharge from acute care	William Osler Health System, Etobicoke	Nicole Pageau Regional Director, West GTA Stroke Network nicole.pageau@trilliumhealthpartners.ca 905-848-7580 ext. 5476 or 3551
Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge	Rouge Valley Health System, Ajax	Jacqueline Willems Regional Stroke Director, South East Toronto Stroke Network willemsj@smh.ca 416-864-6060 ext. 3537
Proportion of suspected stroke/TIA patients who received a brain CT/MRI scan within 24 hours of arrival at ED	Toronto East General Hospital	Shelley Sharp Regional Director, Toronto West Stroke Network shelley.sharp@uhn.ca 416-603-5076
Proportion of ischemic stroke patients who arrived at ED less than 3.5 hours from symptom onset and received acute thrombolytic therapy (tPA)	Lakeridge Health, Oshawa	Amy Maebrae-Waller District Stroke Coordinator, Lakeridge Health Corporation awaller@lakeridgehealth.on.ca 905-576-8711 ext. 2553
Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay	Bluewater Health, Sarnia	Linda Dykes Manager, Sarnia Lambton District Stroke Centre ldykes@bluewaterhealth.ca 519-464-4400 ext. 4465
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, Grey Bruce District Stroke Centre JRustonBerge@gbhs.on.ca 519-376-2121 ext. 2920
Proportion of ALC days to total length of stay in acute care	Halton Healthcare Services, Oakville	Nicole Pageau Regional Director, West GTA Stroke Network nicole.pageau@trilliumhealthpartners.ca 905-848-7580 ext. 5476 or 3551
Proportion of 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

Indicator	High-Performing Facility/Sub-LHIN	Contact Information
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 Program Director, Northwestern Ontario Regional Stroke Network kmillc@tbh.net 807-684-6702
Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation (RCG-1)	Bluewater Health, Sarnia	Linda Dykes Manager, Sarnia Lambton District Stroke Centre ldykes@bluewaterhealth.ca 519-464-4400 ext. 4465
Proportion of inpatient stroke rehabilitation patients achieving RPG length of stay target (RCG-1)	Trillium Health Partners, Mississauga Hospital	Nicole Pageau Regional Director, West GTA Stroke Network nicole.pageau@trilliumhealthpartners.ca (905) 848-7580 ext. 5476 or 3551
Median FIM efficiency for moderate stroke in inpatient rehabilitation (RCG-1)	Trillium Health Partners, Mississauga Hospital	Nicole Pageau Regional Director, West GTA Stroke Network nicole.pageau@trilliumhealthpartners.ca (905) 848-7580 ext. 5476 or 3551
Mean number of CCAC visits provided to stroke/TIA patients in 2011/12 and 2012/13	South East Community Care Access Centre	Gwen Brown Community and LTC Coordinator, Stroke Network of Southeastern Ontario browng2@kgh.kari.net 613-549-6666 ext. 6867  Jo Mather Client Services Manager, South East Community Care Access Centre jo.mather@se-ccac.on.ca 613-544-8200 ext. 4112
Proportion of patients admitted to inpatient rehabilitation with severe stroke (RPG = 1100 or 1110) (RCG-1)	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
Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC)	Renfrew County Sub-LHIN	Jim Lumsden Director, Champlain Regional Stroke Network jlumsden@toh.on.ca (613) 798-5555 ext. 16167

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## APPENDIX D About the Organizations Involved in this Report

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### 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 OSS, 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 procedures (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 Stroke System

The Ontario Stroke System is a client-centred collaboration of 11 **Regional Stroke Networks** supporting the province's 14 Local Health Integration Networks. Each region has a regional stroke centre and many have one or more **district stroke centres**. Each stroke network is a collaborative partnership of health care organizations and providers that spans the care continuum from prevention to community re-engagement. Regional Stroke Networks develop and implement plans and strategies to achieve equitable access and improve outcomes for stroke survivors and their families through the integration of stroke best practices across the care continuum.

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### 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**. This report presents high-quality, evidence-based stroke care recommendations in a standardized framework to support health care professionals in all disciplines. Implementation of these recommendations is expected to contribute to reducing practice variations and closing the gaps between evidence and practice.

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### 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.

## APPENDIX E 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
CCRS	Continuing Care Reporting System
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
DC Link	Discharge Link; an initiative that delivers enhanced rehabilitation therapy in community settings through CCAC 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
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 is held under a formal memorandum of understanding since 2008. E-Stroke is considered a standard of practice in Toronto.

FIM	Functional Independence Measure. FIM is a registered trademark of Uniform Data System for Medical Rehabilitation, a division of UB Foundation Activities, Inc.
GI	Gastrointestinal
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
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
Networks of Centres of Excellence	Fourteen large-scale, academic-led virtual research centres that bring together multi-disciplinary partners from academia, industry, government and not-for-profit organizations
OSA Acute	Ontario Stroke Audit of Acute Care Facilities
OSN	Ontario Stroke Network; provides provincial leadership and coordination for the OSS
OSS	Ontario Stroke Strategy (or System). A collaborative system of a provider organization and partners who deliver stroke care across the province and the care continuum.
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
RCG	Rehabilitation Client Group. In the CIHI-NRS, the RCG describes the primary reason for admission to rehabilitation.
RD	Regional director
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.

<b>Term/Acronym</b>	<b>Definition</b>
Separation	Release of a patient from a course of care
SEQC	Stroke Evaluation and Quality Committee
SPOR	Strategy for Patient-Oriented Research
SSPC	Secondary stroke prevention clinic
Stroke	Occurs when a vessel in the brain ruptures or is blocked by a blood clot
Stroke unit	Specialized, geographically-located hospital unit with dedicated stroke team and stroke resources
Sub-LHIN	A geographic subdivision of a Local Health Integration Network
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.
UTD	Unable to determine; based on available data in the patient’s medical records, or on clinical presentation and/or findings





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