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Findings and Exhibits—Paediatric Stroke

Background and Purpose

For childhood stroke, reported incidence rates have ranged widely from 2 to 13 per 100,000 children per year, supporting a need for more robust paediatric stroke data.[11,12] In Ontario to date, no funding has been provided to enhance dedicated stroke care. Incidence and indicators of care and outcomes are poorly characterized for childhood stroke.

The paediatric stroke data in this report (exhibits 6.1 to 8.5) were calculated based on patients identified solely by ICD-10 code searches (see Appendix B) in any of the diagnostic code fields contained in the Canadian Institute for Health Information's Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (NACRS). These data, while valuable, underestimate the incidence and severity of childhood stroke in Ontario. Data published in the 2010 Ontario Stroke Evaluation Technical Report[13] demonstrated important discrepancies in paediatric stroke incidence and severity indicators between children identified solely by ICD codes (the non-validated cohort) and children initially identified by ICD and validated by chart abstraction (the validated cohort): ***the non-validated cohort data underestimated ischemic stroke incidence*** (1.38 per 100,000 per year for the non-validated cohort vs. 2.25 for the validated cohort); ***length of stay*** (two- to three-fold longer in the validated cohort) and ***mortality rates for ischemic stroke*** (5.7% in the validated cohort vs. 2.0% in the non-validated cohort—a nearly three-fold increase).

Through the Registry of the Canadian Stroke Network (RCSN) audit, over the next several years we will have current stroke statistics for validated childhood stroke patients. The RCSN is, for the first time, including patients under age 18 in its 2010/11 Ontario stroke audit. The validated chart review data will be published in the coming years. In the meantime, these data enable a preliminary understanding of changes regarding paediatric stroke in Ontario from 2003/04 to 2009/10 in comparable, albeit non-validated, cohorts of children.

6. Emergency Department Care

Findings

- **Exhibit 6.1:** The annual number of paediatric stoke/TIA patients presenting to the emergency department (ED) did not change significantly from 2003/04 to 2009/10. Over the seven years, 928 paediatric stroke patients were identified. The median age was 11 years (IQR 5–15). The age distribution was: 8.3% under the age of one year, 20.7% from 1–6 years, 28.7% from 7–12 years and 42.3% from 13–18 years. A male predominance (55.4%) was observed in all years, which is consistent with the current literature.[14]

  Arterial ischemic stroke was the dominant stroke type (66.2%) among paediatric stroke/TIA patients arriving at the ED, followed by hemorrhagic strokes (30.1%) and cerebral sinovenous thrombosis (3.8%).

- **Exhibit 6.2:** The provincial age- and sex-adjusted rate of ED visits for paediatric stroke/TIA per 100,000 population under age 18 declined from 5.2 to 4.2 between 2003/04 and 2006/07, but returned to the 2003/04 level of 5.2 between 2006/07 and 2009/10.

  There was wide variation across LHINs in 2009/10 in the annual incidence of stroke/TIA-related ED visits per 100,000 population under age 18, ranging from 2.0 to 12.0 ($p<0.0001$).

[11] De Veber G. Stroke and the child's brain: an overview of epidemiology, syndromes and risk factors. *Curr Opin Neurol*. 2002; 15(2):133–8.
[12] Fullerton HJ, Wu YW, Zhao S, Johnston SC. Risk of stroke in children: ethnic and gender disparities. *Neurology*. 2003; 61(2):189–94.
[13] Hall R, O'Callaghan C, Bayley M, Meyer S, Khan F, Liu Y, Linkewich B, Lumsden J, Willems D. *Ontario Stroke Evaluation Report 2010: Technical Report*. Toronto: Institute for Clinical Evaluative Sciences; 2010.
[14] Golomb MR, Fullerton HJ, Nowak-Gottl U, DeVeber G, International Pediatric Stroke Study Group. Male predominance in childhood ischemic stroke: findings from the international pediatric stroke study. *Stroke*. 2009; 40(1):52–7.

- **Exhibit 6.3:** Almost half (48.9%) of Ontario's paediatric stroke patients presented at tertiary care centres, with the Hospital for Sick Children (HSC) treating almost a third of them. Compared to HSC, non-tertiary hospitals saw more paediatric stroke patients who were under one year of age or age seven and over.

Conclusions and Recommendations

The prevalence of paediatric stroke in Ontario is approximately 4.8 per 100,000 population under age 18. Paediatric stroke occurs in every region of the province. The presented data underscores the need for education and awareness of paediatric stroke in all Ontario emergency departments. Consistent imaging protocols and a thorough understanding of the wide variety of clinical presentations of paediatric stroke will ensure early identification and proper treatment. Canadian Stroke Strategy Best Practice Guidelines for emergency treatment of paediatric stroke can then be implemented. To continue to adequately monitor and assess the care of paediatric stroke patients in Ontario, future studies of paediatric stroke/TIA should include non-tertiary facilities.

Exhibit 6.1

Number and percentage of paediatric stroke or transient ischemic attack (TIA) patients[1] presenting to the emergency department, in Ontario and by sex, age group and stroke type, 2003/04 to 2009/10

Characteristic	All Years	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Ontario[2], n	**928**	**145**	**127**	**131**	**118**	**127**	**138**	**142**
Sex, n (%)								
Female	414 (44.6)	65 (44.8)	49 (38.6)	58 (44.3)	53 (44.9)	59 (46.5)	68 (49.3)	62 (43.7)
Male	514 (55.4)	80 (55.2)	78 (61.4)	73 (55.7)	65 (55.1)	68 (53.5)	70 (50.7)	80 (56.3)
Age								
Mean ± SD	10.1 ± 5.6	9.3 ± 5.9	9.7 ± 5.5	10.0 ± 5.7	10.4 ± 5.6	10.4 ± 5.6	9.8 ± 5.8	10.9 ± 5.3
Median (IQR)	11 (5–15)	10 (4–15)	10 (5–15)	11 (5–16)	12 (6–15)	12 (5–15)	11 (5–15)	12 (7–16)
Age group, n (%)								
0–28 days	7 (0.8)	**	-	**	-	-	**	-
29 days–<1 year	70 (7.5)	12 (8.3)	9 (7.1)	11 (8.4)	12 (10.2)	11 (8.7)	10 (7.2)	**
1–6 years	192 (20.7)	33 (22.8)	28 (22.0)	27 (20.6)	21 (17.8)	25 (19.7)	31 (22.5)	27 (19.0)
7–12 years	266 (28.7)	42 (29.0)	44 (34.6)	37 (28.2)	30 (25.4)	35 (27.6)	36 (26.1)	42 (29.6)
13–<18 years	393 (42.3)	54 (37.2)	46 (36.2)	54 (41.2)	55 (46.6)	56 (44.1)	60 (43.5)	68 (47.9)
Female age								
Mean ± SD	10.7 ± 5.4	9.8 ± 5.8	11.3 ± 4.9	11.6 ± 5.4	11.6 ± 5.3	10.9 ± 5.6	9.5 ± 5.8	11.1 ± 4.8
Median (IQR)	12 (7–16)	11 (4–15)	12 (8–15)	13.5 (9–16)	14 (8–16)	12 (7–16)	10 (4–14.5)	12 (8–15)
Female age group, n (%)								
0–28 days	**	**	-	**	-	-	**	-
29 days–<1 year	18 (4.3)	**	-	**	**	**	**	**
1–6 years	79 (19.1)	16 (24.6)	9 (18.4)	10 (17.2)	7 (13.2)	10 (16.9)	16 (23.5)	11 (17.7)
7–12 years	129 (31.2)	20 (30.8)	18 (36.7)	15 (25.9)	15 (28.3)	17 (28.8)	22 (32.4)	22 (35.5)
13–<18 years	185 (44.7)	25 (38.5)	22 (44.9)	30 (51.7)	28 (52.8)	28 (47.5)	25 (36.8)	27 (43.5)
Male age								
Mean ± SD	9.5 ± 5.7	9.0 ± 6.0	8.7 ± 5.6	8.8 ± 5.6	9.4 ± 5.7	9.9 ± 5.6	10.1 ± 5.8	10.8 ± 5.7
Median (IQR)	10 (5–15)	10 (3.5–15)	9 (4–14)	10 (5–14)	10 (5–14)	11.5 (5–15)	12.5 (5–15)	13 (7–16)
Male age group, n (%)								
0–28 days	**	**	-	**	-	-	-	-
29 days–<1 year	52 (10.1)	9 (11.3)	9 (11.5)	9 (12.3)	9 (13.8)	7 (10.3)	6 (8.6)	**
1–6 years	113 (22.0)	17 (21.3)	19 (24.4)	17 (23.3)	14 (21.5)	15 (22.1)	15 (21.4)	16 (20.0)
7–12 years	137 (26.7)	22 (27.5)	26 (33.3)	22 (30.1)	15 (23.1)	18 (26.5)	14 (20.0)	20 (25.0)
13–<18 years	208 (40.5)	29 (36.3)	24 (30.8)	24 (32.9)	27 (41.5)	28 (41.2)	35 (50.0)	41 (51.3)
Stroke type, n (%)								
Arterial ischemic stroke	614 (66.2)	99 (68.3)	87 (68.5)	83 (63.4)	85 (72.0)	72 (56.7)	89 (64.5)	99 (69.7)
Cerebral sinovenous thrombosis	35 (3.8)	**	**	6 (4.6)	**	**	7 (5.1)	7 (4.9)
Hemorrhagic stroke	279 (30.1)	44 (30.3)	36 (28.3)	42 (32.1)	29 (24.6)	50 (39.4)	42 (30.4)	36 (25.4)

Data source: Canadian Institute for Health Information, National Ambulatory Care Reporting System (CIHI-NACRS), 2003/04 to 2009/10.

Inclusion criteria: All patients aged <18 years discharged from an emergency department with a diagnosis of stroke (arterial ischemic stroke or cerebral sinovenous thrombosis or hemorrhagic stroke) or TIA.

Exclusion criteria: Patients with a scheduled emergency department visit.

[1] Based on unique patients (i.e., does not include multiple patient-visits).

[2] Of these patients, 419 (45.2%) were admitted to hospital and are represented in Exhibits 7.1 to 7.5.

** Cell value suppressed for reasons of privacy and confidentiality.

Notes:

(1) SD = standard deviation; IQR = interquartile range (25th–75th percentile).

(2) Excludes all NACRS records with ICD codes that include the prefix "Q" (suspected, questionable diagnoses) starting in 2008/09.

(3) Cells in which there was no reported/available data are marked with a hyphen (-).

Exhibit 6.2

Age- and sex-adjusted rates[1] of paediatric stroke or transient ischemic attack (TIA) patients[2] arriving in the emergency department per 100,000 LHIN population aged under 18 years, in Ontario and by Local Health Integration Network, 2003/04 to 2009/10

Group/Sub-Group	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
	Age- and Sex-adjusted Rate, % (n)						
Ontario	**5.2 (145)**	**4.6 (127)**	**4.7 (131)**	**4.2 (118)**	**4.6 (127)**	**5.0 (138)**	**5.2 (142)**
Local Health Integration Network							
1. Erie St. Clair	4.7 (7)	**	5.5 (8)	4.8 (7)	5.6 (8)	**	5.0 (7)
2. South West	3.8 (8)	6.6 (14)	5.3 (11)	5.3 (11)	**	4.0 (8)	8.6 (17)
3. Waterloo Wellington	5.5 (9)	**	**	**	3.7 (6)	6.1 (10)	5.6 (9)
4. Hamilton Niagara Haldimand Brant	6.7 (20)	5.1 (15)	4.4 (13)	3.7 (11)	4.8 (14)	3.6 (10)	2.1 (6)
5. Central West	4.5 (8)	**	4.2 (8)	3.1 (6)	4.1 (8)	4.1 (8)	**
6. Mississauga Halton	3.3 (8)	3.7 (9)	4.0 (10)	4.0 (10)	3.2 (8)	3.5 (9)	5.3 (14)
7. Toronto Central	5.5 (13)	4.4 (10)	4.8 (11)	4.4 (10)	6.8 (15)	5.9 (13)	4.3 (10)
8. Central	4.9 (17)	4.0 (14)	5.4 (19)	3.7 (13)	5.3 (19)	7.2 (26)	5.8 (21)
9. Central East	5.5 (18)	5.3 (17)	3.7 (12)	5.3 (17)	5.0 (16)	5.7 (18)	5.4 (17)
10. South East	**	7.9 (8)	7.0 (7)	7.2 (7)	**	11.7 (11)	**
11. Champlain	4.9 (13)	5.4 (14)	6.2 (16)	3.1 (8)	3.5 (9)	4.8 (12)	5.3 (13)
12. North Simcoe Muskoka	7.3 (7)	**	**	8.3 (8)	11.4 (11)	**	**
13. North East	9.0 (11)	8.4 (10)	6.9 (8)	6.0 (7)	**	**	9.4 (10)
14. North West	**	-	**	**	**	**	12.0 (6)

Data sources: Canadian Institute for Health Information, National Ambulatory Care Reporting System (CIHI-NACRS), 2003/04 to 2009/10; Statistics Canada, Ontario census data, 1996.

Inclusion criteria: Patients aged >18 years.

Exclusion criteria: Patients with a scheduled emergency department visit.

[1] Age- and sex-adjusted rates used each year's Ontario population as the standard.

[1] Based on unique patients (i.e., does not include multiple patient-visits).

** Cell value suppressed for reasons of privacy and confidentiality.

Notes:

(1) Population-based analysis (i.e., the location of the patient's residence is used to report regional performance).

(2) Excludes all NACRS records with ICD codes that include the prefix "Q" (suspected, questionable diagnoses) starting in 2008/09.

(3) Cells in which there was no reported/available data are marked with a hyphen (-).

(4) Indicates significance difference from provincial rate at the p<0.0001 level.

Exhibit 6.3

Number and percentage of paediatric stroke or transient ischemic attack (TIA) patients[1] arriving at the emergency department, in Ontario and by stroke type, facility and age group, 2003/04 to 2009/10

Group/Sub-Group	All Years	2003/04	2004/05	2005/06	2006/07	2007/08	2008/9	2009/10
	n (%)							
Ontario[2]	**928**	**145**	**127**	**131**	**118**	**127**	**138**	**142**
Stroke Type								
Arterial ischemic stroke	614 (66.2)	99 (68.3)	87 (68.5)	83 (63.4)	85 (72.0)	72 (56.7)	89 (64.5)	99 (69.7)
Cerebral sinovenous thrombosis	35 (3.8)	**	**	6 (4.6)	**	**	7 (5.1)	7 (4.9)
Hemorrhagic stroke	279 (30.1)	44 (30.3)	36 (28.3)	42 (32.1)	29 (24.6)	50 (39.4)	42 (30.4)	36 (25.4)
Facility (Site)								
Children's Hospital of Eastern Ontario	64 (6.9)	11 (7.6)	12 (9.4)	10 (7.6)	6 (5.1)	7 (5.5)	11 (8.0)	7 (4.9)
0–28 days	**	**	-	-	-	-	-	-
29 days–<1 year	**	-	**	-	**	-	-	-
1–6 years	9 (1.0)	**	**	**	-	**	**	-
7–12 years	21 (2.3)	6 (4.1)	**	**	**	**	**	**
13–<18 years	30 (3.2)	**	6 (4.7)	**	**	**	7 (5.1)	**
Hamilton Health Sciences Corp (McMaster)	42 (4.5)	11 (7.6)	6 (4.7)	6 (4.6)	**	**	**	**
0–28 days	**	**	-	-	-	-	-	-
29 days–<1 year	**	**	**	**	-	-	**	-
1–6 years	9 (1.0)	**	**	-	**	**	**	**
7–12 years	9 (1.0)	**	**	**	**	-	**	-
13–<18 years	18 (1.9)	**	**	**	**	**	**	**
Hospital for Sick Children	298 (32.1)	40 (27.6)	37 (29.1)	39 (29.8)	43 (36.4)	42 (33.1)	50 (36.2)	47 (33.1)
0–28 days	**	**	-	**	-	-	-	-
29 days–<1 year	32 (3.4)	6 (4.1)	**	**	8 (6.8)	**	**	**
1–6 years	90 (9.7)	12 (8.3)	10 (7.9)	12 (9.2)	9 (7.6)	18 (14.2)	18 (13.0)	11 (7.7)
7–12 years	100 (10.8)	15 (10.3)	19 (15.0)	10 (7.6)	12 (10.2)	13 (10.2)	14 (10.1)	17 (12.0)
13–<18 years	73 (7.9)	**	6 (4.7)	11 (8.4)	14 (11.9)	7 (5.5)	15 (10.9)	15 (10.6)
London Health Sciences Centre (University)	50 (5.4)	9 (6.2)	9 (7.1)	10 (7.6)	**	**	8 (5.8)	8 (5.6)
0–28 days	**	-	-	**	-	-	-	-
29 days–<1 year	**	**	-	**	-	**	-	-
1–6 years	10 (1.1)	**	**	**	-	**	**	**
7–12 years	13 (1.4)	-	6 (4.7)	**	**	**	**	-
13–<18 years	22 (2.4)	7 (4.8)	**	**	**	**	**	**
All other acute care facilities[3]	474 (51.1)	74 (51.0)	63 (49.6)	66 (50.4)	63 (53.4)	69 (54.3)	64 (46.4)	75 (52.8)
0–28 days	**	-	-	-	-	-	**	-
29 days–<1 year	26 (2.8)	**	**	**	**	6 (4.7)	6 (4.3)	**
1–6 years	74 (8.0)	14 (9.7)	13 (10.2)	12 (9.2)	11 (9.3)	**	9 (6.5)	11 (7.7)
7–12 years	123 (13.3)	19 (13.1)	15 (11.8)	19 (14.5)	15 (12.7)	18 (14.2)	15 (10.9)	22 (15.5)
13–<18 years	250 (26.9)	37 (25.5)	30 (23.6)	33 (25.2)	35 (29.7)	41 (32.3)	33 (23.9)	41 (28.9)

Data source: Canadian Institute for Health Information, National Ambulatory Care Reporting System (CIHI-NACRS), 2003/04 to 2009/10.

Inclusion criteria: All patients aged <18 years discharged from an emergency department with a diagnosis of stroke (arterial ischemic stroke or cerebral sinovenous thrombosis or hemorrhagic stroke) or TIA.

Exclusion criteria: Patients with a scheduled emergency department visit.

[1] Based on unique patients (i.e., does not include multiple patient-visits).

[2] Of these patients, 419 (45.2%) were admitted to hospital and are represented in Exhibits 7.1 to 7.5.

[3] The number of adult acute care facilities included in NACRS and/or DAD varied by year (N = 58 in 2003/04; 49 in 2004/05; 53 in 2005/06; 48 in 2006/07; 52 in 2007/08; 52 in 2008/09; and 50 in 2009/10).

** Cell value suppressed for reasons of privacy and confidentiality.

Notes:

(1) Excludes all NACRS records with ICD codes that include the prefix "Q" (suspected, questionable diagnoses) starting in 2008/09.

(2) Cells in which there was no reported/available data are marked with a hyphen (-).

7. Acute Inpatient Care – Paediatric Strokes

Findings

- **Exhibit 7.1:** There were between 300 and 375 paediatric stroke patients admitted to acute care hospitals in Ontario each year, and over half were male (57.1%). The median age was seven years (interquartile range 1–13). They were evenly distributed by age group: under 1 year, 24.3%; 1–6 years, 24.8%; 7–12 years, 23.4%; and 13–18 years, 27.5%.

  Among the 2,458 children admitted for stroke, the majority (71.9%) were coded as arterial ischemic stroke, followed by hemorrhagic stroke (21.5%) and cerebral sinovenous thrombosis (6.6%).

- **Exhibit 7.2:** Provincially, 82.7% of paediatric stroke patients were admitted to tertiary hospitals, with over half (55.7%) admitted to the Hospital for Sick Children (HSC) in Toronto. Almost half (53.6%) of newborn stroke patients (0–28 days old) were admitted to the HSC. Almost one-quarter (24.0%) of newborn stroke patients were admitted to non-tertiary hospitals in Ontario.

- **Exhibit 7.3:** The provincial age- and sex-adjusted hospital admission rate for paediatric stroke or TIA per 100,000 population under age 18 years decreased from 13.4 in 2003/04 to 10.9 in 2009/10.

  Rates of paediatric hospitalization per 100,000 population under age 18 years varied across the LHINs in 2009/10, ranging from 6.1 to 17.5.

- **Exhibit 7.4:** There was no notable change in the inpatient length of stay (LOS) for paediatric stroke or TIA in Ontario from 2003/04 to 2009/10. The median LOS for paediatric stroke in Ontario was eight days over the study period. Patients with cerebral sinovenous thrombosis strokes had the longest LOS, a median of 12 days compared to seven and eight days for hemorrhagic and arterial ischemic strokes, respectively. The tertiary centres also had longer LOS compared to non-tertiary hospitals (8–12 days vs. 3 days). This difference could reflect the need to transfer patients to specialized paediatric facilities in the early days post-stroke.

- **Exhibit 7.5:** In 2009/10, 63.8% of paediatric stroke patients were discharged home without service, 21.1% were discharged home with service, 6.5% were transferred to an acute care facility, 4.7% were discharged to a complex continuing care facility and 2.9% were discharged to a rehabilitation facility.

  There was little difference in the discharge destination by stroke type. From 2003/04 to 2009/10, 62.3% of arterial ischemic stroke (AIS) patients, 62.9% of hemorrhagic stroke patients and 42.5% of cerebral sinovenous thrombosis (CSVT) patients were discharged home without service. The proportion of patients sent home with service was higher for CSVT (40.5%) compared to AIS and hemorrhagic stroke (21.6% and 15.6%, respectively). Not unexpectedly, the proportion of hemorrhagic stroke patients discharged to another facility (acute care, complex continuing care, rehabilitation or palliative care) was higher (21.4%) than for AIS and CSVT patients (16.1% and 17.0%, respectively).

  There were differences in patient discharge destination among tertiary facilities in 2009/10. More than 70% of patients admitted to the Children's Hospital of Eastern Ontario and Hamilton Health Sciences Centre were discharged home without service compared to slightly less than 60% of those seen at London Health Sciences Centre and the Hospital for Sick Children. Paediatric stroke patients seen at non-tertiary hospitals were either discharged home without service (70.3%) or transferred to acute care facilities (16.2%).

Conclusions and Recommendations

The prevalence of stroke among neonates in Ontario was 13%, based on the reported ICD-10 coding strategy. To identify stroke patients among neonates, the inclusion of ICD-10 codes for cerebral palsy may need to be considered; however, this would necessitate chart validation.[15]

The majority of patients were admitted to the Hospital for Sick Children, the only Ontario facility to have paediatric stroke-trained neurologists and a defined stroke program.

Compared to adults, paediatric stroke patients are less likely to be discharged to inpatient rehabilitation and more likely to be sent home with services. Unlike in adults, stroke in children can be traced to multiple heterogeneous and overarching risk factors. The extrapolation of effective treatments from evidence-based research in adults to children is limited due to significant differences between childhood and adult stroke etiology. Resources must be provided toward implementation of paediatric stroke best practice guidelines. The use of ICD codes for cerebral palsy and chart review are required to ascertain the true incidence of neonatal stroke (we estimate that with the current coding strategy half of all cases are missed). Age-appropriate clinical trials are urgently needed.

[15] Agrawal N, Johnston SC, Wu YW, Sidney S, Fullerton HJ. Imaging data reveal a higher pediatric stroke incidence than prior US estimates. *Stroke*. 2009; 40(11):3415–21.

Exhibit 7.1

Number and percentage of paediatric stroke or transient ischemic attack (TIA) patients[1] admitted to acute care hospitals, by sex, age group and stroke type, in Ontario, 2003/04 to 2009/10

Characteristic		All Years	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
		n (%)							
Ontario		**2,458**	**375**	**349**	**375**	**328**	**362**	**368**	**301**
Sex	Female	1,054 (42.9)	150 (40.0)	152 (43.6)	175 (46.7)	135 (41.2)	147 (40.6)	167 (45.4)	128 (42.5)
	Male	1,404 (57.1)	225 (60.0)	197 (56.4)	200 (53.3)	193 (58.8)	215 (59.4)	201 (54.6)	173 (57.5)
Age	Mean ± SD	7.3 ± 6.1	6.7 ± 6.1	7.7 ± 6.2	7.0 ± 6.3	7.1 ± 6.2	7.4 ± 6.2	7.2 ± 5.9	7.9 ± 5.9
	Median (IQR)	7 (1–13)	6 (0–12)	8 (1–14)	6 (0–13)	6.5 (0–13)	7 (0–13)	7 (1–12)	8 (2–14)
Age group	0–28 days	321 (13.1)	58 (15.5)	39 (11.2)	61 (16.3)	53 (16.2)	52 (14.4)	28 (7.6)	30 (10.0)
	29 days–<1 year	276 (11.2)	50 (13.3)	38 (10.9)	41 (10.9)	39 (11.9)	39 (10.8)	43 (11.7)	26 (8.6)
	1–6 years	610 (24.8)	93 (24.8)	87 (24.9)	96 (25.6)	72 (22.0)	80 (22.1)	108 (29.3)	74 (24.6)
	7–12 years	575 (23.4)	85 (22.7)	79 (22.6)	70 (18.7)	73 (22.3)	88 (24.3)	98 (26.6)	82 (27.2)
	13–<18 years	676 (27.5)	89 (23.7)	106 (30.4)	107 (28.5)	91 (27.7)	103 (28.5)	91 (24.7)	89 (29.6)
Female age	Mean ± SD	7.7 ± 6.0	7.5 ± 6.2	8.3 ± 6.0	7.3 ± 6.1	7.8 ± 6.3	7.1 ± 6.0	7.8 ± 5.7	8.5 ± 5.6
	Median (IQR)	8 (1–13)	7 (1–14)	8 (2–14)	6 (1–13)	9 (0–14)	7 (1–12)	9 (2–13)	9.5 (3.5–13.5)
Female age group	0–28 days	121 (11.5)	19 (12.7)	12 (7.9)	25 (14.3)	21 (15.6)	20 (13.6)	11 (6.6)	13 (10.2)
	29 days–<1 year	90 (8.5)	18 (12.0)	12 (7.9)	15 (8.6)	14 (10.4)	14 (9.5)	13 (7.8)	**
	1–6 years	261 (24.8)	34 (22.7)	39 (25.7)	49 (28.0)	25 (18.5)	36 (24.5)	47 (28.1)	31 (24.2)
	7–12 years	282 (26.8)	36 (24.0)	42 (27.6)	35 (20.0)	32 (23.7)	41 (27.9)	53 (31.7)	43 (33.6)
	13–<18 years	300 (28.5)	43 (28.7)	47 (30.9)	51 (29.1)	43 (31.9)	36 (24.5)	43 (25.7)	37 (28.9)
Male age	Mean ± SD	6.9 ± 6.2	6.1 ± 5.9	7.2 ± 6.3	6.7 ± 6.4	6.6 ± 6.0	7.6 ± 6.3	6.7 ± 5.9	7.4 ± 6.2
	Median (IQR)	6 (0–13)	4 (0–12)	6 (0–14)	5 (0–13)	6 (0–12)	8 (0–14)	5 (1–12)	7 (1–14)
Male age group	0–28 days	200 (14.2)	39 (17.3)	27 (13.7)	36 (18.0)	32 (16.6)	32 (14.9)	17 (8.5)	17 (9.8)
	29 days–<1 year	186 (13.2)	32 (14.2)	26 (13.2)	26 (13.0)	25 (13.0)	25 (11.6)	30 (14.9)	22 (12.7)
	1–6 years	349 (24.9)	59 (26.2)	48 (24.4)	47 (23.5)	47 (24.4)	44 (20.5)	61 (30.3)	43 (24.9)
	7–12 years	293 (20.9)	49 (21.8)	37 (18.8)	35 (17.5)	41 (21.2)	47 (21.9)	45 (22.4)	39 (22.5)
	13–<18 years	376 (26.8)	46 (20.4)	59 (29.9)	56 (28.0)	48 (24.9)	67 (31.2)	48 (23.9)	52 (30.1)
Stroke type									
Arterial ischemic stroke		1,768 (71.9)	260 (69.3)	260 (74.5)	275 (73.3)	231 (70.4)	264 (72.9)	259 (70.4)	219 (72.8)
Cerebral sinovenous thrombosis		162 (6.6)	32 (8.5)	19 (5.4)	24 (6.4)	22 (6.7)	21 (5.8)	26 (7.1)	18 (6.0)
Hemorrhagic stroke		528 (21.5)	83 (22.1)	70 (20.1)	76 (20.3)	75 (22.9)	77 (21.3)	83 (22.6)	64 (21.3)

Data source: Canadian Institute for Health Information, Discharge Abstract Database (CIHI-DAD), 2003/04 to 2009/10.

Inclusion criteria: Patients <18 years of age.

Exclusion criteria: Patients with elective admissions.

[1] Based on unique patients (i.e., does not include multiple patient-visits).

** Cell value suppressed for reasons of privacy and confidentiality.

Note: SD = standard deviation; IQR = interquartile range (25th–75th percentile).

Exhibit 7.2

Number and percentage of paediatric stroke or transient ischemic attack (TIA) patients[1] admitted to acute care hospitals, in Ontario and by facility and age group, 2003/04 to 2009/10

Group/Sub-Group	All Years	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
	n (%)							
Ontario	**2,458**	**375**	**349**	**375**	**328**	**362**	**368**	**301**
Facility (Site)								
Children's Hospital of Eastern Ontario	230 (9.4)	28 (7.5)	29 (8.3)	36 (9.6)	32 (9.8)	28 (7.7)	42 (11.4)	35 (11.6)
0–28 days	22 (0.9)	**	**	**	**	**	**	**
29 days–<1 year	24 (1.0)	**	**	**	6 (1.8)	**	**	**
1–6 years	46 (1.9)	**	**	7 (1.9)	**	6 (1.7)	10 (2.7)	9 (3.0)
7–12 years	72 (2.9)	10 (2.7)	7 (2.0)	9 (2.4)	11 (3.4)	7 (1.9)	13 (3.5)	15 (5.0)
13–<18 years	66 (2.7)	8 (2.1)	11 (3.2)	12 (3.2)	9 (2.7)	8 (2.2)	12 (3.3)	6 (2.0)
Hamilton Health Sciences Corp (McMaster)	197 (8.0)	27 (7.2)	25 (7.2)	34 (9.1)	26 (7.9)	25 (6.9)	31 (8.4)	29 (9.6)
0–28 days	28 (1.1)	**	**	**	6 (1.8)	7 (1.9)	**	**
29 days–<1 year	24 (1.0)	6 (1.6)	**	**	**	**	**	**
1–6 years	55 (2.2)	9 (2.4)	7 (2.0)	8 (2.1)	8 (2.4)	**	10 (2.7)	8 (2.7)
7–12 years	40 (1.6)	**	6 (1.7)	7 (1.9)	6 (1.8)	6 (1.7)	9 (2.4)	**
13–<18 years	50 (2.0)	7 (1.9)	6 (1.7)	11 (2.9)	**	**	**	12 (4.0)
Hospital for Sick Children	1,368 (55.7)	210 (56.0)	179 (51.3)	199 (53.1)	194 (59.1)	211 (58.3)	211 (57.3)	164 (54.5)
0–28 days	172 (7.0)	28 (7.5)	17 (4.9)	33 (8.8)	37 (11.3)	25 (6.9)	15 (4.1)	17 (5.6)
29 days–<1 year	174 (7.1)	35 (9.3)	21 (6.0)	26 (6.9)	25 (7.6)	25 (6.9)	28 (7.6)	14 (4.7)
1–6 years	377 (15.3)	61 (16.3)	49 (14.0)	58 (15.5)	47 (14.3)	53 (14.6)	66 (17.9)	43 (14.3)
7–12 years	333 (13.5)	50 (13.3)	46 (13.2)	41 (10.9)	42 (12.8)	56 (15.5)	51 (13.9)	47 (15.6)
13–<18 years	312 (12.7)	36 (9.6)	46 (13.2)	41 (10.9)	43 (13.1)	52 (14.4)	51 (13.9)	43 (14.3)
London Health Sciences Centre (University)	238 (9.7)	38 (10.1)	43 (12.3)	39 (10.4)	29 (8.8)	31 (8.6)	26 (7.1)	32 (10.6)
0–28 days	22 (0.9)	**	**	7 (1.9)	**	**	**	**
29 days–<1 year	24 (1.0)	**	6 (1.7)	**	**	**	**	**
1–6 years	57 (2.3)	**	17 (4.9)	8 (2.1)	**	7 (1.9)	8 (2.2)	8 (2.7)
7–12 years	57 (2.3)	9 (2.4)	9 (2.6)	**	9 (2.7)	6 (1.7)	10 (2.7)	9 (3.0)
13–<18 years	78 (3.2)	14 (3.7)	9 (2.6)	16 (4.3)	12 (3.7)	12 (3.3)	**	11 (3.7)
All other acute care facilities[2]	425 (17.3)	72 (19.2)	73 (20.9)	67 (17.9)	47 (14.3)	67 (18.5)	58 (15.8)	41 (13.6)
0–28 days	77 (3.1)	19 (5.1)	13 (3.7)	12 (3.2)	8 (2.4)	12 (3.3)	7 (1.9)	6 (2.0)
29 days–<1 year	30 (1.2)	**	**	**	**	7 (1.9)	**	**
1–6 years	75 (3.1)	13 (3.5)	10 (2.9)	15 (4.0)	8 (2.4)	9 (2.5)	14 (3.8)	6 (2.0)
7–12 years	73 (3.0)	13 (3.5)	11 (3.2)	8 (2.1)	**	13 (3.6)	15 (4.1)	8 (2.7)
13–<18 years	170 (6.9)	24 (6.4)	34 (9.7)	27 (7.2)	23 (7.0)	26 (7.2)	19 (5.2)	17 (5.6)

Data source: Canadian Institute for Health Information, Discharge Abstract Database (CIHI-DAD), 2003/04 to 2009/10.

Inclusion criteria: Patients <18 years of age.

Exclusion criteria: Patients with elective admissions.

[1] Based on unique patients (i.e., does not include multiple patient-visits).

[2] The number of adult acute care facilities included in NACRS/DAD varied by year (N=58 in 2003/04; 49 in 2004/05; 53 in 2005/06; 48 in 2006/07; 52 in 2007/08; 52 in 2008/09; and 50 in 2009/10)

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Exhibit 7.3

Age- and sex-adjusted paediatric inpatient admission rates per 100,000 LHIN population under age 18 years, in Ontario and by Local Health Integration Network, 2003 to 2009

Group/Sub-Group	2003	2004	2005	2006	2007	2008	2009
	Age- and Sex-adjusted[1] Rate, % (n)						
Ontario[2]	**13.4 (373)**	**12.4 (347)**	**13.4 (372)**	**11.8 (327)**	**13.1 (361)**	**13.4 (367)**	**10.9 (300)**
Local Health Integration Network							
1. Erie St. Clair	9.5 (14)	10.9 (16)	17.1 (25)	6.9 (10)	11.2 (16)	10.0 (14)	13.7 (19)
2. South West	14.8 (31)	14.8 (31)	13.2 (27)	13.2 (27)	12.9 (26)	14.0 (28)	12.8 (25)
3. Waterloo Wellington	9.1 (15)	12.7 (21)	13.9 (23)	8.4 (14)	10.3 (17)	12.2 (20)	11.8 (19)
4. Hamilton Niagara Haldimand Brant	11.1 (33)	10.1 (30)	11.2 (33)	11.7 (34)	9.0 (26)	11.2 (32)	9.2 (26)
5. Central West	14.3 (26)	15.0 (28)	13.1 (25)	12.7 (25)	19.0 (38)	12.1 (24)	10.9 (22)
6. Mississauga Halton	12.4 (30)	12.6 (31)	9.9 (25)	13.1 (33)	12.6 (32)	8.6 (22)	9.5 (25)
7. Toronto Central	15.5 (37)	13.3 (31)	12.2 (29)	12.6 (30)	12.7 (29)	13.4 (30)	9.5 (22)
8. Central	14.5 (51)	12.8 (45)	13.2 (47)	10.1 (36)	12.6 (45)	15.3 (55)	9.4 (34)
9. Central East	14.6 (47)	12.1 (39)	15.6 (50)	13.7 (44)	17.9 (57)	17.4 (55)	13.0 (41)
10. South East	16.1 (16)	14.0 (14)	11.1 (11)	12.3 (12)	17.7 (17)	18.2 (17)	9.8 (9)
11. Champlain	11.0 (29)	12.2 (32)	16.2 (42)	11.4 (29)	10.2 (26)	13.9 (35)	10.4 (26)
12. North Simcoe Muskoka	17.6 (16)	8.3 (8)	16.6 (16)	7.1 (7)	15.7 (15)	14.9 (14)	11.7 (11)
13. North East	17.5 (21)	14.6 (17)	14.1 (16)	22.4 (25)	12.0 (13)	13.8 (15)	17.5 (18)
14. North West	12.0 (7)	7.0 (**)	5.3 (**)	1.8 (**)	7.4 (**)	11.4 (6)	6.1 (**)

Data sources: Canadian Institute for Health Information, Discharge Abstract Database, 2003/04 to 2009/10; Statistics Canada, Ontario census data, 1996.

Inclusion criteria: Patients <18 years of age.

Exclusion criteria: Patients with elective admissions.

[1] Age- and sex-adjusted rates used each year's Ontario population as the standard.

[2] Based on unique patients (i.e., does not include multiple patient-visits).

** Cell value suppressed for reasons of privacy and confidentiality.

Notes:

(1) Population-based analysis (i.e., the location of the patient's residence is used to report regional performance).
(2) Indicates significance difference from provincial rate at the p<0.0001 level.

Exhibit 7.4

Paediatric inpatient length of stay for stroke or transient ischemic attack (TIA), in Ontario and by stroke type and facility, 2003/04 to 2009/10

Group/Sub-Group	All Years			2003/04			2004/05			2005/06		
	No. of Patients[1]	Mean Length of Stay (Days)	Median Length of Stay (Days)	No. of Patients[1]	Mean Length of Stay (Days)	Median Length of Stay (Days)	No. of Patients[1]	Mean Length of Stay (Days)	Median Length of Stay (Days)	No. of Patients[1]	Mean Length of Stay (Days)	Median Length of Stay (Days)
Ontario	**2,458**	**18.3**	**8.0**	**375**	**18.1**	**7.0**	**349**	**18.3**	**8.0**	**375**	**19.0**	**9.0**
Stroke Type												
Arterial ischemic stroke	1,768	18.1	8.0	260	17.6	7.0	260	17.8	8.0	275	19.6	9.0
Cerebral sinovenous thrombosis	162	20.3	12.0	32	22.7	17.5	19	18.5	12.0	24	21.0	10.5
Hemorrhagic stroke	528	18.7	7.0	83	17.6	6.0	70	20.0	7.0	76	16.1	7.5
Facility (Site)												
Children's Hospital of Eastern Ontario	230	21.5	10.0	28	16.1	7.5	29	16.9	9.0	36	16.7	7.0
Hamilton Health Sciences Corp (McMaster)	197	18.7	8.0	27	15.7	9.0	25	15.7	9.0	34	24.3	10.5
Hospital for Sick Children	1,368	19.2	8.0	210	19.5	9.0	179	20.8	8.0	199	20.9	11.0
London Health Sciences Centre (University)	238	23.1	12.0	38	26.5	11.0	43	21.8	15.0	39	16.4	9.0
All other acute care facilities[2]	425	11.1	3.0	72	11.0	3.0	73	11.5	4.0	67	13.4	4.0

Group/Sub-Group	2006/07			2007/08			2008/09			2009/10		
	No. of Patients[1]	Mean Length of Stay (Days)	Median Length of Stay (Days)	No. of Patients[1]	Mean Length of Stay (Days)	Median Length of Stay (Days)	No. of Patients[1]	Mean Length of Stay (Days)	Median Length of Stay (Days)	No. of Patients[1]	Mean Length of Stay (Days)	Median Length of Stay (Days)
Ontario	**328**	**18.9**	**8.0**	**362**	**18.4**	**8.0**	**368**	**18.2**	**7.0**	**301**	**17.4**	**8.0**
Stroke Type												
Arterial ischemic stroke	231	19.7	8.0	264	17.1	8.0	259	17.4	7.0	219	17.2	8.0
Cerebral sinovenous thrombosis	22	16.6	10.0	21	16.8	11.0	26	31.2	15.5	18	9.6	6.5
Hemorrhagic stroke	75	17.1	7.0	77	23.2	8.0	83	16.9	7.0	64	20.2	9.0
Facility (Site)												
Children's Hospital of Eastern Ontario	32	30.0	16.0	28	25.8	12.0	42	21.9	9.5	35	23.0	15.0
Hamilton Health Sciences Corp (McMaster)	26	7.7	5.0	25	20.9	13.0	31	19.8	8.0	29	24.2	8.0
Hospital for Sick Children	194	20.0	8.0	211	17.8	8.0	211	19.4	8.0	164	15.6	7.5
London Health Sciences Centre (University)	29	23.7	10.0	31	27.6	17.0	26	23.9	12.5	32	23.6	17.0
All other acute care facilities[2]	47	10.1	3.0	67	12.1	5.0	58	8.1	2.0	41	10.1	4.0

Data source: Canadian Institute for Health Information, Discharge Abstract Database (CIHI-DAD), 2003/04 to 2009/10.

Inclusion criteria: All paediatric patients aged <18 years with stroke or TIA admitted to any acute care hospital in Ontario for stroke management.

[1] Based on unique patients (i.e., does not include multiple patient-visits).

[2] Number of adult acute care facilities included in NACRS/DAD varied by year (N=58 in 2003/04; 49 in 2004/05; 53 in 2005/06; 48 in 2006/07; 52 in 2007/08; 52 in 2008/09; and 50 in 2009/10).

Exhibit 7.5

Discharge destination of paediatric stroke or transient ischemic attack (TIA) patients[1] alive at discharge following an acute hospitalization, in Ontario and by stroke type and facility, 2003/04 to 2009/10.

Group/Sub-Group	Year	Sample Size	Acute Care	Complex Continuing Care	Home with Service	Home without Service	Rehabilitation	Other[2]
		n (%)						
Ontario	**All Years**	2,296	206 (9.0)	102 (4.4)	498 (21.7)	1,402 (61.1)	55 (2.4)	33 (1.4)
	2003/04	347	39 (11.2)	23 (6.6)	60 (17.3)	216 (62.2)	**	6 (1.8)
	2004/05	333	26 (7.8)	12 (3.6)	69 (20.7)	212 (63.7)	11 (3.3)	**
	2005/06	350	40 (11.4)	8 (2.3)	70 (20.0)	220 (62.9)	7 (2.0)	**
	2006/07	303	27 (8.9)	12 (4.0)	88 (29.0)	162 (53.5)	7 (2.3)	7 (2.4)
	2007/08	338	29 (8.6)	16 (4.7)	73 (21.6)	204 (60.4)	12 (3.6)	**
	2008/09	346	27 (7.8)	18 (5.2)	79 (22.8)	210 (60.7)	7 (2.0)	**
	2009/10	279	18 (6.5)	13 (4.7)	59 (21.1)	178 (63.8)	8 (2.9)	**
Stroke Type								
Arterial ischemic stroke	All Years	1,682	124 (7.4)	83 (4.9)	364 (21.6)	1,047 (62.3)	46 (2.7)	18 (1.1)
	2003/04	247	23 (9.3)	19 (7.7)	40 (16.2)	161 (65.2)	**	**
	2004/05	255	16 (6.3)	11 (4.3)	53 (20.8)	161 (63.1)	11 (4.3)	**
	2005/06	259	21 (8.1)	**	55 (21.2)	170 (65.6)	6 (2.3)	**
	2006/07	220	14 (6.4)	9 (4.1)	71 (32.3)	118 (53.6)	**	**
	2007/08	248	21 (8.5)	12 (4.8)	54 (21.8)	146 (58.9)	12 (4.8)	**
	2008/09	247	17 (6.9)	15 (6.1)	47 (19.0)	160 (64.8)	**	**
	2009/10	206	12 (5.8)	12 (5.8)	44 (21.4)	131 (63.6)	**	**
Cerebral sinovenous thrombosis	All Years	153	21 (13.7)	**	62 (40.5)	65 (42.5)	**	**
	2003/04	29	10 (34.5)	**	12 (41.4)	**	-	**
	2004/05	19	**	-	6 (31.6)	10 (52.6)	-	-
	2005/06	21	**	-	7 (33.3)	12 (57.1)	-	-
	2006/07	20	**	**	8 (40.0)	10 (50.0)	-	-
	2007/08	21	**	-	7 (33.3)	11 (52.4)	-	-
	2008/09	26	**	**	16 (61.5)	6 (23.1)	**	-
	2009/10	17	-	-	6 (35.3)	11 (64.7)	-	-
Hemorrhagic stroke	All Years	461	61 (13.2)	16 (3.5)	72 (15.6)	290 (62.9)	8 (1.7)	14 (3.0)
	2003/04	71	6 (8.5)	**	8 (11.3)	50 (70.4)	**	**
	2004/05	59	7 (11.9)	**	10 (16.9)	41 (69.5)	-	-
	2005/06	70	17 (24.3)	**	8 (11.4)	38 (54.3)	**	**
	2006/07	63	12 (19.0)	**	9 (14.3)	34 (54.0)	**	**
	2007/08	69	**	**	12 (17.4)	47 (68.1)	-	**
	2008/09	73	8 (11.0)	**	16 (21.9)	44 (60.3)	**	**
	2009/10	56	6 (10.7)	**	9 (16.1)	36 (64.3)	**	**
Facility (Site)								
Children's Hospital of Eastern Ontario	All Years	220	13 (5.9)	-	29 (13.2)	170 (77.3)	-	8 (3.6)
	2003/04	28	**	-	-	25 (89.3)	-	-
	2004/05	29	-	-	7 (24.1)	21 (72.4)	-	**
	2005/06	35	**	-	**	30 (85.7)	-	-
	2006/07	31	**	-	**	21 (67.7)	-	**
	2007/08	25	**	-	**	20 (80.0)	-	**
	2008/09	39	**	-	7 (17.9)	29 (74.4)	-	**
	2009/10	33	**	-	**	24 (72.7)	-	**

Group/Sub-Group	Year	Sample Size	Acute Care	Complex Continuing Care	Home with Service	Home without Service	Rehabilitation	Other[2]
		n (%)						
Facility (Site)								
Hamilton Health Sciences Corp (McMaster)	All Years	185	13 (7.0)	**	28 (15.1)	136 (73.5)	6 (3.2)	-
	2003/04	25	-	**	**	21 (84.0)	**	-
	2004/05	24	**	-	**	16 (66.7)	-	-
	2005/06	33	**	-	6 (18.2)	26 (78.8)	-	-
	2006/07	22	**	-	**	16 (72.7)	-	-
	2007/08	25	**	**	**	14 (56.0)	**	-
	2008/09	29	-	-	6 (20.7)	22 (75.9)	**	-
	2009/10	27	**	-	**	21 (77.8)	**	-
Hospital for Sick Children	All Years	1,267	75 (5.9)	98 (7.7)	381 (30.1)	695 (54.9)	7 (0.6)	11 (0.9)
	2003/04	192	11 (5.7)	22 (11.5)	49 (25.5)	105 (54.7)	-	**
	2004/05	168	8 (4.8)	11 (6.5)	53 (31.5)	95 (56.5)	-	**
	2005/06	185	18 (9.7)	8 (4.3)	53 (28.6)	103 (55.7)	**	**
	2006/07	178	12 (6.7)	12 (6.7)	71 (39.9)	81 (45.5)	-	**
	2007/08	194	11 (5.7)	15 (7.7)	56 (28.9)	111 (57.2)	**	-
	2008/09	198	10 (5.1)	18 (9.1)	57 (28.8)	110 (55.6)	**	**
	2009/10	152	**	12 (7.9)	42 (27.6)	90 (59.2)	**	-
London Health Sciences Centre (University)	All Years	227	14 (6.2)	**	38 (16.7)	147 (64.8)	23 (10.1)	**
	2003/04	35	**	-	6 (17.1)	22 (62.9)	**	**
	2004/05	42	-	-	**	34 (81.0)	**	**
	2005/06	37	-	-	**	30 (81.1)	**	-
	2006/07	27	**	-	9 (33.3)	12 (44.4)	**	-
	2007/08	31	**	-	**	16 (51.6)	6 (19.4)	**
	2008/09	25	**	-	**	16 (64.0)	**	-
	2009/10	30	**	**	6 (20.0)	17 (56.7)	**	**
All other acute care facilities[3]	All Years	397	91 (22.9)	**	22 (5.5)	254 (64.0)	19 (4.8)	10 (2.5)
	2003/04	67	20 (29.9)	-	**	43 (64.2)	**	-
	2004/05	70	14 (20.0)	**	**	46 (65.7)	8 (11.4)	-
	2005/06	60	19 (31.7)	-	**	31 (51.7)	**	**
	2006/07	45	7 (15.6)	-	**	32 (71.1)	**	**
	2007/08	63	11 (17.5)	-	6 (9.5)	43 (68.3)	**	**
	2008/09	55	14 (25.5)	-	**	33 (60.0)	**	**
	2009/10	37	6 (16.2)	-	**	26 (70.3)	**	**

Data source: Canadian Institute for Health Information, Discharge Abstract Database (CIHI-DAD), 2003/04 to 2009/10.

Inclusion criteria: All patients aged <18 years admitted to an acute care hospital in Ontario with a diagnosis of stroke (ischemic or hemorrhagic) or TIA.

Exclusion criteria: Patients with elective admissions.

[1] Based on unique patients (i.e., does not include multiple patient-visits).

[2] Palliative care and other are combined.

[3] The number of adult acute care facilities included in NACRS/DAD varied by year (N=58 in 2003/04; 49 in 2004/05; 53 in 2005/06; 48 in 2006/07; 52 in 2007/08; 52 in 2008/09; and 50 in 2009/10)

** Cell value suppressed for reasons of privacy and confidentiality.

Note: Cells in which there was no reported/available data are marked with a hyphen (-).

8. Longer-term Patient Outcomes

Age- and Sex-adjusted Readmission Rates

Findings

- **Exhibit 8.1:** Thirty-day revisit and readmission rates are increasing in Ontario. Over the six years examined, 3.2% of hemorrhagic stroke patients, 2.8% of arterial ischemic stroke patients and 1.9% of cerebral sinovenous thrombosis patients were readmitted to an ED or an inpatient setting within 30 days of discharge.

  Rates of revisits or readmissions were higher for patients admitted to non-tertiary centres compared to tertiary centres.

- **Exhibit 8.2:** Ninety-day revisit and readmission rates are increasing in Ontario. Over the six years, 4.5% of hemorrhagic stroke, 3.5% of arterial ischemic stroke and 2.7% of cerebral sinovenous thrombosis patients were readmitted to an ED or as an inpatient within 90 days of the discharge date.

  Rates of revisits or readmission were higher for patients admitted to non-tertiary centres compared to tertiary centres. Some readmissions may have been due to primary underlying disorders rather than stroke (e.g., leukemia, congenital heart disease).

- **Exhibit 8.4:** Thirty-day all-cause readmission rates are increasing over time. There was little difference in the rates of 30-day all-cause readmission by stroke type (13.3% for hemorrhagic stroke, 12.6% for arterial ischemic stroke and 12.2% for cerebral sinovenous thrombosis).

  Over time, 30-day all-cause readmissions are increasing among all stroke types. The non-tertiary facilities and Hamilton Health Sciences Corporation (McMaster campus) had lower 30-day all-cause readmission rates compared to the tertiary centres.

Conclusions and Recommendations

Readmission rates among paediatric stroke patients are increasing. It is necessary to determine the proportion of readmissions that are due to stroke and its sequelae versus a primary condition. It is also necessary to develop an appropriate risk-adjustment model to allow for better comparisons across facilities.

Age- and Sex-adjusted Mortality Rates

Findings

- **Exhibit 8.5:** As expected, hemorrhagic stroke patients had the highest inhospital mortality rate among stroke types (11.8% for hemorrhagic stroke vs. 4.9% for arterial ischemic stroke and 4.6% for cerebral sinovenous thrombosis patients). Inhospital mortality rates are increasing over time.

- **Exhibit 8.6:** Thirty-day mortality among paediatric stroke patients is increasing. Age- and sex-adjusted mortality rates at 30 days following stroke/TIA admission were higher for hemorrhagic stroke patients (8.4%) compared to ischemic stroke patients (arterial ischemic stroke, 3.5%; and cerebral sinovenous thrombosis, 2.7%).

- **Exhibit 8.7:** One-year mortality among paediatric stroke patients is increasing. Age-sex adjusted mortality rates at one year following stroke/TIA admission were higher for hemorrhagic stroke patients (15.2%) compared to ischemic stroke patients (arterial ischemic stroke, 7.4%; and cerebral sinovenous thrombosis, 6.1%).

Conclusions and Recommendations

As expected, there was a higher mortality rate for hemorrhagic stroke compared to ischemic stroke in children. Hemorrhagic stroke has emerged as an important sub-type of childhood stroke. A long-term outcome-validated cohort study of paediatric hemorrhagic stroke in Ontario is needed.

Children are more likely than adults to survive stroke. This is of concern because the impact of children's neurological deficits on rehabilitation and their lost potential will take effect over many more decades. The increasing mortality rate for paediatric stroke warrants investigation.

An appropriate risk-adjustment model is required to make fair comparisons across facilities and over time.

Exhibit 8.1

Age- and sex-adjusted revisit or readmission rates within 30 days following stroke or transient ischemic attack (TIA), in Ontario and by stroke type and facility, 2003/04 to 2008/09

Group/Sub-Group	Adjusted[1] Readmission Rate (%)						
	All Years	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Ontario[2]		**2.9**	**2.5**	**2.4**	**3.8**	**2.4**	**3.2**
Stroke Type							
Arterial ischemic stroke	2.8	2.2	2.9	2.7	3.8	2.0	3.3
Cerebral sinovenous thrombosis	1.9	-	-	-	-	4.3	4.1
Hemorrhagic stroke	3.2	5.1	1.5	1.3	5.4	3.8	2.3
Facility (Site)							
Children's Hospital of Eastern Ontario	3.5	-	5.3	2.1	6.3	6.1	2.0
Hamilton Health Sciences Corp. (McMaster)	1.2	-	-	3.0	4.2	-	-
Hospital for Sick Children	2.3	1.8	2.9	0.6	3.3	3.3	2.0
London Health Sciences Centre (University)	2.2	4.1	-	-	2.9	-	7.0
All other acute care facilities[3]	3.9	4.4	2.6	5.5	4.1	1.0	5.4

Exhibit 8.2

Age- and sex-adjusted revisit or readmission rates within 90 days following stroke or transient ischemic attack (TIA), in Ontario and by stroke type and facility, 2003/04 to 2008/09

Group/Sub-Group	Adjusted[1] Readmission Rate (%)						
	All Years	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Ontario[2]		**3.1**	**3.2**	**3.5**	**4.8**	**4.3**	**3.1**
Stroke Type							
Arterial ischemic stroke	3.5	2.5	3.4	3.6	5.2	3.3	3.3
Cerebral sinovenous thrombosis	2.7	-	-	-	-	8.6	4.1
Hemorrhagic stroke	4.5	5.1	3.1	3.9	5.1	7.1	2.3
Facility (Site)							
Children's Hospital of Eastern Ontario	3.9	-	5.2	4.3	6.2	6.4	2.0
Hamilton Health Sciences Corp. (McMaster)	1.8	-	-	3.0	4.3	3.3	-
Hospital for Sick Children	3.5	2.3	2.9	3.0	5.4	5.2	2.0
London Health Sciences Centre (University)	3.5	4.2	2.2	-	3.1	6.7	7.0
All other acute care facilities[3]	4.4	4.6	4.3	5.6	4.1	1.9	5.4

Exhibit 8.3

Age- and sex-adjusted revisit or readmission rates within 365 days following stroke or transient ischemic attack (TIA), in Ontario and by stroke type and facility, 2003/04 to 2008/09

Group/Sub-Group	Adjusted[1] Readmission Rate (%)						
	All Years	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Ontario[2]		**4.3**	**4.2**	**4.9**	**5.7**	**5.8**	**5.3**
Stroke Type							
Arterial ischemic stroke	5.0	3.4	4.7	4.9	6.1	5.3	5.5
Cerebral sinovenous thrombosis	3.5	-	-	-	-	8.8	7.8
Hemorrhagic stroke	5.5	7.2	3.0	6.4	5.3	7.4	3.4
Facility (Site)							
Children's Hospital of Eastern Ontario	4.8	-	5.2	4.3	6.1	6.2	6.2
Hamilton Health Sciences Corp. (McMaster)	1.8	-	-	3.0	4.6	3.4	-
Hospital for Sick Children	5.4	4.4	4.7	5.3	7.0	6.6	4.8
London Health Sciences Centre (University)	4.4	4.4	4.4	2.1	3.2	6.9	6.6
All other acute care facilities[3]	5.4	5.7	4.3	6.4	4.0	4.7	6.9

Data sources: Canadian Institute for Health Information, Discharge Abstract Database (CIHI-DAD), and National Ambulatory Care Reporting System (CIHI-NACRS); 2003/04 to 2008/09.

Inclusion criteria: All patients aged <18 years readmitted to an emergency department or inpatient setting of an acute care hospital in Ontario with a diagnosis of stroke (arterial ischemic stroke or cerebral sinovenous thrombosis or hemorrhagic stroke) or TIA on both admissions within 30, 90 or 365 days of the initial stroke event in each year.
Exclusion criteria: Patients with an elective admission, scheduled emergency department visit or transfer in a facility or between facilities within 24 hours.

[1] Indirect standardization based on an age-sex regression model was used to calculate rates.

[2] Based on unique patients (i.e., does not include multiple patient-visits).

[3] The number of adult acute care facilities included in NACRS and/or DAD varied by year (N=58 in 2003/04; 49 in 2004/05; 53 in 2005/06; 48 in 2006/07; 52 in 2007/08; 52 in 2008/09; and 50 in 2009/10)

Notes:
(1) No washout periods were applied; e.g., if a patient's first hospitalization for stroke had a discharge date of March 31, 2005 (FY 2004/05), followed by another hospitalization for stroke/TIA on April 1, 2005 (FY 2005/06), the April 1 hospitalization would be considered the first hospitalization in 2005/06 and not a readmission related to the hospitalization in 2004/05.
(2) Cells in which there was no reported/available data are marked with a hyphen (-).

Exhibit 8.4

Age- and sex-adjusted all-cause readmission rates within 30 days following stroke or transient ischemic attack (TIA), in Ontario and by stroke type and facility, 2003/04 to 2008/09

Group/Sub-Group	Adjusted[1] Readmission Rate (%)						
	All Years	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Ontario[2]		**10.9**	**13.8**	**9.2**	**14.3**	**13.8**	**14.8**
Stroke Type							
Arterial ischemic stroke	12.6	10.4	14.7	8.9	15.1	12.0	14.6
Cerebral sinovenous thrombosis	12.2	11.0	9.2	14.4	13.2	12.2	14.1
Hemorrhagic stroke	13.3	13.1	11.2	9.3	11.5	19.7	15.5
Facility (Site)							
Children's Hospital of Eastern Ontario	12.3	2.9	16.8	7.0	9.1	17.3	21.0
Hamilton Health Sciences Corp. (McMaster)	7.6	9.5	9.9	5.7	4.1	9.8	5.9
Hospital for Sick Children	15.2	14.0	15.9	10.7	20.1	16.3	15.0
London Health Sciences Centre (University)	14.9	9.9	18.6	7.0	13.7	12.3	28.9
All other acute care facilities[3]	8.6	9.0	7.8	9.5	6.7	8.9	9.3

Data sources: Canadian Institute for Health Information, Discharge Abstract Database (CIHI-DAD), and National Ambulatory Care Reporting System (CIHI-NACRS); 2003/04 to 2008/09.

Inclusion criteria: All patients aged <18 years readmitted to an inpatient setting of an acute care hospital in Ontario within 30 days of initial (arterial ischemic stroke or cerebral sinovenous thrombosis or hemorrhagic stroke) or TIA event starting in each year.

Exclusion criteria: Patients with an elective admission or transfer within a facility or between facilities within 24 hours.

[1] Indirect standardization based on an age-sex regression model was used to calculate rates.

[2] Based on unique patients (i.e., does not include multiple patient-visits).

[3] The number of adult acute care facilities included in NACRS and/or DAD varied by year (N=58 in 2003/04; 49 in 2004/05; 53 in 2005/06; 48 in 2006/07; 52 in 2007/08; 52 in 2008/09; and 50 in 2009/10).

Note: No washout periods were applied; e.g., if a patient's first hospitalization for stroke had a discharge date of March 31, 2005 (FY 2004/05), followed by another hosptialization for stroke/TIA on April 1, 2005 (FY 2005/06), the April 1 hospitalization would be considered the first hospitalization in 2005/06 and not a readmission related to the hospitalization in 2004/05.

Exhibit 8.5

Age- and sex-adjusted inhospital mortality rates among admitted paediatric patients following stroke or transient ischemic attack (TIA), in Ontario and by stroke type, 2003/04 to 2008/09

Group/Sub-Group	Adjusted[1] Inhospital Mortality Rate (%)						
	All Years	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Ontario[2]		7.2	4.7	6.6	7.5	6.7	6.1
Stroke Type							
Arterial ischemic stroke	4.9	5.2	2.1	6.1	5.3	6.3	4.7
Cerebral sinovenous thrombosis	4.6	7.9	-	10.4	8.5	-	-
Hemorrhagic stroke	11.8	14.1	13.6	7.3	12.6	9.9	11.5

Exhibit 8.6

Age- and sex-adjusted mortality rates of paediatric patients at 30 days following stroke or transient ischemic attack (TIA), in Ontario and by stroke type, 2003/04 to 2008/09

Group/Sub-Group	Adjusted[1] 30-Day Mortality Rate (%)						
	All Years	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Ontario[2]		5.0	2.9	3.6	5.8	6.6	3.9
Stroke Type							
Arterial ischemic stroke	3.5	3.5	1.3	3.1	4.2	5.9	3.0
Cerebral sinovenous thrombosis	2.7	2.4	-	7.4	7.1	-	-
Hemorrhagic stroke	8.4	10.8	8.5	4.1	9.5	9.9	7.4

Exhibit 8.7

Age- and sex-adjusted mortality rates of paediatric patients at 365 days following stroke or transient ischemic attack (TIA), in Ontario and by stroke type, 2003/04 to 2008/09

Group/Sub-Group	Adjusted[1] 365-Day Mortality Rate (%)						
	All Years	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Ontario[2]		9.6	7.8	8.2	10.6	9.9	8.6
Stroke Type							
Arterial ischemic stroke	7.4	7.6	5.4	7.5	8.9	8.8	6.2
Cerebral sinovenous thrombosis	6.1	12.5	-	7.2	7.4	-	7.2
Hemorrhagic stroke	15.2	15.6	17.3	11.1	15.5	15.0	15.9

Data sources: Canadian Institute for Health Information, Discharge Abstract Database (CIHI-DAD), and National Ambulatory Care Reporting System (CIHI-NACRS); Ontario Ministry of Health and Long-Term Care, Registered Persons Database (RPDB); 2003/04 to 2008/09.

Inclusion criteria: All patients aged <18 years who died either in hospital or following discharge within 30 days or 365 days of admission to an inpatient setting of an acute care hospital in Ontario with a diagnosis of stroke (arterial ischemic stroke or cerebral sinovenous thrombosis or hemorrhagic stroke) or TIA, starting in each fiscal year.

Exclusion criteria: Patients with an elective admission or transfer within a facility or between facilities within 24 hours.

[1] All rates were statistically adjusted for age and sex; rates were not adjusted for stroke severity or comorbidities; indirect standardization based on an age-sex regression model was used to calculate rates.

[2] Based on unique patients (i.e., does not include multiple patient-visits).

Notes:

(1) No washout periods were applied; e.g., if a patient's first hospitalization for stroke had a discharge date of March 31, 2005 (FY 2004/05), followed by another hosptialization for stroke/TIA on April 1, 2005 (FY 2005/06), the April 1 hospitalization would be considered the first hospitalization in 2005/06 and not a readmission related to the hospitalization in 2004/05.

(2) Cells in which there was no reported/available data are marked with a hyphen (-).

Appendix A:
Stroke Evaluation and Quality Committee (SEQC) Stroke Care Performance Indicators, 2010–2012

SEQC Indicator No.	SEQC Indicator	Exhibit No.	Ontario Stroke Report Card Indicator No.
Public Awareness and Patient Education			
1	Proportion of patients who seek medical attention within 3.5 hours[1] of stroke symptom onset	1.5	1
2	Proportion of suspected/confirmed stroke patients who arrive in ED via EMS	1.4	–
Prevention of Stroke			
3(A)	Annual ED admissions for stroke/TIA by stroke type (age- and sex-adjusted)	1.1–1.3	–
3(B)	Annual inpatient admission for stroke/TIA by stroke type (age- and sex-adjusted)	2.1–2.3	2
4(A)	Inhospital stroke mortality rate by stroke type	5.4	–
4(B)	Stroke mortality rate at 30 days by stroke type	5.5	3
4(C)	Stroke mortality rate at 1 year by stroke type	5.6	–
5(A)	Proportion of ischemic stroke/TIA patients prescribed 3 recommended secondary prevention medications on discharge from acute care	2.11	–
5(B)	Proportion of eligible stroke/TIA patients with atrial fibrillation prescribed anticoagulant (warfarin) therapy on discharge from acute care	2.12	4
6(A)	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge	2.9	5
6(B)	Proportion of ischemic stroke patients without atrial fibrillation who did not undergo carotid imaging in hospital and had an appointment booked before discharge for carotid imaging as an outpatient	2.9	–
Hyperacute/Acute Stroke Management			
7(A)	Proportion of stroke/TIA patients who received a CT/MRI brain scan within 24 hours of arrival at hospital	1.6	6
7(B)	Proportion of stroke/TIA patients admitted as inpatients who received a brain CT/MRI scan before discharge	1.6	–
8(A)	Proportion of eligible patients who received acute thrombolytic therapy (tPA)	1.7	7
8(B)	Door-to-needle time: Median time (in minutes) from patient arrival in the ED to administration of acute thrombolytic agent	1.7	–
9	Number of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay	2.4	8
10	Proportion of alternate level of care (ALC) days to total length of stay in acute care (Active LOS + ALC)	2.5	10
11	Proportion of stroke patients who had a documented initial dysphagia screening performed during admission to acute care	2.6	9
12	Age- and sex-adjusted inhospital complication rates for pneumonia among stroke/TIA patients	2.7	–
Stroke Rehabilitation			
13	Number of stroke patients treated on a stroke unit at any time during their inpatient rehabilitation stay	–	–
14	Proportion of ALC days to total length of stay in inpatient rehabilitation (Active LOS + ALC)	3.1, 3.2, 3.4, 3.6, 3.7	15
15(A)	Proportion of stroke patients discharged from acute care who received a referral for outpatient/community rehabilitation	–	12
15(B)	Proportion of stroke inpatient rehabilitation patients who received a referral for outpatient/community rehabilitation	–	–
16(A)	Length of time between stroke onset and admission to stroke inpatient rehabilitation	3.1, 3.2, 3.4, 3.7	13
16(B)	Length of time between stroke onset and first CCAC rehabilitation service	4.1	–

SEQC Indicator No.	SEQC Indicator	Exhibit No.	Ontario Stroke Report Card Indicator No.
Public Awareness and Patient Education			
17(A)	Length of stay (in days) in rehabilitation stratified by RPG (i.e., stratified by admission RPG/FIM®)	3.6	16
17(B)	Mean number of rehabilitation visits provided to CCAC patients	4.2	17
17(C)	FIM® efficiency score for moderate stroke in inpatient rehabilitation (mean)	3.5	16
18	Inpatient rehabilitation admissions by stroke severity (RPG)	3.2, 3.3, 3.4	18
System Integration			
19	Time to carotid intervention within six months of hospitalization for stroke or transient ischemic attack	2.10	–
20(A)	Proportion of patients discharged alive from acute care to each discharge destination: 1) Home 2) Home with home care 3) Inpatient rehabilitation 4) Complex continuing care 5) Long-term care	2.8	19[2]
20(B)	Proportion of patients discharged alive from inpatient rehabilitation to each discharge destination: 1) Home 2) Home with home care 3) Acute care facility 4) Complex continuing care 5) Long-term care	3.1, 3.2, 3.4, 3.7	11
21(A)	Readmission/re-visit for stroke or transient ischemic attack within 30 days following an initial stroke-related event	5.1	–
21(B)	Readmission/re-visit for stroke or transient ischemic attack within 90 days following an initial stroke-related event	5.2	–
21(C)	Readmission/re-visit for stroke or transient ischemic attack within one year following an initial stroke-related event	5.2A	–
21(D)	Readmission due to any cause within 30 days following an initial stroke-related event	5.3	20

[1] A window of 2.5 hours was used in the SEQC 2011 report, as the tPA window was not expanded to 3.5 hours until 2009/10.
[2] Excludes patients that came from long-term care and complex continuing care facilities.

Note: Regional and facility data for indicators 12 and 14 in the SEQC Stroke Report Card are not included in this report.

Appendix B:
Stroke Evaluation and Quality Committee Stroke Report Cards, 2009/10

This year for the first time, the Stroke Evaluation and Quality Committee has provided a Stroke Report Card for Ontario and each of the 14 Local Health Integration Networks. The report cards provide a snapshot of stroke care in Ontario using a subset of 20 indicators colour coded to performance as follows:

Green: indicates exemplary performance on the indicator; results are ≤5% absolute/relative difference from the benchmark.

Yellow: indicates acceptable performance on the indicator; results are at or above the 50th percentile and are >5% absolute/relative difference from the benchmark.

Red: indicates poor performance, with outcomes below the 50th percentile.

Grey: indicates the benchmark methodology is still in development.

Ontario Stroke Report Card, 2009/10

Indicator No.	Care Continuum Category	HAPS[1] Category	Indicator[2]	ON FY 2009/10	Variance Across LHINs (Min-Max)	Provincial Benchmark[3]	High Performer[4]	
							Facility	LHIN
1	Public awareness and patient education	Access	Proportion of patients who arrived at ED less than 2.5 hours from stroke symptom onset.	35.3%	24.6–43.9%	41.5%	n/a	1, 13
2	Prevention of stroke	Effectiveness	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 patients).	1.5	1.2–2.3	1.1	Richmond Hill (SubLHIN)	11
3	Prevention of stroke	Effectiveness	Age- and sex-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.3	10.5–13.5	12.3	Lakeridge Health – Bowmanville Site	14, 8, 1
4	Prevention of stroke	Effectiveness	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed anticoagulant therapy on discharge from acute care.	69.6%	58.1–93.1%	93.6%	York Central Hospital	5
5	Prevention of stroke	Access	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	74.7%	51.1–90.5%	92.5%	York Central Hospital	10
6	Acute stroke management	Access	Proportion of suspected stroke/TIA patients who received a brain CT/MRI scan within 24 hours of arrival at ED.	86.3%	71.6–95.8%	97.7%	The Credit Valley Hospital	7, 5, 6
7	Acute stroke management	Access	Proportion of ischemic stroke patients who arrived at ED less than 2.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	29.6%	0.0–41.5%	58.9%	Peterborough Regional Health Centre	None
8	Acute stroke management	Effectiveness	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	30.3%	0.0–66.7%	77.3%	Public General Hospital Society of Chatham	None
9	Acute stroke management	Effectiveness	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	62.3%	55.7–88.3%	87.8%	Thunder Bay Regional Health Sciences Centre	14
10	Acute stroke management	Efficiency	Proportion of ALC days to total length of stay in acute care.	--	--	--	--	--
11	Acute stroke management	Integration	Proportion of acute stroke (excluding TIA) patients discharged to inpatient rehabilitation.	30.7%	25.2–37.6%	40.7%	Thunder Bay City (SubLHIN)	14
12	Stroke rehabilitation	Efficiency	Proportion of stroke (excluding TIA) patients discharged from acute care who receive a referral for outpatient rehabilitation.	4.6%	0.0–9.7%	13.2%	Hawkesbury and District Hospital	10
13	Stroke rehabilitation	Efficiency	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation (RCG-1 and RCG-2).	12.0	8.0–16.0	7.0	Stratford General Hospital	None
14	Stroke rehabilitation	Efficiency	Rehabilitation therapy staff/bed ratio for inpatient stroke rehabilitation.	--	--	--	--	--
15	Stroke rehabilitation	Efficiency	Proportion of ALC days to total length of stay in inpatient rehabilitation (active + ALC).	--	--	--	--	--
16	Stroke rehabilitation	Efficiency	Median FIM efficiency for moderate stroke in inpatient rehabilitation (RCG-1).	0.7	0.4–1.1	1.2	Markham Stouffville Hospital	6
17	Stroke rehabilitation	Access	Mean number of CCAC visits provided to stroke/TIA patients in 2007/08 and 2008/09.	6.5	5.1–7.9	7.6	n/a	5, 1
18	Stroke rehabilitation	Access	Proportion of patients with severe stroke (RPG = 1100 or 1110) admitted to inpatient rehabilitation (RCG-1).	31.9%	16.5–40.1%	49.4%	Scarborough Hospital – General Site	None
19	Re-integration	Integration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	10.2%	4.4–13.9%	3.6%	North Bay General Hospital	13, 14
20	Re-integration	Integration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	8.3	7.0–10.0	8.3	Pembroke Regional Hospital	11, 3

[1] Hospital Annual Planning Submission; submitted to the Local Health Integration Network to form the basis of a multi-year funding and planning framework.
[2] Facility-based analysis (excluding indicators 2 and 11) for patients aged 18–108. Indicators 1, 4–9 and 12 are based on 2008/09 OSA data; otherwise, CIHI data. Low rates are desired for indicators 2, 3, 10, 13, 15, 19 and 20.
[3] Provincial benchmarks were calculated using the ABC methodology, except for indicators 3 and 20 where the provincial rate was used. For benchmarking methodology, see Weissman et al. *J Eval Clin Pract*. 1999; 5(3):269-81.
[4] High-performing facilities include only high-volume institutions (those treating more than 100 strokes per year).

Hospital Service Accountability Agreement indicators, 2010/11

-- Data not available n/a = Not applicable

Local Health Integrated Networks

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

Erie St. Clair Local Health Integration Network

Poor Performance[1] | Acceptable Performance[2] | Exemplary Performance[3] | Benchmark not available[4]

Indicator No.	Care Continuum Category	HAPS[5] Category	Indicator[6]	ON FY 2009/10	Variance Across LHINs (Min-Max)	Provincial Benchmark[7]	High Performer[8]	
							Facility	LHIN
1	Public awareness and patient education	Access	Proportion of patients who arrived at ED less than 2.5 hours from stroke symptom onset.	43.9%	25.0–60.0%	41.5%	n/a	1, 13
2	Prevention of stroke	Effectiveness	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 patients).	1.9	1.6– 2.5	1.1	Richmond Hill (SubLHIN)	11
3	Prevention of stroke	Effectiveness	Age- and sex-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	10.7	9.0–18.6	12.3	Lakeridge Health – Bowmanville Site	14, 8, 1
4	Prevention of stroke	Effectiveness	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed anticoagulant therapy on discharge from acute care.	58.1%	33.3–75.0%	93.6%	York Central Hospital	5
5	Prevention of stroke	Access	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	82.0%	0.0–93.8%	92.5%	York Central Hospital	10
6	Acute stroke management	Access	Proportion of suspected stroke/TIA patients who received a brain CT/MRI scan within 24 hours of arrival at ED.	83.9%	0.0–91.4%	97.7%	The Credit Valley Hospital	7, 5, 6
7	Acute stroke management	Access	Proportion of ischemic stroke patients who arrived at ED less than 2.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	13.2%	0.0–30.0%	58.9%	Peterborough Regional Health Centre	None
8	Acute stroke management	Effectiveness	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	53.8%	0.0–94.1%	77.3%	Public General Hospital Society of Chatham	None
9	Acute stroke management	Effectiveness	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	55.7%	0.0–75.9%	87.8%	Thunder Bay Regional Health Sciences Centre	14
10	Acute stroke management	Efficiency	Proportion of ALC days to total length of stay in acute care.	--	--	--	--	--
11	Acute stroke management	Integration	Proportion of acute stroke (excluding TIA) patients discharged to inpatient rehabilitation.	34.9%	31.4–41.2	40.7%	Thunder Bay City (SubLHIN)	14
12	Stroke rehabilitation	Efficiency	Proportion of stroke (excluding TIA) patients discharged from acute care who receive a referral for outpatient rehabilitation.	6.1%	0.0–14.3%	13.2%	Hawkesbury and District Hospital	10
13	Stroke rehabilitation	Efficiency	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation (RCG-1 and RCG-2).	10.0	7.0–17.0	7.0	Stratford General Hospital	None
14	Stroke rehabilitation	Efficiency	Rehabilitation therapy staff/bed ratio for inpatient stroke rehabilitation.	--	--	--	--	--
15	Stroke rehabilitation	Efficiency	Proportion of ALC days to total length of stay in inpatient rehabilitation (active + ALC).	--	--	--	--	--
16	Stroke rehabilitation	Efficiency	Median FIM efficiency for moderate stroke in inpatient rehabilitation (RCG-1).	0.7	0.5–3.5	1.2	Markham Stouffville Hospital	6
17	Stroke rehabilitation	Access	Mean number of CCAC visits provided to stroke/TIA patients in 2007/08 and 2008/09.	7.8	n/a	7.6	n/a	5, 1
18	Stroke rehabilitation	Access	Proportion of patients with severe stroke (RPG = 1100 or 1110) admitted to inpatient rehabilitation (RCG-1).	35.5%	30.8–48.1%	49.4%	Scarborough Hospital – General Site	None
19	Re-integration	Integration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	9.5%	4.4–25.0%	3.6%	North Bay General Hospital	13, 14
20	Re-integration	Integration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	9.4	4.8–14.8	8.3	Pembroke Regional Hospital	11, 3

[1] Performance below the 50th percentile.
[2] Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
[3] Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
[4] Data not available or benchmark under development.
[5] Hospital Annual Planning Submission; submitted to the Local Health Integration Network to form the basis of a multi-year funding and planning framework.
[6] Facility-based analysis (excluding indicators 2 and 11) for patients aged 18–108. Indicators 1, 4–9 and 12 are based on 2008/09 OSA data; otherwise, CIHI data. Low rates are desired for indicators 2, 3, 10, 13, 15, 19 and 20.
[7] Provincial benchmarks were calculated using the ABC methodology, except for indicators 3 and 20 where the provincial rate was used. For benchmarking methodology, see Weissman et al. *J Eval Clin Pract.* 1999; 5(3):269-81.
[8] High-performing facilities include only high-volume institutions (those treating more than 100 strokes per year).

Hospital Service Accountability Agreement indicators, 2010/11

-- Data not available n/a = Not applicable

South West Local Health Integration Network

Poor Performance[1] | Acceptable Performance[2] | Exemplary Performance[3] | Benchmark not available[4]

Indicator No.	Care Continuum Category	HAPS[5] Category	Indicator[6]	ON FY 2009/10	Variance Across LHINs (Min-Max)	Provincial Benchmark[7]	High Performer[8]	
							Facility	LHIN
1	Public awareness and patient education	Access	Proportion of patients who arrived at ED less than 2.5 hours from stroke symptom onset.	36.3%	10.0–66.7%	41.5%	n/a	1, 13
2	Prevention of stroke	Effectiveness	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 patients).	1.6	1.4–1.9	1.1	Richmond Hill (SubLHIN)	11
3	Prevention of stroke	Effectiveness	Age- and sex-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.4	0.0–18.2	12.3	Lakeridge Health – Bowmanville Site	14, 8, 1
4	Prevention of stroke	Effectiveness	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed anticoagulant therapy on discharge from acute care.	60.6%	0.0–100.0%	93.6%	York Central Hospital	5
5	Prevention of stroke	Access	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	68.0%	0.0–100.0%	92.5%	York Central Hospital	10
6	Acute stroke management	Access	Proportion of suspected stroke/TIA patients who received a brain CT/MRI scan within 24 hours of arrival at ED.	71.6%	0.0–91.3%	97.7%	The Credit Valley Hospital	7, 5, 6
7	Acute stroke management	Access	Proportion of ischemic stroke patients who arrived at ED less than 2.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	27.6%	0.0–40.0%	58.9%	Peterborough Regional Health Centre	None
8	Acute stroke management	Effectiveness	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	36.6%	0.0–100.0%	77.3%	Public General Hospital Society of Chatham	None
9	Acute stroke management	Effectiveness	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	60.3%	0.0–100.0%	87.8%	Thunder Bay Regional Health Sciences Centre	14
10	Acute stroke management	Efficiency	Proportion of ALC days to total length of stay in acute care.	--	--	--	--	--
11	Acute stroke management	Integration	Proportion of acute stroke (excluding TIA) patients discharged to inpatient rehabilitation.	30.4%	15.5–44.3%	40.7%	Thunder Bay City (SubLHIN)	14
12	Stroke rehabilitation	Efficiency	Proportion of stroke (excluding TIA) patients discharged from acute care who receive a referral for outpatient rehabilitation.	2.0%	0.0–33.3%	13.2%	Hawkesbury and District Hospital	10
13	Stroke rehabilitation	Efficiency	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation (RCG-1 and RCG-2).	10.0	5.0–49.0	7.0	Stratford General Hospital	None
14	Stroke rehabilitation	Efficiency	Rehabilitation therapy staff/bed ratio for inpatient stroke rehabilitation.	--	--	--	--	--
15	Stroke rehabilitation	Efficiency	Proportion of ALC days to total length of stay in inpatient rehabilitation (active + ALC).	--	--	--	--	--
16	Stroke rehabilitation	Efficiency	Median FIM efficiency for moderate stroke in inpatient rehabilitation (RCG-1).	0.8	0.8–1.4	1.2	Markham Stouffville Hospital	6
17	Stroke rehabilitation	Access	Mean number of CCAC visits provided to stroke/TIA patients in 2007/08 and 2008/09.	6.0	n/a	7.6	n/a	5, 1
18	Stroke rehabilitation	Access	Proportion of patients with severe stroke (RPG = 1100 or 1110) admitted to inpatient rehabilitation (RCG-1).	40.1%	0.0–100.0%	49.4%	Scarborough Hospital – General Site	None
19	Re-integration	Integration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	10.1%	0.0–50.0%	3.6%	North Bay General Hospital	13, 14
20	Re-integration	Integration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.9	0.0–19.9	8.3	Pembroke Regional Hospital	11, 3

[1] Performance below the 50th percentile.
[2] Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
[3] Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
[4] Data not available or benchmark under development.
[5] Hospital Annual Planning Submission; submitted to the Local Health Integration Network to form the basis of a multi-year funding and planning framework.
[6] Facility-based analysis (excluding indicators 2 and 11) for patients aged 18–108. Indicators 1, 4–9 and 12 are based on 2008/09 OSA data; otherwise, CIHI data. Low rates are desired for indicators 2, 3, 10, 13, 15, 19 and 20.
[7] Provincial benchmarks were calculated using the ABC methodology, except for indicators 3 and 20 where the provincial rate was used. For benchmarking methodology, see Weissman et al. *J Eval Clin Pract.* 1999; 5(3):269-81.
[8] High-performing facilities include only high-volume institutions (those treating more than 100 strokes per year).

Hospital Service Accountability Agreement indicators, 2010/11

-- Data not available n/a = Not applicable

Poor Performance[1] | Acceptable Performance[2] | Exemplary Performance[3] | Benchmark not available[4]

Waterloo Wellington Local Health Integration Network

Indicator No.	Care Continuum Category	HAPS[5] Category	Indicator[6]	ON FY 2009/10	Variance Across LHINs (Min-Max)	Provincial Benchmark[7]	High Performer[8]	
							Facility	LHIN
1	Public awareness and patient education	Access	Proportion of patients who arrived at ED less than 2.5 hours from stroke symptom onset.	32.9%	14.3–45.5%	41.5%	n/a	1, 13
2	Prevention of stroke	Effectiveness	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 patients).	1.4	0.7–1.9	1.1	Richmond Hill (SubLHIN)	11
3	Prevention of stroke	Effectiveness	Age- and sex-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.9	8.0–14.7	12.3	Lakeridge Health – Bowmanville Site	14, 8, 1
4	Prevention of stroke	Effectiveness	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed anticoagulant therapy on discharge from acute care.	80.3%	60.0–100.0%	93.6%	York Central Hospital	5
5	Prevention of stroke	Access	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	74.9%	33.3–100.0%	92.5%	York Central Hospital	10
6	Acute stroke management	Access	Proportion of suspected stroke/TIA patients who received a brain CT/MRI scan within 24 hours of arrival at ED.	90.1%	20.0–100.0%	97.7%	The Credit Valley Hospital	7, 5, 6
7	Acute stroke management	Access	Proportion of ischemic stroke patients who arrived at ED less than 2.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	23.5%	0.0–33.3%	58.9%	Peterborough Regional Health Centre	None
8	Acute stroke management	Effectiveness	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	30.2%	0.0–65.2%	77.3%	Public General Hospital Society of Chatham	None
9	Acute stroke management	Effectiveness	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	56.7%	0.0–80.0%	87.8%	Thunder Bay Regional Health Sciences Centre	14
10	Acute stroke management	Efficiency	Proportion of ALC days to total length of stay in acute care.	--	--	--	--	--
11	Acute stroke management	Integration	Proportion of acute stroke (excluding TIA) patients discharged to inpatient rehabilitation.	29.5%	6.3–42.2%	40.7%	Thunder Bay City (SubLHIN)	14
12	Stroke rehabilitation	Efficiency	Proportion of stroke (excluding TIA) patients discharged from acute care who receive a referral for outpatient rehabilitation.	5.2%	0.0–20.0%	13.2%	Hawkesbury and District Hospital	10
13	Stroke rehabilitation	Efficiency	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation (RCG-1 and RCG-2).	11.0	6.0–12.0	7.0	Stratford General Hospital	None
14	Stroke rehabilitation	Efficiency	Rehabilitation therapy staff/bed ratio for inpatient stroke rehabilitation.	--	--	--	--	--
15	Stroke rehabilitation	Efficiency	Proportion of ALC days to total length of stay in inpatient rehabilitation (active + ALC).	--	--	--	--	--
16	Stroke rehabilitation	Efficiency	Median FIM efficiency for moderate stroke in inpatient rehabilitation (RCG-1).	0.7	0.6–0.8	1.2	Markham Stouffville Hospital	6
17	Stroke rehabilitation	Access	Mean number of CCAC visits provided to stroke/TIA patients in 2007/08 and 2008/09.	7.0	n/a	7.6	n/a	5, 1
18	Stroke rehabilitation	Access	Proportion of patients with severe stroke (RPG = 1100 or 1110) admitted to inpatient rehabilitation (RCG-1).	25.5%	16.7–26.3%	49.4%	Scarborough Hospital – General Site	None
19	Re-integration	Integration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	13.9%	4.8–26.8%	3.6%	North Bay General Hospital	13, 14
20	Re-integration	Integration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.3	4.8–12.0	8.3	Pembroke Regional Hospital	11, 3

[1] Performance below the 50th percentile.
[2] Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
[3] Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
[4] Data not available or benchmark under development.
[5] Hospital Annual Planning Submission; submitted to the Local Health Integration Network to form the basis of a multi-year funding and planning framework.
[6] Facility-based analysis (excluding indicators 2 and 11) for patients aged 18–108. Indicators 1, 4–9 and 12 are based on 2008/09 OSA data; otherwise, CIHI data. Low rates are desired for indicators 2, 3, 10, 13, 15, 19 and 20.
[7] Provincial benchmarks were calculated using the ABC methodology, except for indicators 3 and 20 where the provincial rate was used. For benchmarking methodology, see Weissman et al. J Eval Clin Pract. 1999; 5(3):269-81.
[8] High-performing facilities include only high-volume institutions (those treating more than 100 strokes per year).

Hospital Service Accountability Agreement indicators, 2010/11

-- Data not available n/a = Not applicable

Hamilton Niagara Haldimand Brant Local Health Integration Network

Poor Performance[1] | Acceptable Performance[2] | Exemplary Performance[3] | Benchmark not available[4]

Indicator No.	Care Continuum Category	HAPS[5] Category	Indicator[6]	ON FY 2009/10	Variance Across LHINs (Min-Max)	Provincial Benchmark[7]	High Performer[8]	
							Facility	LHIN
1	Public awareness and patient education	Access	Proportion of patients who arrived at ED less than 2.5 hours from stroke symptom onset.	38.2%	18.2–66.7%	41.5%	n/a	1, 13
2	Prevention of stroke	Effectiveness	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 patients).	1.5	0.8–3.2	1.1	Richmond Hill (SubLHIN)	11
3	Prevention of stroke	Effectiveness	Age- and sex-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	13.3	0.0–17.4	12.3	Lakeridge Health – Bowmanville Site	14, 8, 1
4	Prevention of stroke	Effectiveness	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed anticoagulant therapy on discharge from acute care.	63.7%	0.0–100.0%	93.6%	York Central Hospital	5
5	Prevention of stroke	Access	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	68.5%	0.0–100.0%	92.5%	York Central Hospital	10
6	Acute stroke management	Access	Proportion of suspected stroke/TIA patients who received a brain CT/MRI scan within 24 hours of arrival at ED.	86.5%	0.0–100.0%	97.7%	The Credit Valley Hospital	7, 5, 6
7	Acute stroke management	Access	Proportion of ischemic stroke patients who arrived at ED less than 2.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	32.7%	0.0–100.0%	58.9%	Peterborough Regional Health Centre	None
8	Acute stroke management	Effectiveness	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	16.5%	0.0–53.8%	77.3%	Public General Hospital Society of Chatham	None
9	Acute stroke management	Effectiveness	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	57.9%	0.0–100.0%	87.8%	Thunder Bay Regional Health Sciences Centre	14
10	Acute stroke management	Efficiency	Proportion of ALC days to total length of stay in acute care.	--	--	--	--	--
11	Acute stroke management	Integration	Proportion of acute stroke (excluding TIA) patients discharged to inpatient rehabilitation.	29.3%	15.5–48.1%	40.7%	Thunder Bay City (SubLHIN)	14
12	Stroke rehabilitation	Efficiency	Proportion of stroke (excluding TIA) patients discharged from acute care who receive a referral for outpatient rehabilitation.	6.1%	0.0–20.0%	13.2%	Hawkesbury and District Hospital	10
13	Stroke rehabilitation	Efficiency	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation (RCG-1 and RCG-2).	11.0	7.0–18.0	7.0	Stratford General Hospital	None
14	Stroke rehabilitation	Efficiency	Rehabilitation therapy staff/bed ratio for inpatient stroke rehabilitation.	--	--	--	--	--
15	Stroke rehabilitation	Efficiency	Proportion of ALC days to total length of stay in inpatient rehabilitation (active + ALC).	--	--	--	--	--
16	Stroke rehabilitation	Efficiency	Median FIM efficiency for moderate stroke in inpatient rehabilitation (RCG-1).	0.9	0.6–1.0	1.2	Markham Stouffville Hospital	6
17	Stroke rehabilitation	Access	Mean number of CCAC visits provided to stroke/TIA patients in 2007/08 and 2008/09.	5.9	n/a	7.6	n/a	5, 1
18	Stroke rehabilitation	Access	Proportion of patients with severe stroke (RPG = 1100 or 1110) admitted to inpatient rehabilitation (RCG-1).	37.8%	0.0–46.7%	49.4%	Scarborough Hospital – General Site	None
19	Re-integration	Integration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	11.8%	0.0–25.5%	3.6%	North Bay General Hospital	13, 14
20	Re-integration	Integration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	8.4	0.0–18.7	8.3	Pembroke Regional Hospital	11, 3

[1] Performance below the 50th percentile.
[2] Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
[3] Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
[4] Data not available or benchmark under development.
[5] Hospital Annual Planning Submission; submitted to the Local Health Integration Network to form the basis of a multi-year funding and planning framework.
[6] Facility-based analysis (excluding indicators 2 and 11) for patients aged 18–108. Indicators 1, 4–9 and 12 are based on 2008/09 OSA data; otherwise, CIHI data. Low rates are desired for indicators 2, 3, 10, 13, 15, 19 and 20.
[7] Provincial benchmarks were calculated using the ABC methodology, except for indicators 3 and 20 where the provincial rate was used. For benchmarking methodology, see Weissman et al. J Eval Clin Pract. 1999; 5(3):269-81.
[8] High-performing facilities include only high-volume institutions (those treating more than 100 strokes per year).

Hospital Service Accountability Agreement indicators, 2010/11

-- Data not available n/a = Not applicable

Central West Local Health Integration Network

Poor Performance[1] | Acceptable Performance[2] | Exemplary Performance[3] | Benchmark not available[4]

Indicator No.	Care Continuum Category	HAPS[5] Category	Indicator[6]	ON FY 2009/10	Variance Across LHINs (Min-Max)	Provincial Benchmark[7]	High Performer[8]	
							Facility	LHIN
1	Public awareness and patient education	Access	Proportion of patients who arrived at ED less than 2.5 hours from stroke symptom onset.	24.6%	21.3–33.3%	41.5%	n/a	1, 13
2	Prevention of stroke	Effectiveness	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 patients).	1.5	1.3–2.2	1.1	Richmond Hill (SubLHIN)	11
3	Prevention of stroke	Effectiveness	Age- and sex-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.1	10.3–14.2	12.3	Lakeridge Health – Bowmanville Site	14, 8, 1
4	Prevention of stroke	Effectiveness	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed anticoagulant therapy on discharge from acute care.	93.1%	50.0–100.0%	93.6%	York Central Hospital	5
5	Prevention of stroke	Access	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	84.7%	80.0–90.0%	92.5%	York Central Hospital	10
6	Acute stroke management	Access	Proportion of suspected stroke/TIA patients who received a brain CT/MRI scan within 24 hours of arrival at ED.	93.8%	83.3–97.6%	97.7%	The Credit Valley Hospital	7, 5, 6
7	Acute stroke management	Access	Proportion of ischemic stroke patients who arrived at ED less than 2.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	0.0%	0.0–0.0%	58.9%	Peterborough Regional Health Centre	None
8	Acute stroke management	Effectiveness	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	0.0%	0.0–0.0%	77.3%	Public General Hospital Society of Chatham	None
9	Acute stroke management	Effectiveness	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	69.1%	56.3–73.3%	87.8%	Thunder Bay Regional Health Sciences Centre	14
10	Acute stroke management	Efficiency	Proportion of ALC days to total length of stay in acute care.	--	--	--	--	--
11	Acute stroke management	Integration	Proportion of acute stroke (excluding TIA) patients discharged to inpatient rehabilitation.	25.2%	11.1–30.3	40.7%	Thunder Bay City (SubLHIN)	14
12	Stroke rehabilitation	Efficiency	Proportion of stroke (excluding TIA) patients discharged from acute care who receive a referral for outpatient rehabilitation.	0.0%	0.0–0.0%	13.2%	Hawkesbury and District Hospital	10
13	Stroke rehabilitation	Efficiency	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation (RCG-1 and RCG-2).	15.0	12.0–17.5	7.0	Stratford General Hospital	None
14	Stroke rehabilitation	Efficiency	Rehabilitation therapy staff/bed ratio for inpatient stroke rehabilitation.	--	--	--	--	--
15	Stroke rehabilitation	Efficiency	Proportion of ALC days to total length of stay in inpatient rehabilitation (active + ALC).	--	--	--	--	--
16	Stroke rehabilitation	Efficiency	Median FIM efficiency for moderate stroke in inpatient rehabilitation (RCG-1).	0.4	0.2–0.4	1.2	Markham Stouffville Hospital	6
17	Stroke rehabilitation	Access	Mean number of CCAC visits provided to stroke/TIA patients in 2007/08 and 2008/09.	7.9	n/a	7.6	n/a	5, 1
18	Stroke rehabilitation	Access	Proportion of patients with severe stroke (RPG = 1100 or 1110) admitted to inpatient rehabilitation (RCG-1).	16.5%	6.3–60.0%	49.4%	Scarborough Hospital – General Site	None
19	Re-integration	Integration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	13.9%	9.8–28.8%	3.6%	North Bay General Hospital	13, 14
20	Re-integration	Integration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	9.7	7.2–13.0	8.3	Pembroke Regional Hospital	11, 3

[1] Performance below the 50th percentile.
[2] Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
[3] Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
[4] Data not available or benchmark under development.
[5] Hospital Annual Planning Submission; submitted to the Local Health Integration Network to form the basis of a multi-year funding and planning framework.
[6] Facility-based analysis (excluding indicators 2 and 11) for patients aged 18–108. Indicators 1, 4–9 and 12 are based on 2008/09 OSA data; otherwise, CIHI data. Low rates are desired for indicators 2, 3, 10, 13, 15, 19 and 20.
[7] Provincial benchmarks were calculated using the ABC methodology, except for indicators 3 and 20 where the provincial rate was used. For benchmarking methodology, see Weissman et al. J Eval Clin Pract. 1999; 5(3):269-81.
[8] High-performing facilities include only high-volume institutions (those treating more than 100 strokes per year).

Hospital Service Accountability Agreement indicators, 2010/11

-- Data not available n/a = Not applicable

Mississauga Halton Local Health Integration Network

Poor Performance[1] | Acceptable Performance[2] | Exemplary Performance[3] | Benchmark not available[4]

Indicator No.	Care Continuum Category	HAPS[5] Category	Indicator[6]	ON FY 2009/10	Variance Across LHINs (Min-Max)	Provincial Benchmark[7]	High Performer[8]	
							Facility	LHIN
1	Public awareness and patient education	Access	Proportion of patients who arrived at ED less than 2.5 hours from stroke symptom onset.	36.5%	18.4–43.8%	41.5%	n/a	1, 13
2	Prevention of stroke	Effectiveness	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 patients).	1.4	0.9–1.8	1.1	Richmond Hill (SubLHIN)	11
3	Prevention of stroke	Effectiveness	Age- and sex-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.7	0.0–14.8	12.3	Lakeridge Health – Bowmanville Site	14, 8, 1
4	Prevention of stroke	Effectiveness	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed anticoagulant therapy on discharge from acute care.	86.9%	80.0–100.0%	93.6%	York Central Hospital	5
5	Prevention of stroke	Access	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	82.1%	66.7–87.5%	92.5%	York Central Hospital	10
6	Acute stroke management	Access	Proportion of suspected stroke/TIA patients who received a brain CT/MRI scan within 24 hours of arrival at ED.	93.8%	45.5–100.0%	97.7%	The Credit Valley Hospital	7, 5, 6
7	Acute stroke management	Access	Proportion of ischemic stroke patients who arrived at ED less than 2.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	41.0%	0.0–57.6%	58.9%	Peterborough Regional Health Centre	None
8	Acute stroke management	Effectiveness	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	42.0%	0.0–74.3%	77.3%	Public General Hospital Society of Chatham	None
9	Acute stroke management	Effectiveness	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	59.5%	42.9–75.0%	87.8%	Thunder Bay Regional Health Sciences Centre	14
10	Acute stroke management	Efficiency	Proportion of ALC days to total length of stay in acute care.	--	--	--	--	--
11	Acute stroke management	Integration	Proportion of acute stroke (excluding TIA) patients discharged to inpatient rehabilitation.	34.8%	27.5–42.1%	40.7%	Thunder Bay City (SubLHIN)	14
12	Stroke rehabilitation	Efficiency	Proportion of stroke (excluding TIA) patients discharged from acute care who receive a referral for outpatient rehabilitation.	4.0%	0.0–5.6%	13.2%	Hawkesbury and District Hospital	10
13	Stroke rehabilitation	Efficiency	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation (RCG-1 and RCG-2).	8.0	7.0–11.0	7.0	Stratford General Hospital	None
14	Stroke rehabilitation	Efficiency	Rehabilitation therapy staff/bed ratio for inpatient stroke rehabilitation.	--	--	--	--	--
15	Stroke rehabilitation	Efficiency	Proportion of ALC days to total length of stay in inpatient rehabilitation (active + ALC).	--	--	--	--	--
16	Stroke rehabilitation	Efficiency	Median FIM efficiency for moderate stroke in inpatient rehabilitation (RCG-1).	1.1	0.7–1.3	1.2	Markham Stouffville Hospital	6
17	Stroke rehabilitation	Access	Mean number of CCAC visits provided to stroke/TIA patients in 2007/08 and 2008/09.	6.6	n/a	7.6	n/a	5, 1
18	Stroke rehabilitation	Access	Proportion of patients with severe stroke (RPG = 1100 or 1110) admitted to inpatient rehabilitation (RCG-1).	39.0%	37.1–41.2%	49.4%	Scarborough Hospital – General Site	None
19	Re-integration	Integration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	8.0%	5.7–26.5%	3.6%	North Bay General Hospital	13, 14
20	Re-integration	Integration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	8.4	4.6–9.5	8.3	Pembroke Regional Hospital	11, 3

[1] Performance below the 50th percentile.
[2] Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
[3] Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
[4] Data not available or benchmark under development.
[5] Hospital Annual Planning Submission; submitted to the Local Health Integration Network to form the basis of a multi-year funding and planning framework.
[6] Facility-based analysis (excluding indicators 2 and 11) for patients aged 18–108. Indicators 1, 4–9 and 12 are based on 2008/09 OSA data; otherwise, CIHI data. Low rates are desired for indicators 2, 3, 10, 13, 15, 19 and 20.
[7] Provincial benchmarks were calculated using the ABC methodology, except for indicators 3 and 20 where the provincial rate was used. For benchmarking methodology, see Weissman et al. J Eval Clin Pract. 1999; 5(3):269-81.
[8] High-performing facilities include only high-volume institutions (those treating more than 100 strokes per year).

Hospital Service Accountability Agreement indicators, 2010/11

-- Data not available n/a = Not applicable

Poor Performance[1] | Acceptable Performance[2] | Exemplary Performance[3] | Benchmark not available[4]

Toronto Central Local Health Integration Network

Indicator No.	Care Continuum Category	HAPS[5] Category	Indicator[6]	ON FY 2009/10	Variance Across LHINs (Min-Max)	Provincial Benchmark[7]	High Performer[8]	
							Facility	LHIN
1	Public awareness and patient education	Access	Proportion of patients who arrived at ED less than 2.5 hours from stroke symptom onset.	34.3%	14.0–39.3%	41.5%	n/a	1, 13
2	Prevention of stroke	Effectiveness	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 patients).	1.4	1.3–1.5	1.1	Richmond Hill (SubLHIN)	11
3	Prevention of stroke	Effectiveness	Age- and sex-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.1	0.0–13.6	12.3	Lakeridge Health – Bowmanville Site	14, 8, 1
4	Prevention of stroke	Effectiveness	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed anticoagulant therapy on discharge from acute care.	71.2%	50.0–100.0%	93.6%	York Central Hospital	5
5	Prevention of stroke	Access	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	76.1%	58.3–91.2%	92.5%	York Central Hospital	10
6	Acute stroke management	Access	Proportion of suspected stroke/TIA patients who received a brain CT/MRI scan within 24 hours of arrival at ED.	95.8%	89.5–98.0%	97.7%	The Credit Valley Hospital	7, 5, 6
7	Acute stroke management	Access	Proportion of ischemic stroke patients who arrived at ED less than 2.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	41.5%	0.0–52.2%	58.9%	Peterborough Regional Health Centre	None
8	Acute stroke management	Effectiveness	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	35.3%	0.0–60.3%	77.3%	Public General Hospital Society of Chatham	None
9	Acute stroke management	Effectiveness	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	63.9%	50.8–85.7%	87.8%	Thunder Bay Regional Health Sciences Centre	14
10	Acute stroke management	Efficiency	Proportion of ALC days to total length of stay in acute care.	--	--	--	--	--
11	Acute stroke management	Integration	Proportion of acute stroke (excluding TIA) patients discharged to inpatient rehabilitation.	29.0%	24.8–32.7%	40.7%	Thunder Bay City (SubLHIN)	14
12	Stroke rehabilitation	Efficiency	Proportion of stroke (excluding TIA) patients discharged from acute care who receive a referral for outpatient rehabilitation.	3.1%	0.0–8.3%	13.2%	Hawkesbury and District Hospital	10
13	Stroke rehabilitation	Efficiency	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation (RCG-1 and RCG-2).	14.0	12.0–18.0	7.0	Stratford General Hospital	None
14	Stroke rehabilitation	Efficiency	Rehabilitation therapy staff/bed ratio for inpatient stroke rehabilitation.	--	--	--	--	--
15	Stroke rehabilitation	Efficiency	Proportion of ALC days to total length of stay in inpatient rehabilitation (active + ALC).	--	--	--	--	--
16	Stroke rehabilitation	Efficiency	Median FIM efficiency for moderate stroke in inpatient rehabilitation (RCG-1).	0.5	0.4–0.8	1.2	Markham Stouffville Hospital	6
17	Stroke rehabilitation	Access	Mean number of CCAC visits provided to stroke/TIA patients in 2007/08 and 2008/09.	5.5	n/a	7.6	n/a	5, 1
18	Stroke rehabilitation	Access	Proportion of patients with severe stroke (RPG = 1100 or 1110) admitted to inpatient rehabilitation (RCG-1).	19.8%	0.0–25.0%	49.4%	Scarborough Hospital – General Site	None
19	Re-integration	Integration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	11.8%	5.4–19.5%	3.6%	North Bay General Hospital	13, 14
20	Re-integration	Integration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.4	0.0–9.7	8.3	Pembroke Regional Hospital	11, 3

[1] Performance below the 50th percentile.
[2] Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
[3] Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
[4] Data not available or benchmark under development.
[5] Hospital Annual Planning Submission; submitted to the Local Health Integration Network to form the basis of a multi-year funding and planning framework.
[6] Facility-based analysis (excluding indicators 2 and 11) for patients aged 18–108. Indicators 1, 4–9 and 12 are based on 2008/09 OSA data; otherwise, CIHI data. Low rates are desired for indicators 2, 3, 10, 13, 15, 19 and 20.
[7] Provincial benchmarks were calculated using the ABC methodology, except for indicators 3 and 20 where the provincial rate was used. For benchmarking methodology, see Weissman et al. J Eval Clin Pract. 1999; 5(3):269-81.
[8] High-performing facilities include only high-volume institutions (those treating more than 100 strokes per year).

Hospital Service Accountability Agreement indicators, 2010/11

-- Data not available n/a = Not applicable

Central Local Health Integration Network

Poor Performance[1] | Acceptable Performance[2] | Exemplary Performance[3] | Benchmark not available[4]

Indicator No.	Care Continuum Category	HAPS[5] Category	Indicator[6]	ON FY 2009/10	Variance Across LHINs (Min-Max)	Provincial Benchmark[7]	High Performer[8]	
							Facility	LHIN
1	Public awareness and patient education	Access	Proportion of patients who arrived at ED less than 2.5 hours from stroke symptom onset.	24.9%	6.7–41.7%	41.5%	n/a	1, 13
2	Prevention of stroke	Effectiveness	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 patients).	1.3	0.9–1.5	1.1	Richmond Hill (SubLHIN)	11
3	Prevention of stroke	Effectiveness	Age- and sex-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	10.7	0.0–14.6	12.3	Lakeridge Health – Bowmanville Site	14, 8, 1
4	Prevention of stroke	Effectiveness	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed anticoagulant therapy on discharge from acute care.	72.0%	42.9–100.0%	93.6%	York Central Hospital	5
5	Prevention of stroke	Access	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	83.8%	0.0–100.0%	92.5%	York Central Hospital	10
6	Acute stroke management	Access	Proportion of suspected stroke/TIA patients who received a brain CT/MRI scan within 24 hours of arrival at ED.	93.4%	16.7–100.0%	97.7%	The Credit Valley Hospital	7, 5, 6
7	Acute stroke management	Access	Proportion of ischemic stroke patients who arrived at ED less than 2.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	24.5%	0.0–50.0%	58.9%	Peterborough Regional Health Centre	None
8	Acute stroke management	Effectiveness	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	4.9%	0.0–23.3%	77.3%	Public General Hospital Society of Chatham	None
9	Acute stroke management	Effectiveness	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	59.0%	22.9–94.7%	87.8%	Thunder Bay Regional Health Sciences Centre	14
10	Acute stroke management	Efficiency	Proportion of ALC days to total length of stay in acute care.	--	--	--	--	--
11	Acute stroke management	Integration	Proportion of acute stroke (excluding TIA) patients discharged to inpatient rehabilitation.	28.4%	19.5–42.6%	40.7%	Thunder Bay City (SubLHIN)	14
12	Stroke rehabilitation	Efficiency	Proportion of stroke (excluding TIA) patients discharged from acute care who receive a referral for outpatient rehabilitation.	4.4%	0.0–33.3%	13.2%	Hawkesbury and District Hospital	10
13	Stroke rehabilitation	Efficiency	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation (RCG-1 and RCG-2).	11.0	9.0–13.0	7.0	Stratford General Hospital	None
14	Stroke rehabilitation	Efficiency	Rehabilitation therapy staff/bed ratio for inpatient stroke rehabilitation.	--	--	--	--	--
15	Stroke rehabilitation	Efficiency	Proportion of ALC days to total length of stay in inpatient rehabilitation (active + ALC).	--	--	--	--	--
16	Stroke rehabilitation	Efficiency	Median FIM efficiency for moderate stroke in inpatient rehabilitation (RCG-1).	0.8	0.7–2.9	1.2	Markham Stouffville Hospital	6
17	Stroke rehabilitation	Access	Mean number of CCAC visits provided to stroke/TIA patients in 2007/08 and 2008/09.	7.0	n/a	7.6	n/a	5, 1
18	Stroke rehabilitation	Access	Proportion of patients with severe stroke (RPG = 1100 or 1110) admitted to inpatient rehabilitation (RCG-1).	31.9%	0.0–62.1%	49.4%	Scarborough Hospital – General Site	None
19	Re-integration	Integration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	10.4%	2.8–15.4%	3.6%	North Bay General Hospital	13, 14
20	Re-integration	Integration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	9.8	7.3–26.7	8.3	Pembroke Regional Hospital	11, 3

[1] Performance below the 50th percentile.
[2] Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
[3] Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
[4] Data not available or benchmark under development.
[5] Hospital Annual Planning Submission; submitted to the Local Health Integration Network to form the basis of a multi-year funding and planning framework.
[6] Facility-based analysis (excluding indicators 2 and 11) for patients aged 18–108. Indicators 1, 4–9 and 12 are based on 2008/09 OSA data; otherwise, CIHI data. Low rates are desired for indicators 2, 3, 10, 13, 15, 19 and 20.
[7] Provincial benchmarks were calculated using the ABC methodology, except for indicators 3 and 20 where the provincial rate was used. For benchmarking methodology, see Weissman et al. J Eval Clin Pract. 1999; 5(3):269-81.
[8] High-performing facilities include only high-volume institutions (those treating more than 100 strokes per year).

Hospital Service Accountability Agreement indicators, 2010/11

-- Data not available n/a = Not applicable

Central East Local Health Integration Network

Poor Performance[1] | Acceptable Performance[2] | Exemplary Performance[3] | Benchmark not available[4]

Indicator No.	Care Continuum Category	HAPS[5] Category	Indicator[6]	ON FY 2009/10	Variance Across LHINs (Min-Max)	Provincial Benchmark[7]	High Performer[8]	
							Facility	LHIN
1	Public awareness and patient education	Access	Proportion of patients who arrived at ED less than 2.5 hours from stroke symptom onset.	30.7%	14.3–60.0%	41.5%	n/a	1, 13
2	Prevention of stroke	Effectiveness	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 patients).	1.4	1.3–1.5	1.1	Richmond Hill (SubLHIN)	11
3	Prevention of stroke	Effectiveness	Age- and sex-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.4	3.6–16.7	12.3	Lakeridge Health – Bowmanville Site	14, 8, 1
4	Prevention of stroke	Effectiveness	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed anticoagulant therapy on discharge from acute care.	59.2%	0.0–100.0%	93.6%	York Central Hospital	5
5	Prevention of stroke	Access	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	69.7%	0.0–100.0%	92.5%	York Central Hospital	10
6	Acute stroke management	Access	Proportion of suspected stroke/TIA patients who received a brain CT/MRI scan within 24 hours of arrival at ED.	83.2%	0.0–95.1%	97.7%	The Credit Valley Hospital	7, 5, 6
7	Acute stroke management	Access	Proportion of ischemic stroke patients who arrived at ED less than 2.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	22.6%	0.0–71.4%	58.9%	Peterborough Regional Health Centre	None
8	Acute stroke management	Effectiveness	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	16.3%	0.0–55.2%	77.3%	Public General Hospital Society of Chatham	None
9	Acute stroke management	Effectiveness	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	56.9%	0.0–84.0%	87.8%	Thunder Bay Regional Health Sciences Centre	14
10	Acute stroke management	Efficiency	Proportion of ALC days to total length of stay in acute care.	--	--	--	--	--
11	Acute stroke management	Integration	Proportion of acute stroke (excluding TIA) patients discharged to inpatient rehabilitation.	32.9%	27.7–40.6%	40.7%	Thunder Bay City (SubLHIN)	14
12	Stroke rehabilitation	Efficiency	Proportion of stroke (excluding TIA) patients discharged from acute care who receive a referral for outpatient rehabilitation.	3.0%	0.0–8.7%	13.2%	Hawkesbury and District Hospital	10
13	Stroke rehabilitation	Efficiency	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation (RCG-1 and RCG-2).	9.0	6.0–10.0	7.0	Stratford General Hospital	None
14	Stroke rehabilitation	Efficiency	Rehabilitation therapy staff/bed ratio for inpatient stroke rehabilitation.	--	--	--	--	--
15	Stroke rehabilitation	Efficiency	Proportion of ALC days to total length of stay in inpatient rehabilitation (active + ALC).	--	--	--	--	--
16	Stroke rehabilitation	Efficiency	Median FIM efficiency for moderate stroke in inpatient rehabilitation (RCG-1).	0.9	0.5–1.3	1.2	Markham Stouffville Hospital	6
17	Stroke rehabilitation	Access	Mean number of CCAC visits provided to stroke/TIA patients in 2007/08 and 2008/09.	6.2	n/a	7.6	n/a	5, 1
18	Stroke rehabilitation	Access	Proportion of patients with severe stroke (RPG = 1100 or 1110) admitted to inpatient rehabilitation (RCG-1).	34.7%	5.3–66.7%	49.4%	Scarborough Hospital – General Site	None
19	Re-integration	Integration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	10.4%	3.5–20.0%	3.6%	North Bay General Hospital	13, 14
20	Re-integration	Integration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.8	4.7–13.8	8.3	Pembroke Regional Hospital	11, 3

[1] Performance below the 50th percentile.
[2] Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
[3] Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
[4] Data not available or benchmark under development.
[5] Hospital Annual Planning Submission; submitted to the Local Health Integration Network to form the basis of a multi-year funding and planning framework.
[6] Facility-based analysis (excluding indicators 2 and 11) for patients aged 18–108. Indicators 1, 4–9 and 12 are based on 2008/09 OSA data; otherwise, CIHI data. Low rates are desired for indicators 2, 3, 10, 13, 15, 19 and 20.
[7] Provincial benchmarks were calculated using the ABC methodology, except for indicators 3 and 20 where the provincial rate was used. For benchmarking methodology, see Weissman et al. J Eval Clin Pract. 1999; 5(3):269-81.
[8] High-performing facilities include only high-volume institutions (those treating more than 100 strokes per year).

Hospital Service Accountability Agreement indicators, 2010/11

-- Data not available n/a = Not applicable

South East Local Health Integration Network

Poor Performance[1] | Acceptable Performance[2] | Exemplary Performance[3] | Benchmark not available[4]

Indicator No.	Care Continuum Category	HAPS[5] Category	Indicator[6]	ON FY 2009/10	Variance Across LHINs (Min-Max)	Provincial Benchmark[7]	High Performer[8]	
							Facility	LHIN
1	Public awareness and patient education	Access	Proportion of patients who arrived at ED less than 2.5 hours from stroke symptom onset.	39.9%	8.3–54.5%	41.5%	n/a	1, 13
2	Prevention of stroke	Effectiveness	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 patients).	1.4	0.7–1.9	1.1	Richmond Hill (SubLHIN)	11
3	Prevention of stroke	Effectiveness	Age- and sex-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	13.5	0.0–18.3	12.3	Lakeridge Health – Bowmanville Site	14, 8, 1
4	Prevention of stroke	Effectiveness	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed anticoagulant therapy on discharge from acute care.	74.9%	57.1–100.0%	93.6%	York Central Hospital	5
5	Prevention of stroke	Access	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	90.5%	83.3–100.0%	92.5%	York Central Hospital	10
6	Acute stroke management	Access	Proportion of suspected stroke/TIA patients who received a brain CT/MRI scan within 24 hours of arrival at ED.	72.8%	0.0–98.1%	97.7%	The Credit Valley Hospital	7, 5, 6
7	Acute stroke management	Access	Proportion of ischemic stroke patients who arrived at ED less than 2.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	29.9%	0.0–38.9%	58.9%	Peterborough Regional Health Centre	None
8	Acute stroke management	Effectiveness	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	46.1%	0.0–65.1%	77.3%	Public General Hospital Society of Chatham	None
9	Acute stroke management	Effectiveness	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	62.6%	33.3–100.0%	87.8%	Thunder Bay Regional Health Sciences Centre	14
10	Acute stroke management	Efficiency	Proportion of ALC days to total length of stay in acute care.	--	--	--	--	--
11	Acute stroke management	Integration	Proportion of acute stroke (excluding TIA) patients discharged to inpatient rehabilitation.	28.4%	0.0–50.0	40.7%	Thunder Bay City (SubLHIN)	14
12	Stroke rehabilitation	Efficiency	Proportion of stroke (excluding TIA) patients discharged from acute care who receive a referral for outpatient rehabilitation.	9.7%	0.0–21.1%	13.2%	Hawkesbury and District Hospital	10
13	Stroke rehabilitation	Efficiency	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation (RCG-1 and RCG-2).	13.0	8.0–19.0	7.0	Stratford General Hospital	None
14	Stroke rehabilitation	Efficiency	Rehabilitation therapy staff/bed ratio for inpatient stroke rehabilitation.	--	--	--	--	--
15	Stroke rehabilitation	Efficiency	Proportion of ALC days to total length of stay in inpatient rehabilitation (active + ALC).	--	--	--	--	--
16	Stroke rehabilitation	Efficiency	Median FIM efficiency for moderate stroke in inpatient rehabilitation (RCG-1).	0.6	0.4–0.7	1.2	Markham Stouffville Hospital	6
17	Stroke rehabilitation	Access	Mean number of CCAC visits provided to stroke/TIA patients in 2007/08 and 2008/09.	6.2	n/a	7.6	n/a	5, 1
18	Stroke rehabilitation	Access	Proportion of patients with severe stroke (RPG = 1100 or 1110) admitted to inpatient rehabilitation (RCG-1).	30.2%	25.0–31.6%	49.4%	Scarborough Hospital – General Site	None
19	Re-integration	Integration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	10.2%	0.0–25.0%	3.6%	North Bay General Hospital	13, 14
20	Re-integration	Integration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.9	5.0–19.1	8.3	Pembroke Regional Hospital	11, 3

[1] Performance below the 50th percentile.
[2] Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
[3] Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
[4] Data not available or benchmark under development.
[5] Hospital Annual Planning Submission; submitted to the Local Health Integration Network to form the basis of a multi-year funding and planning framework.
[6] Facility-based analysis (excluding indicators 2 and 11) for patients aged 18–108. Indicators 1, 4–9 and 12 are based on 2008/09 OSA data; otherwise, CIHI data. Low rates are desired for indicators 2, 3, 10, 13, 15, 19 and 20.
[7] Provincial benchmarks were calculated using the ABC methodology, except for indicators 3 and 20 where the provincial rate was used. For benchmarking methodology, see Weissman et al. J Eval Clin Pract. 1999; 5(3):269-81.
[8] High-performing facilities include only high-volume institutions (those treating more than 100 strokes per year).

Hospital Service Accountability Agreement indicators, 2010/11

-- Data not available n/a = Not applicable

Champlain Local Health Integration Network

Poor Performance[1] | Acceptable Performance[2] | Exemplary Performance[3] | Benchmark not available[4]

Indicator No.	Care Continuum Category	HAPS[5] Category	Indicator[6]	ON FY 2009/10	Variance Across LHINs (Min-Max)	Provincial Benchmark[7]	High Performer[8]	
							Facility	LHIN
1	Public awareness and patient education	Access	Proportion of patients who arrived at ED less than 2.5 hours from stroke symptom onset.	39.9%	20.0–66.7%	41.5%	n/a	1, 13
2	Prevention of stroke	Effectiveness	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 patients).	1.2	1.0–1.9	1.1	Richmond Hill (SubLHIN)	11
3	Prevention of stroke	Effectiveness	Age- and sex-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	12.3	0.0–23.3	12.3	Lakeridge Health – Bowmanville Site	14, 8, 1
4	Prevention of stroke	Effectiveness	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed anticoagulant therapy on discharge from acute care.	80.7%	0.0–100.0%	93.6%	York Central Hospital	5
5	Prevention of stroke	Access	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	71.5%	0.0–92.3%	92.5%	York Central Hospital	10
6	Acute stroke management	Access	Proportion of suspected stroke/TIA patients who received a brain CT/MRI scan within 24 hours of arrival at ED.	89.9%	0.0–100.0%	97.7%	The Credit Valley Hospital	7, 5, 6
7	Acute stroke management	Access	Proportion of ischemic stroke patients who arrived at ED less than 2.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	34.2%	0.0–71.4%	58.9%	Peterborough Regional Health Centre	None
8	Acute stroke management	Effectiveness	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	42.0%	0.0–74.7%	77.3%	Public General Hospital Society of Chatham	None
9	Acute stroke management	Effectiveness	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	72.5%	0.0–92.0%	87.8%	Thunder Bay Regional Health Sciences Centre	14
10	Acute stroke management	Efficiency	Proportion of ALC days to total length of stay in acute care.	--	--	--	--	--
11	Acute stroke management	Integration	Proportion of acute stroke (excluding TIA) patients discharged to inpatient rehabilitation.	30.9%	19.2–44.8%	40.7%	Thunder Bay City (SubLHIN)	14
12	Stroke rehabilitation	Efficiency	Proportion of stroke (excluding TIA) patients discharged from acute care who receive a referral for outpatient rehabilitation.	6.4%	0.0–33.3%	13.2%	Hawkesbury and District Hospital	10
13	Stroke rehabilitation	Efficiency	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation (RCG-1 and RCG-2).	16.0	7.0–51.5	7.0	Stratford General Hospital	None
14	Stroke rehabilitation	Efficiency	Rehabilitation therapy staff/bed ratio for inpatient stroke rehabilitation.	--	--	--	--	--
15	Stroke rehabilitation	Efficiency	Proportion of ALC days to total length of stay in inpatient rehabilitation (active + ALC).	--	--	--	--	--
16	Stroke rehabilitation	Efficiency	Median FIM efficiency for moderate stroke in inpatient rehabilitation (RCG-1).	0.6	0.1–1.2	1.2	Markham Stouffville Hospital	6
17	Stroke rehabilitation	Access	Mean number of CCAC visits provided to stroke/TIA patients in 2007/08 and 2008/09.	6.1	n/a	7.6	n/a	5, 1
18	Stroke rehabilitation	Access	Proportion of patients with severe stroke (RPG = 1100 or 1110) admitted to inpatient rehabilitation (RCG-1).	25.5%	0.0–39.3%	49.4%	Scarborough Hospital – General Site	None
19	Re-integration	Integration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	10.4%	0.0–48.0%	3.6%	North Bay General Hospital	13, 14
20	Re-integration	Integration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	7.0	0.0–18.6	8.3	Pembroke Regional Hospital	11, 3

[1] Performance below the 50th percentile.
[2] Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
[3] Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
[4] Data not available or benchmark under development.
[5] Hospital Annual Planning Submission; submitted to the Local Health Integration Network to form the basis of a multi-year funding and planning framework.
[6] Facility-based analysis (excluding indicators 2 and 11) for patients aged 18–108. Indicators 1, 4–9 and 12 are based on 2008/09 OSA data; otherwise, CIHI data. Low rates are desired for indicators 2, 3, 10, 13, 15, 19 and 20.
[7] Provincial benchmarks were calculated using the ABC methodology, except for indicators 3 and 20 where the provincial rate was used. For benchmarking methodology, see Weissman et al. J Eval Clin Pract. 1999; 5(3):269-81.
[8] High-performing facilities include only high-volume institutions (those treating more than 100 strokes per year).

Hospital Service Accountability Agreement indicators, 2010/11

-- Data not available n/a = Not applicable

North Simcoe Muskoka Local Health Integration Network

Poor Performance[1] | Acceptable Performance[2] | Exemplary Performance[3] | Benchmark not available[4]

Indicator No.	Care Continuum Category	HAPS[5] Category	Indicator[6]	ON FY 2009/10	Variance Across LHINs (Min-Max)	Provincial Benchmark[7]	High Performer[8]	
							Facility	LHIN
1	Public awareness and patient education	Access	Proportion of patients who arrived at ED less than 2.5 hours from stroke symptom onset.	36.4%	21.1–51.0%	41.5%	n/a	1, 13
2	Prevention of stroke	Effectiveness	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 patients).	1.6	1.4–2.2	1.1	Richmond Hill (SubLHIN)	11
3	Prevention of stroke	Effectiveness	Age- and sex-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	11.2	8.8–15.7	12.3	Lakeridge Health – Bowmanville Site	14, 8, 1
4	Prevention of stroke	Effectiveness	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed anticoagulant therapy on discharge from acute care.	60.1%	0.0–100.0%	93.6%	York Central Hospital	5
5	Prevention of stroke	Access	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	51.1%	25.0–66.7%	92.5%	York Central Hospital	10
6	Acute stroke management	Access	Proportion of suspected stroke/TIA patients who received a brain CT/MRI scan within 24 hours of arrival at ED.	82.5%	46.7–96.0%	97.7%	The Credit Valley Hospital	7, 5, 6
7	Acute stroke management	Access	Proportion of ischemic stroke patients who arrived at ED less than 2.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	37.9%	0.0–54.5%	58.9%	Peterborough Regional Health Centre	None
8	Acute stroke management	Effectiveness	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	24.5%	0.0–65.5%	77.3%	Public General Hospital Society of Chatham	None
9	Acute stroke management	Effectiveness	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	75.7%	42.9–85.0%	87.8%	Thunder Bay Regional Health Sciences Centre	14
10	Acute stroke management	Efficiency	Proportion of ALC days to total length of stay in acute care.	--	--	--	--	--
11	Acute stroke management	Integration	Proportion of acute stroke (excluding TIA) patients discharged to inpatient rehabilitation.	32.8%	15.5–41.0%	40.7%	Thunder Bay City (SubLHIN)	14
12	Stroke rehabilitation	Efficiency	Proportion of stroke (excluding TIA) patients discharged from acute care who receive a referral for outpatient rehabilitation.	3.4%	0.0–17.6%	13.2%	Hawkesbury and District Hospital	10
13	Stroke rehabilitation	Efficiency	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation (RCG-1 and RCG-2).	14.0	9.0–15.0	7.0	Stratford General Hospital	None
14	Stroke rehabilitation	Efficiency	Rehabilitation therapy staff/bed ratio for inpatient stroke rehabilitation.	--	--	--	--	--
15	Stroke rehabilitation	Efficiency	Proportion of ALC days to total length of stay in inpatient rehabilitation (active + ALC).	--	--	--	--	--
16	Stroke rehabilitation	Efficiency	Median FIM efficiency for moderate stroke in inpatient rehabilitation (RCG-1).	0.9	0.6–0.9	1.2	Markham Stouffville Hospital	6
17	Stroke rehabilitation	Access	Mean number of CCAC visits provided to stroke/TIA patients in 2007/08 and 2008/09.	6.5	n/a	7.6	n/a	5, 1
18	Stroke rehabilitation	Access	Proportion of patients with severe stroke (RPG = 1100 or 1110) admitted to inpatient rehabilitation (RCG-1).	39.4%	19.0–50.8%	49.4%	Scarborough Hospital – General Site	None
19	Re-integration	Integration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	8.7%	3.3–14.3%	3.6%	North Bay General Hospital	13, 14
20	Re-integration	Integration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	9.2	5.0–10.8	8.3	Pembroke Regional Hospital	11, 3

[1] Performance below the 50th percentile.
[2] Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
[3] Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
[4] Data not available or benchmark under development.
[5] Hospital Annual Planning Submission; submitted to the Local Health Integration Network to form the basis of a multi-year funding and planning framework.
[6] Facility-based analysis (excluding indicators 2 and 11) for patients aged 18–108. Indicators 1, 4–9 and 12 are based on 2008/09 OSA data; otherwise, CIHI data. Low rates are desired for indicators 2, 3, 10, 13, 15, 19 and 20.
[7] Provincial benchmarks were calculated using the ABC methodology, except for indicators 3 and 20 where the provincial rate was used. For benchmarking methodology, see Weissman et al. J Eval Clin Pract. 1999; 5(3):269-81.
[8] High-performing facilities include only high-volume institutions (those treating more than 100 strokes per year).

Hospital Service Accountability Agreement indicators, 2010/11

-- Data not available n/a = Not applicable

North East Local Health Integration Network

Poor Performance[1] | Acceptable Performance[2] | Exemplary Performance[3] | Benchmark not available[4]

Indicator No.	Care Continuum Category	HAPS[5] Category	Indicator[6]	ON FY 2009/10	Variance Across LHINs (Min-Max)	Provincial Benchmark[7]	High Performer[8]	
							Facility	LHIN
1	Public awareness and patient education	Access	Proportion of patients who arrived at ED less than 2.5 hours from stroke symptom onset.	42.7%	11.1–60.0%	41.5%	n/a	1, 13
2	Prevention of stroke	Effectiveness	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 patients).	2.1	1.6–3.3	1.1	Richmond Hill (SubLHIN)	11
3	Prevention of stroke	Effectiveness	Age- and sex-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	13.4	0.0–33.3	12.3	Lakeridge Health – Bowmanville Site	14, 8, 1
4	Prevention of stroke	Effectiveness	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed anticoagulant therapy on discharge from acute care.	59.6%	0.0–100.0%	93.6%	York Central Hospital	5
5	Prevention of stroke	Access	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	64.8%	0.0–100.0%	92.5%	York Central Hospital	10
6	Acute stroke management	Access	Proportion of suspected stroke/TIA patients who received a brain CT/MRI scan within 24 hours of arrival at ED.	78.2%	0.0–97.4%	97.7%	The Credit Valley Hospital	7, 5, 6
7	Acute stroke management	Access	Proportion of ischemic stroke patients who arrived at ED less than 2.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	17.3%	0.0–50.0%	58.9%	Peterborough Regional Health Centre	None
8	Acute stroke management	Effectiveness	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	33.0%	0.0–80.0%	77.3%	Public General Hospital Society of Chatham	None
9	Acute stroke management	Effectiveness	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	57.1%	0.0–100.0%	87.8%	Thunder Bay Regional Health Sciences Centre	14
10	Acute stroke management	Efficiency	Proportion of ALC days to total length of stay in acute care.	--	--	--	--	--
11	Acute stroke management	Integration	Proportion of acute stroke (excluding TIA) patients discharged to inpatient rehabilitation.	28.8%	0.0–35.3%	40.7%	Thunder Bay City (SubLHIN)	14
12	Stroke rehabilitation	Efficiency	Proportion of stroke (excluding TIA) patients discharged from acute care who receive a referral for outpatient rehabilitation.	6.3%	0.0–18.2%	13.2%	Hawkesbury and District Hospital	10
13	Stroke rehabilitation	Efficiency	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation (RCG-1 and RCG-2).	13.0	5.5–15.0	7.0	Stratford General Hospital	None
14	Stroke rehabilitation	Efficiency	Rehabilitation therapy staff/bed ratio for inpatient stroke rehabilitation.	--	--	--	--	--
15	Stroke rehabilitation	Efficiency	Proportion of ALC days to total length of stay in inpatient rehabilitation (active + ALC).	--	--	--	--	--
16	Stroke rehabilitation	Efficiency	Median FIM efficiency for moderate stroke in inpatient rehabilitation (RCG-1).	0.6	0.3–1.2	1.2	Markham Stouffville Hospital	6
17	Stroke rehabilitation	Access	Mean number of CCAC visits provided to stroke/TIA patients in 2007/08 and 2008/09.	7.6	n/a	7.6	n/a	5, 1
18	Stroke rehabilitation	Access	Proportion of patients with severe stroke (RPG = 1100 or 1110) admitted to inpatient rehabilitation (RCG-1).	38.5%	33.8–45.5%	49.4%	Scarborough Hospital – General Site	None
19	Re-integration	Integration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	4.4%	0.0–33.3%	3.6%	North Bay General Hospital	13, 14
20	Re-integration	Integration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	8.3	0.0–82.4	8.3	Pembroke Regional Hospital	11, 3

[1] Performance below the 50th percentile.
[2] Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
[3] Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
[4] Data not available or benchmark under development.
[5] Hospital Annual Planning Submission; submitted to the Local Health Integration Network to form the basis of a multi-year funding and planning framework.
[6] Facility-based analysis (excluding indicators 2 and 11) for patients aged 18–108. Indicators 1, 4–9 and 12 are based on 2008/09 OSA data; otherwise, CIHI data. Low rates are desired for indicators 2, 3, 10, 13, 15, 19 and 20.
[7] Provincial benchmarks were calculated using the ABC methodology, except for indicators 3 and 20 where the provincial rate was used. For benchmarking methodology, see Weissman et al. J Eval Clin Pract. 1999; 5(3):269-81.
[8] High-performing facilities include only high-volume institutions (those treating more than 100 strokes per year).

Hospital Service Accountability Agreement indicators, 2010/11

-- Data not available n/a = Not applicable

North West Local Health Integration Network

Poor Performance[1] | Acceptable Performance[2] | Exemplary Performance[3] | Benchmark not available[4]

Indicator No.	Care Continuum Category	HAPS[5] Category	Indicator[6]	ON FY 2009/10	Variance Across LHINs (Min-Max)	Provincial Benchmark[7]	High Performer[8]	
							Facility	LHIN
1	Public awareness and patient education	Access	Proportion of patients who arrived at ED less than 2.5 hours from stroke symptom onset.	30.3%	0.0–60.0%	41.5%	n/a	1, 13
2	Prevention of stroke	Effectiveness	Annual age- and sex-adjusted inpatient admission rate for stroke/TIA (per 1,000 patients).	2.3	2.1–3.0	1.1	Richmond Hill (SubLHIN)	11
3	Prevention of stroke	Effectiveness	Age- and sex-adjusted stroke/TIA mortality rate at 30 days (per 100 patients).	10.5	0.0–61.7	12.3	Lakeridge Health – Bowmanville Site	14, 8, 1
4	Prevention of stroke	Effectiveness	Proportion of ischemic stroke/TIA patients with atrial fibrillation prescribed anticoagulant therapy on discharge from acute care.	85.2%	0.0–100.0%	93.6%	York Central Hospital	5
5	Prevention of stroke	Access	Proportion of ischemic stroke patients without atrial fibrillation who received carotid imaging prior to hospital discharge.	73.1%	0.0–81.5%	92.5%	York Central Hospital	10
6	Acute stroke management	Access	Proportion of suspected stroke/TIA patients who received a brain CT/MRI scan within 24 hours of arrival at ED.	81.1%	0.0–96.2%	97.7%	The Credit Valley Hospital	7, 5, 6
7	Acute stroke management	Access	Proportion of ischemic stroke patients who arrived at ED less than 2.5 hours from symptom onset and received acute thrombolytic therapy (tPA) (excluding those with contraindications).	11.0%	0.0–14.3%	58.9%	Peterborough Regional Health Centre	None
8	Acute stroke management	Effectiveness	Proportion of stroke/TIA patients treated on a stroke unit at any time during their inpatient stay.	66.7%	0.0–86.0%	77.3%	Public General Hospital Society of Chatham	None
9	Acute stroke management	Effectiveness	Proportion of stroke (excluding TIA) patients with a documented initial dysphagia screening performed during admission to acute care.	88.3%	0.0–100.0%	87.8%	Thunder Bay Regional Health Sciences Centre	14
10	Acute stroke management	Efficiency	Proportion of ALC days to total length of stay in acute care.	--	--	--	--	--
11	Acute stroke management	Integration	Proportion of acute stroke (excluding TIA) patients discharged to inpatient rehabilitation.	37.6%	18.5–45.7%	40.7%	Thunder Bay City (SubLHIN)	14
12	Stroke rehabilitation	Efficiency	Proportion of stroke (excluding TIA) patients discharged from acute care who receive a referral for outpatient rehabilitation.	7.0%	0.0–8.8%	13.2%	Hawkesbury and District Hospital	10
13	Stroke rehabilitation	Efficiency	Median number of days between stroke (excluding TIA) onset and admission to stroke inpatient rehabilitation (RCG-1 and RCG-2).	14.0	14.0–18.0	7.0	Stratford General Hospital	None
14	Stroke rehabilitation	Efficiency	Rehabilitation therapy staff/bed ratio for inpatient stroke rehabilitation.	--	--	--	--	--
15	Stroke rehabilitation	Efficiency	Proportion of ALC days to total length of stay in inpatient rehabilitation (active + ALC).	--	--	--	--	--
16	Stroke rehabilitation	Efficiency	Median FIM efficiency for moderate stroke in inpatient rehabilitation (RCG-1).	0.7	0.7–0.7	1.2	Markham Stouffville Hospital	6
17	Stroke rehabilitation	Access	Mean number of CCAC visits provided to stroke/TIA patients in 2007/08 and 2008/09.	5.1	n/a	7.6	n/a	5, 1
18	Stroke rehabilitation	Access	Proportion of patients with severe stroke (RPG = 1100 or 1110) admitted to inpatient rehabilitation (RCG-1).	31.5%	31.5–31.5%	49.4%	Scarborough Hospital – General Site	None
19	Re-integration	Integration	Proportion of stroke/TIA patients discharged from acute care to LTC/CCC (excluding patients originating from LTC/CCC).	5.4%	0.0–50.0%	3.6%	North Bay General Hospital	13, 14
20	Re-integration	Integration	Age- and sex-adjusted readmission rate at 30 days for patients with stroke/TIA for all diagnoses (per 100 patients).	10.0	0.0–54.3	8.3	Pembroke Regional Hospital	11, 3

[1] Performance below the 50th percentile.
[2] Performance at or above the 50th percentile and greater than 5% absolute/relative difference from the benchmark.
[3] Benchmark achieved or performance within 5% absolute/relative difference from the benchmark.
[4] Data not available or benchmark under development.
[5] Hospital Annual Planning Submission; submitted to the Local Health Integration Network to form the basis of a multi-year funding and planning framework.
[6] Facility-based analysis (excluding indicators 2 and 11) for patients aged 18–108. Indicators 1, 4–9 and 12 are based on 2008/09 OSA data; otherwise, CIHI data. Low rates are desired for indicators 2, 3, 10, 13, 15, 19 and 20.
[7] Provincial benchmarks were calculated using the ABC methodology, except for indicators 3 and 20 where the provincial rate was used. For benchmarking methodology, see Weissman et al. J Eval Clin Pract. 1999; 5(3):269-81.
[8] High-performing facilities include only high-volume institutions (those treating more than 100 strokes per year).

Hospital Service Accountability Agreement indicators, 2010/11

-- Data not available n/a = Not applicable

Appendix C:
ICD-10 Codes Used in the Report

Adult ICD-10 codes

Category	ICD-10 Code
Stroke Type	
Transient ischemic attack	G45 (excl. G45.4)
Acute stroke	H34.1, I60 (excl. I60.8), I61, I63 (excl. I63.6), I64
Subarachnoid hemorrhage	I60 (excl. I60.8)
Intracerebral hemorrhage	I61
Ischemic stroke	I63 (excl. I63.6), I64
Stroke type not specified/undetermined	I64
Inhospital Complications	
Pneumonia	J13, J14, J15
Vascular Surgery	
Carotid stenting	1JE.50
Carotid endarterectomy	1JE.57

Paediatric ICD-10 codes

Category	ICD-10 Code
Stroke Type	
Arterial ischemic stroke	G45 (excl. G45.4), H34.1, I63 (excl. I63.6), I64, I65, I66, I67 (excl. I67.1–I67.4), I69 (excl. I69.0–I69.2), G81, G97, R47.1
Cerebral sinovenous thrombosis	G08, I63.6, I67.6
Hemorrhagic stroke	I60, I61, I62, I69 (excl. I69.4–I69.8)

Appendix D:

Relationship of LHINs to OSS Stroke Regions, Regional Stroke Centres, Enhanced District Stroke Centres, District Stoke Centres and Secondary Prevention Clinics

LHINs	OSS Stroke Regions	Regional Stroke Centres[1]	Enhanced District Stroke Centres[2]	District Stroke Centres[3]	Stroke Prevention Clinics[4]
Erie St. Clair	Southwest		Hotel-Dieu Grace Hospital (Windsor)	Bluewater Health (Sarnia General) Chatham-Kent Health Alliance	Bluewater Health (Sarnia General) Chatham-Kent Health Alliance Hotel-Dieu Grace Hospital (Windsor)
South West		London Health Sciences Centre (University)		Grey-Bruce Health Services (Owen Sound) Huron Perth Health Alliance (Stratford)	Grey-Bruce Health Services (Owen Sound) Huron Perth Health Alliance (Stratford) London Health Sciences Centre (University)
Waterloo Wellington	Central South			Grand River Hospital Corporation	Grand River Hospital Corporation
Hamilton Niagara Haldimand Brant		Hamilton Health Sciences Corporation (General)		Brant Community Healthcare System (Brantford General) Niagara Health System (Greater Niagara)	Brant Community Healthcare System (Brantford General) Brant Community Healthcare System (Willett, Paris) Norfolk General Hospital[5] Hamilton Health Sciences Corporation (General) Niagara Health System (Greater Niagara) St. Joseph's Healthcare, Hamilton
Central West	West GTA				
Mississauga Halton		Trillium Health Centre			Trillium Health Centre
Toronto Central	Toronto West	University Health Network (Toronto Western)			University Health Network (Toronto Western)
	North & East GTA	Sunnybrook Health Sciences Centre			Sunnybrook Health Sciences Centre
	South East Toronto	St. Michael's Hospital			St. Michael's Hospital[6]
Central	Central East			York Central Hospital	York Central Hospital[6]
Central East				Peterborough Regional Health Centre Lakeridge Health Corporation (Oshawa)	Lakeridge Health Corporation
North Simcoe Muskoka			Royal Victoria Hospital of Barrie	Muskoka Algonquin Healthcare (Huntsville)	Royal Victoria Hospital of Barrie

LHINs	OSS Stroke Regions	Regional Stroke Centres[1]	Enhanced District Stroke Centres[2]	District Stroke Centres[3]	Stroke Prevention Clinics[4]
South East	Southeast	Kingston General Hospital		Quinte Healthcare Corporation (Belleville)	Brockville General Hospital Kingston General Hospital Perth & Smith Falls District Hospital Quinte Healthcare Corporation (Belleville)
Champlain	Champlain	Ottawa Hospital (Civic)		Pembroke Regional Hospital	Hawkesbury & District General Hospital Ottawa Hospital (General)
North East	Northeast		Hôpital régional de Sudbury Regional Hospital	Sault Area Hospital North Bay General Hospital Timmins & District General Hospital	North Bay General Hospital Sault Area Hospital Hôpital régional de Sudbury Regional Hospital Timmins & District General Hospital
North West	Northwest	Thunder Bay Regional Health Sciences Centre			Thunder Bay Regional Health Sciences Centre Riverside Health Care Facilities (Fort Francis) Wilson Memorial General Hospital Lake-of-the-Woods District Hospital Sioux Lookout Meno-Ya-Win Health Centre

[1] Regional stroke centre: A facility that meets all the requirements of a district stroke centre, plus neurosurgical facilities and interventional radiology.
[2] Enhanced district stroke centre: A facility established to provide leadership integration in the regions of Ontario where the designation of a regional stroke centre cannot be met.
[3] District stroke centre: A facility with written stroke protocols (e.g., transport and triage, thrombolytic therapy, neuroimaging), clinicians with stroke expertise, and linkages to rehabilitation and secondary prevention.
[4] A Ministry of Health and Long-Term Care designated stroke prevention clinic
[5] Satellite stroke prevention clinic.
[6] Stroke prevention clinic on site but not funded by the Ministry of Health and Long-Term Care.

Note: Table includes only RSCs, enhanced DSCs, DSCs and SPCs operational in 2009/10. Community hospitals are not included; these may report to an OSS stroke region outside of their Local Health Integration Network.

Appendix E:
Calculation of Stroke Patient Discharge Disposition from Acute Care

In 2005, the Canadian Institute for Health Information (CIHI) modified the definitions of the discharge disposition options provided in its Discharge Abstract Database.

Within the revised definitions, for any patient who is coded as a transfer from one institution to another, an additional code is required to indicate the type of institution to which the patient is transferred.

Based on discussions with CIHI, a new analysis model was developed for determining stroke discharge from acute care.

Within this model, the "institution to type" data element is used to determine the location of the transfer from acute care used in combination with the initial discharge disposition code to determine care.

Several coding sequences were tested, and the final sequence was found to be the most valid and reliable across data years (2003/04, 2004/05, 2005/06).

—SEAC Technical Report, July 2007

Discharge Disposition	Coding Algorithm
Dead	Discharge disposition = 07
Rehabilitation	Discharge disposition = 01, 02 or 03 AND INSTTTYP = 02 or 07
Long-term care nursing home	Discharge disposition = 01, 02 or 03 AND INSTTTYP = 04
Long-term care home for the aged	Discharge disposition = 01, 02 or 03 AND INSTTTYP = 09
Complex continuing care	Discharge disposition = 01, 02 or 03 AND INSTTTYP = 03
Acute care	Discharge disposition = 01 AND INSTTTYP = 01
Home with support services	Discharge disposition = 04
Home without support services	Discharge disposition = 05
Palliative care	Discharge disposition = 03
Other	All other codes

Appendix F:
Rehabilitation Reporting System Coding for Discharge Destination

Discharge Disposition	Coding Algorithm
Home without services	dliveset = 1
Home with services	dliveset = 2
Other community services	dliveset = 3, 4, 6, 7
Long-term care facility	dliveset = 5
Acute care facility	referto = 02, 03
Dead	dreason = 8
Unavailable/unknown	dliveset = –50, –70

Appendix G:

Designated Rehabilitation Beds/Facilities, by Ontario Stroke System Region, 2003–2010

OSS Region	NRS Facility Number/Type	Institution (Site)
Central East	2771	Southlake Regional Health Centre
	3507	Royal Victoria Hospital
	3617	Peterborough Regional Health Centre
	3858	York Central Hospital
	4705 (previously 3687)	Georgian Bay General Hospital (Penetanguishene)
	3934	Lakeridge Health (Oshawa)
	4307	Markham Stouffville Hospital
	4450	Northumberland Hills Hospital
	4483	Ross Memorial Hospital
	4688	Orillia Soldiers' Memorial Hospital
Central South	1912	Grand River Hospital (Freeport)
	3155	St. Joseph's Healthcare
	3736	Grand River Hospital (Kitchener-Waterloo)
	3778	Joseph Brant Memorial Hospital
	3880	Hamilton Health Sciences (Henderson)
	3881/Specialty	Hamilton Health Sciences (Chedoke)
	3912	St. Joseph's Health Centre (Guelph)
	4289	St. Mary's General Hospital
	4342	Hamilton Health Sciences (General)
	4385	Guelph General Hospital
	4678	Brantford General Hospital
	4595	Hotel Dieu Shaver Health & Rehabilitation Centre
East – Champlain	3782/Specialty	SCO Health Service
	4299	Pembroke General Hospital
	4329	Ottawa Hospital (Civic)
	4429/Specialty	Ottawa Hospital Rehabilitation Centre
	4461	Hôpital Montfort
	4470	Cornwall Community Hospital
	4584	Queensway Carleton Hospital
Northeast	3413	North Bay General Hospital
	4409	Sault Area Hospital
	4592	West Parry Sound Health Centre
	4061/Specialty	Sudbury Regional Hospital
Northwest	3891/Specialty 3892	St. Joseph's Care Group
South East	2223/Specialty	PCCC (St. Mary's of the Lake)
	3990	Quinte Health Care (Belleville)
	4369	Kingston General Hospital
	4647	Brockville General Hospital
Southwest	3612	Stratford General Hospital
	3846/Specialty	Windsor Regional Hospital
	3884	St. Joseph's Health Care
	3884/Specialty 3916	Parkwood Hospital
	3897	Wingham & District Hospital
	3946	Grey Bruce Health Services (Owen Sound)
	4149	Hotel-Dieu Grace Hospital
	4162	St. Thomas-Elgin General Hospital
	4204	Leamington District Memorial Hospital
	4417	Bluewater Health
	4649	South Huron Hospital Association
	4361	St. Joseph's Health Services Association, Chatham

OSS Region	NRS Facility Number/Type	Institution (Site)
Toronto – North and East	4155	Scarborough Hospital (General)
	4156	Scarborough Hospital (Grace)
	4273/4274	Sunnybrook & Women's College Health Sciences Centre
	4335	North York General Hospital
	1337/Specialty 4368	St. John's Rehab Hospital
	3439/Specialty	Baycrest Centre for Geriatric Care
Toronto – Southeast	3941	Rouge Valley Health System (Centenary)
	4151	Rouge Valley Health System (Ajax)
	4279	Toronto East General
	1355/Specialty	Providence Healthcare
	1436/Specialty	Bridgepoint Hospital
Toronto – West	3950/Specialty	Toronto Rehab Institute
	4366	St. Joseph's Health Centre
	4293	Humber River Regional Hospital
West GTA	1471/Specialty	West Park Healthcare Centre
	3288	Credit Valley Hospital
	4136	Halton Healthcare Services (Oakville-Trafalgar)
	4150	Trillium Health Centre
	4277	William Osler Health Centre

Notes:
(1) Assignment of OSS region is based on the geographic location of the facility/corporation.
(2) Facility numbers are based on fiscal year 2009/10.

Appendix H:

Most Frequent 30-Day Readmission Diagnoses among Stroke/TIA Patients Discharged in Ontario, 2006/07 to 2008/09

ICD-10 Code	Diagnosis	Frequency (%)
I639	Cerebral infarction, unspecified	7.8
I64	Stroke, not specified as haemorrhage or infarction	6.5
G459	Transient cerebral ischaemic attack, unspecified	6.0
N390	Urinary tract infection, site not specified	2.4
I500	Congestive heart failure	2.2
I635	Cerebral infarction due to unspecified occlusion or stenosis of cerebral arteries	1.9
I652	Occlusion and stenosis of carotid artery	1.8
J189	Pneumonia, unspecified	1.8
Z515	Palliative care	1.6
I638	Other cerebral infarction	1.5
I480	Atrial fibrillation	1.3
J690	Pneumonitis due to food and vomit	1.2
I619	Intracerebral haemorrhage, unspecified	1.2
R55	Syncope and collapse	1.2
Z751	Person awaiting admission to adequate facility elsewhere	1.0
K922	Gastrointestinal haemorrhage, unspecified	1.0
R568	Other and unspecified convulsions	1.0
I2149	Acute subendocardial myocardial infarction, unspecified site	1.0
R53	Malaise and fatigue	0.9
J440	Chronic obstructive pulmonary disease with acute lower respiratory infection	0.9
N179	Acute renal failure, unspecified	0.9
A419	Sepsis, unspecified	0.9
I219	Acute myocardial infarction, unspecified	0.8
I632	Cerebral infarction due to unspecified occlusion or stenosis of precerebral arteries	0.8
I620	Subdural haemorrhage (acute) (nontraumatic)	0.8
E860	Dehydration	0.8
I634	Cerebral infarction due to embolism of cerebral arteries	0.8
F03	Unspecified dementia	0.8
C793	Secondary malignant neoplasm of brain and cerebral meninges	0.7
R074	Chest pain, unspecified	0.7
K529	Noninfective gastroenteritis and colitis, unspecified	0.7
R410	Disorientation, unspecified	0.7
I269	Pulmonary embolism without mention of acute cor pulmonale	0.6
I609	Subarachnoid haemorrhage, unspecified	0.6
I200	Unstable angina	0.6
I2510	Atherosclerotic heart disease of native coronary artery	0.6
R073	Other chest pain	0.5
K566	Other and unspecified intestinal obstruction	0.5
R42	Dizziness and giddiness	0.5
R64	Cachexia	0.5
S72100	Intertrochanteric fracture, closed	0.5

Data source: Canadian Institute for Health Information, Discharge Abstract Database (CIHI-DAD), 2006/07 to 2008/09.
Inclusion criteria: All patients aged ≥18 years readmitted to an acute care hospital in Ontario within 30 days of initial stroke (ischemic or hemorrhagic) or transient ischemic attack event starting in each year (N=5,558).
Exclusion criteria: Patients with an elective admission or transfer within a facility or between facilities within 24 hours of admission.

Appendix I:
List of Supplementary Exhibits

The following exhibits are available at www.ices.on.ca.

Adult Stroke

1. Emergency Department Care

Exhibit 1.2a: Age- and sex-adjusted rates of stroke or transient ischemic attack (TIA) for adult patients arriving in the emergency department per 1,000 sub-Local Health Integration Network population, in Ontario and by sub-LHIN, 2003/04 to 2009/10

Exhibit 1.4a: Number and percentage of adult stroke or transient ischemic attack (TIA) patients transported to hospital by ambulance, in Ontario and by facility, 2003/04 to 2009/10

Exhibit 1.5a: Number and percentage of adult stroke or transient ischemic attack (TIA) patients who sought medical attention within 2.5 hours of stroke symptom onset, in Ontario and by facility, 2002/03, 2004/05 and 2008/09

Exhibit 1.6a: Number and percentage of adult stroke or transient ischemic attack (TIA) patients who received neuroimaging within 24 hours of presenting to the emergency department and prior to discharge, in Ontario and by facility, 2002/03, 2004/05 and 2008/09

Exhibit 1.7a: Number and percentage of eligible adult stroke patients who received acute thrombolytic therapy (tPA) and their door-to-needle time, in Ontario and by facility, 2002/03, 2004/05 and 2008/09

2. Acute Inpatient Care

Exhibit 2.2a: Number and percentage of adult patients admitted to an acute care hospital, in Ontario and by stroke type in each OSS region and Local Health Integration Network, 2003/04 to 2009/10

Exhibit 2.3a: Age- and sex-adjusted adult inpatient admission rates per 1,000 sub-Local Health Integration Network population, in Ontario and by sub-LHIN, 2003/04 to 2009/10

Exhibit 2.4a: Number and percentage of adult stroke or transient ischemic attack (TIA) patients admitted to an acute care hospital and treated in a stroke unit during their stay, in Ontario and by facility, 2002/03, 2004/05 and 2008/09

Exhibit 2.5a: Adult inpatient length of stay for stroke or transient ischemic attack (TIA), in Ontario and by facility, 2003/04 to 2009/10

Exhibit 2.6a: Number and proportion of adult patients with documentation that an initial dysphagia screening was performed during admission to acute care, in Ontario and by facility, 2002/03, 2004/05 and 2008/09

Exhibit 2.7a: Age- and sex-adjusted inhospital complication rates for pneumonia among adult stroke or transient ischemic attack (TIA) patients, in Ontario and by facility, 2003/04 to 2009/10

Exhibit 2.8a: Discharge destination of adult stroke or transient ischemic attack (TIA) patients following an acute hospitalization, in Ontario and by facility, 2003/04 to 2009/10

Exhibit 2.9a: Number and percentage of adult ischemic stroke patients without atrial fibrillation who received carotid imaging while in hospital or who had an appointment booked for carotid imaging prior to hospital discharge, in Ontario and by facility, 2002/03, 2004/05 and 2008/09

Exhibit 2.10a: Time to carotid intervention within six months of hospitalization for adult stroke or transient ischemic attack (TIA), in Ontario and by facility, 2003/04 to 2008/09

Exhibit 2.11a: Number and percentage of adult ischemic stroke or transient ischemic attack (TIA) patients prescribed three recommended secondary prevention medications on discharge from acute care, in Ontario and by facility, 2002/03, 2004/05 and 2008/09

Exhibit 2.12a: Number and percentage of adult ischemic stroke or transient ischemic attack (TIA) patients with atrial fibrillation prescribed warfarin therapy on discharge from acute care, in Ontario and by facility, 2002/03, 2004/05 and 2008/09

3. Inpatient Rehabilitation

Exhibit 3.3a: Adult inpatient rehabilitation admissions by stroke severity, in Ontario and by facility, 2003/04 to 2009/10

Exhibit 3.4a: Adult inpatient stroke rehabilitation profiles, in Ontario and by sub-Local Health Integration Network, 2003/04 to 2009/10

Exhibit 3.7a-1: Inpatient rehabilitation facility adult stroke patient profiles, in Ontario and by OSS region and National Rehabilitation Reporting System facility number (n=62), 2003/04

Exhibit 3.7a-2: Inpatient rehabilitation facility adult stroke patient profiles, in Ontario and by OSS region and National Rehabilitation Reporting System facility number (n=66), 2004/05

Exhibit 3.7a-3: Inpatient rehabilitation facility adult stroke patient profiles, in Ontario and by OSS region and National Rehabilitation Reporting System facility number (n=67), 2005/06

Exhibit 3.7a-4: Inpatient rehabilitation facility adult stroke patient profiles, in Ontario and by OSS region and National Rehabilitation Reporting System facility number (n=66), 2006/07

Exhibit 3.7a-5: Inpatient rehabilitation facility adult stroke patient profiles, in Ontario and by OSS region and National Rehabilitation Reporting System facility number (n=65), 2007/08

Exhibit 3.7a-6: Inpatient rehabilitation facility adult stroke patient profiles, in Ontario and by OSS region and National Rehabilitation Reporting System facility number (n=68), 2008/09

Exhibit 3.7a-7: Inpatient rehabilitation facility adult stroke patient profiles, in Ontario and by OSS region and National Rehabilitation Reporting System facility number (n=65), 2009/10

4. Home Care Services

Exhibit 4.2a: Community Care Access Centre (CCAC) support services provided to home care clients (active and new) 180 days following acute hospitalization for stroke, in Ontario and by Local Health Integration Network, 2006/07 to 2007/08

5. Patient Outcomes

Exhibit 5.2a: Age- and sex-adjusted revisit or readmission rates within 365 days following stroke or transient ischemic attack (TIA), in Ontario and by stroke type, OSS region, OSS classification and Local Health Integration Network, 2003/04 to 2008/09

Exhibit 5.3a: Age- and sex-adjusted all-cause readmission rates within 30 days following stroke or transient ischemic attack (TIA), in Ontario and by facility, 2003/04 to 2009/10

Exhibit 5.5a: Age- and sex-adjusted mortality rates at 30 days following stroke or transient ischemic attack (TIA), in Ontario and by facility, 2003/04 to 2008/09