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Findings and Exhibits – Paediatric Stroke

6. Paediatric Care and Outcomes

Background and Purpose

Previously reported childhood stroke incidence rates have ranged widely from 2 to 13 per 100,000 children per year, supporting a need for more robust paediatric stroke data.[21, 22] In Ontario to date, no funding has been provided to enhance dedicated stroke care. Incidence, indicators of care and outcomes are poorly characterized for childhood stroke.

Providing accurate estimates for annual paediatric stroke volumes in Ontario has been a challenging task. Capturing incidence rates is dependent on the accuracy of coding systems within the hospitals. Some children are managed in paediatric institutions, and older children may be treated at larger adult centres.

The 2011 Ontario Stroke Evaluation Report relied on health administrative databases and ICD-coded diagnoses to assess paediatric stroke care across the province. With the latest data included in this report, for the first time we are able to assess the validity of the ICD-10 codes in identifying paediatric strokes among Ontario health care institutions. The paediatric stroke data presented in Exhibits 6.1 to 6.7 are based on stroke patients identified using ICD-10-CA code searches (see Appendix C) 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). Each case underwent on-site chart review, and the stroke diagnosis was validated. A paediatric registered nurse confirmed stroke diagnoses in four paediatric hospitals, and Ontario Stroke Registry chart abstractors validated cases seen at all other acute care facilities.

Characteristics of Paediatric Patients

Findings

Exhibit 6.1: In 2010/11, the incidence of paediatric stroke/TIA (including cerebral sinovenous thrombosis [CSVT] without infarct and based on 478 screened charts and 163 confirmed stroke/TIA diagnoses) was 5.9 per 100,000 LHIN population[I] under the age of 17. In Ontario, the incidence of ischemic stroke is 3.3 per 100,000 children per year, which is 1.4 times higher than the best prior epidemiological rate.[23] The incidence of hemorrhagic stroke was 1.8 per 100,000 paediatric LHIN population, and other cerebrovascular diagnoses were 0.8 per 100,000 paediatric LHIN population. Of the 163 confirmed stroke/TIA diagnoses, 145 paediatric stroke/TIA patients were captured in the audit, and 18 CSVT patients with evidence of a brain clot were excluded due to no evidence of infarct.

Mean patient age was 6.4 years. Among the patients, 17.2% were aged 0–28 days, 17.2% were 29 days–<1 year, 21.4% were 1–6 years, 17.2% were 7–12 years, and 26.9% were 13–17 years. A male predominance of 51.0% was observed, which is consistent with the current literature.[24] Paediatric stroke risk factors were diverse, including cardiac disease (23.3%), acute head and neck infection (11.7%), acute head and neck trauma (8.3%), acute systemic illness, including frequent infection with fever (18.3%) and genetic syndrome (8.3%). "Other" risk factors, such as vascular abnormalities/malformations, prothrombotic (blood clotting) disorder, sickle-cell disease, and maternal gestational and delivery conditions, were seen in 30.8% of paediatric patients. Less than 1% of paediatric stroke patients had traditional adult stroke risk factors (e.g., hypertension, atrial fibrillation). Only 22.3% of confirmed paediatric stroke cases were identified in facilities other than paediatric hospitals.

[I] The estimated Ontario population aged 17 years or younger in 2010 was 2,744,039. Source: IntelliHealth Ontario, LHIN population estimates (2010/11) from Statistics Canada (2010/11) and Ontario Ministry of Finance (2010/11).

Fifty-one percent of paediatric patients were considered to be independent at the time of the stroke event. Among those not considered independent, 20.0% were primarily neonatal strokes. Paediatric stroke/TIA patients' initial symptoms included weakness (31.0%), seizure (38.6%) and headache (29.7%), similar to the initial symptoms found in adult stroke/ TIA patients. Twenty-eight percent of paediatric stroke/TIA cases were considered inhospital strokes. Among confirmed paediatric stroke cases, arterial ischemic stroke was the most prevalent stroke type (42.1%), followed by hemorrhagic stroke (33.8%), CSVT (8.3%) and TIA (5.5%).

Conclusions and Recommendations

We estimate that the incidence of paediatric stroke cases treated in Ontario acute care hospitals is 5.9 per 100,000 LHIN population aged less than 18 years. The incidence of paediatric stroke is striking and has exceeded prior North American estimates. Data on paediatric stroke should continue to be collected as part of provincial data in future Ontario Stroke Registry/SEQC activities. Neonatal strokes account for 17.2% of documented paediatric strokes; however, neonatal strokes are often missed due to lack of coding. An audit of neonatal intensive care unit (NICU) records or the inclusion of a radiology string search with the ICD-10 code search is recommended to capture neonatal strokes that are only documented in radiology records. Additionally, although the ICD-10 code for CSVT without infarct was used to identify paediatric stroke/TIA patients, many cases were excluded at the time of abstraction. This confirms the importance of another refinement to ICD-10 codes to identify stroke/TIA in children. The addition of the paediatric adaptation of the NIH Stroke Scale (PedNIHSS) as a data element for chart abstraction is recommended to measure acute severity; this will further enhance our understanding of paediatric discharge status. Targets for best practice stroke guidelines[10] implementation should include paediatrics in best practice care planning, as the majority of paediatric strokes occur in hospitals that have stroke expertise and are part of a regional stroke centre.

Imaging: At the ED and During Admission

Findings

Exhibit 6.2: Among children with a suspected stroke/TIA, nearly half (44.6%) were not imaged within 24 hours of their arrival in the emergency department. Among children who did not experience inhospital stroke (N=105), the median time from Last Seen Normal to arrival at the ED was 8.3 hours, with a wide range across the province (1.8–40.9 hours). Almost one in three patients who had neuroimaging was considered normal, yet only 10.3% were classified with an Unable to Determine diagnosis, and 5.5% were diagnosed with TIA. The majority (70.4%) of paediatric ischemic stroke patients had their carotid imaging done during their hospital stay.

Conclusions and Recommendations

A major, preventable gap exists in timely diagnosis (and urgent treatment) of paediatric stroke/TIA patients that is often due to imaging delays. This may explain the high percentage of the Unable to Determine diagnosis on discharge (10.3%), a diagnosis that is much lower in adults (3.6%). A "false" imaging report of normal (an abnormal scan initially read as normal) necessitates dual sequential imaging that causes delay and unnecessary radiation exposure. This can potentially be due to the insensitivity of CT scans, supporting the case for the "MRI first and only" test in children.

Inpatient Admission

Findings

Exhibit 6.3: Of paediatric patients seen at the ED, 89.7% were confirmed with acute stroke/TIA, and of these, 96.2% were admitted to inpatient care. Fifty-four percent of patients were admitted to the ICU, 20.8% to the medical ward, 14.4% to the neurology department and 9.6% to other locations in the hospital. Of 125 patients admitted to Ontario hospitals, 56.8% were seen at The Hospital for Sick Children in Toronto, 24.0% at other paediatric facilities and 19.2% at other acute care facilities. Only 30.6% of paediatric patients were seen by a specialized stroke team; over half of stroke patients at The Hospital for Sick Children were seen by a stroke team. Twenty-four patients (19.2%) were seen at other acute care facilities, and less than 1% were admitted to a stroke unit or seen by a stroke team. Children admitted to other paediatric hospitals were not seen by a stroke team despite the fact that three-quarters of these centres were considered to be regional stroke centres. Only 1% of patients had swallowing studies to confirm safety of feeding (data not shown).

Conclusions and Recommendations

Over half (53.6%) of paediatric stroke patients were admitted to the ICU and less than 1% had part of their stay on a stroke unit (compared to 38.3% of adult stroke patients). The Hospital for Sick Children admitted 56.8% of paediatric stroke inpatients in Ontario, but only 50.7% were seen by a specialized stroke team. The lack of paediatric stroke teams at the other four paediatric hospitals underlines the importance of providing more physician/nurse training and the implementation of standardized paediatric stroke pathways

(based on CSS best practice guidelines[6]). Provincial programs such as Telestroke may provide additional opportunities for physicians/nurses to obtain advice on stroke management. There is also an urgent need for standardized dysphagia screening for paediatric stroke patients.

Antithrombotic Therapy

Findings

Exhibit 6.4: No patients were given thrombolysis (tPA) intervention during 2010/11. Fifty-six percent of paediatric ischemic stroke/TIA patients were given antithrombotic treatment during their hospital stay (16.9% antiplatelet only and 26.0% anticoagulation only). Seventeen percent of patients with cardiac risk factors and 39.0% of patients aged 29 days to 17 years (non-neonates) were not treated despite multiple guidelines recommending antithrombotic treatment during the acute phase. Thirty percent of paediatric ischemic stroke/TIA patients were discharged on antiplatelet medication.

Conclusions and Recommendations

Despite paediatric stroke recurrence rates of 10–25% (50% when no antithrombotic treatment was given),[25] most children aged 29 days to 17 years (non-neonates) were not treated with appropriate preventive medication in hospital or at discharge. Non-treatment of 16.9% of cardiac patients and 39.0% of non-neonates demonstrates gaps in guideline-recommended antithrombotic treatment. It is recommended that anticoagulation at discharge data should be captured for all paediatric patients.

Discharge: Neurological Status and Destination

Findings

Exhibit 6.5.1: Seventy-four percent of admitted paediatric stroke/TIA patients had a modified Rankin score at discharge. Over 53.8% of paediatric stroke patients were considered to have moderate to severe function impairment. Among males, 57.8% were considered to have moderate to severe final impairment compared to 50.0% of females. This is the opposite of the adult stroke population. Patients of The Hospital for Sick Children were 1.5 times more likely than patients of other paediatric hospitals to have a discharge modified Rankin score of 3–5. Patients of The Hospital for Sick Children were generally more complex patients as reflected in their higher rates of comorbidities (e.g., cardiac disease).

Exhibit 6.5.2: Overall, 66.9% of paediatric stroke/TIA patients were discharged home, 16.5% were discharged to another acute care facility and 16.5% were discharged to inpatient rehabilitation. Of the patients discharged home, 39.5% were referred to Community Care Access Centres, 37.0% were referred to outpatient rehabilitation and 44.4% went home without any services. Discharge destinations varied across facilities; only 59.4% of patients from The Hospital for Sick Children were discharged home compared to 89.7% of patients from all other paediatric facilities. Among patients seen at all other acute care facilities, only 35.7% were transferred to another acute care facility.

Exhibit 6.5.3: The majority (88.4%) of patients with symptoms ranging from none to slight disability (modified Rankin score of 0–2) were discharged home. Twenty-one percent were discharged home with CCAC support, 18.4% were discharged home with outpatient rehabilitation and 67.5% were referred to a secondary stroke prevention clinic. Over half (56.0%) of patients with moderate to severe disability (score of 3–5) were seen at The Hospital for Sick Children. About half of patients in Ontario with a score of 3–5 were discharged home, and half were transferred to either acute care (12.0%) or inpatient rehabilitation (38.0%). Among these patients, 84.4% were referred to a secondary stroke prevention clinic on discharge.

Conclusions and Recommendations

Because over half of children with stroke or TIA had moderate to severe disability at discharge, surveillance for emerging and late deficits is important, especially since children “grow” into deficits as they mature. One in five children with moderate to severe disability were discharged home without rehabilitation services in place. This represents a significant gap in rehabilitation provisions. Twenty-four percent of all paediatric stroke patients were not referred to a secondary stroke prevention clinic.

The paediatric adaptation of the modified Rankin Scale is Ped–mRS.[26] This substitution will avoid a scoring deficit for lack of “independence,” which is normal for the young.

Summary

These data represent the first and only geographic all-hospital paediatric stroke data. While underestimates are present, the high incidence of 6 strokes per 100,000 children per year represents an important finding. Implementation of Ontario-wide paediatric stroke initiatives, as supported by the OSN Board of Directors, will build upon these data and use them in planning for needs assessments, implementation strategies for best practice guidelines and modifiable gaps in patient care.

Exhibit 6.1

Characteristics of paediatric stroke or transient ischemic attack patients[1], 2010/11

Characteristics	Patients, n (%)					
	All	Female	Male	Hospital for Sick Children	Other Paediatric Hospitals[2]	Other Adult Hospitals[3]
Audit Sample	145	71	74	74	32	39
Age, mean, median	6.4, 5.0	7.6, 7.0	5.3, 1.5	5.4, 3.0	7.1, 6.5	7.8, 9.0
Inhospital stroke	40 (27.6)	22 (31.0)	18 (24.3)	27 (36.5)	**	9 (23.1)
Independent[4]	61 (50.8)	30 (53.6)	31 (48.4)	28 (43.1)	16 (61.5)	17 (58.6)
Time from symptom onset to ED arrival (hours), mean, median	29.2, 8.3	26.6, 7.0	31.5, 9.0	34.7, 9.5	21.9, 2.3	27.4, 10.9
Age Group						
0–28 days	25 (17.2)	10 (14.1)	15 (20.3)	13 (17.6)	**	9 (23.1)
29 days–<1 year	25 (17.2)	10 (14.1)	15 (20.3)	14 (18.9)	**	6 (15.4)
1–6 years	31 (21.4)	15 (21.1)	16 (21.6)	19 (25.7)	8 (25.0)	**
7–12 years	25 (17.2)	14 (19.7)	11 (14.9)	14 (18.9)	8 (25.0)	**
13–17 years	39 (26.9)	22 (31.0)	17 (23.0)	14 (18.9)	8 (25.0)	17 (43.6)
Risk Factors						
Prior stroke/transient ischemic attack	9 (7.5)	6 (10.7)	**	**	**	**
Cardiac disease	28 (23.3)	18 (32.1)	10 (15.6)	24 (36.9)	-	**
Acute head and neck infection	14 (11.7)	**	9 (14.1)	10 (15.4)	**	-
Acute head and neck trauma	10 (8.3)	**	7 (10.9)	**	**	**
Acute systemic illness	22 (18.3)	10 (17.9)	12 (18.8)	15 (23.1)	**	**
Genetic syndrome	10 (8.3)	**	**	8 (12.3)	**	**
Other[5]	37 (30.8)	16 (28.6)	21 (32.8)	22 (33.8)	6 (23.1)	9 (31.0)
Initial Symptoms						
Weakness	45 (31.0)	23 (32.4)	22 (29.7)	23 (31.1)	10 (31.3)	12 (30.8)
Seizure	56 (38.6)	22 (31.0)	34 (45.9)	35 (47.3)	11 (34.4)	10 (25.6)
Headache	43 (29.7)	27 (38.0)	16 (21.6)	22 (29.7)	10 (31.3)	11 (28.2)
Final Diagnosis						
Arterial ischemic stroke	61 (42.1)	28 (39.4)	33 (44.6)	36 (48.6)	15 (46.9)	10 (25.6)
Cerebral sinovenous thrombosis[6]	12 (8.3)	**	8 (10.8)	6 (8.1)	**	**
Intracerebral hemorrhage	39 (26.9)	19 (26.8)	20 (27.0)	20 (27.0)	9 (28.1)	10 (25.6)
Subarachnoid hemorrhage	10 (6.9)	**	**	6 (8.1)	**	-
Transient ischemic attack	8 (5.5)	**	**	**	-	**
Uncertain diagnosis	15 (10.3)	10 (14.1)	**	**	**	10 (25.6)

Data source: Ontario Stroke Registry, Ontario Stroke Audit (OSA), 2010/11.

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

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

[2] Includes Children's Hospital of Eastern Ontario, Hamilton Health Sciences Corporation and London Health Sciences Centre.

[3] Includes adult facilities (N=23).

[4] Patients who are fully independent in all Activities of Daily Living and Instrumental Activities of Daily Living.

[5] Include vasculopathy, prothrombotic sickle-cell disease and maternal conditions at birth.

[6] An additional 18 patients with sinovenous clot and no infarct were seen at The Hospital for Sick Children (11) and other paediatric hospitals in Ontario (7)

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

Notes:

(1) Facility-based analysis (i.e., the location of the facility is used to report regional performance).

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

Exhibit 6.2

Number and percentage of paediatric patients[1] who received diagnostic imaging, in Ontario and by sex and facility/type, 2010/11

Group/Subgroup	Patients, n (%)						
	CT or MRI Within 24 Hours[2] (N=112)	First Scan Type[3] (N=136)			Scan Result Normal	CT or MRI Before Discharge[4] (N=125)	Carotid Imaging Before Discharge[5] (N=71)
		CT	MRI	Ultrasound			
Ontario	62 (55.4)	92 (67.6)	32 (23.5)	12 (8.8)	43 (31.6)	125 (100.0)	50 (70.4)
Female	31 (53.4)	41 (63.1)	20 (30.8)	**	22 (33.8)	58 (100.0)	25 (80.6)
Male	31 (57.4)	51 (71.8)	12 (16.9)	8 (11.3)	21 (29.6)	67 (100.0)	25 (62.5)
Facility/Type							
Hospital for Sick Children	35 (54.7)	47 (64.4)	18 (24.7)	8 (11.0)	20 (27.4)	71 (100.0)	33 (82.5)
All other paediatric facilities[6]	11 (73.3)	26 (83.9)	**	**	11 (35.5)	30 (100.0)	13 (76.5)
All other acute care facilities[7]	16 (48.5)	19 (59.4)	10 (31.3)	**	12 (37.5)	24 (100.0)	**

Data source: Ontario Stroke Registry, Ontario Stroke Audit (OSA), 2010/11.

Inclusion criteria: All patients aged <18 years admitted to an acute care hospital in Ontario with a diagnosis of stroke or transient ischemic attack or an uncertain diagnosis (N=125).

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

[2] Excludes missing scan times.

[3] Among patients with an initial CT, MRI or ultrasound.

[4] Among admitted patients only

[5] Includes only ischemic stroke patients.

[6] Includes Children's Hospital of Eastern Ontario, Hamilton Health Sciences Corporation and London Health Sciences Centre.

[7] Includes adult facilities (N=23).

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

Note:

Facility-based analysis (i.e., the location of the facility is used to report regional performance).

CT = computed tomography; MRI = magnetic resonance imaging

Exhibit 6.3

Admission destination of paediatric stroke or transient ischemic attack patients[1], in Ontario and by sex and facility/type, 2010/11

Group/Subgroup	Patients, n (%)				
	Intensive Care Unit	Medical Ward	Neurology	Other	Seen by Stroke Team
Ontario	67 (53.6)	26 (20.8)	18 (14.4)	12 (9.6)	38 (30.6)
Female	33 (56.9)	13 (22.4)	8 (13.8)	**	20 (34.5)
Male	34 (50.7)	13 (19.4)	10 (14.9)	8 (11.9)	18 (27.3)
Facility/Type					
Hospital for Sick Children	45 (63.4)	17 (23.9)	9 (12.7)	-	36 (50.7)
All other paediatric facilities[2]	14 (46.7)	8 (26.7)	8 (26.7)	-	-
All other acute care facilities[3]	8 (33.3)	**	**	12 (50.0)	**

Data source: Ontario Stroke Registry, Ontario Stroke Audit (OSA), 2010/11.

Inclusion criteria: All patients aged <18 years admitted to inpatient care in an acute care hospital in Ontario with a diagnosis of stroke or transient ischemic attack (N=125).

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

[2] Includes Children's Hospital of Eastern Ontario, Hamilton Health Sciences Corporation and London Health Sciences Centre.

[3] Includes adult facilities (N=23).

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

Notes:

(1) Facility-based analysis (i.e., the location of the facility is used to report regional performance).

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

Exhibit 6.4

Number and percentage of paediatric ischemic stroke or transient ischemic attack patients[1] who received antithrombotic therapy prescriptions, in Ontario and by sex and facility/type, 2010/11

Group/Subgroup	Patients, n (%)				
	Inhospital Prescription				Antiplatelet Prescribed at Discharge[2]
	Antiplatelet Only	Anticoagulant Only	Antiplatelet and Anticoagulant	None	
Ontario	13 (16.9)	20 (26.0)	10 (13.0)	34 (44.2)	23 (29.9)
Female	9 (25.7)	8 (22.9)	**	13 (37.1)	15 (41.7)
Male	**	12 (28.6)	**	21 (50.0)	8 (19.5)
Facility/Type					
Hospital for Sick Children	9 (20.0)	14 (31.1)	9 (20.0)	13 (28.9)	17 (40.5)
All other paediatric facilities[3]	**	**	**	9 (52.9)	**
All other acute care facilities[4]	**	**	-	12 (80.0)	**

Data source: Ontario Stroke Registry, Ontario Stroke Audit (OSA), 2010/11.

Inclusion criteria: All patients aged <18 years admitted to acute inpatient care in Ontario with a diagnosis of ischemic stroke or transient ischemic attack (N=77).

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

[2] Among ischemic stroke/TIA patients discharged alive (N=77)

[3] Includes Children's Hospital of Eastern Ontario, Hamilton Health Sciences Corporation and London Health Sciences Centre.

[4] Includes adult facilities (N=23).

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

Notes:

(1) Facility-based analysis (i.e., the location of the facility is used to report regional performance).

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

Exhibit 6.5.1

Degree of functional ability of paediatric stroke or transient ischemic attack patients at discharge (modified Rankin score), in Ontario and by sex and facility/type, 2010/11

Group/Subgroup	Patients, n (%) Modified Rankin Score 0–2	Patients, n (%) Modified Rankin Score 3–5
Ontario[1]	43 (46.2)	50 (53.8)
Female	24 (50.0)	24 (50.0)
Male	19 (42.2)	26 (57.8)
Facility/Type		
Hospital for Sick Children	16 (36.4)	28 (63.6)
All other paediatric facilities[2]	15 (57.7)	11 (42.3)
All other acute care facilities[3]	12 (52.2)	11 (47.8)

Data source: Ontario Stroke Registry, Ontario Stroke Audit (OSA), 2010/11.

Inclusion criteria: All patients aged <18 years discharged alive from acute care with a final diagnosis of stroke or transient ischemic attack and a modified Rankin score (N=93).

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

[2] Includes Children's Hospital of Eastern Ontario, Hamilton Health Sciences Corporation and London Health Sciences Centre.

[3] Includes adult facilities (N=23).

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

Notes:

(1) Facility-based analysis (i.e., the location of the facility is used to report regional performance).

(2) Modified Rankin scores of 0–2 indicate no to slight disability, and scores of 3–5 indicate moderate to severe functional impairment.

Exhibit 6.5.2

Discharge destinations of paediatric stroke or transient ischemic attack patients[1], in Ontario and by sex and facility/type, 2010/11

Group/Subgroup	Patients, n (%)				
	Acute Care Facility	Home	Home with Services	Home Without services	Inpatient Rehabilitation
Ontario	20 (16.5)	81 (66.9)	43 (53.1)	36 (44.4)	20 (16.5)
Female	7 (12.3)	39 (68.4)	19 (48.7)	18 (46.2)	11 (19.3)
Male	13 (20.3)	42 (65.6)	24 (57.1)	18 (42.9)	9 (14.1)
Facility/Type					
Hospital for Sick Children	9 (14.1)	38 (59.4)	29 (76.3)	9 (23.7)	17 (26.6)
All other paediatric facilities[2]	**	26 (89.7)	13 (50.0)	13 (50.0)	**
All other acute care facilities[3]	10 (35.7)	17 (60.7)	**	14 (82.4)	**

Data source: Ontario Stroke Registry, Ontario Stroke Audit (OSA), 2010/11.

Inclusion criteria: All patients aged <18 years discharged alive from acute care with a final diagnosis of stroke or transient ischemic attack (N=121).

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

[2] Includes Children's Hospital of Eastern Ontario, Hamilton Health Sciences Corporation and London Health Sciences Centre.

[3] Includes adult facilities (N=23).

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

Notes:

(1) Facility-based analysis (i.e., the location of the facility is used to report regional performance).

(2) Home with services includes outpatient rehabilitation services and/or Community Care Access Centre services. Home with services and without services is a subset of patients discharged home.

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

Exhibit 6.5.3

Discharge destinations of paediatric stroke or transient ischemic attack patients[1] by modified Rankin score, in Ontario and by sex and facility/type, 2010/11

Group/Subgroup	Patients with Modified Rankin Score 0–2 (N=43) n (%)				Patients with Modified Rankin Score 3–5 (N=50) n (%)					
	Home	Home with Services	Home Without Services	Referred to Stroke Prevention Clinic[2]	Home	Home with Services	Home Without Services	Acute Care Facility	Inpatient Rehabilitation	Referred to Stroke Prevention Clinic[2]
Ontario	38 (88.4)	11 (28.9)	26 (68.4)	27 (67.5)	25 (50.0)	19 (76.0)	**	6 (12.0)	19 (38.0)	38 (84.4)
Female	23 (95.8)	7 (30.4)	15 (65.2)	15 (65.2)	10 (41.7)	7 (70.0)	**	**	11 (45.8)	20 (87.0)
Male	15 (78.9)	**	11 (73.3)	12 (70.6)	15 (57.7)	12 (80.0)	**	**	8 (30.8)	18 (81.8)
Facility/Type										
Hospital for Sick Children	15 (93.8)	7 (46.7)	8 (53.3)	11 (68.8)	11 (39.3)	11 (100.0)	-	**	16 (57.1)	24 (85.7)
All other paediatric facilities[3]	14 (93.3)	**	10 (71.4)	11 (73.3)	9 (81.8)	8 (88.9)	**	-	**	9 (81.8)
All other acute care facilities[4]	9 (75.0)	-	8 (88.9)	**	**	-	**	**	**	**

Data source: Ontario Stroke Registry, Ontario Stroke Audit (OSA), 2010/11.

Inclusion criteria: All patients aged <18 years discharged alive from acute care with a final diagnosis of stroke or transient ischemic attack and a modified Rankin score (N=93).

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

[2] Secondary stroke prevention clinic. Excludes patients where secondary prevention services did not apply (e.g., transferred to another acute care facility).

[3] Includes Children's Hospital of Eastern Ontario, Hamilton Health Sciences Corporation and London Health Sciences Centre.

[4] Includes adult acute care facilities (N=23).

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

Notes:

(1) Facility-based analysis (i.e., the location of the facility is used to report regional performance).

(2) Home with services includes outpatient rehabilitation services and/or Community Care Access Centre services. Home with services and without services is a subset of patients discharged home.

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