Ontario Stroke Network

Regional Economic Overview – South East LHIN

Matthew Meyer, Andrew McClure, Christina O'Callaghan, Linda Kelloway, Cally Martin, Caryn Langstaff

5/29/2013

Table of Contents

Regional Economic Overview - South East LHIN

Background/ Rationale

Stroke is a significant contributor to mortality and morbidity in Ontario and represents an enormous economic burden to the healthcare system annually. Every year approximately 20,000 Ontarians arrive at an emergency department with stroke or transient ischemic attack (TIA) and ~13,000 are admitted to an acute hospital for care[1]. Upon discharge, ~3,200 go to inpatient rehabilitation and ~900 each to Complex Continuing Care (CCC) and Long-Term Care (LTC) to meet their ongoing needs. Under this burden, the Ontario Ministry of Health and Long-Term Care (MoHLTC) is actively seeking opportunities to improve the cost-effectiveness with which these patients receive their care.

In 2011, as part of its involvement with the MoHLTC's Rehabilitation and Complex Continuing Care Expert Panel (RCCCEP) the Ontario Stroke Network (OSN) established the Stroke Reference Group (SRG); a panel of regional experts in stroke care. The SRG was asked to make best-practice recommendations for stroke care that could help facilitate smoother flow of patients through the healthcare system. The SRG recommendations released in November 2011[2] included the following:

- Timely transfer of appropriate patients from acute facilities to rehabilitation
  - Ischemic strokes to rehabilitation by day 5 on average
  - Hemorrhagic strokes to rehabilitation by day 7 on average
- Provision of greater intensity therapy in inpatient rehabilitation
  - 3 hours of therapy per day
  - 7-day a week therapy
- Timely access to outpatient/community-based rehabilitation for appropriate patients
  - Early Supported Discharge with engagement of Community Care Access Centres (CCAC) and allied health professionals (contracted through their rehabilitation and nursing provider agencies)
  - Mechanisms to support and sustain funding for interprofessional outpatient (e.g. day rehabilitation) and/or community-based rehabilitation
  - 2-3 outpatient or Community-based allied health professional visits/ week (per required discipline) for 8-12 weeks
  - In-home rehabilitation provided as necessary

In 2012, the OSN released a report that assessed the potential economic impact of achieving full adherence to the best-practice stroke rehabilitation recommendations across Ontario[3]. This report noted that in addition to improving patient care, better application of best-practice principles could allow Ontario's healthcare system to make available up to $20M annually for re-investment elsewhere in the system. However, this report also included results from focus groups across the province

identifying a number of important challenges that must be overcome before adoption of these recommendations will be possible.

In parallel with this work, in 2012/13 the MoHLTC began implementation of the Health System Funding Reform strategy designed to promote more efficient and patient-centered healthcare spending[4]. As part of this initiative, stroke was chosen to undergo funding reform beginning in 2013 through implementation of a Quality-Based Procedures (QBP) funding structure. The QBP payment system is designed to promote efficient, high quality care with smooth transitions between care settings by providing a "bundled payment" for patient care that is tied to quality indicators. Under this reformed system, the LHINs (and facilities within them) will be forced to re-evaluate their stroke care delivery model and those regions with coordinated stroke systems will be in the best position to manage the change.

In advance of the QBP funding reform implementation, Health Quality Ontario and the MoHLTC released the Quality-Based Procedures Clinical Handbook for Stroke in January 2013[4]. In this document, a summary of recommended practices developed in coordination with the stroke episode of care expert panel are reported. These recommendations, informed largely by the Canadian Best-Practice Recommendations for Stroke Care, will formulate the standards by which healthcare providers will be measured under the QBP system. Notable recommendations include:

Acute Care

- access to stroke thrombolysis for eligible patients
- provision of acute stroke care on a specialized, geographically defined stroke unit with a suggested minimum annual volume of 165 ischemic stroke admissions
- 5 day LOS for ischemic stroke patients and 7 day for hemorrhagic

Inpatient Rehabilitation

- 7-day a week admissions to inpatient rehabilitation
- 1:6 therapist to bed ratios for PT and OT in inpatient rehabilitation and 1:12 for SLP
- 3-hours of direct task-specific therapy per day for at least six days a week

While the details of the QBP funding reform remain uncertain, the information contained in the clinical handbook provides insight into the direction in which the stroke system is heading and can serve to inform regional dialogue about stroke care.

Objective

This report is designed to replicate portions of the provincial economic evaluation noted above from the perspective of the South East Local Health Integration Network (SE LHIN). It is not designed as a comprehensive economic evaluation, but rather to present contextual information in a way that will help guide regional discussion about local stroke care. It is our hope that this will support regional representatives in assessing their stroke system, identifying areas where improvements are possible and informing discussions with local healthcare providers regarding system reform. Data and analyses performed here can (and should) be challenged and updated as appropriate.

Regional Context

The need for system change in the SE LHIN is evident. The Southeast Ontario Stroke Report Card reflects the following areas of concern relative to provincial data:

- Limited access to Acute Stroke Units;
- Long wait times for inpatient rehabilitation with high variation across the LHIN;
- Lower numbers accessing inpatient rehabilitation;
- Limited and inequitable access to outpatient rehabilitation services;
- High number of acute patients discharged directly to LTC (and variable access to rehabilitation for those with severe stroke);
- The absence of a consistent standard for provision of intensive inpatient and "slow stream" rehabilitation and
- High ALC rates.

There are currently six organizations with eleven hospital sites in Southeastern Ontario admitting stroke patients (including the regional rehabilitation centre). Appendix A summarizes the annual stroke admissions for all acute hospitals in SEO. It should be noted that within these larger organizations there are several small community hospital sites with less than 50 stroke admissions per year. Quinte Health Care includes four hospital sites, all of which currently admit stroke patients. As part of the QHC Clinical Efficiencies Plan, all stroke patients will be clustered at the Belleville site. Currently, there is one fully operational Acute Stroke Unit in SEO Ontario, located centrally in the Region at Kingston General Hospital. The Lennox and Addington County General Hospital in Napanee is not far away and admits less than 25 stroke patients a year. With the Acute Stroke Unit in Kingston and planning underway for a corporate Acute Stroke Unit in Belleville for QHC to the west, and a significant gap in best practice acute stroke unit care remains in the eastern part of the region.

There are presently three facilities with designated rehabilitation beds. St. Mary's of the Lake is the only stand-alone rehabilitation facility, whereas Quinte Health Care and Brockville General Hospital are combined acute and rehabilitation facilities. Rehabilitation services are provided at the Belleville General site of QHC. Brockville General Hospital rehabilitation and acute beds are located on separate sites, under one corporation. The Perth and Smiths Falls District Hospital offers inter-professional rehabilitation services at the Perth site; however, these services utilize inpatient acute beds that have not been designated for rehabilitation service.

Currently, the SEO region lacks the breadth of options for rehabilitation care that would facilitate patient flow, including options for more severe stroke patients not yet ready for intensive acute rehabilitation, as well as access to Day Rehabilitation outpatient services. SMOL offers acute rehabilitation services, however, no provision for slow-paced rehabilitation has historically been available for stroke survivors. Other facilities in SEO have utilized Complex Continuing Care beds to deliver some form of slower paced rehabilitation and/or restorative care services (e.g., Brockville General Hospital, Quinte Health Care, LACGH).

While Southeastern Ontario has been able to provide enhanced community-based rehabilitation services through the SE CCAC under the Discharge Link initiative, Day Rehabilitation Services are still necessary for stroke survivors in SEO. Currently, Day Rehabilitation services are available in Belleville and Perth but are unavailable in much-needed parts of the region including Kingston and Brockville.

Current staff ratios in SEO are not adequate to meet the best practice recommendations around frequency and intensity of service. Further, recruitment and retention of existing staffing is often problematic, particularly in more remote areas, in filling temporary and/or part-time positions.

The limited access to Acute Stroke Unit care and inequitable access to rehabilitation options have resulted in significantly increased acute ALC days and a greater number of stroke patients being discharged from acute care to LTC in Southeastern Ontario.

Methods

In the spirit of providing a regional "economic overview", current data were explored with the goal of identifying opportunities for improved care, potential for cost reductions relative to current expenditure and estimates of the need for re-investment or re-allocation of funding. The following areas were addressed:

Potential EMS impact

Estimate mean annual stroke/TIA incidence (based on ED arrivals) and the proportion of patients transferred to hospital by ambulance annually

In order to estimate annual incidence, it was assumed that all patients with stroke or TIA would arrive at an emergency department. We acknowledge that this may not always be true, but felt that the resulting estimate was reasonable. Data were retrieved from the 2012 Stroke Evaluation Report for ED arrivals and averaged over fiscal years 2008-2010[1].

Estimate mean travel times and distances between regional hospitals

Distances and travel times between hospitals were retrieved from Google maps. Times account only for estimated driving times and do not account for drop off or pick-up times, traffic, weather, nor any additional time staff require (eg. breaks).

Potential Acute Care impact

Estimate annual admissions to acute care by hospital and stroke type (TIA, Isch, Hem, Not Specified)[I]

Data were retrieved from IntelliHealth by a member of the North Simcoe Muskoka Decision support team for all LHINs. The initial data pull included information on all patients with most responsible diagnosis of stroke (ICD-10 codes H34.1, G45 (not G45.4), I60 (not I60.8), I61, I63 (not I63.6), or I64) who were 18 years or older and were either a resident of the NE LHIN or received some acute medical care in the LHIN in fiscal years 2007-2011. Patients were divided by stroke type using the following criteria:

Hemorrhagic (ICD-10 = 160 & I61)

Ischemic (ICD-10 = H341 & I63)

Stroke Not Specified (ICD-10 = I64)

TIA (ICD-10 = G45)

The number of discharges was summed for each hospital to infer the number of stroke admissions annually. For planning purposes, the following steps were used to ensure that patients were not double counted in the estimated number of annual admissions. Among LHIN residents, records of patients transferred from another acute care hospital were eliminated and only the sentinel admission was used. Non-resident patients transferred from an acute site outside of the LHIN remained.

To generate the final table, resident and non-resident data were combined and summed. For calculation of LOS and resource intensity weight (RIW), the sum of all within-LHIN hospital stays was combined regardless of site or number of admissions. Five-year averages were generated by summing all data across all 5 years and then dividing each cell by five. Mean RIW per patient was generated by dividing the total RIW sum for each group by the number of total discharges.

Estimate current annual acute stroke budget

Mean annual acute admissions and resource intensity weight (RIW) averaged over fiscal years 2007-11 were multiplied by the estimated 2013/14 mean cost per weighted case provided by the MoHLTC ($4380)[a]. This represents an estimate of the annual direct cost of acute hospital care for stroke patients across the entire LHIN.

Project mean LOS under best-practice model and estimate annual need for acute care beds regionally

The current best-practice recommendation is for ischemic stroke patients to be transferred to the appropriate rehabilitation setting by day 5 on average and hemorrhagic patients by day 7 [2]. However,

[a] Interim Quality-Based Procedure list for stakeholder consultation, MoHLTC 2012

using this information to project the need for acute beds is difficult. In order to achieve these aggressive LOS targets, substantial system change would be required including improved access to outpatient and community-based rehabilitation programs, greater acute care efficiency, and readily available access to long-term care beds when necessary. While we believe this ideal state to be possible, it is likely not imminent. Still, Ontario data suggest tremendous opportunity for improved efficiency even within the current structure of services.

Due to the challenging nature of projecting resource need, data were presented in this section in two ways to help inform planning discussion. First, a mean 10-day acute LOS was assumed for all stroke patients (ischemic, hemorrhagic and stroke type not specified (NS)). This estimate was felt to be a conservative target to allow for the fact that some patients being discharged to settings other than rehabilitation (palliative care or LTC) may require a longer acute stay than the 5 and 7 day targets under the constraints of the current system. These data are presented to represent a reasonable interim target. Second, estimates were generated based on the assumption of full achievement of the best-practice recommendations (mean 5 day and 7 day LOS for ischemic and hemorrhagic stroke patients respectively) in order to infer the impact of achieving an "ideal" scenario. Bed estimates were then derived assuming a 90% occupancy rate to allow for natural variation in stroke incidence.

Mean LOS for patients with TIA is generally shorter than 5 days and consensus opinion is that many of these patients do not require acute admission at all. However, no reliable estimate for the proportion of TIA patients who require admission exists currently. Therefore, in all cases the current mean LOS occupied by TIA patients, or 5 days (whichever is lower) was considered sufficient in system modeling and separate estimates for the potential reduction in TIA admissions were calculated.

Estimate the opportunity for annual acute cost reduction

As in the previous section, there are several ways in which cost reduction estimates could be generated. We chose to present three scenarios. First, *per diem* cost estimates (Appendix B) reported in a previous report[3] were used to generate an estimate of the impact that a single day reduction in mean LOS would have on direct stroke costs in the region. Second, the same *per diem* estimates were used to infer the potential cost savings that would accompany achievement of both the 10-day and the "ideal" LOS targets for ischemic and hemorrhagic patients compared to the current average LOS.

Expert opinion suggests that many of the TIA patients currently admitted to acute care could be better managed in a secondary prevention clinic. However, no reliable estimate of the proportion of TIA patients for whom an acute admission is appropriate exists currently. Regional data were used to estimate the incremental direct acute care cost savings that would accompany each TIA admission avoided. These were generated by multiplying the mean RIW of TIA patients admitted to acute care within the LHIN by the MoHLTC cost per weighted case ($4,380).

Estimate staffing model required for proposed bed number

Staffing ratios for each discipline included in the recommended interdisciplinary stroke team were drawn from the CSS "Guide to the Implementation of Stroke Unit Care"[5]. The ratios recommended in the CSS guide were used to estimate the total staffing requirement that would be needed to provide best-practice stroke care to all patients across the region under both the 10-day and "ideal" systems.

Potential Inpatient Rehabilitation Impact

Identify LHIN-level annual admissions to rehabilitation by rehabilitation patient group (RPG) and mean LOS

Data requested from the National Rehabilitation Reporting System (NRS) from fiscal years 2008-2010 were used to estimate the mean number of stroke patients (Rehabilitation Client Group-1) admitted to inpatient rehabilitation by RPG annually.

Estimate current annual rehabilitation stroke budget

The mean number of rehabilitation admissions annually was multiplied by their mean LOS and then by the *per diem* cost estimate of $603[3] (Appendix B) to generate a regional estimate of the cost of inpatient rehabilitation annually. Similarly, the mean number of CCC admissions for rehabilitation was inferred. Provincially, approximately 30% of patients who enter CCC post stroke are ultimately discharged home[1]. This value was used in combination with the number of annual acute discharges to CCC[1] to infer the number of patients discharged to CCC for rehabilitation purposes. This estimate was multiplied by the *per diem* cost estimate for CCC of $561 (Appendix B) and the provincial mean LOS in CCC[1] (93.5 days) to estimate current expenditure on rehabilitation in CCC annually. It is recognized that use of CCC beds for rehabilitation varies significantly within and across LHINs due to a lack of standardized policy for rehabilitation in this setting. The inference made regarding rehabilitation in CCC is a methodology limitation that will benefit from local interpretation.

Anticipate number of inpatient rehabilitation admissions annually under best-practice model and number of rehabilitation beds needed

Current data limitations make it difficult to identify the proportion of patients admitted to inpatient rehabilitation who could have been cared for in an outpatient setting or the number of patients currently admitted to complex continuing care beds who would have been more appropriately cared for in inpatient rehabilitation. Therefore, the Ontario benchmark for stroke patients alive at acute discharge who are candidates for inpatient rehabilitation (42.3%)[1] was used to estimate the number of patients who would require inpatient rehabilitation annually. A 30-day mean LOS was used to derive an estimate of the need for rehabilitation beds, assuming 90% occupancy.

Estimate rehabilitation staffing model for proposed bed number

The estimate is based on provision of PT, OT and SLP services as indicated in the clinical handbook for Quality Based Procedures. Other rehabilitation disciplines were not included in the model due to the lack of recommendations around appropriate staffing ratios in rehabilitation.

The rehabilitation staffing model required to care for the expected number of rehabilitation admissions was based on the assumptions that 1) a single therapist was capable of providing 6 hours of direct therapy per day, 5 days a week, for 46 weeks a year (1380 hours total assuming 6 weeks for vacation and illness) and 2) a 2:1 registered therapist to assistant ratio was assumed to be appropriate.

Two estimates of staffing compliments were generated. Best-practice recommendations suggest therapy 7-days a week, while the HQO clinical handbook made a more conservative recommendation of at least 6-days a week. Assuming that each patient would require 1 hour of direct therapy per day from PT and OT, the anticipated number of rehabilitation bed days occupied by stroke patients was assumed to equal the number of rehabilitation sessions required by each of these disciplines under the 7-day model. A 6-day model was then generated by multiplying the estimated number of bed days occupied by stroke patients by 6/7 to infer the total number of PT and OT rehabilitation sessions required annually. In both models, 1/2 as many sessions were assumed to be necessary for SLP based on the assumption that only 50% of patients require this care.

The total number of sessions in both models was then divided by 1380 (the number of direct therapy hours provided by 1 FTE annually) to infer the total number of FTEs needed to provide the appropriate number of sessions. The estimated FTEs were then adjusted for the therapist to assistant ratio (2:1) and multiplied by the estimated annual salaries used previously (Appendix B) to estimate the annual direct cost of best-practice rehabilitation in the region under both a 7-day and 6-day model of care.

Potential Outpatient/Community-based Rehabilitation Impact

Estimate "best-practice" annual need

As done in the OSN report[3], it was assumed that 13% of stroke patients discharged alive from acute care, and all patients discharged from inpatient rehabilitation, require additional outpatient or community-based rehabilitation. Between 2008 and 2010, approximately 12% of stroke patients died in hospital[1]. To estimate the number of patients who require additional rehabilitation, 12% of the annual admissions were removed along with all TIAs and all patients discharged to inpatient rehabilitation. Of the remaining patients, 13% were assumed to require additional rehabilitation. This number was then added to the estimated number of admissions to inpatient rehabilitation to derive an estimate of the total number of patients requiring outpatient or community-based rehabilitation annually. Each patient was assumed to require a best-practice recommended 2.5 sessions per week (an average of 2-3 visits per patient) for 10 weeks (the average of 8-12 weeks duration)[2].

Estimate annual direct costs for outpatient and community-based rehabilitation programs

Results of the previous OSN report found that 88% of patients in Ontario live within a 30-minute drive of an outpatient rehabilitation program[3]. However, these analyses have not been performed for each LHIN individually. Cost estimates were generated by multiplying the per-session rehabilitation costs reported previously for outpatient and community-based rehabilitation (Appendix B) by the number of sessions required annually. This allowed for generation of an estimated direct cost for provision of ALL rehabilitation sessions by each of outpatient and community-based rehabilitation programs, separately. This was done for illustrative purposes and the true cost is anticipated to lie somewhere in between these estimates.

The estimates provided here require local interpretation given the high variance in rurality and population across LHINs. The balance of outpatient versus CCAC service provision will vary by region based on a) the presence or absence of outpatient programs in various communities and on b) how rurality affects access. LHIN profiles providing information on the percent rural residency can be found at Statistics Canada.

Results

Potential EMS impact

Estimate mean annual stroke/TIA incidence (based on ED arrivals) and the proportion of patients transferred to hospital by ambulance annually

The 2012 Ontario stroke evaluation report indicates that between fiscal years 2008 to 2010, an average of 909 stroke or TIA patients arrived at an emergency department in the SE LHIN annually (range 887 to 921)[1]. Approximately 56.9% of these patients were transported to hospital by EMS[1]. A high variance in this rate is seen across the LHIN with a higher percent transported by ambulance to stroke centres.

Estimate mean travel times and distances between regional hospitals

Patient transfer via EMS represents an important consideration when looking to determine the potential economic impact of stroke system reform. Limited data on the cost of transfers is available at this time. Tables 1 and 2 were generated to allow for quick review of the potential time and distance impact of transferring patients between hospital sites. If and when decisions about stroke unit siting are made, these values can be used to estimate EMS impact. At that time, additional considerations should include the number of patients already transferred by EMS (both to and between hospitals) as well as EMS staff time during pick-up and drop off. Verification and discussion with local EMS providers should be pursued.

Table 1. Approximate distances between hospitals in the SE LHIN (in kilometers)

Organization	Annual Stroke Admits	Site	Approx. Distances Between Facilities in KMs							
			BGH	KGH	P&SFDH		QHC			
					GWM	SF	BGH	NHH	PECMH	TMH
Lennox & Addington County General	23	--	124	46	140	134	39	148	35	62
Brockville General	99	--	--	87	64	52	157	264	160	178
Kingston General	311	--	--	--	103	97	80	188	83	100
Perth & Smiths Falls District	53	Great War Mem.	--	--	--	20	148	183	176	166
		Smiths Falls	--	--	--	--	168	203	170	189
Quinte Healthcare Corporation	216	Belleville Gen.	--	--	--	--	--	114	39	20
		North Hastings	--	--	--	--	--	--	160	130
		Prince Edward	--	--	--	--	--	--	--	51
		Trenton Mem.	--	--	--	--	--	--	--	--

Table 2. Approximate drive times between hospitals in the SE LHIN (in minutes).

Organization	Annual Stroke Admits	Site	Approximate travel time (in minutes)							
			BGH	KGH	P&SFDH		QHC			
					GWM	SF	BGH	NHH	PECMH	TMH
Lennox & Addington County General	23	--	75	38	105	99	35	113	29	44
Brockville General	99	--	--	61	67	48	98	176	100	107
Kingston General	311	--	--	--	90	79	59	139	62	70
Perth & Smiths Falls District	53	Great War Mem.	--	--	--	20	116	137	129	127
		Smiths Falls	--	--	--	--	118	154	120	127
Quinte Healthcare Corporation	216	Belleville Gen.	--	--	--	--	--	95	37	25
		North Hastings	--	--	--	--	--	--	123	105
		Prince Edward	--	--	--	--	--	--	--	50
		Trenton	--	--	--	--	--	--	--	--

Potential Acute Care impact

Identify mean annual admissions to acute care by hospital and stroke type (TIA, Isch, Hem, NS)

Detailed results for each hospital are presented in Appendix A. Regional summary of the total number of annual admissions is presented in table 3.

Table 3. Summary data for mean annual stroke admissions, LOS and resource intensity weight among hospitals in the SE LHIN in fiscal years 2007 to 2011.

Stroke Type	Mean Annual Admissions (N)	Mean Annual LOS (days)	Mean Annual ALC LOS (days)	Mean Annual Total LOS (days)	Mean Patient RIW
Hemorrhagic	97.0	1249.2	647.8	1897.0	3.9760
Ischemic	308.2	3468.0	1935.2	5403.2	2.6920
Not Specified	181.8	1551.8	792.8	2344.8	1.7496
TIA	114.8	452.2	133.4	585.6	0.8570
Total	**701.8**	**6721.2**	**3509.2**	**10230.6**	**2.3252**

Estimate current annual acute stroke budget

Using the 2013/14 "Interim Quality-Based Procedures list for Stakeholder Consultation" direct cost per weighted case of $4380, the estimated *direct cost* of acute stroke care in the SE LHIN is $7,147,395 annually.

Anticipate mean LOS under best-practice model and estimate annual need for acute care beds regionally

Assuming a mean 10-day LOS for all stroke patients and no change in the LOS of TIA patients, a total of 6456 bed days can be anticipated to be occupied by stroke/TIA patients annually. Assuming 90% occupancy in stroke unit beds, this would require **19.7** acute beds to care for these stroke/TIA patients.

Were the best-practice recommendations of mean 5-day and 7-day LOS attained for ischemic and hemorrhagic stroke patients respectively (with no change in TIA), a total of 3715 bed days would be occupied by patients with stroke or TIA. Care of stroke/TIA patients under this "ideal" system would require **11.3** acute care beds.

Estimate the opportunity for annual acute cost reduction

Based on the number of admission, the mean LOS and the MoHLTC cost per weighted case, the average *per diem* direct acute care cost for stroke and TIA in the SE LHIN is $699 per day*. This means that across the region, a single day reduction in mean LOS could free up $490,298 annually for re-investment elsewhere in the system. *From Table 3, $699 per day is derived from the number of stroke admissions multiplied by both the mean RIW and direct cost per weighted case ($4,380) to generate the estimated total direct cost of acute stroke care ($7,147,395 estimate). This estimate, divided by the total LOS days generates the estimated mean per diem cost of care in the SE of $699.

Attainment of a 10-day mean LOS for all ischemic, hemorrhagic and stroke not specified patients (with no change in TIA LOS) in the SE LHIN would result in the elimination of 3775 acute care bed days annually. Using the previously reported *per diem* ALC cost estimates of $577 for hemorrhagic patients and $592 for ischemic and stroke not specified patients (Appendix B), these 3775 days could result in **$2,220,895** made available annually. Interestingly, the proposed 3775 bed day reduction could almost entirely be achieved through elimination of ALC bed days in the region (see table 3).

Were the "ideal" targets of 5 and 7 days met for all ischemic and hemorrhagic stroke patients across the region, 6516 fewer acute bed days would be occupied by stroke patients annually compared to current LOS. This would result in an estimated **$3,839,202** made available annually; more than halving current direct acute-care expenditure in the region.

In addition to the potential cost reductions among stroke patients, data also suggest tremendous opportunity for acute cost reductions associated with avoiding TIA admissions. Every TIA admission avoided in the SE LHIN would make available approximately $3,754 for spending elsewhere. Based on this incremental estimate, if even half of the TIA admissions were avoided annually, $215,460 could be made available to care for these patients elsewhere. Interestingly, this is very close to the current funding for operating a Stroke Prevention Clinic (SPC) at a Regional Stroke Centre. Reallocation of this resource to increased funding to SPCs would increase capacity to avoid TIA admission.

Estimate staffing model required for proposed acute bed number

Based on the CSS Stroke Unit guidelines[5], regional best-practice staffing compliments are presented in table 4 for a model with a 10-day acute stroke LOS and the "ideal" best-practice target model. Note that these estimates do not account for care at multiple sites. The suggested staffing ratios would remain constant at each facility, but may result in different region-wide values. Estimates are provided to generate local discussion around staffing and to allow for regional estimates of staff costs to be performed.

Table 4. Estimate of the best-practice staffing compliments required to care for stroke patients in the SE LHIN for both the 10-day and "ideal" models.

Team Member	SE 10-day Requirement For 19.7 acute beds	SE "ideal" Requirement For 11.3 acute beds
RN**	18.3	10.6
RPN**	9.2	5.3
PT†	2.2	1.3
OT†	2.2	1.3
SLP††	1.1	0.6
PT/OT Assistants$^{\pi}$	2.2	1.3
CDA$^{\pi}$	0.5	0.3
SW‡	1.0	0.6
Dietician‡‡	1.6	0.9

**Estimates based on assumed need of 1.4 nursing FTE/bed at a 2RN:1RPN ratio

†Estimates based on assumption of 1:6 therapist:bed ratio[3]

††Estimate based on assumption of 1:12 therapist:bed ratio[3]

$^{\pi}$Assistant calculations based on 1:2 assistant:registered therapist ratio.

‡Assuming 1 FTE/ 20 bed ratio

‡‡Assuming 0.8FTE/10 bed ratio

Potential Inpatient Rehabilitation Impact

Identify LHIN-level annual admissions to rehabilitation by functional level (RPG) and mean LOS

According to the NRS, between 2008 and 2010 an average of **148 patients** from the SE LHIN (range 139 - 155) were admitted to a designated inpatient rehabilitation bed annually. On average these patients remained in inpatient rehabilitation for a mean of **44.1 days**. The distribution of patients by RPG and mean LOS are presented in table 5.

Table 5. Mean number of annual admissions to inpatient rehabilitation in the SE LHIN by RPG and their corresponding mean LOS between 2008-2010.

RPG	Mean Annual Admissions	Mean LOS (days)
1100	16	62
1110	33	60
1120	33	44
1130	24	41
1140	14	29
1150	19	28
1160	10	21
Total	**148**	**44.1**

Generate estimate of current annual rehabilitation stroke budget

Previous estimates suggest that, on average, a single day in inpatient rehabilitation costs $603 (Appendix B). Based on this estimate, the annual cost of inpatient rehabilitation in the SE LHIN is approximately **$3,935,660**. Of this total cost, approximately **$126,630** is spent on rehabilitation of patients in RPG 1160; a group that current best-practice recommendations suggest could be cared for in an outpatient or community-based rehabilitation setting to avoid an inpatient rehabilitation admission.

Between 2008 and 2010, on average, 44 patients a year were discharged to CCC from acute care post stroke in the SE LHIN[1]. Assuming that 30% of these patients were rehabilitation candidates, approximately 13 patients a year were admitted to CCC for rehabilitation. With an estimated LOS of 93.5 days[1] at $561/day (Appendix B), these patients cost **$681,896** to care for in this setting. Were these patients to have been admitted to inpatient rehabilitation and achieve a mean LOS of 62 days (that of the most severe RPG group, 1100), their care would have cost $452,166; an annual cost reduction of **$229,730**.

Anticipate number of inpatient rehabilitation admissions annually under best-practice model and number of rehabilitation beds needed

Using data currently available, it is difficult to estimate the proportion of patients currently in inpatient rehabilitation unnecessarily as well as the proportion of patients currently admitted to "slow-stream" rehabilitation or CCC who should instead should have been admitted to inpatient rehabilitation. Therefore, the current best-practice provincial benchmark of 42.3% of acute stroke patients discharged alive requiring rehabilitation was felt to be a better approximation of regional rehabilitation need[1]. Based on this estimate (42.3% x 587), approximately **248 patients** from the SE LHIN would require inpatient rehabilitation annually after stroke. Assuming 90% bed occupancy, management of these patients would require **22.7 inpatient rehabilitation beds annually**.

Estimate rehabilitation staffing model for proposed bed number

In order to provide inpatient rehabilitation PT, OT and SLP services at the level of intensity noted in the QBP clinical handbook for stroke (3-hours daily, 6 days a week), a combined regional therapy staffing complement of 11.6 dedicated FTEs would be required at an estimated annual salary of **$1,013,617.** Were the best-practice recommended model of 7-day a week therapy for PT, OT, and SLP achieved, 13.5 FTEs would be required at an estimated **$1,182,553** (or an additional $168,936). These are estimates of the entire PT, OT and SLP staffing compliment required, which would include staff currently employed in the region. Estimates of the need for FTEs and the corresponding cost for each rehabilitation discipline are presented in table 6.

Table 6. Estimates of the need for inpatient rehabilitation FTEs in the SE LHIN, under 6 and 7 day a week therapy models, and an estimate of the corresponding cost.

Discipline	Number of FTEs 6-Day model	Estimated Annual Salary 6-Day model	Number of FTEs 7-Day model	Estimated Annual Salary 7-Day model
PT*	3.1	$320,962	3.6	$374,456
OT*	3.1	$320,962	3.6	$374,456
SLP**	1.5	$169,652	1.8	$197,928
PT/OT Assistant†	3.1	$160,640	3.6	$187,413
CDA††	0.8	$41,400	0.9	$48,300
Total	**11.6**	**$1,013,617**	**13.5**	**$1,182,553**

*PT/OT estimates based on an annual salary of $104,057

**SLP estimates based on an annual salary of $110,004

†PT/OT assistant estimates based on an annual salary of $52,080

††CDA estimates based on an annual salary of $53,688

Potential Outpatient/Community-based Rehabilitation Impact

Generate estimate of "best-practice" annual need

It was assumed that 13% of patients with stroke discharged alive from acute care and all patients discharged from inpatient rehabilitation require additional rehabilitation services from OT and PT, and that half would require SLP. Each patient was assumed to require 2.5 rehabilitation sessions per week for 10 weeks (both averages of the current best-practice recommendations). Based on these assumptions, patients in the SE LHIN are anticipated to require 7035 sessions of both PT and OT, and 3517 sessions of SLP annually.

Generate estimate of annual costs for outpatient and community-based rehabilitation programs

Assuming an outpatient clinic cost of $94.33 per session for PT and OT and $97.80 for SLP (includes direct costs and a portion of overhead; Appendix B), provision of all rehabilitation sessions in an outpatient clinic would cost approximately **$1,671,138 annually**. Were all sessions provided by a community-based program (estimated costs of $117.13 PT, $139.98 OT and $141.12 SLP including overhead and travel; Appendix B), the cost of care would rise to **$2,305,026 annually**. These estimates do not account for current programs and staff available in the region and represent a high and low boundary for the estimate. Given that much of the SE LHIN geography is rural, it is likely that many patients would benefit from rehabilitation in the community setting rather than travelling to an outpatient rehabilitation hospital. The actual proportion of candidates for each service cannot be

estimated at this time and the potential unmet need cannot be estimated to a lack of outpatient data. Many communities in the South East do not currently provide any outpatient or day rehabilitation services placing a large burden on the delivery of more expensive inpatient and CCAC rehabilitation services. Data collected as part of the Enhanced Discharge Link Service could be examined more closely to estimate those clients that might have been able to benefit from local outpatient rehabilitation services were they available.

Summary/Recommendations

Assuming one hundred percent attainment of the best practice model for stroke rehabilitation in SE Ontario, the potential to free up resources annually is significant. It is expected that $2,700,000 annually could be made available for reallocation in SEO. The estimated cross-continuum, cross-Regional cost of meeting those best practices would include:

- $1-1.2 M annually to meet best-practice recommendations for inpatient acute rehabilitation therapy staff across SEO; and
- $1.6-2.3 M annually to meet best practice recommendations for outpatient and community rehabilitation.

At this time it is not possible to estimate the salary costs of therapy staff in the SE LHIN specific to stroke patients. Therefore, the estimates provided above represent the total cost of rehabilitation staff required across the region. The required investment over current expenditure will be substantially less. It is expected that full implementation of best practices would be cost neutral in SEO, given that enhanced community-based rehabilitation is already established and funded in this Region, and the $1.6 M annual outpatient and community rehabilitation estimates do not include current enhanced CCAC service provision.

Based on the needs evidenced by the Southeast Ontario Stroke Report Card, the Regional Stroke Steering Committee committed to adopting and leading the development of a regional plan to implement provincial rehabilitation expert panel best practice recommendations for stroke care. On November 28, 2012, the Regional Stroke Network held a Forum ***"Leveraging Rehabilitation to Improve Patient Flow and Quality Outcomes in Southeastern Ontario Using Stroke Care as a Model"*** as a first step to identify, plan and implement cross-continuum rehabilitation solutions to improve patient flow and outcomes in Southeastern Ontario. While this forum focused on stroke (stroke is the second leading cause of ALC in SEO), the solutions proposed by regional stakeholders are applicable to other complex conditions.

The overarching objective of the Forum was to identify opportunities to leverage rehabilitation across the continuum of care in order to improve patient flow and quality outcomes in Southeastern Ontario. The participants were supported in achieving the following objectives:

- Develop an increased awareness of the provincial Rehabilitation Expert Panel priority best practice recommendations using the stroke model as an exemplar;
- Contribute to the development a regional plan to support the implementation of the provincial rehabilitation recommendations for stroke as a demonstration for broader system change in alignment with the SE LHIN Restorative Care Roadmap;
- Understand the economic impact on the health system in SEO;
- Bring to life the potential impact of these recommendations through the patient experience;
- Understand the current status (i.e. strengths and gaps) of stroke rehabilitation across the continuum of care in SEO in relation to the Rehabilitation Expert Panel priority recommendations and
- Identify the current strengths, resources and barriers that need to be considered to implement the recommendations.

From the Forum, key themes emerged:

- The need for consistent regional processes and associated tools for clustered care and access to rehabilitation;
- Effective planning and communication for a cross-regional approach to support service consistency;
- Effective health system navigation;
- Interprofessional training/education to build expertise and capacity and to further prepare for best practice implementation;
- Requirement for an openness to delivery of best practice in new and innovative ways (e.g., new models of care delivery);
- The need to work regionally, across the continuum, and out of silos, managing transitions;
- The importance of engagement of all including our LHIN and executive leadership in support of these proposed broader system changes;
- Patient/Client and Family Engagement (Patient/Client-Centred Care).

Some potential challenges that were identified from this work include:

- The issue of the critical mass needed for effective acute stroke unit implementation and how to organize acute stroke care across the region (i.e., evaluation by the Ontario Stroke Network indicates that a minimum of 130 ischemic stroke patients admitted annually is associated with improved outcomes);
- The issues around transitioning patients from acute to rehabilitation care given medical acuity of patients. There was discussion around the need for staff training and expertise in rehabilitation to accept more acute patients;
- Areas of significant inequity with respect to rehabilitation ambulatory day service in the region (e.g. Brockville and Kingston);
- The need to define standards for access, triage and service in relation to both rehabilitation and slow stream rehabilitation;
- Advocacy and awareness of the need for and benefits of rehabilitation.

Appendix C outlines proposed solutions identified by key stakeholders in the SEO Region in overcoming the identified roadblocks associated with best practice implementation.

Proposed Implementation Strategy

Following the Forum and subsequent planning, The Regional Stroke Steering Committee members have made the following recommendations that are now included in the 2013-15 Regional Stroke Workplan:

1. **Align this work with stakeholder preparation for Quality Based Procedures** for stroke care released in FY 2013-14.

2. **Engage all stakeholders in local planning beginning with senior leaders**. It is recognized that it is critical to engage senior leaders in the next steps around **local Phase II planning**. The SEO Stroke Network has now engaged Executive leadership teams in meetings to discuss the information shared at the Forum, highlighting the identified local roadblock solutions and seeking advice with respect to local follow up, planning and implementation. Meetings have occurred with the Executive teams of each of the South East Hospitals, the SE CCAC and the SE LHIN. A summary of the preliminary Executive discussions relative to Phase II planning and implementation of rehabilitation system change, including early access to acute stroke units, is outlined below. The Stroke Network will be working with stakeholders at their respective organizations and jurisdictions to facilitate implementation of the recommended next steps.

The following facility-specific priorities and actions were discussed and will be supported by the SEO Stroke Network:

Quinte Health Care

The Clinical Efficiency Planning at QHC has identified two priority areas with impact on stroke: Corporate Acute Stroke Unit planning for clustered stroke care at the Belleville site; and re-designation of Complex Continuing Care beds to Rehabilitation beds. There will be a transition to 25 acute rehab and 20 CCC beds, compared to 18 Rehab and 38 CCC previously. This reconfiguration of beds will optimize access to the specialized acute rehab and co-locate acute and slow-stream rehab patients to better meet patient needs and outcomes.

Kingston General Hospital

A strategic focus has been placed on complex-acute and specialty care. This includes supporting acute stroke unit care and engaging in collaborative work with KGH partners to support improved patient flow through greater rehabilitation options and acute care repatriation plans. KGH is receptive to planning work to admit the L&ACGH stroke patients for their first 5-7 acute care days (approximately 20 patients per year), with proviso to also work on patient flow and repatriation to appropriate rehabilitation or alternate setting following acute LOS.

Lennox and Addington County District Hospital

LACGH leaders agree that transferring their acute stroke patients to KGH for a 5-7 day initial acute stay would align with best practices including the potential to improve patient outcomes and save health system costs. With a recent re-designation of 22 LACGH CCC beds to LTC

convalescent care beds, including CCAC admission management and 90-day LOS, it is uncertain how this will impact patient flow in KFLA and stroke repatriation processes.

Providence Care St. Mary's of the Lake

Plans are underway to increase rehabilitation options through designation of 14 CCC beds to slow paced rehabilitation beds for those not yet ready for intensive rehabilitation. Criteria have been established in alignment with RM&R process and slow paced rehab beds expected to open in the fall of 2013. To address wait time for intensive rehabilitation beds work will proceed to promote early transfer to SMOL from KGH for moderate strokes without medical complications. The physical medicine program has been piloting an early-supported discharge program that provides intensive daily rehabilitation services for stroke care. This pilot has been provided by using the rehabilitation resources assigned to inpatient beds. The pilot has demonstrated cost savings and needs further consideration for a sustained funding plan. Consideration will also be given over the coming year to the potential for remodeling the existing geriatric Day Hospital services to include rehabilitation service for stroke clients of any age.

Brockville General Hospital

BGH is investigating moving forward with clustered acute stroke unit care at the Charles Street site with the potential longer range plan to eventually clustering all Lanark, Leeds and Grenville acute stroke patients in an Acute Stroke Unit at BGH. BGH has developed and approved an Ischemic Stroke Clinical Pathway that includes an ED algorithm and Patient Care Order Set that are being implemented in 2013. There was also discussion of BGH potentially becoming a thrombolysis telestroke site in future, with the understanding that criteria for provision of stroke thrombolysis through telestroke include having an Acute Stroke Unit. It was noted that the new master plan under capital development for rehabilitation includes an increase to 17 rehab beds from current 5. Whether this plan would include outpatient rehabilitation service is uncertain. Discussions are ongoing with advocacy from the hospital and Regional Stroke Network to include day rehabilitation services in order to improve inpatient flow.

Perth Smiths Falls District Hospital

The PSFDH team was interested in the new information on Acute Stroke Unit critical mass in relation to stroke outcomes and felt there was an ethical obligation to consider this information seriously. PSFDH is not opposed to eventually clustering at one hospital site in LLG. It was agreed that when this aligns with BGH's Strategic Plan and the BGH stroke unit is established, resourced and ready, PSFDH will be willing to discuss consolidation of acute stroke unit care with an understanding that rehabilitation services would remain local to PSFDH. In the meantime, PSFDH is focusing its work on promoting a Stroke Care Plan for a 5 day acute length of stay for those with ischemic stroke with transfer to rehabilitation by day 6.

Southeast Community Care Access Centre

CCAC Executive were very interested in the rehab wait times and length of stay data for those areas in SEO lacking Day Rehab Services. CCAC expressed an interest in the provision of Day Rehab Services to enhance rehab options to address ED avoidance, ALC and patient flow in SEO. They agreed that flexible models of service delivery to support equitable access are warranted, such as CCAC clustered clinic care in collaboration with SEO hospitals.

3. **Facilitate local level follow-up.** Best Practice Forums will be held in local areas validating and prioritizing the emerging themes for action. These Forums, funded as part of the FY 2013-14 Regional Stroke Education Plan, will support the priorities noted above for each area in the region reflecting Phase II local planning for implementation of rehabilitation system change. Quality Based Procedures and best practices in acute, rehabilitation and community care will be integrated into the identified actions. The Stroke Network will be working with stakeholders at their respective organizations and jurisdictions to facilitate implementation.

4. **Align work with the Restorative Care Clinical Services Roadmap** and share the report with its leaders. Ongoing communication will be maintained with the SE LHIN and the Co-Chairs of the South East Restorative Care Clinical Services Roadmap in order to maintain alignment on planning related to mutual goals.

5. **Align work with the SE LHIN Integrated Health Service Plan** and other LHIN initiatives, including Resource Matching & Referral (**RM&R**). A meeting with the SE LHIN planners was held April 2013 to discuss ongoing communication and collaboration.

6. **Learn from other Regions**. The Stroke Network will continue to update stakeholders on the learning occurring in other regions through contact with other Regional Stroke Networks, the Ontario Stroke Network and the Ontario Association of CCACs. Communication links have been established with SE representatives on the Provincial LHIN Rehabilitation Alliance in order to learn of other rehabilitation system initiatives across the province.

Reference List

(1) Hall R, Khan F, O'Callaghan C, Kapral MK, Hodwitz K, Fang J, Bayley M. Ontario Stroke Evaluation Report 2012: Prescribing System Solutions to Improve Stroke Outcomes. Toronto: Institute for Clinical Evaluative Sciences; 2012. Available: www.ices.on.ca

(2) Lowi-Young M, Nord P, Ontario's SRG. Rehabilitation and Complex Continuing Care Expert Panel: Phase I Report. 2011. Available: www.nelhin.on.ca/WorkArea/downloadasset.aspx?id=11680

(3) Meyer M, O'Callaghan C, Kelloway L, Hall R, Teasell R, Meyer S, Allen L, Leci E, in collaboration with Ontario's Stroke Reference Group. The Impact of Moving to Stroke Rehabilitation Best-Practices in Ontario: Final Report. 2012 Available: http://ontariostrokenetwork.ca

(4) HQO, MoHLTC. Quality-Based Procedures: Clinical Handbook for Stroke. 2013.

(5) Canadian Stroke Strategy. A Guide to the Implementation of Stroke Unit Care. 2009. Available: http://strokebestpractices.ca/wp-content/uploads/2010/11/CSS-Stroke-Unit-Resource_EN-Final2-for-print.pdf

Appendix A

Summary data for annual admissions, LOS and RIW by stroke type for each hospital in the SE LHIN averaged across fiscal years 2007-2011.

Hospital	Stroke Type	Admit	ALOS	ALOS ALC	ALOS Tot	RIW
Lennox and Addington County General Hospital	Total	22.6	179.4	110.2	289.6	1.7366
	Hem	1.8	7.4	2.0	9.4	0.8108
	Isch	8.6	92.4	42.4	134.8	2.2961
	NS	4.6	41.0	47.4	88.4	2.1554
	TIA	7.6	38.6	18.4	57.0	1.0693
Brockville General Hospital	Total	99.4	893.6	337.8	1231.4	1.8009
	Hem	7.8	78.0	13.0	91.0	1.8595
	Isch	29.8	351.8	88.8	440.6	2.2671
	NS	39.4	388.0	211.6	599.6	2.0318
	TIA	22.4	75.8	24.4	100.2	0.7540
Kingston General Hospital	Total	310.8	3731.2	2084.2	5815.6	3.1083
	Hem	65.0	966.2	542.0	1508.2	4.8950
	Isch	195.4	2473.6	1473.6	3947.2	3.0235
	NS	16.0	136.8	17.0	154.0	1.3031
	TIA	34.4	154.6	51.6	206.2	1.0531
Perth and Smiths Falls District Hospital	Total	53.4	539.0	217.2	756.2	1.8433
	Hem	2.2	38.0	25.8	63.8	3.7302
	Isch	3.4	46.8	28.0	74.8	3.1637
	NS	33.8	404.0	163.4	567.4	2.0801
	TIA	14.0	50.2	0.0	50.2	0.6545
Quinte Healthcare Corporation	Total	215.6	1378.0	759.8	2137.8	1.6192
	Hem	20.2	159.6	65.0	224.6	2.1449
	Isch	71.0	503.4	302.4	805.8	1.9834
	NS	88.0	582.0	353.4	935.4	1.5563
	TIA	36.4	133.0	39.0	172.0	0.7687
LHIN Total	Total	701.8	6721.2	3509.2	10230.6	2.3252
	Hem	97.0	1249.2	647.8	1897.0	3.9760
	Isch	308.2	3468.0	1935.2	5403.2	2.6920
	NS	181.8	1551.8	792.8	2344.8	1.7496
	TIA	114.8	452.2	133.4	585.6	0.8570

Appendix B

Summary of cost estimates, sources and adjustments copied from the 2012 OSN Impact of Moving to Stroke Rehabilitation Best-Practices in Ontario report.

Data Point	Value	Source	Adjustments
Acute care bed day – Ischemic Stroke (ICD-10 codes I63,I64)	$591.52	Ontario Case Costing Initiative CAT tool	Inflation
Acute care bed day – Hemorrhagic Stroke (ICD-10 codes I61,I62)	$576.64		
Acute care bed day – TIA (ICD-10 code G45.9)	$656.58		
Inpatient rehabilitation bed day	$603	RPG stroke values (2008)	Inflation
Inpatient rehabilitation salary (PT)	$104,057	2014 OPSEU central collective agreement wage grid	None
Inpatient rehabilitation salary (OT)	$104,057		
Inpatient rehabilitation salary (SLP)	$110,004		
Inpatient rehabilitation salary (PT/OTa)	$52,080		
Inpatient rehabilitation salary (CDA)	$53,688		
CCC rehabilitation bed day	$561	Estimate provided by Elisabeth Bruyere Hospital, Ottawa	None
Outpatient rehabilitation visit (PT or OT)	$94.33	Parkwood Hospital Outpatient Rehabilitation Program (2010)	None
Outpatient rehabilitation visit (SLP)	$97.80		
CCAC in-home rehabilitation visit (PT)	$117.13	CCAC MIS comparative reports 2011/12	None
CCAC in-home rehabilitation visit (OT)	$139.98		
CCAC in-home rehabilitation visit (SLP)	$141.12	SE LHIN CCAC cost estimate (2010)	None

Appendix C

i

Appendix C: Solutions Identified at by Stakeholders in Overcoming Roadblocks

Acute Stroke Unit Care (ASU)
• Identify specific ASU access points, with fewer sites receiving stroke patients • Requires cross-Regional engagement (broad buy-in) • Identify champions/leaders • Regionalization of standards and processes to support standardization and consistency; use of clinical care pathways and order sets • Educate and build awareness of the importance of ASU care - health care professionals and public
Stroke Onset to Inpatient Rehabilitation Admission by Day Five; Admission to Rehabilitation Seven days/week
• Acute physician support following transfer to rehab to address medical acuity • Medical acuity – care pathways with transitions and benchmarks and staff education • Standards of acuity on rehab unit – communication (to rehab) • Full IPC team 7 days/week • Discharges over weekend • Rehab specific transfer note – functional admission/discharge • AlphaFIM and tools for assessing readiness • "Step down" unit that can handle acuity and rehab together • Mild strokes to community
Regional Standards for Access to Rehabilitation Services (e.g. Triage)
• Bed designation may need to change • Quality Based Funding – prepare; awareness • Transition protocols for physicians – consults; repatriation • For stroke use standardized process for triage using an objective tool (AlphaFIM) • Training and expertise for all staff to deal with increase acuity, job shadowing • More specific criteria for medical stability for rehab (look at Physical Medicine & Rehabilitation) • Education for physicians' understanding of rehabilitation • Standardized process for non-stroke patients (e.g., other)
Regional Access/Triage to Slow Stream Rehabilitation
• Define rehabilitation service standards within Complex Continuing Care (CCC) • Regional standardization of referral systems, including processes, definitions, triage • Equity of funding across region for CCC
Full Interprofessional Rehabilitation Service up to Seven Days per week and Direct Rehabilitation Therapy Three Hours/Day
• Educate senior leadership and physicians about change • Inpatient and Day Rehab 7 days/week • 7 day interprofessional treatment plan • Aligning funding with best practices (Quality Based procedures) • Consider innovative service delivery models, incorporating rehab assistants • More groups on weekend, innovative weekend schedules • Creative collaboration amongst therapies, rehabilitation assistants and nursing • Family participation and education to build confidence and readiness for discharge
Equitable Regional Access to Community Based/Day Rehabilitation Programs
• Equitable access to Day Rehab Community Services • Describe/define rehabilitation; achieve consistency in admission criteria; service delivery; common service

delivery models; improve communication between facilities and teams • Need for regional rehabilitation advisory with LHIN and Senior Executive engagement • Build expertise of community providers, best practice education opportunities • Systems/policy change for base / consistent, evidence-based funding models • Building community capacity and primary care capacity • Early information to patient about community services • Direct referral to Day Rehab, improve efficiencies/assessment • Facilitate access/transportation to rehab centres
System Navigation and Linkage to Community Service
• System navigation and linkages to community throughout the patient journey (i.e., appropriately linked in community, they do not return to hospital) • Earlier, dedicated, continuous system navigation for community services, e.g. navigation pathway • Introduction of community services into the hospital setting to support early discharge • Need for a single point of contact for community services/resources • Community needs assessment gap identification • Recommend a LHIN supported strategy to overcome transportation barrier • Need for enhancement and sustainment of peer support groups